# Formalization in high-technology ventures

**Ingela Sölvell**


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Distributed by:
EFI, the Economic Research Institute at the Stockholm School of Economics
P.O.Box 6501, SE-113 83 Stockholm, Sweden
Phone: +46-(0)8-736 90 00
Fax: +46-(0)8-31 62 70
E-mail: efi@hhs.se

# *PREFACE*

This report is a result of a research project carried out at the Centre for Entrepreneurship and Business Creation (E) at the Economic Research Institute at the Stockholm School of Economics.

This volume is submitted as a doctor's thesis at the Stockholm School of Economics. As usual at the Economic Research Institute, the author has been entirely free to conduct and present her research in her own ways as an expression of her own ideas.

The institute is grateful for the financial support from Stockholm School of Entrepreneurship, SSES, and VINNOVA, which has made it possible to fulfill the project.

Filip Wijkström

Director of the Economic Research
Institute at the Stockholm School of Economics

Carin Holmquist

Director of the Centre for Entrepreneurship
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EFI, Box 6501, SE-113 83 Stockholm, Sweden • Website: www.hhs.se/efi/
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To my mother, Gulli Seger-Jensen

## ACKNOWLEDGEMENTS

I have been taking academic courses throughout my working life, always tempted by attaining new knowledge. To become a doctoral student did not seem a great step to take. At the time of the decision I worked in the interface between academia and industry at Marketing Technology Center, MTC[1]. The decision to write a thesis was most tempting due to the comfort and stimulation I found among the academics I met. Many long-lasting friendships can be traced to my work during the 1990s at MTC. Many of these friends were doctoral students and of the same age as myself. The fact that I was not a doctoral student too was quite confusing to them – I was engaged in their academic interests, I participated in the doctoral student arrangements, not least the parties, and I was married to a researcher at the school. I was included in a most stimulating group of people but was professionally engaged in exchange of knowledge rather than production of knowledge.

Eventually I applied for doctoral studies at Stockholm University, at Esbri. Therefore I would like to address special thanks to Esbri, Professor Björn Bjerke, Professor Frédéric Delmar and Professor Chris Steyaert for enrolling me as a doctoral student. You gave me a solid platform through your sharing of entrepreneurship knowledge and helping me to comprehend the field.

I entered the portals of learning but was soon kidnapped by my family for a stay in Cambridge, Boston, for one and a half years. There I got a solid introduction to research through a number of professors who included me as a doctoral student in their courses. I would especially like to thank Professor Candida G. Brush, Professor J. Richard Hackman, and Professor David M. Hart, representing three different prestigious schools in Boston. You welcomed me to doctoral courses and supported me through the first steps of formulating my research. Rigor was a recurrent aspect that you all alerted me to.

Traveling back and forth to take some courses in Sweden too, I found some very precious friends at Stockholm University – Kerstin Mickelsson, Robert Ihrfors and Tommy Larsson. You have been most valuable friends to share research and personal concerns with.

Returning to Sweden I was encouraged by Professor Carin Holmquist at the Stockholm School of Economics and Professor Frédéric Delmar to move to the Center of Entrepreneurship and Business Creation in 2003. I am most grateful and happy with this move and would like to thank you both for being my solid supporters throughout the thesis writing. Thank you for all your careful reading and commenting and for sharing your knowledge and network with me. In

[1] Now part of IFL, the executive education at Stockholm School of Economics.

addition to that, I managed to enroll an old acquaintance from IFL, Dag Björkegren at the Stockholm School of Economics, as my third advisor. I am very happy with this constellation of my committee and getting professional advice through the wide scope of knowledge you represent.

As a doctoral student at Stockholm School of Economics I found the most priceless research fellows that I could wish for. Among the doctoral students Anders and Erik were the first to include me warmly. You have both been wonderful and I appreciate both the academic and social stimulation I get through your company. Shortly after me, additional doctoral students were enrolled and I found myself in the midst of a terrific group of doctoral students mixed with a number of senior researchers and administrative staff. Thanks to all of you – Kalle, Karin, Anna, Elena, Leif, Monica, Frédéric, Johan, Sven, Mikael, Jurgita and Gunilla – for your support and social stimulation during my studies as wonderful colleagues.

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As has become apparent, this thesis would not have been achieved without the support of many individuals to whom I owe a huge debt of gratitude. I would now like to turn to my family.

First, in the mind of my mother I have overcome the challenge of writing a thesis from the day I was enrolled. To you it has been more a matter of

convincing those I need to convince that I have a thesis to present. Thanks, Mom, for your confidence in your daughter's abilities.

I would like to add that there are three additional persons who embrace the attitude of Mother, my husband Örjan and our children Frida and Christian. On the one hand you have difficulties in understanding my priority of working on a thesis instead of tasting a 'fika', going to the West Coast of Sweden, or joining spontaneous events that turn up. On the other hand you have always supported me in my studies. Frida and Christian, you even offered to write some of the pages at an early stage when you heard that the estimated number of pages would probably exceed 200. Örjan, you have attracted me both as wife and as a researcher, two roles that I have become very confident with. Thank you for being so compassionate and patient with me. Without my family I would never enjoyed the studies as much as I have.

I want to mention some further family members who also have been more confident than me that I would finally produce a thesis. My mother-in-law, Inga-Lisa, in your mind I have always been a researcher. We have even had an argument when I questioned your attitude. Thanks, Inga-Lisa, for all your support, not least in taking care of Frida and Christian from time to time.

Also my father-in-law, Lennart, has seen my research as feasible, even if business economics appears somewhat dubious in the eyes of a medical doctor. I think that what worries you most are future jobs. You have already outlined an alternative plan for me on several occasions after letter and e-mail contacts, as a columnist.

In the closest family I would like to include my brother, Torbjörn, who has been a most stimulating empirical representative through his successful entrepreneurial ventures.

The list of acknowledgements can be made as long as the thesis. It is not possible to express gratitude and thanks individually to all the people who have helped and believed in my work – ranging from unknown reviewers to close friends and relatives. Yet I would like to thank you collectively. Together you have all helped me through the long and hard working days that it has taken to finalize this thesis. I can also promise my family that when I chased you out of the house on the same day we returned from Italy, on August 5, 2008, I was serious when I repeated the old truth that you need to leave me alone because I have to finish my thesis. This time it was true!

Stockholm, September 28, 2008

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## INTRODUCTION

Formalization, the principal topic of this thesis, is about organizing activities with the intention of creating formal structures[2] in new ventures. The purpose is to reconceptualize the formalization process from a new venture perspective.

Successful organizing of new ventures is an essential activity in the practice of entrepreneurship and contributes to economic development. New venture success implies several important functions, where increased employment opportunities are considered as one of the most attractive from a societal perspective. Further, new ventures are incubators of ideas (Hall and Tolbert 2005), or constitute a competitive pressure on incumbent firms to transform (Davidsson 2004). High-technology ventures play the particular role of transforming research into products (Gersick 1994) and act as creators of markets (Sharma and Chrisman 1999). Even if all new ventures face considerable challenges and uncertainty during their establishment, high-technology venturing appears as particularly challenging. It involves several stakeholders from the start and is a costly achievement within a short window of opportunity (Auerswald and Branscomb 2003).

Emergent knowledge suggests that it is beneficial to formalize organizational structures early in high-technology ventures, because it facilitates market establishment and survival in turbulent environments (Baron and Hannan 2002; Sine, Mitsuhashi et al. 2006). In contrast, the dominant view in earlier research with an innovation focus is that new ventures can benefit vis-à-vis established firms from not being captured in formal filtering routines and structures (Henderson and Clark 1990; Katila and Shane 2005). Organizational informality is perceived as a competitive strength to be able to continuously change organizationally (Mohrman and Von Glinow 1990). The contradictory implications leave out both how formalization develops initially, when new ventures are building their organizations, and the process characteristics of formalization. A challenge for increased knowledge about formalization lies in the fact that we know from earlier research within the field of organization theory that, somewhere during the lifetime of an established organization, the need for formalized structures has evolved. Sets of fundamental choices made over time have been identified as underlying existing formal structures, or deep structures, which have been reinforced through additional activities over time

[2] Formal structures refer to a wide range of organizational characteristics that are either documented in writing or declared orally to everyone in the venture. They are treated as separate structural elements rather than overarching systems. The structures sought are widespread, including human resource related structures, the formation of organizational roles, control and support processes, documentation systems, and other identifiable organizational structures.

(Gersick 1991). Research has traced these fundamental choices back to early stages of organizational development, affecting the subsequent development through reinforcing sub-processes (Siggelkow 2002). Furthermore, early intentional formalization is likely to intermingle with repeated behavior that becomes accepted as the formal way of behaving (Eisenhardt and Schoonhoven 1990).

Applying an entrepreneurial perspective on formalization, my study is about the new venture task of building organizational structures of diverse kinds from scratch through organizing activities. Backtracking existing formality gives us an indication about a complex development process that starts early. Yet, instead of adding knowledge through another retrospective study, this thesis focuses on formalization as an evolving organizing process through exploring its evolution. With recent research contributions on formalization in the context of high-technology venturing, it is chosen as an appropriate context for reconceptualizing formalizati

## EARLIER STUDIES OF NEW VENTURE FORMALIZATION

The best-known way of achieving successful exploitation of new ideas is namely through firm-individual organizing activities within new organizations (Gartner, Bird et al. 1992; Shane and Venkataraman 2000). In line with that, theorists within the field of entrepreneurship have stressed the importance of a variety of organizing activities enabling the establishment of new organizations (Carter, Gartner et al. 1996; Lichtenstein 2000; Gartner and Carter 2003; Lichtenstein, Dooley et al. 2006). Further, a legally registered new venture is a formal outcome of organizing start-up activities. Thus, in one sense organizational formalization commences already with the founding of a new legal organization, but subsequent organizing activities have raised less attention.

Nonetheless, once legally formalized, new ventures strive for organizational stability and market establishment. The day-to-day activities of running the venture replace the intensity of diverse organizing activities to get started (Carter, Gartner, Reynolds 1996). Increased intra-organizational formalization has been identified as part of several parallel challenges that a new venture faces after the legal start-up (Davidsson and Klofsten 2004). Thus, “to start a new business is one thing; staying in business is another” (Bouwen and Steyaert 1990:638).

Organization theorists have suggested that already with the first recruitment the entrepreneur perceives a need for introducing organizational mechanisms for

different purposes (Mintzberg 1979). Such mechanisms facilitate social interaction and the division of work. The logic of creating formal organizational structures is an extension of the logic of establishing an organization with the aim of achieving an organizational goal through collective efforts. But the creation of enabling formal structures is not perceived as a pressing matter within the field of organization theory. New ventures are therefore treated as functionally outlined in an informal way, without much elaboration (Mintzberg 1983) or formal structures and routines (Baker, Miner et al. 2003; Katila and Shane 2005). This simple form relies on a top manager who is responsible for decision-making and the coordination of all other individuals (Burton and Obel 1995). It has a loose division of labor and a small number of managers (Mintzberg 1989). Accordingly, organizational formalization is assumed to be postponed until operational stability is achieved (Crossan, Lane et al. 1999), or is necessitated by growth (Churchill and Lewis 1983; Fombrun and Wally 1989; Storey 1994), or if the organizational responsibilities are not taken by the top manager (Burton and Obel 1995). That new ventures remain without formalization activities unless this happens remains a dominant view within the field of organization theory.

Adding to the above arguments, increased knowledge about formalization in new ventures is impeded by the often dichotomous approach in research to organizational formality and informality (Morand 1995). The effect is that when new ventures typically are characterized as informal, it is simply assumed that there is no formality at all, and formalization is nonexistent.

Yet an emergent stream of research on formalization addresses it differently as an early intentional process in new ventures (Baron, Hannan et al. 1996; Baron, Burton et al. 1999; Baron, Hannan et al. 1999; Sine, Mitsuhashi et al. 2006). It is in this stream of research, which emanates primarily from intra-organizational ecology[3] and an empirical focus on high-technology ventures, that my investigation takes a point of departure. Preceding an introduction of some contributions by organizational ecologists, new venture formalization in this thesis will be briefly contextualized.

## FORMALIZATION IN THIS STUDY

The figure below illustrates three shapes adopted during high-technology venture development. The first circle is simply an illustration that a legal unit has been created, a formal step as presented earlier. Following an

[3] Intra-organizational ecology is alternatively expressed only as organizational ecology to simplify the language.

entrepreneurial logic, that achievement has probably been preceded by intense organizing activities of diverse kinds.

Derived from a population study of Swedish high-technology ventures (Delmar and Sölvell 2005a), certain venture milestones like patenting, proof of evidence, attraction of external capital, a professional board, the first product, and reference customers are then achieved during the first years in operation. Initial characteristics like organizational roles and functional division of labor are consequently likely to exist among the initial employees. Hence, from legal establishment onward, new ventures can be expected to pursue some kind of operation driven formalization in parallel with suggested informal repetition of behavior that becomes permanently formalized (Eisenhardt and Schoonhoven 1990) (Eisenhardt and Tabrizi 1995). Additionally, all organizations are exposed to enforced formalization for legal reasons, to adapt to employment laws or industry standards, or other exogenous requirements. Yet it is reasonable to assume that independently of what kind of venture is focused upon, and even if market establishment has not been achieved, high-technology ventures are exposed to a need of formalization for particular reasons.

A main reason is that high-technology ventures are launched on the basis of technical inventions or innovations. Yet innovation-based venture ideas are not equivalent to business opportunities. Exploitation commonly entails substantial development (Bhave 1994; Toole 2003). Set into perspective, it implies that new high-technology ventures may potentially introduce innovations on the market, but face great challenges as pioneers (Sharma and Chrisman 1999). Obstacles to building their organizations have been suggested as one of the constant challenges (Gersick 1994).

Figure 1. Three shapes of organizational form in high-technology ventures

The amoebic[4] figure in the middle is the center of my attention. It represents ventures that after some time change their strategic focus from focus on transforming the initial venture idea and other first challenges towards a commercially focused organization. Organizational refinement is needed to

[4] Amoebic signifies that the organizational structuring work has only taken a simple form.

coordinate increased interaction and overcome new operational challenges collectively (Fontes 2005)

High-technology ventures characteristically they involve several competences and stakeholders from the launch. As stated, the initial focus is on transforming the venture idea into products. A high-technology venture is constituted by diverse individual experts, who embody tacit knowledge needed to transform new venture ideas into commercial ideas (Pavitt 1991; Fontes 2005). The common initial domination of technological/scientific employees pursuing product development is vital to complement in order to succeed with commercialization (Van Looy, Debackere et al. 2003). Common interests and a shared vision maybe perceived by the organizational members as sufficient organizing principles initially (Crossan, Lane et al. 1999). Yet initial structures may not match upcoming operational challenges during establishment[5], or the need for processing acquired knowledge (Crossan, Lane et al. 1999). The first attracted individuals are likely to feel engaged due to a shared vision of the venture idea. When the venture activities increase, this basis for engagement needs to be translated into organizational roles to enable increased interaction. In addition, employee needs for coordination and clarity increase when new venture goals are set up. It can further be expected that external stakeholders push organizational formalization, to enable fast venture success.

Altogether, organizational formalization and the need of formal structures seem to increase in priority. Leaving the project based organization behind, formalization is activated in relation to a new division of work, and new organizational roles are outlined. New structures are initiated to enable increased internal and external interactivity and the accumulation of organizational knowledge (Crossan, Lane et al. 1999).

However, high-technology ventures face a particular dilemma regarding increased formalization of structures. As suggested above, they are in need of structures to stabilize organizationally and facilitate continued development. Yet operational turbulence and ambiguities about how to progress leave them without a stable base to formalize structures from. These uncertainties refer to a central aspect of entrepreneurship and commercialization of new ideas through organizing, i.e. taking actions to overcome challenges to getting established (Duchesneau and Gartner 1990; Gartner and Carter 2003). It connects with an earlier suggestion that the amoebic position described is a particularly delicate phase (Bouwen and Steyaert 1990). Research focusing on mortality threats suggests that this adolescence period is particularly challenging (Brüderl and

[5] To get established alludes to getting market recognition, which could be achieving an Initial Public Offering (IPO), reaching a revenue level where the risk of failure due to the financial situation is overcome, or the like.

Schüssler 1990). Hence, even if attracted financial resources have enabled human resource attraction, and despite the success of several initial milestones, a new high-technology venture comes to a point where sales beyond reference customers have to be proven. With an amoebic shape, the venture appears as a wannabe related to establishment and growth. Formalization is focused upon as an important activity to achieve that. Irrespective of what shape the structures take, knowledge about how formalization is pursued at this delicate point is insufficient (Baum and Oliver 1991).

The central shape illustrates a knowledge gap to existing knowledge that mainly refers to the first and last shapes of an organization, which is nascent entrepreneurship and formalization as a strategic issue once an organization is on a growth path. The specific activities and detailed characteristics of formalization in young individual venture contexts remain to a large extent unexplored. In line with calls for contextualized organizational approaches to understand entrepreneurial behavior (Ucbasaran, Westhead et al. 2001), the micro-level activities through different actors connected with formalization are given their own attention through my process investigation. The guiding research question for investigating formalization is:

*How does formalization develop in young high-technology ventures*?

This brief introduction will be followed by a theoretical positioning and development of the research question in the following chapter.

# 1 HOW TO INVESTIGATE FORMALIZATION

Different approaches to formalization in new ventures appear through the literature. Yet knowledge about how organizational formalization is pursued in high-technology ventures is insufficient. It is a knowledge area dominated by instrumental perceptions of formalization through retrospective studies of established firms that have passed several growth stages. A classic study on small firm growth (Churchill and Lewis 1983) argued for a need to differentiate between organizational development of small and established firms respectively. Yet most new ventures remain small or grow very little, and organizing through growth stages restricts focus to a few which succeed with this.

## LIFE CYCLE THEORY

Even if a distinction between small and large firms is made, the underlying reason for increased formalization from a life cycle perspective, actual growth, (Churchill and Lewis 1983; Fombrun and Wally 1989) remains. It does not capture new ventures that struggle for years to get established, those that fail, or those that remain small or grow in small steps, or reveal those that subsequently create competitive advantages through overcoming organizational challenges.

Theorists within the field of life cycle theory are mainly concerned with optimal designs at different stages of a life cycle of an organization. The argumentation is based on a linear assumption that with growth or age follows an increased number of employees or interaction partners that in turn causes action for a more formalized organizational structure – management based structures (Barnett and Carroll 1995). The initial stages identified in new ventures are not elaborating on the formalization process (Hanks, Watson et al. 1993). A first stage of development is simply related to as birth, which is characterized by informality (Churchill and Lewis 1983). This stage seems to remain until the next stage occurs as a growth stage actualizing formalization (Miller and Friesen 1980).

Hence, activities during a specific growth phase are not of prime interest. It is the time when the new phase occurs, causing a managerial crisis, that is the center of interest (Greiner 1972). What managerial capacity is needed at the transition between different expected stages of development is an essential question, rather than the process of emergence of organizational characteristics. The result is that in spite of the substantial body of empirical research done in retrospect from a life cycle perspective, organizational development from the legal launch to substantial growth in new ventures is not very detailed on the

dynamics during its course (Plowman, Baker et al. 2007), or on details within different stages.

## INSTITUTIONAL THEORY

From an institutional perspective formalization is clearly considered as an early organizing activity in new ventures for legitimacy reasons. This view can be derived from a widespread suggestion that new firms suffer from liabilities of newness, due to lack of structural refinement (Stinchcombe 1965). Institutional theorists suggest that formalization is relatable to the external context of formally established organizations and other environmental institutions (Blau and Scott 1962; Baum and Rowley 2002). Established constituents infuse values and direct new ventures towards replication, because they need to behave in consistency with existing structures (Meyer and Rowan 1977; Aldrich and Fiol 1994). Referring back to mortality threats, to oppose or ignore institutionalized ways of organizing (Mintzberg and Waters 1985) is considered to be risky to new ventures (Shepherd, Douglas et al. 2000). Legitimizing formalization has therefore been treated as a strategic matter of new ventures from both a management perspective and an institutional perspective (Pfeffer and Salancik 1978; Suchman 1995).

A fundamental assumption underlying an institutional perspective is that organizations have given and clearly identifiable institutional environments (DiMaggio and Powell 1983). However, the institutional environment of a high-technology venture remains diffuse during its first years in operation. New high-technology ventures, in contrast, need to target several industries in different geographical areas to identify a profitable market niche. Another problem with the institutional perspective is that it is taken for granted that replication is possible (Galunic and Weeks 2002), without regard to the mode of achieving this, or to the appropriateness in new ventures of implementing existing modes of organizing. Some contributions to high-technology venturing illustrate that it is an implementation which requires substantial adjustment (Suchman 2000) to add value to young ventures. An additional problem is that it ignores an expected interplay between internal and contextual factors (Pettigrew 1997). As suggested above, operational needs of formalization are expected to increase during market establishment, but they are not taken into account from an institutional perspective.

## ENTREPRENEURSHIP THEORY

Derived from the field of entrepreneurship, it is suggested that operation-related formalization is activated at a small size. Entrepreneurship theorists, distinguishing between micro- and small enterprises, report that micro-ventures undergo a notable shift in organizational formality when they increase their customer interaction and human resources from 10 to 20 employees (Bouwen and Steyaert 1990; Storey 1994; Shepherd and Wiklund 2005). Substantial evidence from the field of organizational ecology presents in the same vein that high-technology ventures develop early formal structures of different kinds. They identify in particular the founding conditions that influence the organizational formalization in new ventures (Baron, Hannan et al. 1996; Burton 2001; Baron and Hannan 2002), not least through the implementation of formal employment models.

The understanding we get from the text so far is that new ventures are considered to be mainly informally organized according to organizational theorists. They intentionally formalize some kind of structures for legitimacy reasons during their nascent stages, but those are mainly superficial characteristics. Another understanding is that formalization is an occupation of the entrepreneur or venture management. It is only recently that research attention to formalization beyond the legitimacy and management perspective has developed. As indicated, a developing strand of research within the field of entrepreneurship is emerging inductively. These contributions extend earlier research about formalization by slightly moving the focus from formalization as a dedication of management towards involvement of additional actors and the particular dimensions underlying the earliest formalization attempts. Some emerging dimensions of importance to extend our knowledge about formalization in the context of high-technology ventures will be presented in the next paragraph to position my theoretical departure.

## THEORETICAL DEPARTURE IN THIS STUDY

One aspect relates to a modified view of how to organize in turbulent environments (Sine, Mitsuhashi et al. 2006). Another approach has established in retrospect that core processes in a successful company were formalized already during the first four years in operation (Siggelkow 2002). Additional research highlights formalization from a perspective of human resources (Beverland and Lockshin 2001), and of potential benefits in new organizational contexts (Vlaar, Van den Bosch et al. 2006). As mentioned above,

entrepreneurship theorists have established that there is an early challenge in organizational building already when new ventures have passed the number of ten employees (Bouwen and Steyaert 1990; Wiklund and Shepherd 2005; O'Mahony and Ferraro 2007) and the initial mode of organizing is changing.

## Intra-organizational ecology

The most coherent current body of research about formalization in high-technology ventures with at least 10 employees is presented by intra-organizational ecologists[6]. With a long history of investigating evolutionary processes on a population level of analysis, organizational ecologists[7] have made several contributions from SPEC (**S**tanford **P**roject on **E**merging **C**ompanies)[8] on a venture level. The SPEC studies present formalization as an intentional pro-active behavior with the purpose of increasing survival chances and performance.

The idea that formalization of human resource-related structures is embedded in individual organizational contexts and primarily concerns people within a social unit (Baligh 2006) is developed. Several contributions are derivable from formalization of employment models (Baron, Hannan et al. 1996; Burton 2001; Baron and Hannan 2002; Hannan, Baron et al. 2006). The clear firm individual formal employment models identified are all established as beneficial to survival or performance during the early years of high-technology ventures (Baron and Hannan 2002). Ventures that do not have a clear individual model are exposed to the hazard of failure.

Organizational ecologists advance knowledge without denying that formalization can be created for the specific purpose of increasing external legitimacy. Appearance of structures is related to founding conditions, in particular the influence of founders' mental models, to explain organizational variation across ventures that are seemingly similar (Burton 2001). Some additional founding related aspects that are identified to evolve are initial team composition and the proliferation of managerial intensity (Baron, Hannan et al.

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[6] In the following, intra-organizational ecologists, or theorists within the field of intra-organizational ecology, or simply organizational ecologist, are terms used to vary the language. The prefix 'intra' is important to distinguish the studies drawn on in my work, which are derivable from individual firm investigations within the SPEC project. It distances the traditional population level of analysis connected with these theorists as population ecologists –The studies differ from traditional ecological studies regarding topics and the data gathered.

[7] When organizational ecologists are referred to in the following, I have the SPEC studies in mind. See the note below.

[8] SPEC, Stanford Project on Emerging Companies, is a panel study examining the founding conditions, the evolution of employment practices, organizational designs, business strategies, and the longer-term consequences of early organization building in high-technology ventures located in Silicon Valley. In line with how additional research has used a collective acronym for several studies emerging from this project (Baron 2004), I refer to them as SPEC.

1999; Baron, Hannan et al. 2002), the development of organizational policies and positions (Baron, Burton et al. 1999), and consequences of changing intentionally created structures (Hannan, Baron et al. 2006). These contributions are taken as a main theoretical framework because they demonstrate several important dimensions related to my intention of increasing our knowledge about how formalization in young high-technology ventures develops.

One is the influence and pro-activity of founders[9]. Pro-activity has been suggested as an essential dimension to understand how entrepreneurs rely on their individual judgment to pave their way forward under great uncertainty (Lumpkin and Dess 1996). It alludes to a second aspect which is individual intentionality. To understand their pro-active behavior SPEC suggests that founder mental models influence early organizational building, resulting in venture individual models of organizing. Mental models refer to script or cognitions that underlie decision-making (Fligstein 1987)[10].

Furthermore, the studies indicate what kind of outcomes can be expected from early formalization. Among the dimensions related to the formalization process outcomes are essential to understand formalization (Hall and Tolbert 2005). In the continuation SPEC also adds to our understanding of the role of the outcomes and the effects of changing them. Summarizing, the contributions include three important dimensions – actor perceptions[11], outcomes, and consequences of formalization. All aspects are primarily related to intra-organizational conditions.

Adding knowledge to these contributions, my work focuses on how formalization develops through a micro-level perspective. Moreover, the SPEC researchers have been seduced by countable measurements, which were long ago suggested as a danger to increased knowledge about entrepreneurship (Bygrave 1989). Formalization is directly related to firm performance and other countable and measurable characteristics. The contributions leave out the dynamics of the formalization development, yet reveal what can be expected to exist when my investigation is launched,

Instead of relating my investigation to venture performance in financial terms and approaching formalization as a static concept, my research takes a process perspective, assuming that some formalization, like employment models has already been developed. Thus, the contributions from SPEC are primarily considered as important in order to understand antecedents of previous decisions. As such, they inform about the conditions from which continued

[9] Founder refers to the person (alone or part of team) who launches the legal venture and takes a CEO position.
[10] Blueprint is the term applied in the SPEC studies.
[11] Refers to mental model influence.

formalization is pursued. Processes that are excluded in SPEC have become the dominant way of capturing occurrences rather than states (Pettigrew 1997). They encompass individual activity embedded in contexts that are both shaped by and shaping the action. Hence, formalization is approached as a dynamic multidimensional process in this thesis. The involvement of different actors and outcomes as formal characteristics is sought to understand the development as fully as possible (Pettigrew 1997). However, with a primary focus on the creation process and its identifiable outcomes, consequences of increased formalization are delimited in my investigation.

With my intention to extend emergent knowledge about formalization, I extend the founder influence by applying a venture level analysis. Some essential dimensions related to a venture level approach are thereby possible to include. They are derived from research within the field of entrepreneurship.

### *The need for a venture level investigation to understand formalization*

A venture level approach encompasses multiple actors, their activities and a wide range of formalization outcomes. It is considered as essential to extend emergent knowledge on formalization beyond the founder or venture executive perspective.

In SPEC the influence of founders and founder-based models is not contextualized. Related to earlier critique of population ecologists relying too much on statistical analyses to predict the birth, survival, and death of new organizations (Bygrave and Hofer 1991), SPEC does not narrow down firm individual aspects or multiple actor involvement.

My study increases our understanding about formalization in new ventures from a micro perspective where events, activities and actor engagement can be revealed. This approach includes the fact that endogenous or exogenous factors influence the process development and an expected variety of outcomes. Together they constitute a venture level perspective (Davidsson and Wiklund 2001). The results will reflect venture approaches through multiple levels of analysis.

## Multiple actor inclusion

One actor group that extends earlier research dominated by a management approach is employees. To work in an organization takes up much of the life of individuals, but has to be delineated from other social contexts that are part of

daily life (Aldrich 1999). Formalization has relevance to individual employees in two ways. It can be expected to influence how employee behavior is influenced and directed toward mutual organizational goals, as implied through the different employment models that the initial SPEC studies outlined (Baron, Hannan et al. 1996; Burton 2001). Beyond that, there are indications from intra-organizational studies that employees too are active in the formalization process (Bouwen and Steyaert 1990; Brytting 1991; Vlaar, Van den Bosch et al. 2006), and are not only the targets of the process. Thus, formalization relates to all organizational members.

This assumption connects with the collectivity of pursuing high-technology venturing, which has been suggested to be a condition for success (Auerswald and Branscomb 2003; Garud and Karnoe 2003). Multiple skills are needed, spanning over the venture borders. Operational involvement by external industrialists is therefore likely to happen in new high-technology ventures (Suchman 2000).

External stakeholders may be more or less important to the development, depending on how the scientific and industrial structure is composed (Toole 2003), yet they are regarded as relevant actors to include in relation to organizational formalization. Not least venture capitalists show great concern regarding the organizational and human resource development of the ventures they have invested in (Kaplan and Strömberg 2000; Hellman and Puri 2002). With the assumption that formalization is not solely related to firm individual founders or firm executives, additional organizational actors, such as employees and external stakeholders, are included in this investigation.

## A wide range of formalization outcomes

Another aspect related to formalization concerns the formal structures evolving as outcomes. The employment models identified in SPEC are related to traditional conceptualizations of structural characteristics (Pugh, Hickson et al. 1963; Pugh, Hickson et al. 1968). Accumulated structural characteristics indicate to what degree organizational behavior is prescribed or restricted through written documents. Following on the Pugh and Hickson studies (1963, 1968) this remains as a characterization. The structures presented in SPEC studies give an important pre-understanding of what can be expected of formalization outcomes, because they are derived from young high-technology ventures. They are included in order to understand the process as fully as

possible; however, they do not give much guidance to details about the outcomes.

Therefore, extending the dominance of employment models as formalization outcomes my investigation allows additional structures to appear. It implies that some intentional formalization activities can be discovered to be inherently discontinuous and open-ended, instead of cumulative and linear resulting in clearly identifiable outcomes. Structures are expected to be provisional, similar, close to or different from traditional measurements of formal structures focusing on hierarchical levels, span of control, administrative intensity and similar organizational characteristics (Pugh, Hickson et al. 1963; Pugh, Hickson et al. 1968).

Taken together, the contributions of intra-organizational ecologists constitute an essential part of my theoretical framework. However, to get guidance about process dimensions, the contributions from SPEC are insufficient. Additional contributions, like the work of Stinchcombe (2001) on the abstraction process of formalization, and other selected work from the entrepreneurship field that treats process aspects, have complemented my framework. Some initially derived assumptions underlying this study will be introduced below.

### *Formalization and venture performance in this study*

The actors suggested above pursue activities that generate outcomes. However, to synthesize different dimensions of the formalization concept, particular attention will be given to rationales underlying formalization, i.e. diverse beneficial outcomes of formalization, explaining why it is pursued.

My focus on formalization and its outcomes reflects a well established view that, without formalized concepts for behavior, an organization is easily exposed to experiencing vagueness, confusion, and implicit contradictions (Barnard 1968). It has further been suggested that all social systems need some kind of bureaucratic order to manage coordination and increase of scale, simply to sustain through continuous learning (March and Simon 1993). Continuous learning exemplifies a need for structures that enable dissemination among employees so that they act in unity targeting mutual organizational goals. Besides the enabling aspect, it was suggested earlier that there is a generic need from the first employee onward to implement structures for facilitating division of labor or information processing intra-organizationally, and to handle increased external interactivity, all vital dimensions during venture establishment.

On a more detailed level of analysis, we learn from the empirical context of alliances and external partnership what particular benefits can be gained. It is depicted as a way to cope with problems of understanding between individuals in new partnerships (Vlaar, Van den Bosch et al. 2006). Organizational formalization increases trust and understanding between individuals (Doz 1996; Blomqvist, Hurmelinna et al. 2005; Vlaar, Van den Bosch et al. 2006). It stimulates interaction at the same time as it focuses attention. Transferring this understanding to a new venture context, all potential gains of formalization appear attractive, enabling individual interaction in different ways towards mutual venture goals.

My perspective on performance differs from that of organizational ecologists. They suggest enhanced financial performance and faster success through an early IPO[12] (Hannan, Baron et al. 2000). My micro-level perspective treats enhancement in line with the suggestions above, like increased focus, coordination, organizational stability, and efficient information processing.

### *Formalization and information processing*

The particular dimension of information handling has been touched upon as vital to new ventures and their continued development. New ventures often start from identifying an opportunity due to information asymmetry, which needs to be handled also subsequently. Information asymmetry can call for formalization (West 2003). Structures for information processing in an organization facilitate decision-making despite uncertainty and ambiguities in a constant information flow (Cyert and March 1963). Organizations create routines and structures to be able to handle conflicting logics of interpretation of information. From my intra-organizational perspective, information processing is of two kinds. First, it is essential to internalize external information to develop the venture idea in a competitive manner. This could be knowledge about diverse interests among different potential customers. Such knowledge is vital to process internally to be able to direct initial scarce resources towards market niches that appear most attractive. Second, practice-related knowledge that subsequently develops is fundamental to the development of the venture offer. If formal structures for processing information handling and learning are created, operations can ultimately be improved (Crossan, Lane et al. 1999; Garrouste 2002). The implication is that formalization of information-processing structures is vital, but without informing us about how such structures are formalized.

[12] IPO refers to initial public offering.

## The importance of formalization in new ventures

The text so far indicates that formal structures are created in high-technology ventures for different reasons at early stages. It carries an underlying suggestion that formalization is needed in a short- and a long term perspective, on an individual level and on an interaction level. The suggestions are all related to employees as the vital and often rare resources of knowledge-intensive firms for achieving exploitation (Yoo, Boland et al. 2006). The SPEC studies bring forward employment models as central to the subsequent development for all kinds of structures (Baron, Hannan et al. 1996). Yet as information processing is presented above, it appears equally central to new venture formalization. Information processing overlaps with continued innovation capacity and efficient interaction both internally and across organizational borders. The likelihood of formalization being pursued in new ventures is connected with the prevalent enabling aspect. This is supported by the argument that high-technology ventures have a capacity of making use of emergent structures during execution (Baker, Miner et al. 2003). Yet the development is pursued with great uncertainty about future outcomes.

Consequently, no ranking in importance is made in my approach to formalization. Numerous kinds of structures are important in knowledge intensive firms (Anand, Gardner et al. 2007). The creation of particular outcomes, appearing at particular points in time, is important to identify because they seem to become integrated in such a way that they are not radically changed or discarded without risk (Baron, Hannan et al. 1996; Baron, Burton et al. 1999; Baron, Hannan et al. 2001; Burton and Beckman 2007). Also, formalization appears closely related to individuals engaged in high-technology venturing.

Reading from the above dimensions, increased knowledge about formalization in ventures during their early years is essential to extend, because the process carries multiple rationales and takes different shapes over time. Increased knowledge about formalization is an essential concept in order to understand new venture organizing where the organizational characteristics are created.

# RESEARCH FOCUS

From the exposition thus far, formalization emerges theoretically as a micro level process that is highly relevant to apply in further research to increase our

understanding about the earliest stages of organizational building. Summarized, the previous sections make clear that

- Formalization is multidimensional
- Continued research on formalization has to be distanced from the dichotomy of informality and formality in new firms versus established firms
- Formalization has an enabling effect in new organizational contexts
- An emergent research stream on formalization recognizes that some kinds of formal structures are implemented initially and have a tendency to endure
- Formalization is a fundamental concept for understanding organizing activities during establishment of high-technology ventures
- Knowledge about how formalization relates to micro-level development in individual ventures remains sparse
- Present knowledge can be extended by contextualized process dimensions

Evidently, our present knowledge about early organizational development is insufficient and the concept of formalization is appropriate for adding new knowledge inductively. In particular, by including multiple actors and process dimensions in firm individual contexts, new knowledge beyond static descriptions of new ventures can be added. Formalization is related to intra-organizational ecologists' interest in the earliest organizational building, which stabilizes the venture structurally and enables market establishment (Hannan, Baron et al. 2000). Through contextualized specific knowledge about how formalization appears at early stages of venturing, we ultimately improve our understanding of how initial organizational challenges are overcome.

## Purpose and research questions

The purpose of this investigation is to reconceptualize formalization from a high-technology venturing perspective. It will be done through a contextualized description of the process development. The description includes different actors, their perceptions, their activities, and influencing venture events. Different kinds of organizational outcomes are expected. Some may already exist and be prone to refinement or replacement. Others may be new to the venture and evolve during the investigation period.

As stated in the introduction, the main research question guiding this thesis investigation is:

*How does formalization develop in new high-technology ventures*?

In view of the text above, it can be specified through the following sub questions:

- What kind of formalization has been created from the legal launch?
- How do multiple actors influence the process through their activities and reasoning about formalization?
- What internal and external contextual factors influence formalization?
- What kind of outcomes can be identified through formalization in high-technology ventures?

## *Initial assumptions underlying this study*

My approach allows formalization to emerge in different ways. Aligned with this, my theoretically derived assumptions underlying the investigation are presented below in relation to established research.

Table 1. Formalization in this study's approach in relation to earlier research in new ventures

| | **Earlier research** | **This study** |
|---|---|---|
| 1. | Informality prevails in new ventures and is advantageous | Formalization is ongoing intentionally or unintentionally from legal establishment |
| 2. | Formalization of superficial structures is created for increased legitimacy | Formalization is activated early for different purposes in high-technology ventures |
| 3. | Formalization of structures is an instrument to handle increased organizational complexity (growth), and replaces informality | Increased formalization in new ventures does not assume replacement of informality |
| 4. | Formalized structures are in place when formalization is focused upon | Extends knowledge about formalization as a multidimensional process and creation of diverse structures from early stages of venturing |

The first assumption is derived from observations by intra-organizational ecologists that formalization is pursued intentionally from the earliest stages of high-technology venturing. Yet as presented, informal formalization can emerge

also without such intentionality (Eisenhardt and Schoonhoven 1990; Eisenhardt and Tabrizi 1995). My first assumption contrasts with established research on formalization, in particular from a contingency and innovation management perspective, celebrating the advantage of informality. It complements retrospective descriptions from a life cycle perspective of the earliest stages of an organization, which underline simplicity, even if the venture business has gained in legitimacy on the market (Churchill and Lewis 1983).

My second assumption includes several reasons for activation of formalization. In the particular case of high-technology ventures, exploitation is suggested to call for increased formalization for operational reasons at early stages (Bouwen and Steyaert 1990; Sine, Mitsuhashi et al. 2006) and related to the ventures' establishment in competitive environments (Mohrman and von Glinow 1990; Ucbasaran, Westhead et al. 2001). Moreover, a taxonomic study of high-technology organizations from a life cycle perspective revealed that such firms deviate from the linear organizational development expected (Hanks, Watson et al. 1993). The main reasons are that they face organizational challenges earlier because they need to progress fast for success, and formalization is part of the organizational challenges at all stages. Foremost, my assumption opposes institutionally derived knowledge which holds that new ventures need formalization only for legitimacy reasons.

The third assumption refers to the expected proportions of increased formalization. Formalization can be perceived as a transformation of an entire organization between two points in time (Barnett and Carroll 1995). In line with that, life cycle theorists (Churchill and Lewis 1983; Kazanjian and Drazin 1990) and organizational theorists (Mintzberg 1983; Tushman, Newman et al. 1986; Burton and Obel 1995) suggest it to be a replacement of informality. Alternatively, formalization is an approach on a micro-level. Positioning my work closer to a subsequent process development (Pettigrew 1987) than radical change (Greenwood and Hinings 1996), it is assumed that the development is in close relation to the venture development (Crossan, Lane et al. 1999). In a longer time perspective, subsequent changes may accumulate and be classified as radical, but that is beyond the scope of this investigation to establish.

The last assumption has a methodological connotation. It extends emergent research on formalization revealing that formalization is an important organizing process in new high-technology ventures for performance reasons (Hannan, Baron et al. 2000; Sine, Mitsuhashi et al. 2006). Recent research shows further that new ventures can be successfully proactive to overcome resource

constraints at the same time as they are structurally rigid.[13] Thus, they are both flexible and rigid at the same time (Gilbert 2005), which may be reflected in the formalization process. My study investigates how formalization is pursued in high-technology ventures by assuming that it is an ongoing process intermingled with informality. This is in contrast to how organizational theorists focus on prevalent informality in such ventures as a competitive advantage (Henderson and Clark 1990).

An *in vivo* approach is considered a feasible way to access process dimensions. Further, high-technology ventures that are not established on a market are targeted as relevant in this investigation to access formalization as early as possible. My fourth assumption implies that new ventures have the opportunity to create their individual formal structures, which explains the venture level of analysis chosen. Having introduced and positioned this thesis theoretically, the research and focus can now be refined.

### *Research approach and delimitations*

My work is a detailed contextualized investigation of different types of activities investigated through multiple actors. Such in-depth understanding contributes to a clearer understanding of early organizational formalization – the development and the challenges related to it. My approach bridges knowledge about formalization created by organizational theorists with knowledge from an entrepreneurship perspective.

Despite the relatively deterministic view of formalization in research by organization ecologists, the results that emanate from their research on formalization in new ventures is considered an important basis for this investigation. As mentioned above, additional research shows that new ventures can be successfully proactive to overcome different challenges at the same time as they are structurally rigid.[14] Thus, they are both flexible and formally structured at the same time (Gilbert 2005). This may be reflected in the character of the formalization process. The framework of organizational ecologists is expected to facilitate and understanding of the context from which formalization is pursued. Hence, the position taken here is that the results provide an important framework for how my process approach can further develop our knowledge about formalization.

[13] Through routines.

Diverse sub processes[15] are explored, rather than formalization as one overarching organizational process directed by management, or as a dichotomous evolution between agency and existing structures (Chiasson and Saunders 2005). The view held here is that different underlying drivers are expected to activate or impede formalization.

Multiple actors are expected to have an interest in, and ability to get involved in, the formalization of organizational characteristics from their individual perspectives. In addition, firm events are likewise considered as important, since they may cause redirection of the process. Thus, differently from a widely held view that founders or the entrepreneurial leader is dominating the decision-making (Mintzberg 1989), it might be that those who drive the process are not at all the process owners. Nonetheless, founders or entrepreneurial leaders of the ventures are considered as the ultimate executors of formalization decisions, irrespective of other dimensions being involved.

Formalization entails a substantial transformation once achieved across the organization. Earlier research suggests that organizational transformation is either incremental or episodic (Eisenhardt and Tabrizi 1995; Weick and Quinn 1999). The magnitude of the transformation or characterization of the process as incremental or episodic is beyond the scope of this investigation to establish. Instead it is the formalization of selective issues through micro-level activities that is considered most relevant in order to fully understand the process development (Pettigrew 1997). Formalization is approached as something that takes shape without establishing degrees of formalization at different points in time.

My approach enables an understanding of both how and why specific organizational characteristics appear, how they are formalized, and possibly how they are implemented (Van de Ven and Huber 1990). Implementation was earlier distinguished from my primary interest, unless it appears important in relation to formalization activities.

In conclusion, to narrow what characterizes formalization of structures in new ventures opens for advancing knowledge about early organizational challenges. This research intention should not be perceived as deterministic or prescriptive, but focuses on reconceptualizing formalization based upon particular emergent structures in individual high-technology venture contexts.

To access formalization as a venture individual development over time, in-depth case studies are applied (Pettigrew 1997). In the analysis dimensions related to several individuals, events and specific issues will be included in

[15] Sub process denotes drivers of formalization referable to specific issues.

giving a firm analysis perspective, due to the expected close relations among these factors (Davidsson and Wiklund 2001). With a focus on young ventures, such an encompassing approach is considered feasible due to the smallness of the ventures.

## AN OVERVIEW OF THE OUTLINE OF THE ENTIRE THESIS

The brief introduction was followed by a refinement of the research question in Chapter 1 and a theoretical positioning of this study.

Chapter 2 specifies theoretically relevant aspects related to the concept of formalization, resulting in a guiding research model. The concept of formalization is central to this model.

In Chapter 3, earlier knowledge about process dimensions related to formalization is thoroughly discussed. That chapter presents two different perspectives on how formalization evolves. First, routines as the basis of organizational formalization are thoroughly discussed. A different aspect of formalization as mainly human resource related is considered through a wide range of earlier contributions. Particular attention is given to the work of organizational ecologists. The flaws in their contributions, as suggested, must be complemented by additional contributions about how formalization can be expected to evolve.

In Chapter 4 my methodological considerations are discussed, including a detailed presentation of the research process.

Next, Chapter 5 introduces the empirical context. The four venture cases studied in depth are presented. Retrospective understanding of the formalization process is presented in this chapter too. It is based on retrospective interviews with ten CEOs during the identification of suitable study objects, including the CEOs of the finally selected venture cases. From that background, the characteristics of the four cases investigated are developed as they appeared when the empirical investigation was launched.

Chapter 6 gives an overview of how certain issues are exposed to formalization during the investigation period. The overview is presented through *highlights* derived from each venture.

In Chapter 7 an empirically driven analysis result in seven second-order dimensions. They are presented with quotations by first-order informants. The chapter is structured through the main dimensions of my investigative model. Each second-order dimension is discussed separately.

The following Chapter 8 is a theoretically driven analytical discussion of my findings. Aspects that have evolved through my empirical investigation are related to earlier research to clarify my theoretical contributions.

In Chapter 9, a conclusion to my findings results in the theoretical contribution of a dual-actor perspective on formalization and a reconceptualization of formalization. It is related to the initial model of formalization introduced in Chapter 2 and the research question refined through different sub-questions.

Finally, Chapter 10 presents suggestions for future research, implications in practice, and limitations in my study.

# 2 A CONCEPTUALIZATION OF FORMALIZATION

An extended discussion about formalization is presented in this chapter. The dimensions of multiple actor involvement and a variety of outcomes were presented with some contextual prerequisites in the previous chapter. Taken together, a provisional model of formalization appears as below.

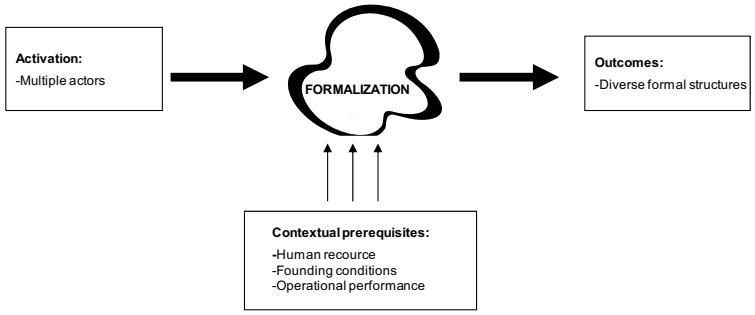


Figure 2. A provisional model of formalization

This model will be further elaborated on in the following. Essential aspects are added from diverse theoretical perspectives that do not always converge. Yet they appear in earlier literature as the most important dimensions to include in further investigations of formalization as a concept.

The chapter is introduced by presenting formalization in a literal sense. Earlier definitions of formalization, as one among several structuring dimensions, are then discussed. It is followed by a presentation of how formalization, in relation to fit and functional aspects, appears through the literature. The chapter ends with an extended discussion of multiple actor engagement in formalization. Together these aspects constitute a basis for refinement of the provisional model above, which ends this chapter.

## FORMALIZATION IN A LITERAL SENSE

Formalization has been given its own rationales in the preceding text, as a fundamental concept of organizational activity to realize new ideas, and as an essential activity for pursuing such exploitation. In this thesis it receives particular attention during market establishment. Applying formalization to a new venture context, the present understanding of the concept is, however, necessary to narrow down the meaning of, since it is so closely related to

established large organizations. Defining formalization in a literal sense, the word "formal", taken from the American Heritage Dictionary,[16] is the first word to be explained in search of formalization. Its meaning varies in the following ways. *Formal* involves outward form or structure, or may be related to essential form or constitution. What is denoted as formal can also be marked by strict observation of forms, or characterized as stiff or reserved. From a behavioral perspective it refers to using accepted forms or conventions. Finally, formality may be for the sake of procedure only. As suggested it is the dynamics of formalization as a process to achieve formality in new ventures that is focused upon. The aspect of form, or to what extent forms – here structures – are used or not, is distinguished from the main focus of this investigation. Likewise, formalization is not expected to be primarily pursued for the sake of procedure.

*Formality* in the same dictionary appears secondly. It is explained as the quality or conditions of being formal, simply a characterization of behavior. Accordingly, much earlier research has treated the degree of formalization in order to understand what is most efficient in different organizations (Hall and Tolbert 2005). More specifically, formality is literally expressed as rigorous or ceremonious adherence to rules. Finally, it can also allude to an established rule or custom. The identification of how individuals conform to evolving formal attributes is of subordinate importance to the processual understanding sought in my work. High-technology ventures that have not yet realized organizational establishment can be expected to have a low degree of formality. The reason is that they have to rely on their flexibility to solve upcoming challenges, and are therefore informal in comparison to standardized production in an established firm (Hall and Tolbert 2005). However, such comparisons must be left aside to improve our understanding of formalization in young high-technology ventures. It is more important to focus on underlying explanations of why young ventures also pursue formalization, how the process evolves, and what the outcomes are. Notwithstanding, some already existing formal attributes will be included in my study. Their history of creation will be backtracked, adding to my contextual understanding of how formalization develops.

*Formalization* in the literal source referred to is then presented as actions taken to achieve formal status or formality, i.e. to make formal, or to give formal endorsement to certain behavior or procedures. In the context of this thesis, formalization is the central construct, despite its close relation to the formal and to formality. However, formalization as a process word has its ambiguities regarding how it can be delimited, especially how it proceeds and what is

[16] In the 4th edition published by Dell Publishing, New York, 2001.

relatable to it and what is not. Furthermore, nothing is indicated about the cognitive aspects underlying the execution of formalization.

Beyond a literal understanding, the ensuing paragraphs position the concept of formalization in this thesis in relation to how it appears in established research. The positioning is made from three perspectives. First, a differentiation is made between structural elements and structuring to clarify the meaning of applied formalization measurements. The concept of fit is then treated: it clarifies underlying reasons regarding decisions about formalization or avoidance of formalization. Finally, different actors have been suggested to be involved in formalization. Each actor group included in my investigation is discussed regarding why they would get involved in formalization.

## FORMALIZATION THROUGH STRUCTURAL ELEMENTS AND STRUCTURING

In established research, a demarcation has been made between countable structural elements and structuring (Pugh, Hickson et al. 1968; Dalton, Todor et al. 1980). *Structuring* relates to policies and activities that both guide and limit organizational behavior. It is expressed in three ways: as specialization, formalization, i.e. the extent to which appropriate behavior is described in writing or as centralization; see the table below for details (Pugh, Hickson et al. 1968; Mintzberg 1979; Dalton, Todor et al. 1980). Neither *structuring* nor *structural* characteristics have a process connotation. My interpretation of the table below is that numerically definable structural elements and degrees of structuring both create comparable bases for understanding how firms differ in organizational formality.

Table 2. A recognized perception of structural characteristics and structuring (Dalton, Todor et al. 1980)

| A delineation between structures and structuring | | |
|---|---|---|
| **Structural characteristics** | Size | Number of employees |
| | Span of control | Number of subordinates reporting directly to a supervisor |
| | Hierarchy | Number of hierarchical levels |
| | Administrative intensity (%) | Number of managers, professionals, and administrative employees divided by the number of operatives |

| A delineation between structures and structuring | | |
|---|---|---|
| **Structuring**[17] | Specialization | Number of different occupational titles or functional activities pursued within an organization |
| | Formalization | The extent to which appropriate behavior is described in writing |
| | Centralization | Locus of authority to make decisions – one or relatively few is considered as central |

Table 2 cont.

Being descriptive, the above characterizations are valuable from an organizational design or change perspective to understand the different elements and overall shape of an organization, because together the dimensions give an understanding of how a firm is organized. As such, structural elements and structuring are applicable measurements in contemporary research.

## The origin of structural elements and structuring

The well-understood elements of structures and structuring among organizational theorists emanate from an even earlier conceptualization of organization structures (Pugh, Hickson et al. 1963; Pugh, Hickson et al. 1968). It is this one that serves as a framework for much contemporary research on formalization (Baron, Burton et al. 1999; Kotey and Slade 2005; Sine, Mitsuhashi et al. 2006).

The conceptualization by Pugh et al. (1963, 1968) was outlined at a time when normative research about how organizations ought to be structured dominated. Empirically based knowledge about how they actually were structured was, however, scarce (Pugh, Hickson et al. 1968).[18] The dimensions in Table 3 below are derived from diverse employee based organizations, and are therefore applicable in different empirical contexts. In a first step, six sets of variables were derived from earlier literature (Pugh, Hickson et al. 1963). The dimensions were identified as specialization, standardization, formalization, centralization, configuration, and flexibility. The last dimension, flexibility, was outlined with the purpose of accessing amount, speed, and acceleration of change in the other dimensions. As such it is of particular relevance to the

[17] Refers to policies and activities that prescribe or restrict the behavior of organization members.

[18] The conceptualization was constructed from 64 scales derived from a random sample of 52 organizations stratified by size and product or purpose as contextual variables.

understanding of the formalization process. The table below gives an overview of these dimensions that were refined for operationalization (Pugh, Hickson et al. 1968).

The first five dimensions correspond to the authors' first paper (1963), but flexibility was exchanged for traditionalism in this second paper (Townley 2002).[19] The chosen paper (Pugh, Hickson et al. 1968), from which Table 3 below is derived, informs us about how encompassing the dimensions are, each including multiple variables. Through the changes made between the two papers, the authors strive to outline the conceptualization of structures in a dynamic and widely applicable way, which distances process dimensions. Identical the first presentation of formalization (Dalton, Todor et al. 1980), Pugh et al. defines formalization as identified through written documents.

Table 3. Pugh et al. 1968 (Pugh, Hickson et al. 1968)

| **Dimensions of organization structures[20]** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Major dimension** | **Specialization[21] (functional)** | **Standardization** | **Formalization** | **Centralization (of decisions)** | **Configuration** | | **Traditionalism[22]** |
| **Definition of major dimension** | Refers to division of labor into different functional positions | Refers to behavioral procedures that are identified as standardized through regular occurrence or legitimization in an organization | Refers to the extent to which communications and procedures are written down | Refers to decision-making and the authority from a hierarchical order | Refers to the outline of roles from authority span, illustrated in a chart | | Refers to the extent to which an organization is standardized by customs[23] or bureaucratic procedures respectively |
| **Measurement applied** | Identification of existing functions based on 16 activities that are assumed to exist in any organization | Identification[24] of how many behavioral procedures exist, not how or if they are applied | Based on 38 documents covering rules, procedures, instructions, and communications | Identified from the question: *Who is the last person whose assent must be obtained before legitimate action is taken?* (P 76)[25] | Counts the number of job positions between the chief executives and employees who work with output | | A dominant existence of bureaucratic procedures characterizes high standardization and vice versa |

[19] As a comparison to the ideal model outlined by Weber.
[20] For a more comprehensive understanding, see Pugh et al. 1968, page 71. See Table 2.
[21] Specialization includes an assessment of the extent to which specialist roles are related to each function.
[22] Traditionalism is an extension of the idealized bureaucratic model outlined by Weber.
[23] Customs are verbally transmitted procedures, while bureaucratic procedures are written rules.
[24] Identification is made from a given list of possible procedures.
[25] The question was related to 37 kinds of decision.

Researchers today return to the conceptualization by Pugh et al. because it captures organizational structures both horizontally and vertically. It constitutes a valuable basis for comparison between organizations regarding to what extent they are bureaucratic or administratively intensive (Baron, Burton et al. 1999; Sine, Mitsuhashi et al. 2006). All dimensions are based on definable scales and countable data that can easily be operationalized in quantitative studies. The richness of details related to each dimension enables a positioning of individual firms on a continuum for each variable that is included in the dimensions. This is a clear distancing from the ideal model of a bureaucracy outlined by Weber (Townley 2002). It allows increased understanding about the diversity and complexity of organizational life. Below follows a closer look into how contemporary research applies these measures.

### *Structures and structuring applied in contemporary research*

In contemporary research, administrative intensity, team formalization, and specialization are identified in new ventures by Sine et al. (Sine, Mitsuhashi et al. 2006), mingling structural and structuring characteristics. They are selected with reference to the work of Baron, Burton and Hannan (1999), testifying to their applicability to new ventures. Administrative intensity as a structural characteristic came out particularly clearly when founding conditions were investigated by Baron, Hannan, and Burton (1999). Perceived as superficial facets of bureaucracy, managerial intensity, number of specialized organizational roles, and to what extent employment relations are formalized were presented in another paper related to founding conditions (Baron, Burton et al. 1999). Moreover, these variables include both structural and structuring elements. Levels of hierarchy, specialization and control systems are part of a number of organizational issues that were investigated in research from a life cycle perspective (Beverland and Lockshin 2001). Additionally, several authors have formulated their research on the creation and role of human resource-related formalization (Bouwen and Steyaert 1990; Baron, Hannan et al. 1996; Baron, Hannan et al. 2001; Burton 2001; Kotey and Slade 2005). The above contributions points to traditional dimensions that continue to be applied in research on formalization. They are established measurements that enable detailed clarifications of the variation of organizational characteristics. The organizational dimensions presented above (Pugh, Hickson et al. 1963; Pugh, Hickson et al. 1968) seem to be widely applicable due to the span for positioning individual firms. Learning from how different researchers apply them, they are interpreted as subjectively applicable.

Yet an implication for my investigation is that the conceptualization by Pugh et al. covers several detailed dimensions that may be considered as irrelevant or hard to identify in new ventures. This has been suggested to be a reflection of a changed context for organizational design (Pettigrew and Massini 2003). The argument aligns with that even if distinct and detailed, established characterizations of organizational behavior hold more duality and complexity than can be clearly defined in new ventures (Brown and Eisenhardt 1997; Sánchez-Runde and Pettigrew 2003). It supports an earlier suggestion in this thesis, that a variety in the outcome characteristics can be expected in new ventures.

### *Formalization related to structures and structuring in this thesis*

Taking a new venture perspective in my thesis, the dimension of standardization has been suggested to be irrelevant during establishment (Sine, Mitsuhashi et al. 2006), due to the experimental character of operations. Yet it can be relevant in this study if standardization is a particular operational challenge. Standardization would probably not be of the same character as in a large incumbent firm with existing production, but would be about finding a repeatable way to produce or deliver the venture offer to an increased number of customers. Such work would possibly activate formalization.

Another aspect of formalization relates back to the challenge of processing a wide scope of information with entrepreneurial judgment in new ventures (Casson 1996; West 2003). The importance of building structures that allow for information management throughout a firm has been underlined from a learning and human resource perspective (Garrouste 2002). New ventures start with delegation among all organizational members of transforming information of a diverse kind into a competitive advantage (Gifford 1992). From a learning perspective, all individuals in a new organization are carriers of information and knowledge, and informal communication and knowledge sharing are vital. With a few individuals involved in the beginning, information sharing and learning distribution may be efficient. Yet when adding employees, structural needs soon arise to support accumulation of knowledge and further dissemination over time (Aldrich 1999). It implies that traditional conceptualizations of bureaucratic variables may arise early also in new venture contexts, without informing us about their first tentative forms.

Independently of what kind of structures are prone to formalization, it has been argued that there is a lack of attention to the creation of dynamic organizations that are re-inventing by nature (Van de Ven 1999). The argument

implies that there is a particular challenge in creating new structures from scratch, because even if simple they are easily exposed to stagnation when establishment occurs and a particular mode of organizing becomes embedded. It is an indication that what kind of structures is created initially is important in order to retain the innovativeness of an organization. If structures are not of a dynamic character, they soon become hindrances rather than enablers. Apparently, depending on the character of the structures that evolves, there is an edge to its enabling function.

The above paragraphs provide some indications of how formalization may give rise to variation in the outcomes of formalization, rather than outcomes in accordance with established measurements. However, despite continued application of the scales outlined by Pugh et al. (1963) their very definition has not yet been developed, even through recent research derived from new venture contexts. They are simply applied individually in contemporary research contexts.

This section underlines that structures and structuring, including formalization, are abstractions of reality. As such, they serve the purpose of characterizing and not giving life to the process dimensions or formalization outcomes sought in this thesis. The position taken in my investigation is to explore the dynamic dimension of formalization with openness towards categorization of formalization outcomes from their individuality, rather than pushing them into traditional measurements.

Having thoroughly discussed formalization dimensions, the continued encircling of formalization will approach underlying reasons for formalization.

## FORMALIZATION RELATED TO THE CONCEPT OF FIT

One underlying dimension related to the formalization process is the concept of *fit*. It refers to endogenous and exogenous factors and is widely applied among organizational designers. As such it carries more of a process character than structural characteristics and structuring discussed above. Related to different organizational outlines, fit appears in a wide or diverse sense from environmental fit to intra-organizational configurations, or from fit within industries to fit within individual organizations (Doty, Glick et al. 1993; Carroll, Gormley et al. 2006). Two opposing directions regarding fit are that structures are closely related to and supportive to strategy (Chandler 1961), whereas contingency theorists rely on flexible structures and adaptation to develop individual organizations (Lawrence and Lorsch 1986). Hence, the opposing arguments are that strategy directs structural formalization whereas situation-

based factors influence what kind of structural arrangements are developed. With recognition of formal structures as existing, these arguments have been developed, resulting in the suggestion to dissolve formality to become more fit in rapidly changing environments (Kanter 1989; Brown and Eisenhardt 1997).

However, much research related to fit has a technical tendency focusing on what components to include, with little contextual consideration (Dunbar and Starbuck 2006). It simply relies on finding ideal organizational outlines, which will generate organizations that perform well. These outlines are based on already existing formality. Aligned with this, normative contributions have been presented with relevance for small firm performance as well (Naman and Slevin 1993). Recent research suggests that successful firms are those which can incorporate best practice, in combination with an articulation of firm individual core characteristics that evolve as routines over time (Gratton and Ghoshal 2005). Yet we are not informed about how this could be realized.

The concept of fit has relevance to ecology based theories. From the perspective of intra-organizational ecology, the mortality threat is related to the capacity of a single firm to develop in such a way that it can fit into competitive environmental conditions and get established in a population. However, the feasibility of achieving this without enabling formal structures is questioned due to lack of empirical evidence of how it can be handled (Hannan and Freeman 1989). Instead, legitimizing venture pro-active formalization is focused upon as essential in order to survive initially. It results in individual paths of venture development that reduce the capacity of a contingency-based development, which is at the heart of the concept of fit.

Despite the arguments above somewhat distancing the concept of fit as applicable in this thesis context, it has relevance to the understanding of formalization. On a micro-level where formalization is investigated, it is indirectly a matter of achieving fit with the environment, i.e. creating structures that internally facilitate interaction among members and their interaction with the environment. In high-technology ventures there is a need to create internal fit between multiple individual logics of organizing. The duality of logics comes from the fact that they are dependent on retaining some informality and its benefits in terms of individual responsibility and initiative-taking. Yet increased formalization is needed to increase organizational clarity, stability, and efficient use of resources to achieve new venture challenges, i.e. fit with individual intra-organizational needs and resource constraints.

Apart from internal organizational fit, fit related to formalization sets a focus on intra-organizational factors that might influence the process. The needs can be expected to vary widely and appear on different levels of analysis. Yet in

execution, dysfunctional structural arrangements are well known factors underlying organizational change. Particular attention will therefore be given to operational needs influencing formalization. It has even been suggested that operations are decisive to formalization (Stinchcombe 2001), which takes us to formalization of *functional* structures.

## FUNCTIONAL FORMALIZATION

Another view used to understand the formalization process is functional and operation-based (Stinchcombe 2001). This conceptualization of intentional formalization suggests that it is an abstraction process in several steps, performed under certain conditions. Despite its normative sentiment, Stinchcombe conveys important process dimensions to formalization through his theoretical work.

Certain conditions for transforming from informality to formality are argued by the author to be important for fully understanding what evolves and its consequences. *First*, functional formality does not work if it is "informally embedded formality" (Stinchcombe 2001: p. 8). This happens if the abstraction process has been based on general knowledge about what is to be formalized and not on the specific activities in its context. *Second*, practice becomes more functionally formalized through debate and revision. Through such procedures their function can be established and does not generally call for more questioning, unless external drivers for change require a new abstraction process. Before such scrutiny is finalized, structures are regarded as informal. *Third*, practice-related activities need to be set apart from internal organizational conflicts and/or individual interests.

The first condition may occur in a new venture if, for example, organizational roles are formalized from the start, based on previous experiences without relating to the specific context of the venture. According to Stinchcombe (ibid.) such formalization will not function because the basis for it is not abstracted from relevant practice. In new high-technology ventures where the invention-based business idea is still to be developed to find a market, relevant practice may not exist as a basis for abstraction. The venture may simply not have any operational basis or routines to abstract functional formality from. Instead, founder perceptions are influencing formalization, as suggested earlier (Burton, 2001). Put differently, one could argue that formalization may be badly needed no matter how stable practice is and founder perceptions hold, because there is a need for clarity and other enabling aspects connected with formalization.

The second condition is that formal functionality is achieved through a process of debate and revision. In some contexts this may be an established procedure with given steps to take or stages to come through, e.g. new laws or political decision-handling for action. Taking the example of formalized organizational roles, there are titles and professional roles that have been applied by different organizations for years. They are commonly known and accepted through their application. They may thereby be a communicable point to start from in defining what specific role is to be formalized within a venture, or to attract new employees. Yet the risk of informally embedded formality is apparent. The essence of the second condition is that debate and analytical opposition are important, so as to avoid basing formalization on false unanimity. Debate and revision do not entirely exclude the possibility of including existing industry regulations or standards in the abstraction process in a new venture as one basis for practice. A typical example would be adoption of popular measurements like total quality management or balanced score cards (Cameron and Quinn 2006). The purpose of applying such models in new ventures would be the guidance they would provide. They might be a valuable starting-point in a new venture that wants to create idiosyncratic criteria for operating more efficiently with its present resources.

The third condition relates to neutrality, with reference to individual feelings and conflicting ideas. In new technology-intensive ventures, it is of particular importance to identify firm-individual ways of making use of the company's crucial resources (Baker, Miner et al. 2003). Exploitation often entails a combination of human resources with different qualities. To attract, retain, and stimulate key competences, idiosyncratic roles may be created for individuals. The importance of allowing idiosyncratic jobs to evolve has further been stressed as one way to maintain organizational members' potential creativity and ability to learn (Aldrich 1999).

Transferring the third condition suggested by Stinchcombe (2001) to the creation of formal idiosyncratic roles[26] in new ventures, it would sustain exchanges of individuals occupying them. The requirement of formalizing such roles without conflicts and individual feelings involved can, however, be questioned. Thus, even if the third condition appears important to new ventures, a different interpretation of the third condition is possible. Conflicts and upcoming challenges may well be the cause of formalization in new ventures,

[26] Organizational development has, from a structural evolutionary perspective, been described as a form of trial-and-error in learning which jobs constitute the organization's memory (Miner 1990). Idiosyncratic jobs increase the potential of unplanned organizational learning. They can be initiated either by management through the accretion of new levels of specialization or on the basis of employee initiatives (Miner 1990). Creation may be based on a recombination of existing competencies, or may be related to new internal or external ideas.

although it may not be a pathway to functional formalization. The reason is that new ventures develop from uncertain conditions, and that the involvement of several stakeholders is not unlikely to encompass conflicting individual perceptions about formalization, not least concerning their individual roles.

The primary condition for creating functional formalization is that it is pursued as a conditioned process based on relevant information about the specific practice. If not, formalization results in rituals without function, which can be compared to the legitimizing procedural formality questioned earlier in my work. Thus, Stinchcombe's work (2001) distances legitimizing formalization in the sense that formalization outcomes need to be cognitively comprehensible to individuals internally otherwise they will not be applicable.

To summarize, despite a normative and even deterministic undertone, Stinchcombe's work guides my process-based investigation of formalization. The three conditions presented indicate that formalization in new ventures will be at different stages of effectuation. The conceptualization implies, too, that it is a context specific process that involves more individuals than management, and that it can be pursued regarding selective functions. Formalization is further suggested to be necessary to neutralize from conflicting individual perceptions.

Having encircled theoretically derived aspects related to the concept of formalization through organizational conceptualizations, to the concept of fit, and to a theoretical suggestion about how operation based formalization can be successfully processed, the following sections elaborate on *activation.* The involvement of multiple actors was initially included in my approach to formalization.

## ACTIVATION

Activation entails that involved actors are intentional initiative-takers of formalization, and pursue formalization through the execution of different activities. Besides founder/venture CEOs, employees and financial stakeholders are considered as most important to grasp how formalization is activated. These actors will therefore be given particular attention.

## Founders and venture CEOs[27] related to formalization

Earlier research suggests that venture CEO activities are most influential to venture development (Gratton and Ghoshal 2005). A particular reason is the suggestion that founders' beliefs about the industry they target, when launching a new venture, influence the perception of how to organize their resources (Cliff, Jennings et al. 2006). Another suggestion from a process approach is that new ventures transform organizationally in relation to how the entrepreneurs pave their ways forward through new organizing activities (Lumpkin and Dess 1996; Sarasvathy 2001). It implies incremental decision-making, effectuation and intentionality, instead of rationally derived decisions. This is due to the limited possibility of making well-structured analyses of available information (Simon 1987). Instead, venture managers rely on their intuition and qualitative data through personal interaction. Transferring this to formalization, intra-organizational ecologists suggest that founders are the architects in organizational building (Baron, Hannan et al. 2002). Their applied models become embedded organizationally (Fligstein 1987) in close relation to the venture strategies. Founders' different mental models have been suggested as dominating the variation that evolves in new ventures (Hannan, Burton et al. 1996). Perceptions, or mental models, are grounded in earlier experiences. Experiences are replicated or intentionally deviated from in new ventures (Burton 2001). How such formalization develops is not elaborated on. The suggestion is simply that founders' mental models influence the initial formalization, which remains.

This holds as long as the founders remain dominant decision-makers and the venture has not dispersed the decision power. However, subsequently the close relation between founders, formal employment models and the business strategy seems to disappear (Baron, Hannan et al. 1996). The implication is that founder-related formal structures would possibly be changed when a succession of founders or redirection of strategy occurs.

However, the suggested relation between founder perceptions and formal characteristics in new ventures influences this investigation in two ways. First, founder perceptions and the earliest decisions regarding organizational development can be assumed to have influenced how the initial formalization was outlined. Together they give a pre-understanding about the contextual conditions. Second, derived from this strong individual influence on

[27] Venture CEO refers to the top decision-maker of a particular venture during the investigation. In some cases, venture CEO equals founder or co-founder. E.g. the first CEO in Cell Case is also co-founder. The current venture CEO of Top Security took office after a couple of years; he is also co-founder.

formalization, perceptions among successors can also be expected to influence the process. The reason is that the continued prevailing uncertainty forces new venture CEOs to rely to a large extent on their own perceptions as well. The possibility of formalization being an executive team decision relying on a group of individual perceptions is set aside in order to be able to distinguish additional executives involved in formalization. Thus executive members are approached as a second actor group, i.e. employees.

## Employees related to formalization

Focus on employees refers back to the demanding undertaking of working with uncertainty and ambiguities complicating collaboration in particular organizational contexts. Theoretical contributions that recognize the enabling aspect of organizational work through formalization dominate in organization theory. Yet enabling purposes may be received by employees in both a coordinating and coercive manner (Hall and Tolbert 2005; Kunda 2006). *Enabling* is not only relative to the venture uncertainty, but has to do with the newness among interaction partners. A number of employees are new to each other. They are searching for guidance when venture interactions increase. Increased formalization is perceived as a means, facilitating individual handling of uncertainty intra-organizationally, without structuring it in detail.

Earlier research on small growing firms has treated formalization as important to increase sense-making and guide employees individually (Bouwen and Steyaert 1990; Brytting 1991). Beyond that, the sense-making aspect of formalization refers to building and sustaining new organizations (Baum and Rowley 2002). To remain in new ventures, employees look for leadership decisions that sustain confidence about the future of the venture and guide individual behavior (Mohrman and von Glinow 1990). The reason is that employees hold knowledge about different structures, from earlier work experiences or theoretical understandings. Yet they have no mutual framework to follow or identify themselves collectively from if organizational structures do not exist.

Despite enabling aspects, formalization can be challenging to individuals too, even if the aim is the contrary. Some research indicates negative assessments of the effects of formalization and the well-being and motivation of employees (Adler and Borys 1996).[28] Negative reactions concern the *coercive* aspect,

[28] See Adler and Bory's overview of earlier research on formalization as either enabling or coercive.

implicating that formalization can be perceived as delimiting for individuals (Adler and Borys 1996; Aldrich 1999; Kunda 2006). Related to a high-technology venture context, Adler and Borys think it plausible that scientists and engineers are skeptical about formalization unless it concerns routine tasks of their work.

More generally, it can be expected that the first employees in a new venture will resist increased formalization because it might delimit or drastically change their scope of responsibility or range of tasks (Aldrich and Langton 1998; Aldrich 1999). Such fear or opposition can be expected to emerge in opposition to the desired effects of formalization. However, employees are not only the target of formalization.

While established research depicts formalization as a managerial challenge related to efficiency (Mintzberg 1983), formalization activation by employees' perceptions extends that rationale. In small new ventures everyone can be expected to be involved in a range of activities (Aldrich 1999), including organizational formalization. Earlier research from an entrepreneurial perspective refers to this as a building of organizing texture, which involves both managers and employees in a dialogue (Bouwen and Steyaert 1990). That view links with my investigation insofar as formalization of different facets can progress in parallel through manager and employee involvement, or as an interactive process.

My persistent argumentation for formalization as enabling to employees in the specific context of new ventures, and the possible employee involvement in the process, do not leave increased formalization unchallenged by employees. Employee individual attitudes towards and perceptions about formalization can therefore be expected to influence how formalization evolves and the role of employees in the process.

## External actor involvement

Addressing formalization as a firm individual development through multiple actors, earlier research gives indications that formalization does also engage external constituents like financial stakeholders and advisors (Kenney 2000; Kenney and Florida 2000). It has been suggested that existing industrial models of organizing are relied on and tend to be reproduced when the entrepreneurs are inexperienced or lack legitimacy (Aldrich and Baker 2001; Burton 2001). External constituents can be mediators for such implementation. Yet studies of high-technology ventures in Silicon Valley point to the necessity of adapting

existing knowledge about formalization to the conditions of individual ventures (Kenney 2000; Suchman 2000). The reason is that organizational development during exploitation of new venture ideas is not about effortless imitation of best practice. Thus, in contrast to institutional influence that was earlier distanced theoretically in this thesis, involvement by external actors appears important in terms of both activation and an activity perspective, i.e. what they initiate and how such initiatives are pursued.

In particular, it has been recognized that investors are concerned about the management of their objects of investment, not only before the investment but also afterwards (Kaplan and Strömberg 2000). To external stakeholders, formalization signals legitimacy. It is an abstraction process that makes the new venture activities and characteristics more comprehensive and identifiable. Such concern often results in formalization of legally related issues, key organizational roles like marketing vice president, or other human resource-related issues (Hellman 2000; Hellman and Puri 2002). This kind of involvement is somewhat contradictory to results from the SPEC studies. Those studies suggest that venture capitalist involvement takes three turns. (1) They keep hands-off initially. (2) If an IPO is ahead, the venture capitalists want to ensure that there is managerial capability in the venture. (3) If the firm is developing poorly, venture capitalists insist on organizational changes (Baron, Hannan et al. 1999). These different reasons imply that investors are only engaged in the organizational refinement for specific purposes.

Summarizing, earlier research indicates that investors are likely to be operationally involved in start-up activities. Little detail is given about activities and their perceptions, or how they are involved in the continued formalization. However, a small new venture is to be regarded as neither a derivative form of an established organization nor an aggregation of individual rationally organized interests. Therefore, how external actors influence or are involved in the process adds to the two earlier actor groups of management and employees.

## INVESTIGATIVE APPROACH

The theoretically derived dimensions discussed above constitute a comprehensive pre-understanding related to how the concept of formalization needs to be approached. Below, my refined theoretically derived investigative model is presented.

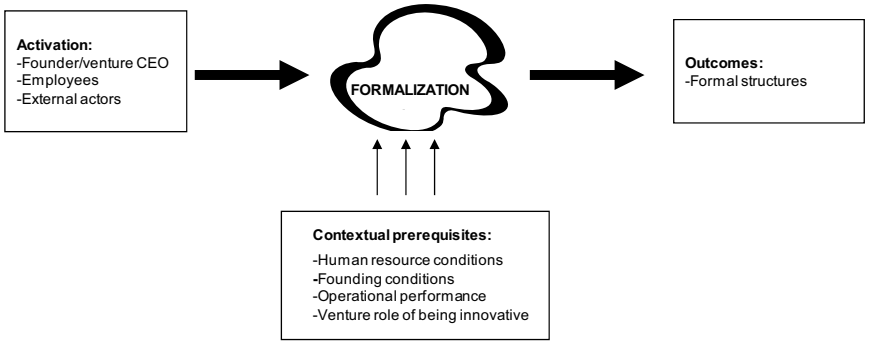


Figure 3. My investigative model of the formalization process

Compared to the tentative model presented at the beginning of this chapter, the model has now been refined. Yet the dimensions included in this refined model are to no extent complete. The model should be understood as an abstract simplification of my pre-understanding of formalization. The model guides my investigation, and serves as a framework for the understanding of my findings. It will therefore be supplemented by individual firm conditions[29].

In the *contextual prerequisites* human resource conditions appear first. They stand out as an underlying reason for formalization and they appear as a prevailing issue influencing how formalization evolves in individual ventures. The reason is that high-technology venturing requires an early increase of employees. The individuals carry different logics of organizing. During establishment, additional experts are likely to be recruited, adding to the organizational needs for formalization.

Second, founding conditions appear important, as derived from SPEC due to their influence on organizational development. In contrast to how SPEC suggests employment patterns to be the main influence on subsequent organizing, their inclusion in the model is considered as a contextual prerequisite representing already existing formality when my investigation is launched.

Third, operational performance is assumed to be enabled through increased formalization, yet the status of the venture performance can be expected to moderate the attention given to it.

The discussion about fit relates to all the contextual prerequisites, including the venture role of being innovative. To remain innovative requires dynamic structures, and includes several underlying contextual conditions.

[29] These could be industry or customer relations, importance given to formalization as an activity, and other individually related aspects.

*Activation* has been elaborated on through the three main actor groups identified. Beyond the aspect of activating formalization, all actors are possibly pursuing activities related to formalization.

Finally, in the logical chain of formalization a variety of *outcomes* are expected. However, to reach such ends the work by Stinchcombe (2001) suggests a conditioned process development in several steps. Focusing on formalization as a process, it needs to be distinguished among other venture processes of marketing, product development, or financing, to mention some. The next chapter turns to two main perspectives related to the pursuit of formalization: *routines* and *employees*, which are selected as enablers to distinguish formalization from other processes.

# 3 FORMALIZATION IN EARLIER RESEARCH

Two theoretical perspectives presented in this chapter constitute an extension of the discussion about the concept of formalization and my research model. First a dominant perception about routines being the primary foundations for formalization is questioned. Similarities and differences between routines and structures are persistently sought to clarify their relationship. Next, employee-related formalization protrudes as a second major perspective prompting formalization. Emphasis in this second part is on the work by intra-organizational ecologists.

## ROUTINES RELATED TO FORMALIZATION OF STRUCTURES

In earlier literature, structures and routines occur recurrently together, confusing the two concepts. It has been suggested that, in the absence of established routines, new ventures suffer from structural liability (Stinchcombe 1965), i.e. they do not have any structures. In the same vein it has been suggested that some parts, but not necessarily the whole, of an organization may be highly structured and bureaucratic, based on stable and repetitive work, whereas other parts would not be able to structure due to the lack of routines (Mintzberg 1983). Thus, the understanding one gets from this is that routines constitute an important origin of formalized structures, without clarifying how structures take form related to, or not related to, routines. Another implication is that new ventures would not be able to create structures since routines have not yet become explicit. This has been suggested not to be the case, but the question remains about how formalization occurs without a routine basis.

Opening this section, some confusing perspectives on structures and routines are introduced. Separation of the two concepts, their nature, their function, and relation to change is then discussed. A summarized overview ends the presentation about the relation between routines and structures.

### Some confusing perspectives

What structures and routines have in common is that they are artifacts in organizations that reflect stored knowledge (Moorman and Miner 1998). One confusion has to do with definitions of routines and structures where they are mentioned together.

Routines have been referred to as any regular, predictable, and patterned action or process identified through organizational activities, such as product development, job design, and human resource management (Nelson and Winter 1982; Cohen, Burkhart et al. 1996). Patterns give routines a notion of becoming explicit through repeated behavior (Galunic and Weeks 2002).

Structures, on the other hand, as presented in research from an organizational design perspective, "describe the durable arrangements and formally sanctioned relationships in the organization by which the repetitive work of the organization gets done" (Khandwalla 1977: 482). Or they are delimited to "how job tasks are divided, grouped and coordinated" (Barth 2003: 41), leaving out the relation to routine action.

A distinguishable similarity is that both routines and structures refer to abstractions of durable organizational behavior. The fuzzy side of it is that they are also compact multidimensional concepts, appearing as characterizations without informing us about their relationship or whether they include overlapping dimensions. The indication is that structures could be a description made possible through evolving routine behavior, but not necessarily. They could alternatively be descriptions of how an organization functions at a certain point in time. The applicability of routines related to formalization of structures becomes fuzzy. They both remain simplified characterizations of complex organizational life.

Referring back to the discussion about structural elements and structuring, routines as well as structures are relevant elements related to formalization outcomes. However, they open for a wide scope of application in different research contexts. The particular dimension of standardization, based on repeatable behavior, that was earlier presented as one of six major structural dimensions, including multiple variables, adds more confusion (Pugh, Hickson et al. 1968). Repeatable behavior or routines underlying standardization is, according to research on organizational design, a narrow interpretation of standardization that is easily confused with formalization (Burton and Obel 1995).

Standardization of organizational behavior may be set by external organizations or associations. As such it may result in formal structures. Further, due to training, certain experts may do things in a standardized way based on their educational or professional training. Therefore, professionalism is suggested as a more adequate term for repeated behavior due to the reasons given. Professionalism related to this thesis may then be an activator of formalization, but differs from how routine behavior is traditionally assumed to underlie formalization and become descriptive when taking structural form. In

addition, professionalism may not be an easily repeated behavior, even when formalized, because it is likely to include tacit knowledge. Since professionalism in new high-technology ventures includes work by professionals, among professionals, it is easily taken for granted that everyone understands how work is, or should be, done. Consequently, professionalism learnt through schooling or earlier work experiences may hamper formalization rather than activate it, leaving us with an equivocal understanding of how standardization based on routine behavior relates to formalization.

Another confusion builds on the former and has to do with a guiding capacity. Routines primarily make behavior related to work tasks explicit. In this way routines guide new organizational members, because continued performance is based on learning and repetition of past behavior (Cohen, Burkhart et al. 1996; Zollo and Winter 2002). In contrast, the definition above gives the impression of structures as primarily visualizing organizational complexity. The implication is that structures would be needed even if routines have not been created.

A third confusion, complicating a delineation of structures from routines, lies in the challenge about how behavior is to become an abstraction or articulation in written, i.e. formal structures. It was suggested that there is a tacit side to behavior. In line with this, it has been argued that most routines are not expressed but reside as tacit in organizations (Galunic and Weeks 2002). Since routines may appear as any kind of activity, the implication is that it is only the most conspicuous ones that constitute a possible base for formalization. The majority of routines would not become explicit or written down, i.e. appear through structures.

This means that if structures are based on routines, it may be difficult to outline structures covering the whole of an organization, because there is a lack of adequate identifiable routines. To write down a routine for how to handle travel expenses is an example that facilitates administration and does not seem to be insurmountable. Such written routines could constitute a basis for creating structures that visualize the performance of this task. To write down a routine for how to handle the unexpected, which could be problem solving, is only hypothetical writing before some experiences are gained that can be included in such writing. It may remain hypothetical writing. Consequently, when not knowing how an unexpected event is going to be handled, the outlining of structures will also reflect imagined conditions and not solely give an operation based picture of how organizational behavior is pursued.

The above gives an indication of the difficulty of realizing routines in written structures because parts of the behavior are unknown or tacit, and certain issues may not even benefit from formalized routines or structures. It raises questions

about to what extent the one concept guides the other, which routines can and which cannot constitute the basis for formalization of structures, how structures are formalized without taking a point of departure in operative routines, and what different functions the two concepts play in new venture contexts. Bringing this to a head: can written routines be equated with formal structures?

It seems that written structures are in close relation to formal routines. Yet they call for further clarifications to delineate them. The delineation below is outlined through a thorough discussion of the nature of the two constructs, their function, and the dynamics of the concepts related to change through the lens of their creation, constituting three major ways of identifying routines in earlier literature (Becker 2004).

## Nature of the two constructs

An important characteristic of routines relates to concrete action. It is the execution of a routine that brings it to life, makes it explicit and reproducible (Feldman 2000; Becker 2004). Routines are commonly agreed to be embedded in any kind of organizational activity that is perceivable as *repetition of behavior* (Mintzberg 1983). Their presence is powerful.

Organizational behavior may appear as either informal or formal in any organizational setting. Also routines carry this duality. If you think about how the switchboard staff greets individual telephone calls (by formal or simply repeated informal routines), how blueprints are outlined for documentation of research and development (aligned with formal standards or idiosyncratic documentation based on what evolves), or how procedures of introducing new employees on their first workdays are applied (according to formally outlined or informally repeated idiosyncratic ways), you realize the span of interpretation applicable when defining what characterizes a routine, whether formulated in written or not. Routines evidently cover a range of activities and can be analyzed from diverse study levels and research perspectives.

Conversely to repetitive behavior, an organizational activity that is not repeatable would not be a routine. Formalization is evidently not perceived as a routine activity in this thesis, yet this is tricky exactly due to the inclusion of informal behavior possibly entailing routines. Further, in the extreme a mistake is the last thing that anyone would wish to repeat. It implies that the repetition of some behavior is intentionally avoided, but may cause consequential routine creation in writing to ensure avoidance. Routines evidently have a much larger span than structures, because they include repeated informal behavior. As

routines, formal structures may evolve informally (Eisenhardt and Schoonhoven 1990; Eisenhardt and Tabrizi 1995; Orlikowski and Yates 2002). However, when routines appear in writing they are referred to as structures, or as having an ostensive aspect (Feldman and Pentland 2003). The ostensive is distinguished from a performative aspect of routines, which relates to their applicability. Structures, on the other hand, are primarily known to be purposefully outlined by management to direct and delimit expected behavior and responsibilities (Pugh, Hickson et al. 1963; Kunda 2006). This purpose gives structures different characters depending on how detailed they are.

Earlier research by intra-organizational ecologists has put much emphasis on routines as a basis for understanding human organizations (Galunic and Weeks 2002). They exclude trivial routines, even if explicit, in relation to those that appear most important to organizational outcomes through the agents handling them. Moreover, this thesis carries the assumption that operation and performance related routines are necessary to include increasing our understanding of formalization, yet as outcomes rather than required foundations for formalization.

### *Routines and structures as manageable*

Routines and structures have created divergent beliefs about their being *manageable* and possible to change (Khandwalla 1977; Galunic and Weeks 2002; Baligh 2006) versus being inevitably reproduced over time (Blau and Scott 1962). A replication mechanism implies that routines and structures are not only reproduced through the adoption of existing ones in new organizations, but that they are also replicated intra-organizationally (Meyer and Rowan 1977; Suchman 2000; Galunic and Weeks 2002). It is here suggested that through their visibility in written documents, which is a dominant characteristic of structures (Mintzberg 1979), the replication and management of them are enabled.

Yet without an intentional change, routines that are not applied are regarded as being at risk of disappearing (Galunic and Weeks 2002), which would also imply a change of the initially created organizational foundation. Here arises a question whether structures would be exposed to the same risk if they are not used, and whether this applies to new ventures. Take a structure identified as job position. If no one is appointed to the position, would it then disappear? That question goes beyond the kind of change investigated here, i.e. change from informality towards increased formality. Yet depending on the degree of embeddedness of that position, it could possibly disappear without problems or affect additional formalization of other roles if it is not active.

The nature of routines, made explicit through repetitive behavior, is however elusive in new ventures, since new ventures by definition are young and have few stable routines. Nonetheless, earlier research has demonstrated that operationally based routines may also exist in a perceivable informal context (Pentland and Rueter 1994). If the behavior is not exposed to abstraction like formalization, it may remain unarticulated and not appear as structures. This is not exclusively a context particularity, because routines are found at various stages of development in all organizations (Galunic and Weeks 2002). Thus, selective behaviors or processes can apparently rely totally on informal routine behavior in parallel with others being formalized or prescribed through written documents. Depending on which stage of development a routine is in, written structures based on routines would range from superficial to reliably reflecting how the actual venture functions organizationally. Yet it cannot be excluded that some routines may be purposefully written down also at early stages with the intention of creating repetitive behavior, or simply a desired behavior.

New structures may have the intention of directing behavior as repetition to depersonalize organizational behavior, or to create formally accepted behavior. In addition, structures have a restricting character for individual behavior or interaction in organizational contexts. Referring to a mistake made, that it could result in written routines that differ from past behavior, which would equalize a creation of structures that enable future behavior differently from the past. Organizational executives often refer to an intention of 'changing their routines' to avoid repetition of a mistake, or for improving performance. Related to a mistake, written routines would formulate action step by step, while a structure would primarily guide interaction between individuals. Thus, from a management perspective, routines may be part of the formalization process to achieve formal structures.

### *Understanding their nature*

The nature of routines and structures differs in several dimensions. One main difference is that routines refer to actual behavior, while structures mainly inform individuals about relationships between different behaviors and other organizational characteristics. Another main difference is that routines may remain unwritten, while structures by definition are realized through written documents.

Yet structures can be written down for legitimizing reasons without being relatable to actual organizational behavior, where routines reside. Routines that are written down without being based on actual behavior have been suggested to

have another purpose: they intend to direct or change behavior, or building the organizational culture (Kunda 2006). This implies that depending on how they come about, written routines are similar to structures from an ostensive and expressive viewpoint.

Finally, even if ventures search for repeatable ways of operating during their early development, they are dependent on innovative behavior to proceed. Hence, continued innovative approaches to overcome entrepreneurial challenges are part of the success of new ventures (Gilbert 2005), distancing routines as a basis for initial structuring. Even if it would be for the good of an organization to stabilize organizationally, it does not seem plausible – from reading of past research – to create structures based on routine behavior as long as establishment of a venture is not achieved. The nature of structures that emerge in new ventures can rather be expected to be tentatively based on current modes of working, decoupled from routine behavior or making use of created routines to realize formalization.

## Functions of routines and structures

Only routines that are applied have an articulated character, which makes them possible to retain. When this happens, behavior becomes memorized and applicable by others. As such, they resemble formalized structures in that they provide guidance and meaning, but on an individual rather than a collective level. It makes them particularly important in a new venture context, serving as attention directing systems and repositories of organizational learning (Stinchcombe 2001; Kunda 2006). Hence, both are reference points for organizational behavior and individual understanding in its specific context, but with different scope and functions.

### *Coordination*

The definition of structures as "the sum total of ways in which its labor is divided into distinct tasks and then its coordination is achieved among these tasks" (Mintzberg 1983:2) highlights the function of *coordination*. Coordination through structures distinguishes them from routines. Structures inform about how work is organized, and guide individual behavior mainly from an interaction perspective. Thereby, the guiding function of structures implies a wider informative span than routines. Interaction implies a distinction at a group level of analysis where coordination is essential. The function of coordination

indicates that there is a subset of actions. Some of the actions may be routine based, while others may simply be organizational roles or other characteristics that inform an individual member about the role of co-workers. Structures guide intra-organizational members through overall systems of structures, like the complete outlines of Pugh et al. (1963, 1968). Separate structures are guides regarding individually related details, but are commonly less prescriptive than routines or rules (Kunda 2006). Also external constituents get guidance about the overall organizational outline through structures. Apart from intra-organizational functions, creation of formal structures at early stages underlines the importance of structures for legitimacy reasons beyond the venture borders, which cannot be met by routines.

### *Control*

An additional function is the *control* of individual behavior (Roethlisberger 1939; Burton and Obel 1995). Routines performed by other organizational members have been suggested to be a kind of control of behavior (Nelson and Winter 1982). The control effects lie in that an individual does not operate in isolation in an organization; other organizational members performing their individual roles become indirectly control mechanisms due to their organizational interrelatedness. This means that one individual cannot totally neglect expectations on performance, because underperformance would be apparent in relation to other organizational members.

The controlling component implies, too, a truce power when conflicts between individuals arise (Nelson and Winter 1982). In other words, routine behaviors function as an informal control mechanism ensuring satisfactory individual routine performance. This has particular importance where exact repetition is decisive or quality of customer delivery is defined. Thus, routines can be compared to standards or protocols that ensure quality by including specified activities that can be checked as having actually taken place (Stinchcombe 2001). In the smallness of new ventures, individuals can be expected to be exposed to behavioral routines of co workers in an informal way too. Yet these routines are more likely to be emergent patterns of behavior than having the function of controlling exact repetition.

However, structures also open for a control function, without carrying that explicit function when created, because they inform employees about who does what. Structures define authority levels or spread of information (Pugh, Hickson et al. 1968), which is popularly dealt with as culture when corporately outlined structures define behavior (Kunda 2006). Compared to routines, the control

mechanism does not primarily reside in control of performance when it is enacted, but is a control function related to what is expected, and can therefore be used to evaluate or correct individual behavior. The difference is that the control mechanism residing in structures is sanctioned or intentionally created to ensure desired behavior.

The functions of coordination and control are of particular interest related to organizational culture. In order to understand the rationale behind organizational behavior, culture is suggested to be both enabling and coercive (Kunda 2006). The intriguing aspect arising here is that when culture creation is sought and supportive organizational elements are outlined, it is often presented as an alternative way of formalization. Culture-based organizing is associated with informal non-routine organizational behavior. Still, the detailed in-depth observations made in Tech (Kunda 2006) revise that. Both coordination and control through formal structures are evidently important to create a dynamic organization based on a strong organizational culture. Culture characteristics are detailed and expressed through written documents, organizational charts, routine prescriptions, or other artifacts, but in a different way than we commonly imagine the content of such formal documents. The organizational charts, as presented by the author, are less clear because lines are dotted between different units and responsibilities. Further, written guidelines or policy documents have more of a statement character than explanatory texts, leaving substantial interpretation to the employee. Still, these documents are formal structures and written routines that have a coercive purpose and serve as coordinating guidelines and control mechanisms. Evidently, also new organizations that would like to create culture-based organizational behavior need structures and routines to achieve this.

### *Dissemination*

A third core function of routines and structured behavior is *dissemination.*[30] In certain contexts it depends on the knowledge of the performing actors. Distribution of a routine can be delimited if the actor is particularly skilled, which restricts the overlap to others (Becker 2004). Other employees simply have difficulties in repeating the routine. Structures, on the other hand, can be outlined idiosyncratically, as for jobs (Miner 1990), without any intention of having a disseminating effect of that particular job. Yet idiosyncratic structures, like a job created for a particularly skilled person, have an indirect distributive

[30] Dissemination and distribution are used as replaceable when discussing this function.

effect because the very performance can be a catalyst for new initiatives. Consequently, the disseminating functions of routines and structures differ, but the above has relevance to high-technology ventures where experts are among the first employees.

A related function is *reproduction*, which is important in any organization. Reproduction concerns storing organizational knowledge to be replicated by new members entering an organization (March and Simon 1993; Zollo and Winter 2002) with the support of routines and structures. Routines serving as repositories of organizational knowledge have been theoretically referred to as a procedural ability (Moorman and Miner 1998). It refers to individuals learning routine behavior through the behavior of others, but also through codifications made in written documents such as manuals, software based support systems and similar forms (March 1991; Becker 2004). Thus, a main difference between the disseminating and reproducing functions appears through the challenge of codifying behavior or specific knowledge. Reproduction of organizational behavior or knowledge requires codification to be possible to disseminate and fill the function of being enabling.

## Creation of routines and structures related to change

Routines have been presented as possible mediators of formalization. A particular aspect to consider is the intentional implementation of new routines.[31] They serve as meta-routines (Feldman and Pentland 2003) or purposeful support for achieving desirable changes and creating dynamic capabilities for continuous change (Zollo and Winter 2002). This might be especially important in new ventures under organizational development (Brown and Eisenhardt 1997; Galunic and Weeks 2002). When new ventures are developing initially, they are likely to have immediate and temporary purposes for creating new routines. Later, they would possibly be replaced by new ones serving new purposes, or alternatively become embedded as organizational structures.

Structures were earlier introduced as being applied through improvisation to handle continued innovation under constantly changing conditions (Baker, Miner et al. 2003). From this we can conclude that both concepts can emerge based on intentional management decisions to serve specific purposes and mediate intentional organizational change and development. This explains how routines and structures over time become the deep and embedded reflections of

[31] Practical examples are total quality management or balanced scorecards.

subsequent decision-making (Gersick 1991). They evolve for specific purposes and tend to remain and integrate over time.

To conclude, both routines and structures are suggested to be dynamic concepts opposing the idea of structures as manipulative management instruments from a rational perspective (Scott 2003/1981). Structures versus routines in new ventures differ in that the structures when formalized have an immediate integrating tendency, potentially reducing flexibility. Routines on the other hand are embedded through their application, but do not need to be integrated as systems of routines in a short-term perspective.

Below is a summary overview of the main points in the text so far.

Table 4. Differences and overlaps between structures and routines

| STRUCTURES | OVERLAPS | ROUTINES |
|---|---|---|
| Refer to characterizations of intra-organizational interaction including enabling and coercive dimensions | Provide encompassing descriptions of organizational behavior. Abstract and simplifying codifications when articulated in writing | Any regular, predictable, patterned action or process identifiable through concrete action by individuals |
| Written down or otherwise articulated to all organizational members – wide scope | Routines may become embedded in structures through formalization, but not necessarily | Repetition is main characteristic, not necessarily written down or spread to all organizational members |
| Intermingle with informal structures | Can both be informal and formal | Intermingle with non-routine behavior |
| Exclude tacit aspects and informal behavior; leave room for individual interpretation | Include tacit dimensions that impede replication between firms | Include tacit aspects and informal behavior |
| Can be outlined on purpose idiosyncratically or as simple frameworks | Always exposed to deviating behavior due to individual choice which reduces replication and the guiding capacity | Emerge through repetition, but can be implemented after intentional outlining |
| Integrated structures as obstacles for change | Both can be stable yet dynamic | Patterns of routines are obstacles to change |
| | Both carry a coordination and/or control function, i.e. guide or restrict behavior | |
| Change is clarified against the framework of existing structures, possibly dissolving them | Can be created to manage change | As temporary routines |
| | Store organizational knowledge | |

Learning from the delineation above, it is clear that the similarities identified are of such a kind that the relation between the two concepts becomes confusing. It has been assumed throughout this writing that high-technology ventures are in need of structures despite the lack of a stable routine basis for their creation (Hannan, Baron et al. 2000; Sine, Mitsuhashi et al. 2006). Nevertheless, a

conclusion to draw from this is that both views need careful consideration when applied in a new venture context.

## Learning from this section

The central question of routines as a basis for formalization that was posed at the outset of this section seems to be devoid of value in new ventures. Notwithstanding, formalization may include separate creation of routines as well as creation of structures, serving as mediators of formalization. That has to do with the particular context of high-technology ventures.

The first employees are necessarily experts who are needed to transform the venture idea into products. They bring their routines and standardized behavior that is learnt from schooling and earlier work (Burton and Obel 1995). This knowledge may be essential to a new venture, but it has two impeding aspects associated with formalization. First, it is likely that their professional routine-based knowledge is applied individually. Such knowledge may however remain with the individual due to a strong tacit component. Consequently it is difficult for others to repeat and make the knowledge useful to the venture. The individual routine based knowledge brought to a new venture does not result in venture routines or new structures. Second, since several individuals may bring professional routines to a new venture they can work individually without much guidance or perceived need of coordination. It is therefore plausible that with a majority of experts their routine and experience-based behavior will remain unarticulated. For the same reason it is not likely that they will express much need for formalization either.

In Table 4 above, structures and routines are identified as both stable and dynamic. Routines are recognized in earlier literature as such (Becker 2004), but these two characterizations need some elaboration related to structures. First, increased formalization of structures is known to be stabilizing and coordinating when growth occurs (Churchill and Lewis 1983; Baron, Hannan et al. 1996; Burton 2001). Yet although favorable at one stage, they seem hard to alter when change is necessitated. Thus, once they are implemented another kind of stability arises, that of permanence. A job description that describes in detail how a specific job task ought to be performed would be close to a structure with an integrative character, but is here regarded as closer to a written routine. Such routines may arise for exogenous reasons like accepted ways of documenting product development work, or basic fire escape instructions that are legally prescribed. Hence, even if some kinds of routines are found in writing,

equivalent to structures, they are not the behaviorally based routines. Routines of this kind may therefore not be of the dynamic character that was addressed through earlier research (Feldman and Pentland 2003). They are simply part of an inevitable foundation from which further formalization can be pursued.

Understanding of routine emergence is investigated over many years through the shaping and transformation of ambiguities into routine patterns (Colyvas 2007). Selective structures, on the other hand, are by their character possible to identify empirically during early venturing, since they can be articulated at any time. As a result, they have been distinguishable also at early stages of venturing in earlier research and are prioritized in my investigation. When I have chosen structures as a primary identification of outcomes from the formalization process, it does not exclude that some outcomes will be identified as routines.

## FORMALIZATION RELATED TO HUMAN RESOURCES

Coming to the conclusion that routines are not to be considered as a likely foundation of formalization, human resource-related issues will be focused upon next. Earlier research on organizational formalization ties this process almost uniquely to employees. With the first employee, the need for organizing activities arises to avoid contradictions and confusion (Barnard 1968), or to enable organizational learning (March and Simon 1993) .

Besides this functional perspective, primarily pertaining to interaction between individuals, construction of organizational membership starts with the first employees (Aldrich 1999). The author's use of construction indicates that this is an ongoing process including boundary creation between the organization and its environment (Katz and Gartner 1988; Aldrich 1999). The reason is that one of the major venturing challenges is to attract and maintain members of the organization as supporters (Aldrich 1999). Not least in new high-technology ventures, employees are critical resources for exploiting the venture idea. Organizational members may belong not to only one organization but to several. They may not even be employed, but loosely or temporarily coupled to a new venture. They probably have an occupation, but need a role and identity once entering an organizational context (Sadler 1991).

Employment relations are suggested to be likely to bind employees to the venture, and are therefore among the first formalized facets of an organization (Baron 2004). They become social codes that influence the social identity of individuals in new ventures (Hannan, Pólos et al. 2002) and their attitude towards organizational changes. This raises careful attention to how employment patterns are formalized. The intention in this study is not to

replicate the investigations made in SPEC to extend knowledge about the creation of employment models. Yet due to their suggested character, employment models are vital to include in my investigation for a different purpose. They are primarily considered as important to understand as antecedents of previous decisions. As such, they inform about the conditions from which continued formalization is pursued.

Distancing the determinism of models identified by organizational ecologists, my investigation goes beyond the particular relationship between founder cognitions and employment models. I take an open-ended approach to human resource-related formalization for two main reasons.

First, it has received little attention within human resource theory related to the context of new ventures. Lack of theoretical studies on human resource-related formalization can partly be explained by findings in a piloting empirical study. This showed that a personnel function was hardly identifiable in firms with fewer than 300 employees (O'Reilly and Anderson 1982). To further explore the results a larger sample was investigated, only strengthening the first results. It was found to be extraordinary if there was a personnel function, even in firms with more than 1,000 employees. Thus, systematic work on formalizing human resource issues cannot be expected in new ventures.

Yet earlier research emphasizes that (scientific) founders are often holders of particular knowledge and legitimacy to articulate the initial idea in high-technology ventures (Corolleur, Carrere et al. 2004). It has also been suggested in this thesis that without being able to attract and coordinate additional employees, the venture idea cannot be successfully exploited. Founders/venture CEOs are therefore supplemented early by new recruitments and urging of human resource-related formalization.

Besides being an urgent issue, the second reason is that the results of O'Reilly and Anderson (1982) get another twist from an entrepreneurial perspective. Research about formal human resource related issues in small ventures suggests that it is an active management concern, instead of being a professionalized occupation (Hornsby and Kuratko 1990). Division of labor, hierarchical structures, increased documentation, more administrative processes, and clear frames of references for salaries or benefits were among the identified formalization issues derived from small growing ventures (Kotey and Slade 2005). The point made by the authors is that the adoption rate is high when growth occurs but decreases over time.

Distancing growth as a driving factor of formalization, the Hornsby and Kuratko study (1990) finds that both small and large young firm[32] managers give similar importance to a number of human resource issues. They include wage rates, availability of quality workers, benefits and training. Differences between small and large firms concern government regularities that are of particular concern to the small firms, while job security is mentioned as one of the most important aspects related to human resource management in the larger firms. From the perspective of founders and venture CEOs, these studies confirm that formalization of human resource-related issues is a continuous challenge to new ventures.

Apart from these selected contributions, evolutionary theorists and intra-organizational ecologists have made several contributions that concern human resource-related issues in a wide sense (Baron, Hannan et al. 1996; Aldrich and Langton 1998; Aldrich 1999; Baron, Burton et al. 1999; Hannan, Baron et al. 2000; Burton 2001). Knowledge from SPEC will be given particular attention below since it constitutes an important framework in this thesis.

## Organizational formalization by intra-organizational ecologists

CEO succession, increased administrative intensity and other variables are among several dimensions treated in SPEC. Individually outlined employment models are emphasized by organizational ecologists as foundations underlying all organizational development (Baron, Hannan et al. 1996; Baron, Hannan et al. 1999). They suggest that such models direct further development (Baron, Burton et al. 1999; Burton 2001). Founder perceptions, also denoted individual blueprints, are identified as underlying the active choices of different employment models.

Founders' perceptions are approached as constituted by education and employment experiences. Thus, they are accumulated cognitive bases of formalization. As such they reflect the cultural context of the founders (DiMaggio 1997). DiMaggio (1997) argues that diversity arises because individuals make strategic use of cognitions. Analysis of mental models that were identified in SPEC indicates that different ways of formalizing human resource issues go beyond culturally embedded and experienced-based replication (Burton 2001). Inexperience, accident or intentional deviation from existing models of organizing was found to contribute to outlining of

[32] Small firms have 1-50 employees whereas large firms have 101-150 employees.

heterogeneous formalized employment models. The result is that founders either replicate earlier experiences; they deviate from normative models because their experience tells them so, or they behave according to a strategic belief in how to formalize in atypical ways.

The imperative employment models were identified in SPEC from three recurrent dimensions that emerged in retrospective open-ended interviews with founders (Baron, Hannan et al. 1996). They were asked if they had any particular model in mind when recruiting initial employees. The three dimensions emerged as attachment, selection and coordination and control. *Attachment* was found to bind the individual in a personal way. *Selection* was the second dimension which was pursued on a different basis. The third dimension was differentiated in four modes of *coordination and control*[33]. Combining these dimensions with the different ways they were handled resulted eventually in five modes, named blueprints or models of organizing: the star, engineering, commitment, bureaucracy, and autocracy model. The *star* model builds attachment on offering challenging work, autonomy and professional control. Personnel selection is based on individual long-term potential. The *engineering* model is also based on offering challenging work but selects from specific abilities, while control relies on peer-groups. Peer-group control is also part of the *commitment* model characteristics, but includes emotional attachment and cultural fit. The *bureaucratic* model is traditional in terms of formalized control and specified role selection, but otherwise informal. It is built on the idea of providing challenging work and developing opportunities. Finally, the *autocracy* model refers to scientific management modes of organizing (Taylor 1911). It relies on monetary motivation, control and coordination for achieving employee performance outlined as pre-specified tasks. Personal oversight constitutes employee control.

The table below gives an overview of how these five modes have been developed in multiple articles.

[33] Reliance on informal control through peers or the organizational culture, through socialization, through formal procedures and systems, or through founders.

Table 5. Employment related formalization by intra-organizational ecologists

| **Publication/ Author** | **Main concern** | **Main variable** | **Results** | **Sample/ Medium age of firms[34]** |
|---|---|---|---|---|
| *Inertia and change in the early years: Employment relations in young, high-technology firms[35].* (Hannan, Burton et al. 1996) | Inertia and organizational change.[36] How and why origins might matter: (a) extent and causes of change in employment models, (b) implications for performance of some initial blueprints | Founder models of employment relations[37] and their business strategies' influence on organizational imprinting[38] | The stable engineering model and 'factory' model have higher rates of replacement of founder and achieving IPO[39] | SPEC[40]/ 6.5 (2-12) |
| *Engineering Bureaucracy: the genesis of formal policies, positions and structures in high-technology firms*. (Baron, Burton et al. 1999) | Impact of founding conditions on: managerial intensity, specialized managerial and administrative roles, formalization of employment relations | Founding conditions, founders' models applied to employment, and gender composition | Founding conditions influence managerial/administrative intensity. Less strong influence from founder models applied to employment. External gate-keepers' needs, scale, growth and age shape the rate of employment formalization and title proliferation | SPEC[41]/ |
| *Building the iron cage: Determinants of managerial intensity in the early years of operation.* (Baron, Hannan et al. 1999) | Influence of initial gender mix and founder blueprints on how structures get established, in particular managerial intensity | Founding conditions, founder blueprints and gender composition | Female occupant initially in key positions has negative effect on administrative intensity; founder blueprints affect bureaucratization. Change of them increases turnover | SPEC[42] |

[34] Survival bias.

[35] Organizational model or blueprints of founders – either explicitly or implicitly.

[36] Departure from the idea that origin has enduring importance (Stinchcombe 1965; Hannan & Freeman 1977) in contrast to the idea that firms are contingently or culturally organized and can change relatively frictionless (Thompson 1967; Meyer & Rowan 1977).

[37] The key question posed was how human resource systems are established. (Do you have a key model in mind?) If yes: Based on attachment, basis of control, and selection, the engineering, star, commitment, and bureaucracy model evolved.

[38] Imprinting is a process by which events occurring at certain key developmental stages have persistent, if not lifelong, consequences.

[39] Management implications: Selecting an initial blueprint that suits the present and anticipated future strategy and environment might be better than selecting one that is ideally suited to the current milieu but likely to mismatch the future and cause disruptive changes.

[40] This article refers to the first 100 firms investigated through a survey, interviews, and archival data. Trained MBA and doctoral students conducted semi-structured interviews with at least one founder, the current CEO, and a key informant nominated by the CEO to inform about human resource practices.

[41] 170.

[42] 76 firms.

| Publication/ Author | Main concern | Main variable | Results | Sample/ Medium age of firms[34] |
|---|---|---|---|---|
| *Staying the course: Early organization building and the success of high-technology firms*. (Hannan, Baron et al. 2000) | Effects of early organizational building & subsequent development on performance | Founding characteristics related to dynamics of IPO, events, growth after IPO | | SPEC[43]/6 |
| *Labor pains: change in organizational models and employee turnover in young, high-tech firms*. (Baron, Hannan et al. 2001) | Effects of founding conditions on proliferation of management and administration | Gender mix and implemented founder blueprints | Disruptive to alter founder blueprints (higher labor turnover), indications of path dependence in bureaucratization. Gender mix had negative effect on increased bureaucratization | SPEC |
| *Organizational blueprints for success in high-tech start-up –Lessons from the Stanford Project on Emergent companies.*[44] (Baron and Hannan 2002) | Impact of clear founding model on performance | Human resource models | High commitment HRM pays also in turbulent environments. Commitment model fastest to IPO versus non-type model. Star model has highest growth after IPO. Autocracy model worst. Change of models affects performance negatively | SPEC[45]/ just over 5 years |
| *Employing identities in organizational ecology*. (Baron 2004) | The relationship between employment conditions and individual organizational identities | The importance of ventures' employment models | "Competition is based on organizational capabilities, and how one mobilizes and manages human resources," p. 28 | Theore-tical |
| *Organizational identities and the hazard of change*. (Hannan, Baron et al. 2006) | Explores identity based resistance to change in employment patterns –disruptive and degraded performance, i.e. survival/failure, IPO chances, growth of financial evaluation | Employment models | Change diminishes early success chances; employment pattern change is more disruptive than CEO succession | SPEC[46]/ younger than 10 years |

[43] 150 firms.

[44] Five blueprints: Star, commitment, bureaucracy, engineering, autocracy.

[45] More than 200 firms.

[46] 177 firms.

### *Employment models set into the scientific perspective of organizational ecology*

One key argument related to the work of intra-organizational ecologists is that, irrespective of which model is chosen to handle formalization in new ventures, the organizational elements created are persistent (Baron 2004). It aligns with the suggestion that founding conditions are particularly influential on the development in young firms, in terms both of what resources exist and of which decisions are taken (Stinchcombe 1965; Boeker 1989). It adds to earlier research on initial decision-making having a long-term influence on organizational development (Boeker 1989; Siggelkow 2002). These assumptions are deeply rooted in evolutionary approaches to organizational development that is driven by four generic processes; variation, selection, retention and diffusion (Aldrich 1999). The four processes operate on different levels but are generic to evolution.

*Variation* can be intentionally activated or occur due to mistakes, misunderstandings or the like, which is called blind. If we use the example of new venture organizing, variation is suggested to be a response to exogenous pressure and is a strategic approach to become competitive (Boeker 1991; Aldrich 1999). It could also be considered as an inherent part of the venture idea, because some new ideas require new organizational approaches (Henrekson and Stenkula 2007). It means that competitiveness resides in the organizational approach and its development, differing from how competitors organize similar offers (Davidsson 2004). Derived from SPEC, different perceptions of founders were taken as underlying variation of employment models applied.

When variation is created, *selection* forces are activated. These forces can be external or internal depending on where the variation has been created (Aldrich 1999). Consistent selection is suggested to result in conformity and standards, which can be transferred to how patterns of behavior occur as routines. In SPEC, selection forces causing change of implemented models are suggested to be disruptive. In my study, selection pressure could be expected in relation to existing ways of operating, which would be disrupted through increased formalization. New ideas that are chosen to be exploited would be an additional cause of disruption if they are to be pursued in parallel with existing modes of organizing.

*Retention* is the third generative process that occurs when selected variations are preserved and reproduced (Aldrich 1999). To a new venture, retention of ways of operating in terms of formalization is important, because it creates

stability and increases survival chances and performance (Hannan, Baron et al. 2000). Yet it can be expected, too, that retention of informality would appear as a hindrance to increased formalization because it would entail changes.

A main point from an evolutionary perspective is that changes of different kinds cannot be made without risk, due to how evolutionary processes function. Yet if variation is successfully initiated and retained, withstanding selection pressures, the fourth evolutionary process of *diffusion* is activated.

The evolutionary perspective is relevant to entrepreneurship and Schumpeter's idea of creative destruction (Swedberg 1994; Swedberg 2000) because evolution of entrepreneurship, or the process of it, is a disruptive change. An implication for my study on a venture level is that organizing of innovative ideas would be at higher risk of failure compared to reproducing ideas, because they challenge the occupation of incumbent firms. If they succeed, it means a variation on what exists and has fatal effects on incumbent firms (Henderson and Clark 1990). Yet it is a challenging pursuit, which takes us to a micro level. In contrast to human capital and contingency theorists, organizational ecologists focus on organizational characteristics of new individual firms (Bruderl, Preisendorfer et al. 1992). The SPEC contributions have increased our understanding about how initial organizational liabilities and organizational challenges can be overcome. Also in a longer time perspective, the initial organizational imprints are suggested as vital to understand the contextual conditions for change to come (Hannan, Baron et al. 2006). It is here that the SPEC contributions stand out as a valuable framework for interpreting the formalization process in my study. The SPEC contributions have a bearing on my study in different ways.

### *The SPEC contributions related to my investigation*

First, formalization is suggested to be determined through founders' perceptions. They appear fixed in relation to individual founders, but have extensive influence on human resource related formalization and the continued venture development (Baron 2004). The consequent suggestion is that these initially implemented blueprints are dangerous to change (Baron et al., 2001; Baron and Hannan, 2003; Hannan et al., 2003). Informally created formality may also have been added as legitimate through their repetition (Eisenhardt and Schoonhoven 1990; Orlikowski and Yates 2002). From these two arguments it can be understood that during my investigation there may already exist embedded structures with various origins that have been diffused intra-organizationally.

Further development of them or additional formalization may have substantial effects.

Research confirms that this may be the case through studies on holders of the first organizational positions created in a venture (Burton and Beckman 2007). Depending on the character of the first holder and how the venture has developed organizationally, replacement may become constraining. The reason is independent of how the position was created; the first employee to take a particular position shapes it in different ways. Individual characteristics and preferences are one shaping factor, the technical needs of the venture are another, and the contextual condition from which the position is enacted is suggested to be a third shaping factor. Consequently, early formalization becomes strongly imprinted, making later changes or development dependent on the existing. Results of that kind influence my methodological approach, including retrospective inquiries about the earliest formalization in new ventures, to understand formalization during the investigation period. Thus, even if they are blurred the ventures can be expected to have embedded directing organizational characteristics. Therefore, subsequent formalization has to be understood against the existing. However, early structures are not considered to totally determine organizational behavior or the subsequent formalization at the stage of development that I investigate. The powerful influence that intra-organizational ecologists refer to needs to be questioned.

The reason is that when blueprints are suggested to remain culturally embedded scripts of organizing also when the founders depart it is added that the effect diminishes over time (Hannan, Burton et al. 1996), because the business strategy is inclusive in the blueprints. Over time it is likely that the business strategy changes, and consequently the blueprints too. My study is expected to give new insights about how disruptions occur and are handled at a micro level.

Second, the SPEC studies emphasize the importance of the clarity gained from the models, to have any model is most favorable compared to not having a clear model that can be articulated and applied (Baron, Hannan et al. 2001). It is also underlined the importance of their retention during market establishment of new ventures (Baron, Hannan et al. 1999). The positive effects of creating and holding on to initial structures during early venture exploitation support my argument that new venture formalization is enabling and stabilizing. All models are to some degree culturally strong, including emotional commitment. However, concerning the model that is most commonly applied, the engineering model (Baron, Hannan et al. 2001), it is identified as the less disruptive to change. The implication for my research is that if models exist, it can be

expected that they hinder increased depersonalization of the venture structure when formalization is pursued.

A third aspect relates to the suggestion that contextual attention to how formalization occurs over time is lacking (Bamford, Dean et al. 2004). Blueprints remain retrospective rationalizations of how venture cultures are created. My positioning is to consider and carefully investigate the organizational conditions so as to get a thorough understanding of how the process develops in relation to the existing.

Fourth, related to the influence on formalization that is derivable from founder perceptions or mental models (Baron, Hannan et al. 2001), it can be questioned to what extent perceptions of founders are modified when realized through formalization. The strong emphasis on mental models as underlying formalization raises questions about how they actually realize their experience-based perceptions, or adjust them to the venture conditions over time. Through the retrospective approach in SPEC, founder perceptions appear fixed. Since high-technology venturing is suggested to be a dynamic organizational challenge, it may be necessary to substantially revise mental models over time. Nothing is known about founders' mental models over time, besides their being presented as underlying the determining employment models. Venture blueprints have been thought likely to change if the founder leaves the managing position (Hannan, Burton et al. 1996). This raises attention to particularities and micro-level activities regarding formalization.

A fifth important lesson relates to outcomes. The five employment models outlined enable my identification of individual logics influencing certain changes. Yet the employment models are derived from the cognitive models related to the founders. It remains unclear to what extent they are cognitive for other organizational members, because other actors are excluded. In addition, even if the employment models are depicted as formal, it is not clear if they are explicitly written down or communicated to organizational members. They appear as rationalizations of founders' initial organizing activities and subsequent decision-making.

Important aspects from SPEC that frame my investigation are pinpointed below:

- Implemented blueprints of organizing shape several human resource-related aspects of organizational characteristics outlining of top management roles, employment procedures, and administrative intensity
  → *This confirms my assumption that formalization is created early in high-technology ventures*

- Managers are depicted as mindful architects with great awareness of the importance of employment models → *The role of management, in my study, is not held to be that of the only actor group influencing formalization*
- SPEC recognizes that a founder's blueprint is only one of several important founding factors influencing organizational development, yet it appears powerful → *The powerful influence of founder perceptions needs to be questioned, prioritizing a comprehensive approach to understand formalization*
- In the investigation identifying different employment models, thirty percent of the founders were not able to characterize their approaches aligned with any of the five blueprints. Neither are we informed about their very creation → *Both the outlined models and the lack of knowledge about how formality was pursued imply that further studies on formalization need to be contextualized*
- Employment procedures are taken as a core variable, following the logic that human resource aspects relate to the most important asset of new high-technology ventures → *Building on knowledge from earlier literature (O'Reilly and Anderson 1982; Aldrich 1999) about human resource development being late among different prioritizations, my comprehensive approach includes evolving structures identifiably related to all kinds of behavior and processes*
- The enduring effects of first imprints are approached as disruptive to change. Yet change of models turned out differently depending on which model was changed and what new blueprint was adopted. Further, disruption is demonstrated to be a survival and performance effect, downplaying the managerial challenge of handling the process[47] → *This implies a need for increased micro-level understanding of formalization activities*

Transferring the results to my investigation, it seems important to explore formalization with particular attention to employee related issues that are already applied. However, with the flaws of the SPEC contributions in mind, my research will focus on process dimensions on a micro-level.

[47] These effects are measurable and add important explanations to why some new organizations fail and others develop successfully.

## FORMALIZATION AS A PROCESS

Formalization can be perceived as a transformation of an entire organization between two points in time (Barnett and Carroll 1995). Yet a main assumption underlying this investigation is that formalization is an enabling subsequent process, pursued on a micro level within individual ventures. Research on formalization in the context of new inter-organizational relationships supports this assumption in a more detailed way than the SPEC studies (Vlaar et al. 2006).

Formalization is presented as a way to generate different mechanisms that facilitate initial mutual understanding as well as subsequent cooperation and individual sense-making. The mechanisms are labeled (1) focusing attention, (2) articulation, deliberation, and reflection, (3) instigation and maintaining interaction, (4) reducing biases, judgment errors, incompleteness, and inconsistency[48]. If such problems can be reduced, it simultaneously increases the capacity of individuals to act according to mutual organizational goals.

Such knowledge is relevant to new venture contexts due to the similar organizational challenge of integrating individuals who represent different modes of operating. Such problems are pictured as particularly delicate at early organizational stages when individuals are faced with disrupted structures, routines and unfamiliar organizational conditions (Weick 1995; Zollo and Winter 2002). The first employees are accustomed to different organizational structures, and management philosophies. Consequently there are different organizationally related variables that impede mutual understanding and successful cooperation.

Besides, an internal need to know what is going on, to know why people do what they do, or why they do not do what is expected, is a need expressed both by owner/manager and by employees (Brytting 1991). Thus the underlying needs for organization development are not only a management concern, but a concern for everyone involved (Bouwen and Steyaert 1990; Brytting 1991). These contributions treat how formalization occurs.

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[48] Focus of attention is suggested to enable a selection of issues of highest importance and downplay those of less importance. As a consequence, complexity can be structured jointly. The condition for achieving this is that the interaction partners are willing to participate in a continuous construction and reconstruction of reality, i.e. a breakdown and revision of existing formality. The second mechanism of articulation expands the mutual knowledge base between interaction partners because tacit knowledge is articulated. The articulation simultaneously clarifies standpoints of individuals. The extended platform constitutes a better position for decision making. This second mechanism suggests that formalization is a process on a very detailed and thorough level. The third mechanism generates dynamics to support longevity of interaction relations and support continuous renewal. The dynamics is enabled by formalization of structures that guide and trigger interaction. The fourth mechanism is close to the first in its role of reducing noise and taking consideration of several individual interests and suggestions. Through this mechanism a more coherent picture emerges. The threat of conflicts and misunderstandings can thereby be reduced.

According to the process description in Vlaar et al. (2006), the mechanisms underlying formalization appear as self-organized. This is in line with unintentional and spontaneous processes that are suggested as important activities to understand formalization in the context of small growing firms (Brytting 1991). Among 16 sub processes, self-organized activities seemed vital for understanding the process fully. Evidently, spontaneous or self-organized formalization may be part of the process in new organizational contexts.

In an in-depth case study of a high-technology venture, increased interactions were underlying the organizational development of a new venture (Bouwen and Steyaert 1990). The process of formalization and its outcomes were conceptualized as intense dialogue between different intra-organizational actors with the purpose of 'weaving the organizational texture', i.e. increasing sense-making conditions. Research with sense-making as an underlying rationale signals that activation of formalization coincides with major shifts in the organizational context. When such shifts occur, several parallel organizational mechanisms are activated and a need of increased formalization arises.

This section adds spontaneous and self-organized aspects of formalization, representing an inductive organizational development. It implies that all individuals would be actively involved in formalization activities, through dialogue, spontaneous activation or practical outlining of structures, supporting the idea of formalization as an activity-based subsequent development. Hence, an activity-based understanding of formalization and its outcomes will be elaborated on with the support of research from the strategy field.

## Process understanding derived from strategy-making

Extending how disruption is treated as an inevitable consequence of change in SPEC without informing us about its details it can be understood as employee-related showing effects on a venture level. From the section above, employees appear as involved in formalization and ready to accept changes. When there are no intentional formalization attempts, like those suggested in SPEC, employees have been suggested to repeat certain behavior that becomes informally formalized (Orlikowski and Yates 2002). This could be understood as self-organized. Such behavior reflects instrumental needs among individual employees in new ventures to find guidance and frameworks for behavior in the initial informality (Morand 1995). The section above implied a willingness among employees to accept formality, as is suggested by Vlaar et al. (2006). Yet

the question of active involvement by employees remains to a large extent unexplored.

It has been argued by strategy researchers that to understand outcomes of a process, focus has to be on the interaction between different levels and contexts of change because they are tightly interwoven (Mintzberg and Frances 1992; Pettigrew 1997; Pettigrew, Woodman et al. 2001). Two dichotomous approaches to process understanding have been revealed, deductive and inductive changes (Mintzberg and Frances 1992; Regnér 2003).

*Deductive* change is the more intentional way of changing an organization. Conceptual intentions are transformed into concrete activities to realize the intention. A typical example is a new strategy, vision or plan that is outlined by management and implemented in practice. It signifies that management is striving for a new state of art through certain outlined actions.

The *inductive* way of understanding change is to address concrete changes that result in conceptual changes. The concreteness refers to daily activities that are pursued in line with the corporate strategy, or as corporate activities (Mintzberg and Frances 1992; Regnér 2003). This does not exclude that they can be pursued in parallel by different actors within the same organization. The inductive approach, due to its character, is based on daily activities resulting in increased learning about how to proceed with decision-making. This inductive perspective on organizational development overlaps with the idea of concrete action as a way to pursue development (Sarasvathy 2001). Thus, formalization as part of venture development can be expected to be pursued through multiple activities and actors.

Both ways of pursuing formalization are of interest in this thesis to understand how formalization activities are pursued by different actors. If different actors activate formalization, they may have different approaches. Even if the inductive way of conducting formalization were taken as the most likely in new ventures, venture events or upcoming challenges may be of such magnitude to the ventures that they enforce deductive approaches. The implication for my work is that different formalization issues may develop in different ways within a venture.

Further, both kinds of organizational changes can be followed by conceptual change. Related to the SPEC studies, deductive implementation of employment patterns seems to include conceptual and cultural influence on employees. The conceptual programming constitutes an important basis for culture creation and organizational identity in new ventures (Baron 2004). However, conceptual adjustment among employees is either intended to result or emerges in unintended and unexpected ways (Mintzberg and Frances 1992).

Related to my study, this distinction of process dimensions implies that different courses of action may be taken through different actors.

## Summary comments related to my investigative model

My investigative model covers activation, process, and outcomes, with consideration given to contextual conditions. With process in focus, two main perspectives related to formalization routines and employees have been discussed. Learning from the first section in this chapter, routines cannot be taken as a solid basis for formalization of structures. They are to be considered as mediators and/or outcomes of formalization.

In the second section, contributions by intra-organizational ecologists were thoroughly discussed. Together with additional contributions treating employee-related formalization, they appear important for several reasons.

Finally, my pre-understanding of formalization was extended by discussing different possible characteristics of the process, as intentional and unintentional. These were refined through the concepts of deductive and inductive change, representing different possible process characteristics.

Together, the dimensions treated all point to a combination of dimensions to include in my investigation of formalization. Among the underlying reasons, formalization is perceived as enabling venture performance. Yet it can be activated for different reasons, perceived through an intra-organizational activity level. Even if human resource-related formalization seems important, it is reasonable to expect that selective formalization of a variety of issues is pursued. Existing formality is included to understand the contextual conditions for formalization. Finally, a diversity of outcome characteristics is expected to be revealed.

# 4 RESEARCH DESIGN AND METHODOLOGY

## RESEARCH APPROACH

My review of earlier research suggests that formalization is a multidimensional organizational phenomenon without sufficient contextualization. I realized through earlier literature that contributions were to be found in several theoretical fields. This was both an advantage and a disadvantage. It exposed me to substantial knowledge about formalization, particularly from an organization perspective, but little knowledge was gained with relevance to new ventures. Notwithstanding, it was when established knowledge among organization theorists was contrasted with emergent knowledge about formalization in new venture contexts that the theoretical gap I approach emerged.

Reading the literature, dimensions of importance to this investigation could be outlined in my investigative model. They were chosen for the main purpose of being able to reconceptualize formalization. The consequence was an inclusion of contributions from several theoretical fields, primarily organization and entrepreneurship theory. The SPEC project constitutes a selected theoretical perspective that is based on organizational ecology. Their retrospective research results build on outcome-driven explanations (Van de Ven and Engleman 2004). Despite an epistemological and ontological distance between my scientific positioning and that of organizational ecologists, their theoretical contributions strongly guided my research design. The simple reason was the relevance of their theoretical contributions related to how formalization is to be investigated in this study.

The primary aim of including research contributions from different fields was to create a relevant theoretical background and research design. The second benefit was that the holistic framework facilitated the interpretation of my empirical findings. Yet the different scientific underpinnings in the literature drawn upon had to be treated. An awareness about the scientific perspectives of earlier research that is drawn upon was needed (Perren and Ram 2004; Zahra 2007; Lindgren and Packendorff 2009, forthcoming) to make use of the multiplicity. This was provided in connection with the discussion of the literature. The scientific clarifications made clear the particular benefit of different contributions to my understanding of formalization, and to more detailed presentation of how they could be included in my theoretical framework.

Applying contributions from several theoretical fields, process details emerged. First, formalization appeared as an early organizational challenge to

overcome. Earlier research shows that there is substantial organizational change in ventures that increase their number of employees above ten. Second, new ventures do no seem to create formal structures solely to gain in legitimacy, to get feedback or to control employee activities. On the contrary, initial structures seem to serve multiple enabling functions and the process is moderated by multiple factors. Extending that, a third process aspect emerged: the likelihood of engagement by multiple actors – both intra-organizational and external. They could be engaged as initiative-takers for formalization or be actively involved in the pursuit of formalization. A fourth related aspect is that employees seem to be both the main targets of formalization and active participators. Together the aspects imply that formalization is a dynamic process, which strongly influenced my research design and methodological choices.

To pursue the investigation in retrospect includes the risk of results being rationalizations of the process. This was not least apparent in the SPEC studies, which document formalization as linear determined development. Much of the research contributions were also criticized by me as resulting in static descriptions rather than catching the dynamics of formalization as a process. Consequently, my choice of method was directed by the intention to catch the occurrence of formalization rather than the state of it, including antecedents influencing the development, non-linearity, accidental turns, and contextual factors that shape and are shaped by the action. A process approach, which has become the dominant way of capturing the dynamics of social phenomena (Pettigrew 1997), was decided on. External factors would then need to be included to understand how they shape and are part of the process (Pettigrew, Woodman et al. 2001). Yet as has been declared, such inclusion would be done without assuming that formalization is determined by its context (Reay, Golden-Biddle et al. 2006).

The above text makes clear that a process perspective would be most relevant to investigating formalization. This influenced my methodological choices. Method is often presented in handbooks on methodology as a choice of an appropriate tool to answer the research question or pursue an investigation about a certain phenomenon or process. It implies that outlining a research design is a rational choice with a clearly defined object to study and methodological options to choose from.

However, in line with calls for process-oriented research (Aldrich 2001) my approach is built forward, capturing the development in flight. This approach carries an assumption that social reality is a dynamic development which can be captured through evolving multiple non-linear dimensions (Pettigrew, 1997). The risk with my approach was that I could not be certain of identifying the

process of interest because it might not appear. In addition, formalization in high-technology ventures, as outlined in my investigative model, was empirically not so clear when my study was launched. My theoretical reading, encircling relevant earlier research, made clear that the research phenomenon rendered it necessary to allow an explorative procedure. Case studies were chosen to achieve my research purpose from the conditions presented.

## Case studies

Case study approaches are part of an increased acceptance of qualitative methods in small business and entrepreneurial research (Perren and Ram 2004). One reason is the respect for and need of existing knowledge in different theoretical fields in order to pursue research in an entrepreneurship context.

Another reason is that, through qualitative studies, new questions can be asked with the purpose of building theory (Davidsson 2004). I conducted an inductive investigation for extending emergent knowledge about formalization in the context of high-technology venturing.

The choice of using individual cases was appealing to illustrate that existing theory about formalization does to a large extent exclude the earliest stages of formalization. Siggelkow (2007) argues in favor of a single case, using the same arguments. To use one single case that, through its uniqueness, would best illustrate my theoretical development was not a feasible choice for achieving my purpose. To use more than one case had to do with the concept in focus, which was not possible to predefine through any known individual ventures. There was no such unique case to be identified that would best illustrate formalization. Instead, I wanted to investigate formalization in multiple cases allowing for comparison between cases.

Further, new ventures are an unstable research context because they are not stabilized financially and are exposed to the risk of failure. Thus, adding to the intention of being able to investigate formalization longitudinally and to make cross-case analyses, multiple potential cases were selected.

### *A longitudinal approach*

Related to the choice of case study research is that it allows for a longitudinal approach (Pettigrew 1997; Saunders, Lewis et al. 1997; Siggelkow 2007). Longitudinal research enables the underlying dynamics of a phenomenon to play out over time. Yet the intensity in longitudinal studies, that is, the frequency of

the phenomenon, seems to be important to be able to inductively abstract new findings, as has so well been illustrated in the studies by Gersick, among others (Gersick 1988; Gersick 1989; Gersick 1994). The implication is that the importance of and relation between different aspects, events and activities can be understood as constituting the process development. This unfolding aspect supported my decision to investigate several cases over a time period long enough to make the formalization process visible, aligned with experiences in past research (Gersick 1994). A one-year period was decided on. Through intensive studies of several ventures, each would illustrate formalization in similar or different ways. Consequently, formalization in new ventures could be extended through comparison between the cases of how the process appears in each venture. Semi-structured, booked interviews were intermingled with open-ended questions in informal talks. Observations and document collection supplemented the interview method.

In my investigation I encircle some actors and process dimensions through earlier theory, but I allow for evolving characteristics. Even if it is highly recommended to predefine which variables to investigate when launching case studies to increase focus and not risk drowning in contextual findings (Eisenhardt 1989) I left it open to some extent. That choice was made with the aim of creating room for unexpected findings to appear, which is one of the advantages of case studies in small-venture contexts (Perren and Ram 2004; Van de Ven and Engleman 2004). With the purpose of advancing the concept of formalization, existing variables related to formalization were taken as guiding rather than as measurable variables, also allowing for the pre-identified dimensions to be developed.

Narrowing down what is the main source of information sought in my investigative approach, it can be characterized as a bottom-up inquiry. Events, activities and individual cognitions accumulate to group-level action, resulting in understanding of venture-level formalization. Particular care is taken to capture the context to understand how formalization develops in relation to individual perceptions, activities and decision-making. Established firms are suggested to be able to reduce uncertainty through analyzing past performances or other available information (Ucbasaran, Westhead et al. 2001). Context in my study is included with consideration of how new ventures interpret their conditions and gradually gain insight. The contextual uncertainty is treated as an inseparable background for understanding how formalization is pursued through different actors.

In summary, the choice of case studies generated qualitative data that the contributions in this study are based on. Nevertheless, being dependent on

disparate earlier research about how formalization would appear in new ventures through comprehensive literature studies an initial decision was taken to conduct pilot interviews and a population study to narrow down a solid pre-understanding of formalization, which will be explicated later in this chapter.

## SCIENTIFIC APPROACH

Throughout the earlier chapters in this study I have been careful to make clear scientific differences between contributions from earlier research and my approach. A concrete example of why this is important can be related to levels of analysis. Almost every study drawn on takes a management/founder/entrepreneur perspective. This is discussed as a limit and I argue for a venture approach for several reasons. It influences my research design and the results that evolve. My research approach moves the focus from single actor-related development of formality to a venture perspective, including several actors, their actions and the context.

Further, it is most important to consider how the social world is perceived among researchers. Social contexts, such as new high-technology ventures, can likewise be explored and understood in different ways. As in all research, my research design was influenced by my scientific underpinnings. Using studies by organizational ecologists as an important framework, this thesis is heavily exposed to research positioned on the objective side. This means that they carry a deterministic view of the world and are searching for causal relationships. At the other end of their positioning are researchers with a social constructionist perspective, perceiving the world as continuously constructed in the social interaction between individuals (Alvesson and Sköldberg 1994; Lindgren and Packendorff 2009, forthcoming). I include several actors with the perception that different actors shape the development on a micro-level. Yet I believe that there is an objective reality behind our perceptions, which is distanced by social constructionists. It does not mean that the reality is an objective phenomenon that is easily observable. The social reality is influenced by collective or individual actors and structural conditions. The social reality may also be hidden in tacit knowledge among individual beholders (Fleetwood 2005). It points to avoidance of a strong positioning in either of these perspectives. As indicated, I include studies from both perspectives, but my work is oriented by scientific realism.

Scientific realism has gained in importance due to an earlier fruitless paradigm war between realist and constructionist thinking (Moldoveanu and Baum 2002). Much of the issues that have caused strong positioning at opposing

scientific ends are now addressed as misunderstandings. Debate and argumentation have made scientific positioning in opposition to a counterpart devoid of value. Some researchers can now admit that they have found convergence in their results through different scientific positions (Davidsson 2004). They have simply pursued research from different scientific assumptions and different methodological approaches. In relation to their earlier combatants, the combined results consolidate increasing knowledge in young fields like entrepreneurship. To avoid extending this discussion, further references are recommended (Moldoveanu and Baum 2002; Fleetwood 2005) for the debate about scientific positioning.

My work has been outlined and pursued with a conviction of producing reliable results. My scientific positioning has proven applicable in organizational contexts. The mind-independent reality that is assumed from a realist approach has been applied in organization studies, referring to the assumption of organizations as real (Tsang and Kwan 1999). This aligns with how I perceive organizations as real and having specific attributes like structures.

## THE INVESTIGATION PROCESS – FROM PREPARATORY WORK TO INVESTIGATION RESULTS

Being clear about how the research process is conducted is considered as essential as being clear about my scientific positioning. In the following my empirical investigation, from preparation of research design to closing of four case studies and management of my results, will be presented in detail. The overview below summarizes the scope of my empirical work. It had a starting period during fall 2002 (stage 1) and was most intensive from the end of 2003 until mid- year of 2005 (stage 4). Stages 2 and 3 enabled the case studies and were conducted in parallel from the end of 2003 to the beginning of 2005.

| **Stage** | **Methods used** | **No. /Durance** |
|---|---|---|
| 1 | Web search for investment announcements | 2 weeks |
| | Initial interviews with venture capitalists/experts | 2 |
| | Participation in nano-technology conference | 1 |
| | Pilot interviews | 3 |
| 2 | Population study through public data | 80 ventures |
| | Telephone questionnaire of population ventures | 59 responses |
| 3 | Retrospective interviews with selected ventures | 10 |
| 4 | Longitudinal case studies | 4/1-1.5 years |
| | Personal interviews | 43 |
| | Observations | 22 |
| | Management meetings | 7 |
| | Weekly information-sharing meetings | 7 |

## Preparatory work

Several investigative challenges were identified from a methodological perspective when the research design was to be outlined. One was to identify a suitable empirical context. Another challenge was to access individual cases. A third difficulty to resolve was how best to distinguish the process from other organizing activities. Earlier research reports that the early stages of venturing include various organizing activities that are pursued in parallel (Klofsten 1997; Davidsson and Klofsten 2004). Choice of empirical context, individual ventures, methods and investigation period had to be taken into careful consideration. Substantial preparatory work and adjustments were done initially, which will be described in the following.

### *Choice of high-technology as an empirical context*

My persistent approach to new high-technology ventures relates to my research focus on formalization. Their main challenge is to maintain and create enough organizational perseverance to succeed, yet remain flexible enough to overcome upcoming challenges in a context fraught with uncertainty. Accordingly they represent innumerable organizational paths of development (Mohrman and von Glinow 1990), making them relevant to my investigative purpose.

More specifically, high-technology ventures have been presented as a highly relevant context for investigating formalization, not least by organizational ecologists, due to their dependence on gaining external legitimacy. Further, they need to succeed within a short window of opportunity, and consequently they soon need to extend the founder/team with additional employees. The organizing aspect is thus an essential activity in the exploitation of innovative ideas through such ventures.

As for preventive considerations, some careful empirically related activities increased my pre-understanding of high-technology venturing. The main reasons for these activities, besides gaining improved understanding of the conditions for formalization within high-technology ventures, were to identify suitable ventures for case studies, and to refine my investigation methodologically before the case investigations were launched. In the following, different activities pursued before launching the case studies will presented as pilot interviews, a population study of Swedish high-technology ventures, and retrospective interviews in 10 high-technology ventures.

### *Pilot interviews*

First some ventures were to be selected for a pilot test. Three young organizations that had experienced fast growth were selected in 2002 through snowball sampling. This decision aligned with my initial intention of investigating young fast-expanding ventures. The selection was preceded by a two-week search on the web for public announcement of investments in the high-technology area made by leading established investors in Sweden. A leading Swedish technology magazine[49] was scanned daily to identify venture capital investors and individual ventures receiving capital for expansion. Such announcements are occasions when young start-ups become publicly known, and it could be verified that they had intentions to expand. Two leading investors were searched on the web to find out more details about their target investments. One investor was contacted personally to get some advice of suitable ventures to investigate. A couple of investors focused on investments in fast-developing technology areas, and a few expanding individual companies came out of this search. Telephone contacts with the investors resulted in a selection of three firms representing three different high-technology areas.

The ventures' first CEOs were contacted by telephone to book personal interviews. They were openly informed about the purposes of the interview – to learn more about early formalization in high-technology ventures and to identify case study objects for my investigation. All three accepted immediately. See Table 6 below for basic details on the ventures.

Table 6. Basic information about the three ventures interviewed in 2002

| | **Technology area** | **Founded** | **Present organization** | **Number of full-time employees[50]** | **Ownership** |
|---|---|---|---|---|---|
| **Venture 1**[51] | Bio-pharmacy | 1998 | Matrix | 20 | Private |
| **Venture 2**[52] | Nano-technology | 1996(89)[53] | Divisionalized | 50[54] | Publicly traded since 1997 |
| **Venture 3**[55] | IT-security | 1997 | Matrix | 60[56] | Publicly traded since 2000 |

[49] Ny Teknik.

[50] At the time of investigation.

[51] The interviewee was not employed until the founder had raised financial capital estimated to cover the development of the venture for two years, but he was involved during the start-up period as a non-employee.

[52] The interviewee was also one of the co-founders. In this venture the founder, equally the first CEO, informed me about the venture history. During the whole meeting the CFO was present to correct and fill in details.

[53] The venture did not employ anybody until 1996.

[54] At the end of 2000, the company had 68 employees.

[55] The venture did not employ anybody until 1996.

[56] At the end of 2001, the company had 66 employees.

The data collection in the pilot interviewing was focused on (a) identifying the initial organizational imprints at an early stage, (b) revealing important firm events over time, (c) identifying internal and external actors influencing the process, and (d) and identifying endogenous or exogenous explanations for organizational development. These dimensions were chosen with the awareness of organizing being an action-driven process, including activities that are contextually embedded and spread among different actors.

During the semi-structured interviews, upcoming data of interest were probed to reach beyond the statements made. Probing was used to get closer to *how* and *why* formalization was handled during expansion. Some typical statements probed were: "*We increased the numbers of legal entities considerably during that period",* and *"We did not have any organization at the time"*. A number of questions (29) were prepared to ensure that the items of interest in the development of the organization were covered. Formalization was spontaneously commented on, as "we are working informally" or "we have not formalized much". Since I was not interested in establishing to what degree the ventures were formalized[57], I used questions on the list to access how formalization had been pursued. Some examples among the wide range of questions listed are: how are you organized today, what organizational challenges can be identified in your prior and present way of working, and how your processing of information has developed internally.[58] Each personal meeting lasted between 1 ½ and 3 hours. The meetings were taped, transcribed and sent to the respondents in order to follow up each meeting. The interviews were complemented with printed material about the company. Telephone calls and e-mail contacts were taken to get approval on the use of data and check for misunderstandings and details on what I had been told.

My experience from using semi-structured personal interviews in retrospect is that they give an orientation of what has happened over a longer time period. Such orientation is particularly useful when a process is approached in real time, because it informs about antecedents, and facilitates an understanding of the contextual conditions when the investigation is launched. The interviewees were willingly trying to recollect their venture histories, yet details probed were harder to access. In repeated contacts taken afterwards, it was also rather

[57] According to the interviewees they had outlined a matrix or a divisionalized organizational outline, which is presented in Table 6.

[58] Some examples of questions among the wide scope of questions listed are: how are you organized today, what organizational challenges can be identified in your prior and present ways of working, or how has your processing of information developed internally.

fruitless to get complementary data of interest. In particular, the underlying *why* was difficult to pinpoint. To rely only on interviewing the initial CEOs gave a too fragmented perspective on formalization, and their accounts were intermingled with several other challenges overcome. Having refined my research design according to this learning, the pilot cases were invited to participate in my investigation. None of the interviewed ventures were prepared to do that. Thus, the primary learning from my pilot work was that:

- It is very time-consuming to identify suitable study objects through snowball sampling.
- It is also high-risk since they seem to be restrictive in accepting research participation.
- To learn about the contextual conditions and underlying *why* pointed to a use of several methods and sources.

As a next step it was judged necessary to become better informed about the generic characteristics of high-technology ventures and basic conditions for formalization. The intention was to gain a reasonable pre-understanding so as to launch the investigation in appropriate contexts with acceptance for a comprehensive research design. This intention diverges from population studies pursued to advance theory, like the SPEC studies. My purpose was simply to encircle the phenomenon and learn about the targeted empirical context.

### *A population study of Swedish high-technology ventures*

In 1999 two journalists[59] had set out to identify embryos for future advanced technology-based business successes in Sweden. Up to the end of 2003 a total of 82 firms were identified.[60] Every year each venture is checked against the two main criteria of turnover and number of employees; and new ventures are added[61]. Thanks to their thorough work I got access to a cross-sectional population of young high-technology ventures. It enabled my contacts with a number of potential cases for in-depth case studies, and it fulfilled my purpose

[59] They work at the Swedish weekly technical magazine Ny Teknik.

[60] The persistent work of the journalist is continued currently with this writing.

[61] Ventures that are terminated for different reasons do sometimes appear on the list again, either with a refined idea and new stakeholders, or through the same entrepreneurs that launch a new idea. The ventures on the list are scanned for all over Sweden through a by now elaborated network of different informants. A primary selection criterion of the journalists is to identify young firms based on highly innovative ideas. It means that ventures based on imitative ideas are excluded, but may be included at a later stage when they have refined the venture idea or in other ways increased innovativeness. The second selection criterion, confirmed by the entrepreneur(s) at the first contact with the journalists, is an intention to grow.

of gaining an empirical pre-understanding of venture conditions for formalization.

The population was explored through multiple methods in 2004 (Delmar and Sölvell 2005a). Of the 82[62] firms in the population it was possible to get information about 80 of them. Their development was backtracked from their initiation until the end of 2003, or until they were terminated. All firms were incorporated, and therefore financial data were obtainable. All information on patents owned by the firms was gathered[63] from "esp@cenet"[64]. These sources were supplemented by a telephone questionnaire with a 74 percent response rate. A number of similar and differing characteristics were revealed. The results of relevance to this study were that:

1. Their perseverance was remarkably high.
2. Full-time employees averaged from 4.02 in year 1 to 18 in year 4.
3. Difference ranging from no external capital to substantial number of millions[65].
4. First-year sales averaged 0.5 million Swedish crowns (SEK)[66]. After four years, the mean sales had increased to 5.5 million SEK[67].
5. Costs first year averaged 3.9 million SEK. Year four the firms lost 21 million SEK.
6. Patenting, recruitment, market exploration, and attraction of financial capital appeared as main activities during their first years.

First, their perseverance is remarkable in comparison to another sample of Swedish technology-intensive ventures[68] where 25 percent made an exit during their second year in operation (Wennberg and Wiklund 2006). The population ventures could therefore be established as all possibly being involved in organizational development.

Their early increase of number of employees is a particular dimension indicating that they were likely to be involved in human resource-related formalization.

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[62] That was the accessible number of ventures in 2004. The journalists have continued to identify new ventures and the population is currently far above 100 ventures.

[63] These data were taken from official archives such as "Bolagsverket" which is the official government office storing data on board members and financial records for all incorporated firms in Sweden.

[64] It is a web-based search engine provided by the European Patent Office (EPO), and it covers world patents, European patents and patent abstracts from Japan.

[65] See Appendix 1 for details.

[66] The standard deviation was substantial, and one firm accounted for close to 25% of the total sales made by these ventures.

[67] The variance around the mean had diminished but was still important, and one venture accounted for 18.5% of the total sales amount achieved in the population.

[68] Covering all technology-intensive ventures started between 1994 and 1996.

Points 3-5 are common observations. It takes a long time and is costly to exploit innovative venture ideas (Auerswald and Branscomb 2003). The commercialization of new technology is evidently a challenging development. This population seems to be aligned with what earlier research reports on the early development of new high-technology ventures: that a minority of the firms make up for most of the growth, losses (almost none show any gains), and patenting (Delmar and Sölvell 2005a). Hence, there are several similar developmental aspects among the majority of the ventures, whereas a few stand out.

These new technology-based ventures all started without any other competitive advantage than that embedded in the development of a new technology. In order to survive and grow, they had to protect their initial ideas through patenting. To extend technological and scientific strengths in different ways (Van Looy, Debackere et al. 2003) recruitment and market exploration were essential organizing activities, having implications for formalization.

Telephone interviews yielded some disparate answers to questions about what organizational responsibilities the respective founders took on initially,[69] and when the ventures employed full-time employees responsible for accounting/financial issues, sales, and human resources respectively. Taken together, details about organizational formalization were, however, difficult to access through the population approach; despite different methods used.

Still, the statistical analyses confirmed that the population encompassed a substantial number of possible case study objects according to my selection criteria. When I selected all ventures on the list that were younger than 5 years in 2003 and had more than 10 employees, there were 20 ventures on the list fulfilling these criteria. They represented different industry segments; they varied substantially in number of employees, and other characteristics; and they were in different development stages.[70] Thus, they were all of interest because they constituted a diverse group of ventures on several parameters, allowing cross-venture comparison of the formalization process (Gersick 1988).

A second step in my research was taken to access and finally have case study objects confirmed. I contacted the 20 selected ventures to get a personal interview with the CEO at the time, with the purpose of securing appropriate research contexts.

[69] The annual reports gave no human resource-related information about the organizational development.
[70] Two were listed on the Swedish Stock Exchange.

*Retrospective interviews in 10 ventures*

An additional selection criterion regarding their intention to expand was checked at the first personal meeting in the ventures. To have that intention was regarded as an indication of also having a potential of expanding organizationally, or developing the organization for efficiency reasons. Beyond the aspect of having case participation confirmed, the interviews yielded important empirical understanding of formalization in the individual ventures.

As presented in the paragraph above, the ventures were contacted by telephone to book retrospective interviews. 10 of the 20 identified ventures accepted an appointment for interview. In all but one venture, Anoto, the present CEOs were booked for interviews. The serial entrepreneur/founder was interviewed in Anoto. The ten interviews lasted from 1.5 to 3 hours. They were taped and transcribed.

To follow up the interviews and request their case participation, interview transcripts were enclosed with a case study outline. A cover letter with some comments on what I hade learnt during the interview, why I found the actual venture interesting, and my research focus in brief was enclosed with the study outline and transcript. The study outline was formulated as:

Table 7. Case study outline proposal

| |
|---|
| **Interview with venture CEO every third month during 2004**<br>(a) To get updates on the strategic development of the venture<br>(b) To set appropriate contact dates for observation<br>(c) To get recommendations about key persons to contact that would be relevant for my research purpose<br>(d) To report and get comments on how I identify the formalization process |
| **Access to additional key employees with long experience in the venture, and employees engaged in human resource issues** |
| **Access to internal documents, power points or paper documents that relate to organizational structures and processes, human resource policy documents, and other relevant material beyond what can be accessed on the intranet or home page. In addition all public documents like annual reports and facts about employees** |

The conditions set up were sent by e-mail within a week after the interview. Five ventures accepted participation when the letters were followed up by telephone calls. Apart from the four depersonalized ventures that are reported in this study, also Spirea agreed to participate. That investigation was interrupted after about six months, a couple of months before the venture went bankrupt. The data gathered during this period were not of the quality that they could be included in my analysis. They were restricted to and affected by the survival

threat. Alligator Bioscience declined participation since they were in the process of changing CEO. The founder of Anoto declared already during the interview that a research investigation could not be accepted unless I was involved as consultant. Global Genomics wanted to postpone the decision to participate for different reasons. Packetfront declined participation due to time constraints. Finally, RaySearch Laboratories never responded to my request, despite several attempts to get in touch with them.

The content of the interviews constitutes important input to my initial exploration of formalization in the case studies. Knowledge gained about formalization, like the initial instrumental way of handling the first project-based organization, black-and-white attitudes to formalization at early stages, and some perspectives on a general resistance to formalization all facilitated my case study investigations. Further, formalization appeared externally rather than internally driven at first, depending on demands and adjustments to partners or other constituents. This learning enabled me to condense the retrospective accounts into some antecedents of importance for the present. It could be included in the comprehensive understanding of formalization that is the result of my investigation.

### *Case study protocols*

Four case study protocols (see Appendix 2-5 at the end of this thesis) attest the intensive investigation approach through multiple methods applied. They give an overview of the frequency in the venture contacts, including interviews, observations, and intermediary contacts to maintain continuity in the investigation. Besides booked personal interviews, the observations give opportunities for informal talks at the desks of several employees, participation in weekly information meetings, management meetings or the like, which are also noted in the protocols. Both during the investigation and as follow-up, documents that would increase my investigation continuity were requested and received. They appear as ‘weekly updates’, ‘minutes’, ‘notes’ or similar headings from different kind of meetings. After the case studies were closed, these kinds of venture documents were double-checked, to ensure that I had collected all produced under the investigation period.

The protocols were also a way to file transcripts, contacts taken, and venture documents. During the investigation, the protocol filing served as investigation diaries, and throughout my research work the filing system enabled back-and-forth work between my empirical material, theory reading, and empirical investigation.

The investigation period covers more than one and a half years in all the cases but Interpretation Case, because it was sold at the turn of the year in 2004/2005. The investigation in the beginning of 2005 was restricted to updating information by phone until the third CEO left the venture.

As requested in the case study outlines, the CEOs were recurrently interviewed in person or contacted for an update by phone. Apart from the telephone contacts all CEO, founder and key employee interviews were booked and lasted between half an hour and 2 hours.

In all the ventures the CEOs functioned as main contact and information partners. I signed the non-disclosure agreements with them; I contacted them to get in contact with other key employees, and to book dates for observation. Through this procedure all requested intra-organizational members were sanctioned to book interviews with, including the founders. They never restricted me from contacting anyone, except the investors.

The two academic founders in Case for Life were interviewed in person, while two additional co-founders were not reached[71]. In Cell Case, I got one interview after persistent attempts with the main academic founder. Beyond that, he took part in internal meetings I attended. A separate interview with two of the three academic founders was carried through in the Interpretation Case. One of the five co-founders in Top Security was not reachable. In total, I made 43 face-to-face interviews with the primary purposes of informing me about the organizational development, and identifying events and activities related to formalization. As mentioned, the venture CEOs was contacted recurrently to increase the continuity of my investigation.

### *Contextually based investigation adjustments*

As can be read from the protocols, some particularities occurring during the empirical investigation can be related to contextual differences. In Case for Life, the majority of meetings attended were sub-group meetings. In the other three ventures, weekly information-sharing meetings could be attended, but Case for Life had no such meetings. The number of observations is 8 in Case for Life, compared to 4-5 in the other ventures, due to the invitation of participating in operational group meetings occurring every 2nd week. Some of the observation days were restricted to such participation combined with booked interviews, due to the difficulty of conducting informal at the desk talks. Recurrent meetings were targeted when the new dates for observation were booked.

[71] One of them worked full-time in the venture but declined an interview. I managed to have one informal talk with him during his lunch break.

Top Security had continuity in management meetings followed by weekly information-sharing meetings. Both kinds of meetings could be attended in this venture during observations. In contrast, when the third CEO took office in Cell Case he declared that they had put all information-sharing meetings and other weekly meetings on hold, due to the financial situation and business priorities. However, when I showed up for the next observation it turned out that former meetings were replaced by new ones, which I could attend. The differences were that some of the participants were exchanged for others and the focus was solely on potential and current customers.

Informal talks were in general difficult to pursue due to the density of the office outline in all the ventures except Cell Case. During observations, as many interviews, informal talks, and meetings as possible were targeted. At each observation occasion, 50% of the employees present that particular day could nevertheless be reached either during meetings, through informal at the desk talks, through informal talks in relax areas, or through booked interviews. Spontaneous informality at the desk talks added to findings among employees. Observations in the participant sense or solely observations of interaction behavior were not intentional, but happened to a minor extent if there were time gaps in between interviews, meetings, or informal talks.

In the Interpretation Case, the financial situation was outspokenly worrying during the investigation period. Two of the four key employees left or declined interviews due to this reason. Even if the commercial situation in all the ventures was stressed, it did not impede my investigation from being pursued in a similar manner in all the ventures.

The three groups of actors targeted in the case studies – current CEOs, employees, and external actors – are included among the 43 personal interviews conducted. These interviews are distributed between recurrent CEO interviews (including all CEOs that were in charge over the investigation period), founder interviews, and interviews with key employees. Interviews with founders were made both with those that had left the ventures and those that remained in operative positions. External actors were accessed for interviews in their operative positions.

To summarize, the different venture conditions entailed persistent work to access the ventures in the outlined way, as can be read from the investigation protocols. Yet taken together, the value of the empirical findings can be appraised as equal and only differing on a superficial level.

## Interpretative work

The section above reflects how substantial investigative work was done stepwise. It accumulated over time into rich empirical material. Every booked interview was recorded and transcribed right after the meetings. Other accumulating documents were notes taken during telephone contacts, venture documents that were collected when visiting the ventures, and public announcements that were scanned on the internet. Each document created or collected over time was used as a reference point in new contacts with the cases. The material was not left without analysis until the end, as will be further described below. The empirical findings were interpreted from different theoretical aspects in several reports and conference papers during the investigation period (Sölvell 2002; Sölvell 2004a; Sölvell 2004b; Delmar and Sölvell 2005a; Delmar and Sölvell 2005b; Holmquist, Sölvell et al. 2005a; Holmquist, Sölvell et al. 2005b; Sölvell 2005). They constitute an essential part of the analytical work resulting in my empirical findings.

### *Recording, documentation and interpretation*

To realize an encompassing investigation and to approach the process in focus from different angles over a longer time period, it was considered valuable for several reasons to record what could be recorded. Due to the often prevailing non-routinized behavior in young firms, verbal evidence easily ceases to exist if not recorded (Petzold-Dumeynieux 2002). It was therefore clear from the launch of my study that recording would be applied whenever possible.

First, being in technically advanced and research-intensive contexts, it facilitated new questions of clarification after transcriptions. Also, all statements could be contextualized through the transcripts and probed in new contacts. Second, at some occasions, especially at meetings with several individuals present, it was easier to catch the dialogue by listening to the tapes than to rely on taking notes. Notes were taken at these occasions, but in a more reflective manner enabling follow-up questions. Recording was based on confidence in the technique of my recorder. Unfortunately, the technique was not as reliable as I thought, and two personal interviews had to be reconstructed from my memory and notes. They were, however, sent to the respondents right after the meetings. Despite some minor corrections, both interview summaries were agreed on from a content point of view.

The third reason relates to the longitudinal approach. During my investigation some individuals were exchanged, obstructing me from probing certain issues

over time, or relying on specific individuals as carriers of knowledge about the issues. Recorded documentation served as reminders of the development, despite change in some conditions. The transcripts served as the dominant documentation in analyzing the empirical material. This will be set into perspective in the next section.

The principle of recording was applied at all occasions possible. No refusals were ever met when asking about permission to record, or simply taking out the recorder and placing it close to the individuals in focus without interrupting a conversation. However, at some occasions I was alerted by selective individuals that they were not quite comfortable with my presence in general. For instance, they looked at me before talking and said: *"I hope this is confidential",* or *"Do not write this down".* As I had 'non-disclosure agreements' with all the ventures, these particular reactions could be calmed down. No one ever commented on my recording.

### *Transcriptions*

The mode of transcribing was influenced by my wish to be able to read and analyze the transcripts without having to complement them with repeated listening. The transcriptions were not meant to be used for text analysis on individual words, but pauses, hesitations, repetitions of words, change of tone and alike details were noted. This accuracy resulted in transcriptions that could be read including the contextual atmosphere at the occasion recorded, and what issues were emphasized by the respondents.

Distinguishing between three different accuracy levels in transcribing speech (Linell 1994), my mode of transcribing could be questioned as to whether it should be called a speech transcript or not, due to correction made from my knowledge of language rules. However, not aiming at using the transcripts for theoretical text analysis, my chosen way of transcribing served my purposes.

The primary purpose of the mode of transcription adopted was to reflect verbal statements, accounts, arguments and the like, even if written language rules were allowed to take over (Linell 1994). Transcriptions are artifacts unavoidably influenced by my interest, purposes and interpretations. Sentences or statements were formed, while the audio-recorded material was at many occasions a flow. Still, 'automatic adjustments', which according to Linell (ibid.) are common during transformation from one medium to another, were paid attention to. Moments of hesitation were indicated, repetition of words was transcribed, but colloquial expressions were only included to a limited extent.

Above all, the transcriptions were made to carry a certain practicality in being readable and possible to use as reference material throughout my work.

A distinction, between texts that serve a particular purpose when they are written and texts that are produced to study the content of what is said, can be made about transcriptions (Linell 1994). My transcriptions cannot be classified as purposeful written documents. Purposeful written documents in organizational contexts are typically notes from meetings or reports, reflecting what has been said but serving particular purposes. I collected such documents too, with the purpose of cross-checking with my interview transcripts, notes and other sources.

Detailed transcriptions are always abstract and partial. At best, a researcher should know what analyses will be done before the material is transcribed. The paradox is that often you need to do the transcription work before you can identify what is relevant to do (Linell 1994). A solution suggested for this is to make a basic transcription that leaves threads and issues for specification or questioning. In my work, questions or reflections were added in parentheses in the text or as separate notes at the end of the transcript. These served as a continuous base for coding that over time resulted in the second-order dimensions that will be presented in Chapter 7.

In addition, another angle can be added to the transcribing effort. It served as an important purpose in helping me learn my empirical material. Transcribing recorded discussions or interviews gave me an opportunity to reflect again on what was said during this second listening.

### *Documentation of observational data*

After a full day of observation it would have been difficult, even if executed the very same evening or night, to take down all the details experienced. As mentioned, critical questions and reflective notes were taken down during observations. Observational data documentation should include contextual aspects, apart from observable social interaction and conversations (Silverman 2003). Also with this ambition of complementing conversations, and informal talks with details on space and place, it is commonly conversations that prevail during observations in business settings. Thus, all conversations that could be overheard, including fragments, and the atmosphere or characteristics of the space at the occasion of observation were noted. Still, the main text from the observation protocols is relatable to informal talks with employees. Attended meetings during observations resulted in transcripts and observation notes, apart

from the purposeful documents with notes that were received afterwards from the venture.

### *Coding and analysis*

As has been implied, the case study outline, the preparatory empirical work, and the multi-method approach reflect my intention of systematic empirical field work. Notwithstanding, adjustments had to be made during the investigation. These necessitated adjustments reflect a dynamic venturing context rather than evil obstructions made by the venture cases. For example, at some interview occasions the venture CEOs were entrenched in partner disputes, or missed orders. Their focus of attention could be on positive events too, like a new partner agreement or an image-creating article in the press. Consequently, it was not possible to pursue the investigation systematically focused on formalization and organizational issues. Sometimes the coding could not be refined from one observation or interview to another within the same case. Rather, my process approach was challenged by the intensive noise characterizing the venture developments. Finalizing my interpretative work, the process characteristics were possible to outline in a coherent picture, as presented in Chapters 8 and 9. Yet several approaches to coding were taken during and after the investigation to categorize and subsequently analyze the findings.

The coding work was inspired by the work of Glaser and Strauss (Glaser and Strauss 1967) because it was primarily made from the documentation on each venture. First, case histories were written on all the ventures. When writing conference papers, the results of the coding were primarily used against separate aspects of the theoretical framework presented. In parallel, the coding work was continued.

Apart from case histories, another way was to summarize venture-wise about which activators and outcomes could be identified over time. The activators were sorted through individuals and events. The outcomes were sorted as separate issues and classified as related to the development of management systems, operational development, and knowledge accumulation or unexpected/enforced. Each issue also received an indication of being an issue that appeared as new to the venture or as a refinement of what already existed. This continuous coding enabled a track record of issues that were activated, developed or interrupted.

Another coding approach for each venture was made over time regarding the present organizational approach[72] , the visions/intentions aligned with the explicit approaches, occurring company events, and outcomes classified as either existing/nonexistent or as emergent.

Table 8. A coding example

| **Case** | **Present organizational approach** | **Vision/ intention** | **Company events /changes** | **Organizational formality – non-formality** (E=exist, NE=non-existent EM=emergent) |
|---|---|---|---|---|
| 4th obser-vation September 14, 2004 and interview with head of sales and marketing | -Employee frustration expressed about unclear decision-making process, unclear role and task definitions.<br>-Employee concern about 2 key employee recruitment failures.<br>-Multiple roles continued by most employees. | -Missing traditional role for product ownership.<br>- Diverse visions of the venture among individuals | - New CEO from September 1 (chairman of the board)<br>-2 key recruitments were dismissed<br>-1 key recruitment responsible for the sales process was engaged as consultant | E: 'Weekly meetings' every 2nd week<br>E: Focused sales and marketing plan<br>E: Weekly management group meetings from 1st of September (CEO + key employees)<br>EM: (Through management group) structuring of the organization, responsibilities, decision-making process and follow-up. |

Altogether, the continuous interpretative work resulted in two important outcomes in my study. One was that the main results of formalization could be identified and illustrated as highlights; see Chapter 6. These highlights are contextualized through venture descriptions, and represent the main formalization issues pursued during the investigation. A second result was that the continued interpretation of the empirical material constituted rich, but classified and tentatively theoretical, interpretations of each venture when the case study investigation was closed.

### *From first-order informants to second-order dimensions*

Having documented, coded and tentatively analyzed the material over time, some preliminary dimensions that could be related to my theoretical framework evolved. Yet my initial coding was full of blunders due to my assumptions and theoretical knowledge (Glaser and Strauss 1967). Therefore, I felt a need to

[72] Related to key informant groups.

increase my theoretical sensitivity. Through renewed reading of the transcripts and additional documents, first-order dimensions evolved. These dimensions were compared across informants in the individual cases to identify similarities and differences. Thus each statement in a transcription was grouped as one of the following dimensions that appeared repeatedly in the material:

- Drawback images (perceptions)
- Platform orientation (learning what we are doing)
- Taking charge (who is/should be involved)
- Mapping needs (operational learning)
- Dynamic blueprints (changes in the existing)
- Guiding vision (identified needs for formalization that are to be fulfilled)
- Adding competences (new organizational roles)
- Structural elements (routines and guidelines)
- Founder roles (changes in founder focus and organizational roles)
- Employee peepholes (employee voices about formalization)
- Employee introduction (human resource-related issues)
- Industrialization and speculative future needs (formalization related to strategy)

Next, the individual first-order concepts were compared between cases. Comparing and clustering these dimensions for all the ventures, they were also related back to theory (Anand, Gardner et al. 2007). Robust dimensions emerged as seven second-order dimensions. Quotations representing all the ventures were grouped to illustrate each second-order dimension; see further Chapter 7. These second-order dimensions give an overall sense of how formalization developed.

As is presented in the theoretically based discussion in Chapter 8, the second-order dimensions could be set into theoretical perspectives, eventually resulting in my conclusions.

## THE QUALITY OF MY STUDY

My research strategy has been guided by accuracy and simplicity aspects (Langley 1999), whereas generality has been played down. The accuracy has been prioritized through strong reliance on inductive interpretation, whereas simplicity emerges in raw data exposure, like the first-informant quotations. The results reflect my qualitative research approach of following an inductive logic

in my interpretative work on the empirical material, through structured and continuous coding and summary-writing. The interpretative work is inspired by a grounded theory approach, yet it follows closer to suggested procedures of how to build theory from case studies (Eisenhardt 1989; Perren and Ram 2004). In summary, my entire research approach was guided by the work cited in this chapter, but I permitted individual choices to a large extent.

## Applied methods

With a closer look into the methods applied during the investigation, they complemented each other in my intention of encircling formalization through a comprehensive empirical approach. Triggered by open-ended questions, the ten retrospective interviews divulged rich accounts on the history of the individual ventures. The material supports the suggestion that interviews, as a widely used method, have become a means of contemporary storytelling (Fontana and Frey 2003; Fontes 2005). The accounts were, as mentioned, documented through transcripts and constituted a reference material to understand the process development in the final case studies. In the recurrent interviews made during the investigation period with the CEOs, these retrospective accounts served as a ground for understanding the sequel. In addition, issues brought up in these interviews could be used to probe in later interviews. An example can be taken from Case for Life.

The CEO initially explained the necessity of letting academic research and development guide the venture development, also organizationally. I questioned this approach in asking if it was perceived as a hindrance or guidance to the formalization. The answer was that that it was a no-choice strategy. The academic development had to guide the business and organizational development. About a year later the CEO confirmed that the business development was not dependent on the academic research pursued by the founders. He verified that it had been a hindrance to the venture development and organizational formalization, and that he had changed perspective to a more pro-active formalization approach in order to support the business development and to up-scale operations. Through the recordings several indicators could be identified along the road of that change. This was particularly valuable since internally produced notes from meetings were commonly only brief points of reference, and did not give full justice to the discussions and activities underlying formalization.

This illustrates how my longitudinal investigation approach could benefit from several methodological approaches, allowing verification through multiple sources and enabling a triangulation of my findings. A process investigation can be undertaken at any point of time, given that there is continuity in the course of the process. Nevertheless, it entails a research challenge in distinguishing what can or cannot be related to as formalization at certain periods. Periods of non-activity may be revealed, or the respondents may not be able to relate any activities to the process focused upon by the researcher. The respondents would characterize a certain time period as a non-activity period, where focus is elsewhere. How could this be handled? How can the researcher make sure that the venture is approached at a relevant period? How can the researcher determine when the process of interest starts or ends?

My solution was to construct some feasible criteria for the process duration and relevance in the contextual choice before the investigations were launched, as presented in Table 7. During the investigation, an iterative investigative approach complemented the basic conditions for the investigation.

## Analysis

Abundance and variety of data, which are commonly the result of case studies, raise the question of how accurate the information is in relation to possible errors by the researcher, the respondents, or the situation (Kahn and Cannell, 1957). This is reflected in the problem of coding the data correctly. No existing typology guiding the coding work was to be found in literature; therefore reliance had to be on an inductive model of coding the data and its interrelations. My interpretative work has been guided by the assumption that methods of analysis and theory are intertwined (Langley 1999) in academic research. Yet my numerous coding and interpretation attempts did not all have the single focus of understanding the process development. Separate early results are the case summaries that could be written repeatedly. They were eventually separated as venture descriptions including highlights, which are formalization outcomes on an issue level. My venture approach was based on the assumption that multiple actors and events constitute a venture-level perspective (Davidsson and Wiklund 2001). The results reflect venture approaches but give detailed knowledge on additional levels.

Another result emerges as the subsequently reinforced cognitive perspective on the formalization process. A behavioral approach to understanding formalization was distanced early in this writing. During the interpretative work,

cognitions protruded strongly, yet they could be related to activities and actual outcomes. Analysis of their interrelatedness added to the theoretical distinction between conception, perception and action, as will be presented in the theoretical discussion.

## The results

My results reconceptualize organizational formalization. During the investigation, particular attention was given to identifying process dimensions of formalization. However, that raises particular demands on how they can be presented, because the dynamics of a process are easily lost in an academic text that requires a logical structure in order to be readable. My writing reflects the findings through an intermingling of the text with visualizations in tables and figures. These are abstractions that need to be understood in their context of the text. Despite my effort to expose the dynamics of the process, it might be difficult for the reader to follow the process development.

Finally, my results are suggested to be applicable to new ventures of different kinds. Given the limited empirically based knowledge that exists about new venture formalization during their earliest years, ventures that are differentiated as spin-offs from established firms, RBNV,[73] high-growth firms or the like can all be expected to experience formalization including the dimensions entailed in my approach. It is therefore likely that my investigative model applied in other venture contexts would yield similar results.

It could be argued differently that ventures which reach an early market establishment and growth would show a different formalization process. Yet it has to be remembered that even if the ventures investigated do not grow substantially during my investigation period, they have already increased their number of employees and market activities at a fast pace. Therefore, my results are likely to be transferable also to other venture contexts, like ventures that have formalized initial structures during sudden surges of growth and face decisions about organizational development.

My contributions are therefore considered as most valuable within the field of entrepreneurship. With that positioning of the results, they bridge over to organization theory in revealing the formalization resulting in structures that are commonly exposed to change in established firms.

[73] Research-based new ventures.

# 5 THE FOUR HIGH-TECHNOLOGY VENTURES INVESTIGATED IN THIS STUDY

It is when we approach the organizing processes on a venture level, rather than treating high-technology ventures as a given community, that the diversity of high-technology venturing can be compared and research within the field of entrepreneurship and organizational theory can be advanced. The introduction of the four cases studied in this thesis shows that they are diverse in some respects, like background and conceptual approach to formalization, but not from others.

How the ventures have developed organizationally is then presented. It is based on retrospective accounts by the venture CEOs. The four case histories are set into perspective of an additional number of six ventures. They were equally interviewed during my selection of case study objects. Together they extended my initial interpretation basis for understanding how formalization had emerged before my case studies were launched.

*CASE FOR LIFE*

This venture was initiated in 2001 to exploit academic research from Karolinska Institute[74], offering an attention-deficit training method. At the end of 2003 the average number of employees was reported as four. The CEO could identify 17 individuals who spent time with the venture continuously, varying from one hour per month to full-time engagement. The externally recruited and entrepreneurially experienced CEO was in full control of the strategy, financial issues, human resources, and administration.

The venture development had proceeded in close interaction with the academic founders, who continued their research on the venture idea. This means that the venture is not in control of the results from successful client treatment even if these are stored in a database. The stored information constitutes a potential platform for coordinating continued product, market development, and organizational development. Yet the results are in the hands of the academic founders. This may sound like a conflict situation, but that is not how it was perceived. Yet it was recognized as governing the pace of organizational development. The consequence is that results cannot be officially used unless they have been verified in an academic publication, which is somewhat unpredictable from a time perspective.

[74] A Swedish medical university.

Nevertheless, the venture sets commercial goals, independently of the academic research pace, for a year ahead. The venture wants to become profitable with 50 clients per month, whereof 90% are successfully treated. Furthermore, the goal is to have another product validated, and to have started internationalization of the venture during the coming year.

## Organizational status when the study was launched

An initial organizational challenge is overcome, that of work integration between individuals representing totally different expert areas, working logic, and institutional experiences. Some have a background only from chaotic work places and are challenged by this. Another group is constituted by those who work in the customer interface and come from very structured working places. The needs among the employees for more formal structures do consequently differ. The revolutionizing idea constitutes a mutual goal for the people involved in the venture. To overcome the differences in modes of working, the CEO perceived that everyone's belief in the idea and willingness to contribute to its realization has enabled integration. They have accepted that different experts are needed to realize commercialization and the need to find shared modes of operating.

Individuals are involved in work with their individual competences in designated market-related areas of responsibility. All but one operational group that is under the responsibility of a key employee report directly to the CEO. This order has recently been outlined.

In the absence of regular information-sharing meetings, group discussions have evolved on a regular base. Apart from the operational group, the CEO continues in parallel to be in direct contact with everyone on a daily basis.

To introduce and train operational staff, a customer interaction model based on experiences from an initial clinical study has been created. With new learning the model is to be continuously updated.

An additional formal model exists to pursue clinical testing. This has been proved successful and carries a potential of being applicable in future clinical tests.

## Posture related to formalization

This venture is the only one that has an explicit restrictive non-formalized human resource policy. Two underlying reasons are presented as flexibility and the related reason of resource limitation.

Regarding flexibility there is an ongoing exposure of the venture offer to a range of potential customer segments. In line with that, the CEO is fronting the board about the venture development without a written plan, and individuals are contracted on temporary contracts without formalized positions. Every aspect is rationalized by the fact that the venture has no financial platform and no solid promises to give about the future. The financial market is perceived to be in a constrained state. It is referred to as one of the most restricting reasons underlying the choice of retained informality related to human resources. The upside of this restriction is that the venture has succeeded in attracting talented people at a relatively low cost.

Honesty is one particular argument rationalizing the venture approach to formalization. The CEO has experience from other start-ups where a prosperous future was a common way of attracting qualified employees; but in many cases the same people were deeply disappointed when these prospects were not achieved. Informal human resource policy is also rationalized as having a purpose of making a potentially necessitated exit as smooth as possible.

The flipside of flexibility and the resource constraint is reported to be that it has impeded organizational refinement. Working structures and processes have not found any steady base to be outlined from, and have consequently not progressed.

Another flipside of flexibility is that this manner of working is more or less strenuous for different individuals. This is outspoken by the CEO, who has admitted that he also has a limit for how long he can stand the informal and unstructured organizational chaos.

With increased customer contacts and more employees getting involved, organizational development was perceived as prompted.

### *CELL CASE*

This venture is also based on academic research[75], producing miniaturized cell-based screening products. It was launched in 2001, and attracted its first reference customers the same year. At the end of 2003 the average number of

[75] With origin at Chalmers University of Technology in Gothenburg, Sweden.

full-time employees had increased to 19, but around 30 people were involved in the venture development as part-time employees.

Cell Case pursues both exploitation and exploration within the original research group. Launching of the venture was based on some selected initial patents. New research findings by the main founder and his research team have resulted in an increased number of patents. In parallel, production of one product turned out to be impossible to sub-contract. Therefore the venture had to set up its own in-house production facility.

Apart from initial reference customers the venture has made intense marketing efforts. All contact information is stored in a computer-based database.

The CFO, who was employed among the first employees, has taken on the development of human resources. He started by outlining a human resource policy handbook, which has been implemented subsequently.

## Organizational status when the study was launched

The core team (co-founder/CEO, founder/CTO, CFO/human resource manager) had recently been complemented with two full-time externally recruited employees. They acted as sales/marketing officer and product development officer respectively. The whole organization is aligned with progress of research and product development. Input from the first reference customers goes back to the research group. Project development was in the hands of the researchers and proceeded through informal interaction, governed by merit-based logic. New projects are initiated through individuals. They are launched when they have passed the steering committee.[76]

At the launch of the investigation the venture CEO was facing a re-organization. There was plenty of work to be done. Some individuals were overloaded and some did not function in their present roles. The cooperation within the steering committee was not running smoothly.

The CEO acts as super-butler, according to his own expression, towards the research and development team. Apart from substantial interaction with the investors, he recounts that he spends more time on nourishing the right people than on formalizing the working processes. Hence, academically based preferences for informality rule the organizational approach in this venture, even if the terminology of 'steering committee' speaks another language.

[76] The formal steering committee is constituted by the newly recruited product development officer, head of research, the founder and the project leader of the case in point.

Weekly information-sharing meetings are institutionalized, aligned with a set agenda. A management group has been meeting recurrently, but is presently dissolved by the CEO during the preparation of a new organizational outline.

## Posture related to formalization

The CEO admits that his current organizational approach creates hard conflict situations sometimes, and makes some people crazy. Yet most of the employees from academia think it works fine. The CEO has academic experience from natural sciences and consultancy experience from the pharmaceutical industry. He thinks that the merit-based organizing model applied is most appropriate. His expresses a strong belief in substance-driven organizing, with the purpose of not letting formality take over and drive the organization. In this way the process never assumes ownership and it is the substance that drives development. It means that the founding research group is left as an indicator for the organizational development.

The CEO argues for his approach to formalization with the support of performance measures and with reference to peers. When you look at the output of project leaders working with early discovery in the pharmaceutical industry, you will find that out of 10 individuals there are 3-4 who achieve 90% of the output. He adds that there might be alternative explanations for why they work within areas where there is a lot of progress, but still the output is very individually relatable. Output refers here to new discoveries and technical solutions. He has also consulted peers in California to get a reference point. One American company is 15 years old and has annual sales of half a billion SEK, yet not until now was a product manual completed for the first time before the product was delivered. Supported by this, the CEO adds that the venture is much more like the traditional high-tech industry with products that survive on performance and speed.

The CEO is convinced that to increase formalization, like appointing a formal project manager, to implement a project managing structure or apply titles or formally outlined work roles would thus far have been a hindrance to venture development. He suggests that every time a process is standardized, expectations are created. When it is dissolved or removed again, it makes several people disappointed.

Due to the CEO's belief in telling the truth, he has told the employees that he understands the venture as being in constant transition, and it will continue to be. Overall the CEO holds that formalization has to progress slowly by reducing

operations to something that is possible to define and formalize. If you proceed too fast, you need instead to handle a constant organizational change process. It is added that the chosen way entails that it will remain chaotic and tough sometimes, which is demanding for everyone.

Nevertheless, the investors have forced through two external professionally experienced recruits, who are one underlying reason for a reorganization of the present employees that is ahead. The CEO declared that the venture is on the verge of industrialization. Therefore, he had decided to hand over to someone with more relevant experience, a new CEO who has documented experience from industrialization in high-technology ventures. In addition, a marketing and sales experienced manager and a technically skilled product developer that could work closer to the projects were other recruitment needs underlying the reorganization ahead.

*INTERPRETATION CASE*

The focus here is on software-based interpretation of handwriting, derived from academic research[77]. The venture was launched in 1999. The average number of full-time employees peaked in 2002 with 25 but was decreased the following year for two reasons. The initial transformation of the invention had passed its most intensive stage, and the first market targeted stagnated.

The first external, entrepreneurially experienced, CEO took over from the academic founder during the first year in operation. At the time when he took office there were two urgent issues to solve. One was to produce a first product. The other was to find alignment between different competences that supplemented the founding mathematicians. One key employee present early was an engineer who had excellent marketing and sales experience. He was recruited in a formal position as manager of sales and marketing. Through his interaction with potential customers during the early days he identified another supplementing key competence – a specialist in customer interface issues. Subsequently, a third key recruitment effort was made to attract programmers. Two of them turned out to be not only excellent programmers but also excellent in fronting potential customers. Together with the CEO these recruits got formal key positions.

Besides the successful recruitment a first product became an early success, with the support of a partnership in Asia. So far, information from customer interaction was documented on the intranet. However, it was not available to

[77] Lund Institute of Technology.

everyone for reasons of confidentiality. Despite these milestones passed, the venture was still struggling as a fledgling commercially.

## Organizational status when the study was launched

The external CEO had implemented a formal product development model which he had outlined in his earlier work places. The purpose was to make everyone conscious about keeping deadlines that were agreed on with customers. There were yet more tasks to comply with. Delivery meant that all specifications had to be fulfilled, and the testing of the products should be achieved. Corresponding to delivery dates, stepwise deadlines were set up in order to progress to a final product delivery. According to the CEO and his earlier experiences, software development entails a lot of concentration among several individuals who cannot keep their focus for a long time. He had seen software development projects continuing for years, taking totally different directions and many times ending with catastrophe even if there were customers waiting. Therefore, his model of operating was based on short deadlines, which entailed short periods of concentration to be alternated with relaxation. The model was proved to work and customer delivery had increased. Increased formalization followed on that development, such as outlines of documentation, how to write the actual code instructions, and other essential parts of product delivery.

However, one of the investors, a consultant by profession, wanted to professionalize the working model through implementation of an industrially based model that would work for up-scaling. He offered his services and wrote a product development handbook. This manual was referred to by the CEO as a second model applied in product development that was based on experiences in established firms. It never turned out to be an applicable model in this venture. Therefore they had continued to adapt to upcoming customer requirements.

Another formalized model outlined by the CEO was a recruitment model. During job interviews he used a document where the interviewees filled in personal information. There were questions about what makes you happy or sad, apart from 20 questions that had to be weighed between what is the most and the least important to you in life. The benefit perceived was that you got a mutual individually outlined document to get back to, as a basis for discussions about personal development. Aligned with that formal document, the CEO gave individual support to employees. His ultimate purpose was to increase individual motivation by giving them the feeling of importance, responsibility and recognition. Hence, this recruitment model was justified with the perception that

if you have the motivation you can move mountains, and this was needed in the venture. People had told them [according to the CEO] that they had achieved in a couple of years what normally takes ten.

Informal standing meetings were institutionalized to occur every week. Without a meeting agenda, the social aspect was prevalent.

## Posture related to formalization

The first externally recruited CEO, however, did not consider his individually outlined models as approaches to formalization, but as alternatives to formal organizational structures. He recognized the built-in disadvantages of his mode of organizing too, such as having individual expectations of personal development. The costly consequence is that you need individualized training to satisfy the needs. He could also see the flipside of not having a formal model to work from when new employees are to be introduced. Nevertheless, he considered the venture to be prepared organizationally for a second step on the market. The missing link might be sales staff. At the launch of my investigation, he handed over to a second externally recruited CEO.

### *TOP SECURITY*

Secure software solutions were identified as a venture idea when the founders were doing consultancy. The venture was launched in 2000. A peak of 27 full-time employees was decreased by 4-5 persons during the first years, due to a strategic market re-direction.

Key positions like the CEO and the head of research & development were occupied by founding team members. One manager for marketing and sales, and the president of Top Security Inc. in the US,[78] were recruited externally at an early stage.

The initially embraced perception was that you do not need much refinement organizationally as long as you work on an idea for transformation. However, this venture got immediate successful commercial feedback. Formalization of administrative structures was therefore focused upon early to create a platform for growth. Bureaucratic models for administration and documentation were implemented with the intention to increase the information flow, expected to enable fast growth.

[78] A wholly owned sales office.

Formalization of product development work was approached differently. One employee was dedicated during the first years on part time with the purpose of mapping working processes to outline a product development model including different tasks and individual roles.

The venture is operationally supported by an angel investor with experience from other start-ups. He was described as a philanthropist in that he wanted everyone to gain from success, not just himself. Some of the founding members seemed reluctant to accept that the honors of successes are to be shared between everyone. Yet bonus systems had been outlined early to include everyone.

## Organizational status when the study was launched

Evidence of the intentional administrative formalization was not found to an extent that would be different from the other ventures. The dedicated person for handling mapping of foundations for increased formalization had been on parental leave, and therefore the formalization process was stalled. Initial external interaction had been performed with 'the Swedish approach', which was to delegate and give responsibility. Yet when American partner agreements had been signed, a different approach became apparent: trust is good but control is better. Particular routines related to the main partner had consequently been outlined regarding individual responsibility and development schedule.

Weekly information-sharing meetings were institutionalized. The agenda enclosed several roles of the meeting. One was to discuss potential and ongoing sales, another to report progress of product development, and a third role was to allocate resources for the coming week and long-term undertakings. Hence, the main purpose of having a formalized agenda was dual: to keep everyone informed and to take decisions about individual commitments.

When product development got a new customer request, a brainstorm meeting was arranged for some hours off-site. Some threads were taken down in writing as a commission assignment. It was a combination of a specification of requirements and a very rough plan on time disposal. During brainstorm sessions, the head of development took the role of protecting venture workers against 'crazy' orders, and to avoid getting stuck in process models that were time-consuming. But it was done with the awareness that 'crazy' demands from customers are very often early signals of upcoming demands. One important check-point applied was: what can be achieved in relation to what seems to be vital to the customer while making sure that it is still profitable? If a new

prospect is not profitable enough, it might be pursued anyway because of gains in improved products that can be sold to other clients.

## Posture related to formalization

According to the founder/CEO, a vision of working as if they were 100 employees guided early formalization. From earlier experiences, the CEO had identified 30 employees as a borderline where you start to lose control.

At the time of the initial interview, the CEO underlined the importance of resuming the formalization work after the assigned person took office again. He added that formalization was urgent for efficient use of present resources.

One of the other founders argued that you could not characterize the organization from a formal perspective. In his opinion it is a necessity that everyone can work independently, because there is extremely much to achieve in a new venture with very few resources. You cannot use detailed coordination and control in a project – you have to rely on distributing areas of responsibility and check progress at weekly meetings. In most cases the project deadline is too optimistic because things turn up, like customers who need help.

Simplicity and low cost were clearly communicated key words. The key words were to function internally as control systems for individual behavior.

Table 9. The four ventures investigated in depth at the launch of my investigation in 2004[79]

| | **Case for Life** | **Cell Case** | **The Interpretation Case** | **Top Security** |
|---|---|---|---|---|
| **Year of foundation** | 2001 | 2001 | 1999 | 2000 |
| **Venture idea** | Attention- deficit training method | Miniaturized cell-based screening products | Software-based interpretation of handwriting | Secure software solutions |
| **Origin** | Karolinska Institute | Chalmers University of Technology | Lund Institute of Technology | Generated during consultancy work |
| **Full-time employees in 2003**[80] | 4 | 19 | 19 | 14 |
| **Sales in 2003**[81] | 0.47 million SEK | 1.2 million SEK | 5 million SEK | 10.8 million SEK |

[79] Sales and external capital are round numbers.

[80] The most recent official number available from their annual reports on the average number of full-time employees when the investigation was launched.

[81] From the annual report in 2003.

| | Case for Life | Cell Case | The Interpretation Case | Top Security |
|---|---|---|---|---|
| **External capital in 2003**[82] | 6.5 million SEK (angel investments) | 47.4 million SEK (VC-capital) | 66.5 million SEK (VC-capital) | 56.1 million SEK (VC-capital) |
| **Number of patents**[83] | 3 | 31 | 20 | 28 |
| **International presence**[84] | None | None | Sales representatives in China and Japan | Sales office in the US, development partners in US and Japan |
| **Formal organizational characteristics**[85] | Customer database, customer interaction model, clinical test model, recurrent sub-group meetings, division of roles among key initial employees | Customer database, functional division of key organizational roles, formal weekly information-sharing meetings, procedures for new projects, human resource policy | Informal weekly meetings, employment model, product development models, functional division of key organizational roles | Formal weekly information-sharing meetings, irregular brainstorming meetings and procedures for product development, an assigned employee working with mapping of bases for formalization |

Table 9 cont.

The four ventures represent different industry segments. Regarding the relation between sales and external capital, they all align with the majority of the ventures in the population they were selected from, witnessing how timely and costly the exploitation of innovative ideas generally is. Apart from Case for Life, the other three cases had published a substantial number of patents related to the average found in the entire high-technology population investigated (Delmar and Sölvell 2005a). A peak number of publications were made during the first year of operation, indicating that organizing activities had started before the legal launch of the ventures.

The official average number of employees presented in Table 9 was the most reliable number accessible. Yet a substantial number of more individuals appeared to be engaged in the ventures, although no such reliable numbers were presented.

[82] From the annual report in 2003.

[83] From esp@cenet in 2003.

[84] From the first interview with the venture CEOs.

[85] These issues were mentioned in the first interview with the venture CEOs answering the question about what formal characteristics had been created. They were later verified during the investigations.

The CEOs in Case for Life and the Interpretation Case had earlier experience as entrepreneurial executives. The CEO/co-founder of Top Security had run a consultant business of his own, while the CEO in Cell Case had no earlier experience as venture CEO. Their attitudes toward formalization were expressed in relation to their particular present positions and the current state of the ventures.All the ventures but Case for Life had regular information-sharing meetings with all employees.[86] Functionally based organizational roles were assigned to key employees, without written details. Formalization related to product development and customer interaction seemed to have taken provisional forms in all the ventures.

## FORMALIZATION IN RETROSPECT FROM LEGAL LAUNCH IN TEN POTENTIAL VENTURE CASES

Ten ventures, including the four cases introduced above that were finally selected, agreed initially to a retrospective interview. They were all selected from the high-technology population presented in Chapter 4 and fulfilled the selection criteria set up for my case study selection.[87] Based on retrospective interviews, venture CEOs informed about the status of the ventures from an organizational perspective.

The interviewee reports could be categorized as relating to their *individual experiences* in other organizations, to the *logic of project work,* and to *external influence*. In addition, formalization was reflected upon analytically in relation to their *present status* organizationally. From a fourth perspective, formalization is related to *individual* experience of the CEOs. Below is an overview of the status of some basic dimensions of the ventures when the interviews were conducted. The six ventures presented first declined further participation in my study after the first interview. The last four ones in the table represent my case ventures just presented.

[86] Apart from an event once or twice per year that takes place in all the ventures.
[87] The criteria set up were being younger than five years and having at least 10 employees.

Table 10. Status of the 10 ventures when they were retrospectively investigated.

| **The six ventures that were part of the selection of cases**[88] | | | | | |
|---|---|---|---|---|---|
| **Venture** | **Date of founding** | **Date of interview** | **Age at date of interview** | **No. of employees at date of interview**[89] | **Interviewee** |
| Alligator Bioscience | 13/9/00 | 16/12/03 | 3 yrs+ (3 months) | 17 | CEO (industrially experienced) Niels Siegbahn |
| Anoto | ?/04/00 | 22/01/04 | 4 yrs- (3 months) | 120 | 1st CEO/founder Christer Fåhréus[90] |
| Global Genomics | 11/09/00 | 16/01/04 | 4 yrs- (8 months) | 35 | CEO (experience from start-ups and established firms) Ulf Boberg |
| Packetfront | 25/07/01 | 17/02/04 | 3 yrs- (6 months) | 45[91] | CEO/co-founder (with industrial experience), Martin Thunman |
| Raysearch Laboratories | 17/05/00 | 20/01/04 | 4 yrs- (4 months) | 20 | CEO/co-founder Johan Löf |
| Spirea | 08/09/99[92] | 08/01/04 | 5 yrs- (8 months) | 34-35 | CEO (since August 16, 2001 with industrial experience) Johnny Johansson, and academic founder/ 1st CEO |
| **The four ventures investigated in this study** | | | | | |
| **Venture** | **Date of founding** | **Date of interview** | **Age at date of interview** | **No. of employees at date of interview**[93] | **Interviewee** |
| Case for Life | 20/04/01 | 18/11/03 | 2 yrs+ (7 months) | 17[94] | CEO (experience from other start-ups) |
| Cell Case | 13/12/00 | 17/11/03 | 3 yrs- (1 month) | 30 | CEO/co-founder |
| Interpretation Case | 26/10/99 | 16/12/03 and 10/02/04 | 4 yrs+ (2 months) | 19[95] | CEO (1st replacement of founder, with experience from other start-ups, and 2nd CEO has start-up experience) |
| Top Security | 16/05/00 | 05/12/03 | 3 yrs+ (7 months) | 20 | CEO/co-founder (experience from another start-up) |

[88] These six are exposed with real venture names. The four cases have fictive names according to agreements about confidentiality.

[89] The numbers of employees in my four case studies differ from the numbers indicated in Table 9. These numbers represent the interviewees' answers and are not verified. Neither is any distinction made about full- or part-time employees.

[90] At the time of the interview the founder/1st CEO had left the managing position. He wanted to respond to a retrospective description of the venture as member of the board.

[91] Intend to expand to 61 before end of the year.

[92] 1999-03-23 according to one of the academic founders.

[93] The numbers of employees in my four case studies differ from the numbers indicated in Table 9. These numbers represent the interviewees' answers and are not verified. Neither is any distinction made about full- or part-time employees.

[94] Includes all contracted to work with the venture but only two full-time employees.

[95] Includes one of the founders working less than 10%.

The summary below gives indications of how the four cases studied in this thesis relate to a larger group. In every aspect where any of the venture cases project from the rest, they are mentioned by their fictive names.

## The logic of project work and early redirection

During the initial stage of the ventures, the majority of the employees in each venture are researchers or technical experts in the particular area that the venture idea can be derived from. The given logic to work from seems to be a project-based organization.

Some ventures are started after a selection among a bunch of existing patents, like Cell Case. Others launch their ventures from a research idea, as Interpretation Case did. Either way requires substantial work to realize commercial products and services. This was a mutual experience among several ventures launching from research findings. Irrespective of the initial starting point, the transformation of the initial ideas had taken substantial time, much longer than any of the CEOs could have imagined. In addition, most of the ventures made major redirections concerning project development due to changed market focus, as in Case for Life, the Interpretation Case and Top Security.

Uncertainty and redirections affect the initial recruitment philosophy and project-based organizing. The dominating recruitment approach is to find experts within the knowledge area where the founders come from and have a network. Consequently, in most cases the majority have a shared working background and modes of working. Case for Life and the Interpretation Case belong to the few exceptions, where diverse experts are eventually combined. Either way, the initial increase of employees takes some time, because it is not self-evident from the start what competences are needed or how to recruit experts. One organizational challenge appeared as recruitment of experts outside the founder network, when the first redirections were made.

All the ventures try to implement existing models of product development with different origins. They range from well-experienced models applied earlier at Ericsson to models that the CEOs come up with. That some kind of model is applied may simply be the fact that the CEOs/founders interact during meetings, check off progress, and set up deadlines.

The CEOs carry different perceptions about how to proceed organizationally from the project work logic. In the project-based initial organization, a substantial part of the work in the ventures is expert work. The employees are

narrowly focused on creating products. This specific focus is primarily complemented by administrative employees and experts in sales and marketing. These additional employments had thus far been a matter of adding singularities. A substantial responsibility for sales and marketing remains with the founder/CEO. Apart from some separate employees taking administrative responsibility, it is only exceptionally that a manager of sales and marketing is employed during the first year of operation, which happened in Case for Life, Interpretation Case, and Top Security. Thus, three of the four cases investigated in this thesis can be distinguished as investing at an initial stage in a full-time employee responsible for sales as an active step towards commercial establishment. As a consequence there is a challenge of integrating these two types of knowledge-workers for increasing sales activities once the idea has been transformed into products.

In addition, in the ventures where substantial initial sales efforts are made, the product development can progress through live orders. This influences formalization. The influence relates to a change of focus from creating a product to creating customized products and letting the customers set up formal requirements, which happened in the Interpretation Case and Top Security. A different approach is found in active formalization from the start to develop an organizational platform for growth, which was apparent in Top Security and Packetfront. Yet a third approach was found through active resistance to formalization with the purpose of letting the product development groups continue to explore new projects, as in Cell Case among other ventures.

To summarize, even if the initial project members have different compositions, they are referred to as fairly self-organized and guided by the vision of launching commercial products. The members of the project work are the experts and are left to organize the work between themselves. They are also holders of knowledge about how to document the progress in such a way that it can be patented. The CEOs perceive a need for organizational development via functional roles into a line management organization, when additional sales and marketing personnel are attracted.

## External influence

As mentioned, live orders influence the formalization process of product development. Customers set up requirements on ways of communicating, quality, manuals, and delivery deadlines. This is particularly evident when formal agreements with partners are made early, as in Cell Case, Interpretation

Case, and Top Security among others[96]. Such external interaction activates a need for formal work structures, not least working procedures that enable keeping of deadlines.

Another requirement that evolves is clarity about individual roles. The division of tasks is both an internal challenge for efficient use of resources and necessitated for external reasons, because the customer needs clear interaction partners with decision power. The CEO commonly takes such responsibility. It is reported to be a natural role of the CEO to be the interface to new customers. Yet it was recounted that this role could sometimes be taken by one of the members in product development, as had been done in Interpretation Case and Top Security among others. The result is that new roles are tested by different employees, often adding to existing roles.

In none of the cases was any pressure perceived from the environment to copy existing formal structures. Cell Case was the only apparent venture that had been conditioned by its investors regarding recruitment and formalization of additional organizational roles.

## Present status

Being on the verge of industrialization, several of the ventures recounted encompassing formalization needs to enable that. A downright outline of organizational roles, instead of continued multiple role responsibility by key employees, and a redirection of focus among all employees from product development to commercial work were the primary needs expressed. Interpretation Case and Top Security in particular articulated a great sales potential through increased formally structured efforts.

Yet lack of resources, uncertain positions on the market, and few individuals involved were shared arguments for not increasing formalization promptly on an overall venture level. Lack of resources rationalized the fact that several key employees had to pursue a wide range of tasks and take several roles. Insecure market position was an argument for the necessity of remaining informal and flexible. Yet everyone had to become more focused on sales, even if some technical experts are likely to remain less exposed to potential clients than others. As expressed in the previous section, increased formalization was perceived as urgent regarding selective issues.

[96] Alligator Bioscience and RaySearch Laboratories.

In addition, the majority of the ventures were currently trying to find ways of formalizing continued exploration in parallel with exploitation. As mentioned, Top Security had regular off-site brainstorming sessions to deal with future prospects and long-term innovation. Cell Case had continued confidence in the work of the founding academic group to come up with new ideas. Another venture had established a separate unit for scientific exploration by separating the scientific founder from product development. A fourth venture made initial commercial success through an established partner. Following on that, new competence was recruited to explore new product areas targeting new customer areas. These different attempts all imply a perceived need for expanding the operational focus through exploration intermingled with exploitation. The explorative approaches, in parallel with the challenging exploitation of existing products, created a wait-and-see situation related to formalization.

From a venture perspective no one denied, and some were explicit about, their perception of acquiring increased formalization within a couple of years. They were all waiting for commercial growth to be realized and for an increased number of employees as a reason for intensified formalization. Thus, they all envisioned their ventures as increasing formalization in the near future.

## Individual experiences influencing formalization

As indicated in the presentation of my case study objects, one CEO in my final sample had no experience at all from managing positions. This was not uncommon among the additional six ventures. In none of the finally selected cases did the CEOs have experience from managing positions in established firms.[97] Depending on whether the CEOs of the ventures had previous experience from management or not, they had tried to apply earlier knowledge or were alternatively prone to use intuition regarding organizational issues. Independent of their earlier experiences, formalization had been resisted or celebrated by using the same argument of being in constant change organizationally.

Among those lacking experience of organizing, like Cell Case, formalization was described as a subsequent development. Two of the CEOs with start-up experience, one being Case for Life, expressed strong perceptions against all kinds of organizational formality due to uncertain future prospects. When this was elaborated on, an active resistance to formalization was added.

[97] Apart from consultant experience.

Explicit reasons given were lack of an operational base for formalization and the constant change of conditions. Two of the CEOs with industrial backgrounds used the argument of constant change contrarily, as a reason for initiating formalization at an early stage to enable fast growth. They made clear their perceptions that formality increases individual clarity, which in turn enables venture development.

### *Summarizing my retrospective understanding of formalization*

Referring back to Figure 1 and the state of art of the ventures to investigate, all the ventures are in accordance with the amoebic state outlined in Figure 1. They are about to leave the project-based organizational logic, they have not reached commercial stability, and they perceive formalization as a mediator of organizational challenges to overcome.

The interviews generated concrete evidence of customers influencing formalization with requirements on ways of communicating, quality, manuals, and delivery deadlines. This is particularly evident when formal agreements with partners are made early, as was made in three of my case ventures. These ventures could therefore be expected to have outlined more idiosyncratic structures than were revealed through the interviews.

A second aspect relates to earlier experiences. The venture CEO perceptions differ in regard to their earlier working experiences. Although they express their active resistance to formalization, none of the ventures are devoid of both legally, market-based, and intentionally created structures. This confirms my suggestion that formalization is initiated early, but does not inform us about continued formalization.

Human resource-related intentional formalization is most explicit in Cell Case, due to the handbook mentioned, even if little in the handbook is implemented. External investors' interest in pushing formalization is apparent in both Cell Case and the Interpretation Case, through the conditioned key recruitments and the formal product development handbook.

# 6 THE CASE STUDIES AND FORMALIZATION DURING THE INVESTIGATION PERIOD

Against the background of the previous chapter, the most prominent changes made during the investigation period related to formalization are presented as *highlights* in this chapter. They summarize the main formalization issues identified during the empirical research period.

*CASE FOR LIFE*

The initially applied clinical test and customer interaction models have not progressed much in this venture. The CEO has been in daily contact with everyone, even if they are engaged on different contracts and do not work with or attend the venture regularly.

*Highlight 1: Through an internal investigation a wish of individuals for regulated forms of information flow has arisen. This expressed wish is taken into careful consideration in different ways. One is that key employees try to outline new structures for increased dissemination of information. The other is that small sub-group meetings on particular issues tend to, and are allowed to, expand the scope of topics treated at the meetings. The procedures of two yearly half-day meetings are refined to inform about strategic decisions and venture progress from different perspectives.*

The prevailing posture toward formalization is to be restrictive and to remain flexible. A flipside is that this manner of working is more or less strenuous to different individuals. The CEO who has admitted that he also has a limit for how long he can stand the informal and unstructured organizational chaos[98] realizes formalized employment conditions.

*Highlight 2: The official reason given, once most individuals involved in the venture are offered an employment, is VAT. It becomes the norm, and subsequent organizational members are engaged as employees. Some additional financial support from existing investors sustains this change.*

Results from initial clinical testing have been exposed to different market segments through lectures and press releases. Market response from new customer segments has crystallized. The response has in turn provided input for further development of several product variations, all without the need for clinical validation.

*Highlight 3: The model applied during clinical tests of the first product version is perceived as a valuable formal model for future clinical studies.*

[98] Quotation from the CEO.

*During the investigation period it was not applied because no new clinical studies were launched. This does not prove an overestimated value of the legitimacy entailed in it, but indicates that it has less applicability to new potential clients. An additional reason for not applying it was that the venture gradually separated from a dominant academic logic; which also influenced the next point. Consequently, the model becomes formally accepted as applicable in new clinical tests, to increase legitimacy when necessitated.*

Because increased commercialization calls for legitimating efforts related to individual customer segments, instead of the clinical model, customer references become most valuable. In addition, tasks are not performed for the first time any longer. Increased knowledge among the employees about application in different customer areas becomes an accumulation of references that facilitate commercialization. Separate markets crystallize all constituting somewhat varied bases for further formalization. The customer segments need different sales logic and customer support, even if the same product is applied.

*Highlight 4: Commercial market opens up as much more varied than expected. The variation influences formalization. During my investigation the model is exposed to substantial refinement through input from operations and new directions from management. Some steps are simply discarded while others are replaced or get an idiosyncratic outline. It continues to be a mutual framework for external interaction.*

Shared modes of interacting with customers are coordinated through the tentatively formalized customer interaction model. It stands out as the clearest framework for individual action and external interaction. It was created already as part of the clinical testing work when external interaction was initiated. Related to the above, it constitutes a mutual framework for operations that can be modified in relation to specific customer segments.

*Highlight 5: Beyond traditional financial measurements for expressing commercial progress, measurements based on how many client groups can be identified, how many clients are treated per employee, what positive effects the venture offer has on the individual clients treated, or how many dysfunctions can benefit from the offered treatment, are results that are supporting increased commercialization. Above all, based on such variables, increased intra-organizational formalization is activated to stipulate employee behavior.*

Feedback from different customer segments creates a platform for formal measures on performance. From a market penetration perspective, the operational model treated above is a basis for formalization. The extension of its application generates user information. Included in a contact database from an increasing number of contact names, it becomes a basis for streamlining information processing, marketing efforts, besides being a valuable database for continued academic research.

*CELL CASE*

When this case study is launched, the first CEO is about to leave the organization. As has been introduced, he works on a new organizational outline to be able to exchange some employees and to add new ones. Earlier regular weekly information-sharing meetings and management meetings are stalled by internal conflicts and absorbing efforts to attract additional capital. In addition, the initial academic group has dominated, and blocked increased formalization.

*Highlight 6: Internal resistance to formalization has come to a peak. Individual employees continuously express strong needs for more formal structures. Confrontations about formalization are common both between employees and between employees and management. Another reason is that employees with differing professional backgrounds compared to the first recruits have a hard time integrating their work informally. The dominant numbers of academics makes primarily scientifically based progress and detach themselves from the commercialization challenges and integration with new professionals who have been recruited.*

When the investigation was launched, an outspoken redirection of focus was communicated, rationalizing the planned reorganization. The difficulties of attracting additional financial support from the present investors were another reason given for changed organizational focus. It was continuously communicated by a board member, temporarily acting as responsible for marketing and sales by the first CEO and his temporary successor, the chairman of the board.

*Highlight 7: Gradually all academics were invited informally to spend more time on commercial work. A few adjusted to this invitation, while others continued to focus on research. Formalization was activated from a commercial stance.*

The two professional recruitments[99] earlier conditioned by the investors had taken their own initiatives towards increased formalization regarding product development. As indicated through highlight 8, they take their own initiatives towards formalization. Examples show that the head of sales and marketing[100] had outlined an introduction scheme for new recruits, printed business cards including titles indicating organizational positions, and formalized each individual role among those who work with sales and marketing. He emphasized it as necessary for external legitimacy, and that it is habitual in working with sales. Also, the new professional heading product development underlined the importance of formal human resource routines. Yet there was a tug-of-war going

[99] An industrially experienced head of product development and a start-up experienced head of sales and marketing.
[100] *One of two professionals recruited, forced through by the investors.*

on when the venture was first contacted. Different opinions about how to solve upcoming problems – informally or through formalized procedures – collided.

*Highlight 8: Earlier management resistance to formalization did not dissuade additional employees from also taking individual initiatives towards formalization of particular issues, apart from those implemented by the externally recruited key employees.*

The CEO insisted that the well-structured project process, which the new recruit tried to implement, was not needed until about two or three years ahead. It was admitted that the new recruits are very good line managers and take great human resource responsibility, something that was lacking. The CEO imagines one of them as vice president and operations manager, supplemented by a technically skilled developer in the new organizational outlined. The CEO's resistance to formalization has clearly been brought to a head in some operational issues, while both board members and employees are working on increased formalization.

*Highlight 9: The strategically aligned new organizational design is launched. It signals increased market focus including new organizational roles and competences. Some have to leave, some leave voluntarily, while others are exchanged. A search for new employee profiles starts, based on the new organizational roles.*

The CEO left after about six months of my investigation. A replacement could not take office until the turn of the following year. As already mentioned, the chairman of the board took over in the meanwhile. He formalized a management group with regular appointments and implemented the new organizational design.

*Highlight 10: Awaiting the new CEO to take position, the chairman of the board, supported by an additional board member in an operational position, started to implement the new organizational outline. It was expressed through an introduction of key words representing a commercial logic. Earlier management resistance to formalization was replaced by formalization of market-related issues. They crystallized as outlines about how to approach, evaluate and follow up potential customers, routines for claims and customer feedback, information-sharing and new individual roles. Information-sharing and management meetings are activated again.*

Despite a general skepticism toward increased formalization among several employees, selective venture issues had taken tentative forms before the new organizational. In-house production was one such issue. The innovative character of the venture products was a hindrance to out-sourcing of production. Neither the venture nor external actors had enough knowledge to find a good production solution. In-house production is subsequently taking a formal

structure through increased learning about how to produce the venture products. That learning was documented, but was for confidentiality reasons unavailable to me as researcher.

Another parallel sub-process concerns human resource policy, sketched in a handbook. That it actually existed was initially more a signal of intentions than of a running practice. Much of the content has not yet been implemented. The framework of the human resource policy handbook served as a dynamic structure for increased formalization.

*Highlight 11: During the investigation, certain issues within this policy framework had been decided to be carried through before a certain deadline. A specific issue on the agenda was to offer everyone a medical examination for free, which was realized simultaneously with implementation of the new organizational structure. Another issue had come up through a psychosocial investigation, as the carrying out of individual evaluation meetings with regular time intervals.*

A second CEO externally recruited took office after a year of investigation. He approached several marketing and sales challenges identified by his predecessors. One is the difficulty of getting access to the mainly academic buyers. Another is that sale of the venture offer is a slow decision process that is hard to urge, because it entails exchange of existing working routines. A third challenge lies in after-sales. The system sale is a one-purchase decision. The application of it generates additional purchase of disposables. Cell Case has not realized during initial sales that application support needs to be included in sales, so as not to impede the wanted additional sales of disposables. An additional sales challenge is that a second product is ready for launch.

*Highlight 12: Increased structuring of work roles and task division are made to support work aligned with the challenges above. Weekly information-sharing meetings at a scheduled time are stopped. The reason given is that there is no longer time for such meetings. Increased focus on sales is to some extent a commercial restart, which influences increased formalization. The reason is that the potential customers in the built-up database are gradually disqualified through the new experienced sales staff, and new formal structures on how to approach potential customers are outlined. A reduced management group and a new sales and marketing group meet regularly.*[101] *The information flow is focused on sales and production progress.*

To close down research had consequences for several individuals, but was only daunting to those that worked full-time. The majority spent the greater part of their time in the academic institution of the founder. A change materializing

[101] Even if the new CEO denied this.

internally is that the tight scientific group is dissolved. The risk that the scientists, earlier feared by the first CEO, would actively resist increased formalization of any kind is decreased.

New employees get formalized organizational roles. The number of employees remains constant through new recruitments. Head of sales and marketing is the hardest position to fill. It continues to be occupied by consultants. Aligned with focus on sales in a more structured way, steps taken towards increased commercial focus are based on geographic priorities. The US, as the largest market, is prioritized. A decision to open a sales office in the US is taken before the 2nd CEO takes position. Three employees with experience from life science are recruited locally. European customers are exploited through agreements with distributors.

*THE INTERPRETATION CASE*

After the initial interview with the externally recruited CEO that had been in position for three years, a second entrepreneurially experienced CEO took office. Also this venture had an increased focus on sales as a main priority. In this case it was mainly about extending the present business through their partners in Asia and signing new partnerships. Customer requirements had been the main moderators for outlining a model for product development and delivery.

*Highlight 13: When the product development handbook by a board member was scrapped, the CEO model remained. It was somewhat modified from a core aligned with individual customer requirements in specific projects.*

The new CEO taking office did not regard the venture as formal at all. Her frame of reference was a start-up that expanded to more than 100 product developers during a short period of time. In her understanding, the actual venture was still a project-based organization without a customer-based formal model to work from. She admitted that needs for new modes of working are always actualized with the change of CEO. But she claimed that such needs often have other origins and are activated only when the actual change is made.
The initially applied recruitment model was scrapped with the exchange of CEO.

*Highlight 14: No recruitment was pursued during the investigation period, but a new routine for how to handle human resource issues was outlined. Everyone was to have a personal meeting with one of the three key employees involved in product development and sales. Based on that talk, everyone would then meet with the CEO to settle individual salaries, fringe benefits, and a*

*development plan. Transparency was increased regarding salaries and fringe benefits.*

It became apparent when the new CEO took office that the three key employees had created their own meetings for taking strategic decisions. The gradual degeneration of trust toward the former CEO had culminated in an open conflict that stopped organizational progress.

*Highlight 15: As the new CEO took office, a management group was formalized with regular weekly meetings. The main purposes were to increase coordination between different working groups,[102] to get a discussion forum for implementation of strategic decisions, and to get support for implementation of new human resource policies.*

An urgent matter perceived by the new CEO was to open up for an increased information flow. Superficial layers had been added on, without satisfying the basic need of clarity among employees, because the information processes were not connected to operations or employee needs. Increased clarity was not considered to disqualify information-sharing through different channels that targeted selective individuals or all employees. Both ways were considered as mutually important.

*Highlight 16: The established routine of having standing meetings every Friday morning continued, but the content was focused on potential customers or existing business deals. An agenda was set. Individual worries and inquires continued to be welcomed in this open forum. Such worries were frequently expressed. Some customer-specific information continued to be restricted to a few for confidentiality reasons.*

Another challenge approached was continued growth, including the needs of two diverse employee groups: those that need a lot of clarity and those that are challenged by little direction. This dilemma has another angle to it, as perceived by the CEO. The more insecure only solve predefined problems, while the other kind solves upcoming problems without any structural guidance.

The new CEO declared that you do not need structures just for the sake of it, but you need to create a machine that is the basis for structuring, i.e. an organization that is constantly developing and trying new ways to operate. If you achieve that, the structures will gradually evolve based on knowledge accumulation about what works and what does not work. Structures that evolve in that manner get established, and you do not need any[103] outlining of structures on papers. Everything was understood by the CEO as emanating from evolving routines, i.e. from the bottom to the top. Thus, if a new person enters the team

[102] See new human resource-related routines in highlight 14.

[103] 'Stupid' was added in the literal translation of the CEO's words.

there is accumulated knowledge to work from. Creating structures the other way around would not reach out to the employees. Accumulated knowledge can become explicit through documentation that is done afterwards and not beforehand. Over time you update this and find accessible ways of documenting it on paper to enable continuation.

Awaiting this stabilization of operations, certain individuals are identified by the CEO as being in need of support to work according to these principles. The head of development is identified as one person in particular need of more clear communication and written routines about what is expected from a venture perspective.

*Highlight 17: The declared vision of creating a constantly developing organization was based on the idea that accumulated knowledge can later be written down as formal structures. It intermingled with intentionally outlined routines. Such routines were outlined as a remedy for an acute need of increased clarity among individuals.*

Another challenge approached by the new CEO was that of divergent ideas about sales and marketing between the present head of sales and the new CEO. The former CEO was not much involved in sales and marketing, but sales were a currently prioritized venture challenge. This entails much more analytical work of all contacts, such as why some deals are signed and why others are not. With this refined sales approach, a more professionally outlined sales process is outlined in writing.

However, shortly after taking position, market setbacks stall this formalization development. It is replaced by new routines related to new strategy of expanding the number of partners.

### *TOP SECURITY*

The initially dedicated employee who worked with identification of processes returned from parental leave when the investigation was launched. It was an appointed position, but it was also an interest raised voluntarily by that employee. The venture CEO's perception had initially been to implement formal structures as mediators for fast growth. When this was stalled due to moderate venture performance, it coincided with the parental leave of the person exploring formalization. Now the CEO supported her continued work on formalization, to increase the efficient use of resources. From the initially outlined bureaucratic models for administration and documentation – with the intention to increase the information flow – the formalization work progressed primarily in relation to product development.

*Highlight 18: After an interval of parental leave she continued her work during the investigation period. Apart from increased formalization regarding product development and customer orders, another related effort was to identify all organizational roles.*

The weekly information-sharing meetings based on a set agenda continued. The agenda encompassed several roles of the meeting. One was to discuss potential and ongoing sales, another to report progress of product development, and a third role was to allocate resources for the coming week and long-term undertakings. New routines and policies implemented were orally declared during these meetings.

*Highlight 19: One issue relates to the earlier informal control of spending, which was exchanged for a formal policy. The founders had earlier acted by example, conferring a low-cost attitude. Any cost above SEK 5,000 was decided to be approved by the management group thereafter. Another issue brought up was individually based customer contacts. They were to be considered as venture customer relations, and accordingly being more carefully assigned.*

An idiosyncratic division of labor was made between the founders initially. The individual responsibilities had not changed. Since they included multiple organizational roles, certain tasks had been brought up for discussion during the mapping process for increased formalization. Quality issues were one particular task that had been discussed as to whether it should be a separate role, be integrated in product and development, or become a separate unit. In line with increased formalization for commercial reasons, role distribution changed too.

*Highlight 20: During the investigation period two of the founders were subject to change of behavior and responsibility. The argument was to become more commercial and change behavior towards increased billing of time and advice. Actually, the commercial emphasis concerned everyone, whereas two of the founders seemed to have the most difficulties in handling it. They had to change behavior concerning important customer relations that had become informally formalized without yielding enough commercial results.*

Continuously the CEO underlined the importance of increased formalization regarding procedures for handling customer requests.

*Highlight 21: Informally formalized procedures for handling customer requests, through off-site meetings, acquired a new dimension. In the wake of increased formalization these meetings were also an instrument for raising everyone's attention to an industrialization focus on, and commercial aspects of, product requirements.*

A disagreement between the main partner and the venture arose during the investigation period. Despite legally regulated details about the business model, the partner neglected to pay the venture. This was a formalization break in the

development, but eventually resulted in more formal ways of handling customer interaction.

Table 11. Highlights summarizing formalization outcomes during my venture investigation

| **Highlights**[104] | | **Case**[105] | **Exist**[106] | **Activator**[107] | **Modification**[108] | **Scope**[109] |
|---|---|---|---|---|---|---|
| 1. | Formalization of information-sharing models to guide operations | 1 | No | Employees | New ways were tried. Scope of topics on sub-group meetings was extended | Overall |
| 2. | Formal employment confirmed individual belonging | 1 | No | Legal tax regulation | Employment became the norm | Overall |
| 3. | Product validation model to increase legitimacy and guide implementation | 1 | Yes | Academic founders | Loose applicability related to new market niches | Guiding to operational staff & product development |
| 4. | Operational customer interaction model to increase legitimacy and guide operations | 1 | Yes | Management and employees | Operation input and increased efficiency cause substantial reduction of activity, whereas alternative dimensions are developed | Product development, operations and external joint partners |
| 5. | Market-derived measurements to increase legitimacy externally and internally | 1 | Yes | Management | New operationally related measurements are created | Overall |
| 6. | Formalization bottleneck impeding increased formalization | 2 | Yes | Through board members, new recruits[110] and existing employees | Diverse initiatives are impeded by an informally evolved formality | Overall |
| 7. | Exploration logic is to be replaced by a commercial logic to increase chances of market establishment | 2 | Yes | Management | Evolves as an informal invitation | Overall |

[104] In the same order as they appear in the text.
[105] Case for Life is no. 1. Cell Case is no. 2. The Interpretation Case is no. 3. Top Security is no. 4.
[106] "Yes" indicates that the issue was formally outlined at the launch of the investigation, i.e. formally outlined for application. "No" indicates that the issue was at an idea stage or appeared during the investigation period.
[107] Indicates the original activating actor, event or other reason identified.
[108] Indicates activities taken regarding the specific issue.
[109] Indicates who is primarily concerned by the issue.
[110] Industrially experienced new recruits.

| Highlights[104] | | Case[105] | Exist[106] | Activator[107] | Modification[108] | Scope[109] |
|---|---|---|---|---|---|---|
| 8. | Increased formalization for commercial reasons | 2 | Yes[111] | Employees (key recruits) | Increased formality related to division of work, procedures, and policies to work from | Overall |
| 9. | New organizational outline | 2 | No | Management | Implementation entails a turnover of employees | Overall |
| 10. | Increased formalization gradually excluding research | 2 | Yes | Management | Formal groups with decision power. Implementation is supported by introduction of a commercial language and measurements | Units |
| 11. | Human resource policy handbook, to serve as a framework rather than rulebook | 2 | Yes | New employees and head of financial and human resource issues | Implementation and refinement of several issues. Results from a psychosocial investigation support this work | Overall |
| 12. | Research is closed down. Weekly information-sharing meetings are replaced by separate management and sales group meetings | 2 | Yes, but not on a regular basis | New CEO | Ad hoc meetings were replaced by regular sales unit meetings. A reduced management group was reactivated. | From overall to selective groups of individuals in more structured roles |
| 13. | Product development model, as an idiosyncratic base to meet customer needs from | 3 | A flexible foundation | Three different operation managers | Some aspects were modifiable, aligned with customer requirements | Mainly the two product development units and sales |
| 14. | Individual development model, to gain employee trust and satisfaction | 3 | Yes | 3rd CEO | The personally outlined model by the 1st CEO was scrapped and replaced by new procedures | Overall |
| 15. | Management group, to get increased coordination from a commercial perspective | 3 | No | 3rd CEO | Fragmented venture decision structure was altered through coordination of strategy, sales and product development. | Overall |

[111] Existed to limited extent.

| Highlights[104] | | Case[105] | Exist[106] | Activator[107] | Modification[108] | Scope[109] |
|---|---|---|---|---|---|---|
| 16. | Weekly information-sharing meetings, to keep everyone informed about the commercial development | 3 | Yes | 3rd CEO | Open forum with increased focus on commercial issues through 3rd CEO | Overall |
| 17. | A self-generating structure, to create a bottom-up structure based on product development routines and experiences | 3 | No | 3rd CEO | A non-declared vision that was initiated by new routines | Overall |
| 18. | New role distribution | 4 | Yes | Employees & management group | Product development process was used as a basis for division of formal roles | Overall |
| 19. | Resource allocation and efficiency, through increased clarity about division of work during weekly meetings | 4 | Yes | Management | Set issues were treated and checked off in this open forum. Redirection of focus towards commercial professionalism was added on the agenda as a recurrent message from the CEO | Overall |
| 20. | Founder positions changed to match competences with roles efficiently | 4 | Yes | CEO | Two of the founders left their staff responsibility | Individual |
| 21. | Refined business model to become more professional in charging value added to customers | 4 | Yes | CEO | Changed behavior towards customers, new administrative routines | Overall and individual |

Table 11 cont.

Two apparent characteristics of formalization as presented above need to be commented on. One is that several issues have a wide scope in being relevant to all organizational members. That is, most of the issues have an intention of affecting the whole venture. Secondly, the dominant activator is the CEO in each venture. This does not necessarily mean that the CEO is the original activator. Some issues may have been activated earlier, and during my investigation it may simply be a reactivation, or is a responsibility that is taken over by the current CEO. These changes give a rough overview of the results of

formalization during the investigation period. This chapter is finalized by presenting some aspects regarding the contextual conditions for formalization.

## PARTICULAR VENTURE CONDITIONS FOR FORMALIZATION

Formalization in the individual ventures is pursued under different contextual conditions. Case for Life goes through an intense exploration of different customer segments. Apart from the major change of employing the majority of earlier loosely contracted individuals, a number of employees are added during the investigation period.

In Cell Case, the initially interviewed CEO is replaced by the chairman of the board acting as temporary CEO. When the recruited CEO takes office, an already turbulent period of internal conflicts takes a new turn by closing down research. The number of employees does not increase during the investigation period, but about a third is exchanged for new profiles. The commercial approach is changed substantially, through implementation of a new formal marketing process by new employees.

In the Interpretation Case a new CEO starts to act, in parallel with my launch of the investigation. Due to an internal conflict about the strategic decision process, she takes personal responsibility for all commercial efforts and relations. Functional division among key employees is formally coordinated. After a while the initially commercially successful partnerships come to a halt, and discussions with additional potential partners are accentuated. Aligned with a more focused way of operating commercially, a number of employees become redundant. They leave the venture voluntarily, but are not replaced. Thus, both the number of employees and sales are reduced during the investigation period, influencing the formalization process. Nevertheless, increased formalization is continued.

Finally, Top Security involuntarily loses some employees during the investigation period. They are not replaced. Despite a partner conflict, the commercial development is successful through the exploration of new partners and more efficient use of resources. Both issues are part of the formalization process.

Related to formalization, the primary mutual condition appearing through these summaries is increased commercial efforts. Against the background of formalization outcomes that have been exposed in this chapter, how formalization is actually pursued will be presented next. In the following chapter, the empirically derived process development is abstracted as separate process dimensions, including the underlying “why”.

# 7 FORMALIZATION AS A PROCESS DEVELOPMENT

The in-depth analysis of the interview- and observation-based findings is presented below. Several critical aspects emerged as second-order dimensions from the findings. Second-order dimensions contextualize how formalization is activated and progresses.

Activation in my investigative model includes both underlying reasons and initial actions by different actors. *Proceed with caution*, *self-generated formalization*, and *to the best of employees* were second-order dimensions primarily found from the conceptions of the venture CEOs/founders. Self-generation is also presented from an employee perspective, because my findings allow for that. It represents the underlying reasons for activation or non-activation.

Related to actions taken, formalization emerged as *selective actions* and *personal reassurance.* Selective actions are presented from both a CEO and an employee perspective, while personal assurance only relates to the CEOs. Together they represent actor pursuit of formalization, exposing different dimensions of the formalization process.

Outcomes of the formalization process that were expected in my model come next. They are labeled *dashed organizational development*. They are presented both from a CEO perspective and as brief contextualized dialogues.

The last table reflects how the CEOs perceive formalization related to continued development of the ventures. It is labeled *continued exploration.* It represents intentional actions in a longer time-perspective.

Hence, to the extent that the findings allow, the second-order dimensions are presented from several perspectives to visualize different perceptions, causes, reactions and consequences of formalization. Yet as introduced, not all of the second-order dimensions have this multiple actor perspective, simply due to lack of data from the employees. Everything added within brackets [ ] is added by me for reasons of clarification.

## ACTIVATION

### Proceed with caution

To proceed with caution and create structures gradually was a mutual perception found. Also in Top Security, which had started to outline systems allowing fast

growth from the very beginning[112], caution appeared as characteristic, as the second statement illustrates. Gradualness and caution were not defined but were expressed in multiple ways to describe the venture formalization process.

Table 12. Proceed with caution from a CEO perspective

| Perspective | First-order informant | Second-order dimension |
|---|---|---|
| **CEO** | *The process mapping is not ready yet* | **Proceed with caution** |
| | *We have postponed a meeting aimed at dividing up organizational roles, because the process mapping is not ready yet. We are out in the bushy forest making a small window of opportunity for us, but when you get a lot of external requests from potential customers you cannot prioritize internal processes* | |
| | *We take new customers as opportunities to learn* | |
| | *We need to learn how to simplify things so that we get a basis for up-scaling* | |
| | *You cannot just make a radical change; as soon as you do that you are done. This has been my feeling all the time, but it is boring to be patient* | |
| | *I approach the organizational challenge as a space you can reduce **slowly** to something that you could define the meaning of* | |
| | *I believe that hierarchies and mania for organizational titles counteract a merit-based approach, and I want to hold onto that* | |

First, from the CEO perspective, beliefs are communicated about the need to actually have an operational platform to formalize from. The necessary platform is related to operations, and to the need to learn different working processes in such a way that you are able to define them and outline structures in writing. It was mainly expressed as identifying repeatable activities and finding relationships between them. To find relationships between activities could be to find efficient ways of interacting. Once operational aspects are communicable in writing, without an expected change the next day, they are perceived as a platform for formalization of structures, i.e. they are possible to formalize from. A platform would also be needed to add selective structures or delete tentatively created structures. The third aspect, elaborating on the need of a platform, was referred to as a question of creating structures that still remained flexible.

None of the venture CEOs perceived that they had reached such a platform, because operations had not yet taken form – i.e. they had not found a stable customer base to develop from, or found ways of formalizing in a desired way. The mode of working thus far had been dominated by project work to produce

[112] That is, 3 years earlier.

the first products for initially interested customers. During my investigation, the ventures were struggling to increase sales enough to become commercially established, i.e. profitable. Before a platform for formalization is identified, and as long as employees are tentatively engaged to work in different areas with a wide scope of responsibility, the CEOs perceive no urge or feasible means to increase formalization.

Caution regarding formalization also refers to the commercial status of the venture. The CEOs emphasized increased learning about partners as necessary. To reach commercial establishment[113] would give an opportunity for increased learning about commercial interaction. This would probably be followed by an increase of employees, which would enable a distribution of individual roles and other formalization activities.

As caution conveys a temporary positioning, it is a wait for operations to get established. Commercial effort being already initiated, to outline structures that fit operational and employee needs is perceived as a challenging and substantial time effort ahead, if market establishment is successful. In connection with this, the cautious was contrasted to the radical. Radical change without prior investment in identifying operational processes and analytical work was regarded as a threatening road to take, for reasons of survival. Logically from these arguments, a mutual perception communicated about formalization is that the commercial and formalization development is slow. The slowness is even reflected upon as frustrating or boring. Both relate back to the fact that operations do not crystallize as a clear platform for formalization. This implies that caution is only partly a self-selected position taken. The main reason for it is that the venture remains a fledgling.

Meanwhile the CEOs implement simply formulated measurements or structures as guiding frameworks. The most substantial number of actual actions taken towards increased formalization has the character of tentative operation-related structures. They emerged as singularities and are not considered as pieces in the overarching systems of structures that the CEOs imagine as evolving in the future. Cautious formalization was rationalized as the only path to market establishment. Formalization is therefore perceived as counterproductive, because it would impede flexibility and tentative or intuitive decisions related to further development of the ventures.

If the CEOs are frustrated from their perspective, they are not alone in being frustrated about the slow development of operations. The employees working with operations feel immediate needs and individual frustrations. Immediate

[113] Substantial increase in sales.

needs are outspoken. In contrast to the frustration expressed by the CEOs about the slow commercial progress impeding formalization on a venture level, employee frustration relates to several levels of analysis. One has to do with the fact that there is no human resource development, another relates to specific unit work, while a third relates to individual work. Employees' frustration comes out frequently face to face with executives, among colleagues, or in direct contact with me as a researcher. Such expressions, unlike the frustration among CEOs, are not only relatable to a venture perspective. Their individual involvement in operational tasks triggers many of the needs they activate. The result is that employees communicate, in contrast to the CEOs, an urgency of creating frameworks, policies and routines regarding specific issues.

## Self-generated formalization

Caution about increasing intentional formalization was further identified when expressing perceptions about how to create self-generating formalization.

Table 13. Self-generated formalization from a CEO perspective

| Perspective | First-order informant | Second-order dimension |
|---|---|---|
| **CEO** | *To create structures you need to create a machine …an organization that is continuously developing through new modes of working, not by dictating how to work. Then the structure will evolve. If you work actively with learning, then the structures will gradually evolve piece by piece.* | **Self-generated formalization** |
| | *It is about changing our culture. What we have tried are stimuli through e-mails etc. It does not function very well, because it is a process that has to be started. Like the human resource allocation document you can use to check if you have worked with highly prioritized customers. That will be checked off every week.* | |
| | *My dream is that everyone reports how much time they spend on pre-sale. You have to do some offerings and prioritize earnings. They [the employees] sit on the phone for half a day. When you ask them who they have talked to, it is potential clients that they have become friends with. We do not earn anything on that. Everyone has to get tougher and change their behavior, to charge their services. To report your time includes us all, including me.* | |

Whereas the CEOs underline the importance of a solid operational base for increased formalization, they also convey their visions about formalization, as expressed in the table above. Their visions of formalized organizations include mediating structures that keep up the dynamics of the organization and stimulate professionalism. This is about organizations that accumulate knowledge for

continued development and have an information flow that stimulates new initiatives. It is also about an organization that has consolidated knowledge about how to handle different issues. To achieve their visions of such formal models, the CEOs recognize a need for change in the current behavior. They are not very concrete on how that could be realized, but report about some measures already taken.

Related to how they would like to see formalization develop, they identify over the investigation period two main thresholds ahead, to realize commercial establishment and these envisioned formal models. One is the venture's need to change focus from product development to increased commercial interactivity. It requires new formal structures related to increased external interactivity. The other is that individual behavior does not match the new venture challenges.

The employees continue to freely express perceptions about what is needed, and worries about what happens if formalization does not progress. This is in strong contrast to the CEOs' images about self-generated formalization and progress by caution.

Table 14. Self-generated formalization from an employee perspective

| **Perspective** | **First-order informant** | **Second-order dimension** |
|---|---|---|
| **Employees** | *Unless someone takes the responsibility for formalization and informs everyone, it is easy for people to lose perspective.* | **Self-generated formalization** |
| | *We have had an unstructured product development process. It is not until someone takes project manager responsibility and sets up deadlines that we can pass thresholds.* | |
| | *The CEO relies very much on individual responsibility but in some projects he exercises detailed control. I do not see any conflict in these two ways of managing.* | |
| | *You always start somewhere, and if no one structures, then it just adds on. It is not that I map our processes alone; others are involved with their preferences. But no one else has time or interest to pursue these issues.* | |
| | *The important thing is to have a plan that you can make changes in for achieving your goals.* | |
| | *It is very much about creating order. If you take the example of product development, you need somewhere to keep documents; you need to make adjustments, or to set up new demands. All the things are there and yet they are not there. They need guiding principles to become anchored.* | |
| | *Working with one main partner entails a lot of external requirements. It is very good then to interpret the requirement against our own documents and make a priority list from that. It is so easy – you do not need more than one piece of paper to communicate priorities, and you avoid stress when you have the whole picture.* | |

Thus, beyond the operation-based activation presented in relation to *proceed with caution,* employees point to the need of creating certain structures that enable formalization to progress – particularly in relation to specific operational needs. The lack of a stable operational base to departure from is not an issue. As the second informant dimension indicates, they easily identify actions to take for increased formalization. Their concern is of two kinds: to get operational frameworks in place and to get someone to take responsibility for creating such frameworks. Without these two practical aspects they suggest that formalization goes its own way, instead of becoming a self-generating mechanism. Here they identify venture needs rather than detailed needs. The venture employees report on the present approach to formalization as urgent to change.

## For the employees' best

The CEOs are not concerned about formalization going its own way. Yet they theorize about employees related to formalization. They have practical examples that verify different individual needs for formality. These different needs are challenging to fulfill. First, the CEOs say that they have taken actions to some extent, but they add that informality and chaos are natural parts of new ventures. This does not mean that they neglect upcoming needs, but they perceive it as difficult to meet different individual needs, precisely because these differ. Second, they perceive that they treat different employee needs through discussion, which explains why formalization cannot advance faster. Third, in my interviews they seem to be convinced that it is a minority of individuals who are pushing a need for increased formalization. The majority are perceived to be reluctant about formality and more productive without formality. They are productive in a way that is considered advantageous to the venture, i.e. they create solutions to upcoming problems individually, they come up with new ideas to explore, and they are the most knowledgeable in the technical area that the venture is occupied in.

Table 15. For the employees' best from a CEO perspective

| Perspective | First-order informant | Second-order dimension |
|---|---|---|
| **CEO** | *Different individuals have different needs for order. Some like it when things turn up as problems to solve, others do not.* | **For the employees' best** |
| | *I do not like to work in a highly structured organization, and I have noticed as manager that you do not get any idea flow from your subordinates in such structures.* | |
| | *Some individuals need very clear structures so as to function. I prefer to regard those as exceptions. Some more rigid patterns cover those individual needs and enable them to solve identified problems. But the majority has to work with less formality and solve all upcoming and unforeseeable problems.* | |
| | *We work merit-based, which makes formality superfluous. Our way creates conflicts with some employees and makes them insecure, but due to output thus far I have to support the most merited. We do not need increased formality until a couple of years ahead. To create theoretically based formalization now would only be false confidence.* | |
| | *[Employee inquiry] In what way are we going to improve? How will the daily tasks be changed? [CEO answer] Take it easy, it is only a matter of creating some structures for more control.* | |
| | *I like openness because it motivates people. Openness can be threatening, too, when you get into serious situations... On the whole I think we have succeeded in getting people to understand that you have rights, but you have obligations too. Then you always have some exceptions who are only interested in the rights, or those who think it is too messy.* | |
| | *We make attempts to increase structures but I believe it is a success factor that it is messy. There are always some that…it is like the difference between being mean and economical. Some question what is good about having a purchase number[114] , or ask what the advantage is of formalization. I think division of responsibility is good to have in writing, but regarding other things I have one perspective while a few have other perspectives…* | |

It is apparent in all the ventures that it is more difficult for some individuals to cope with little formal guidance whereas others take it as a challenge. The CEOs express recognition about how strenuous it might be for an individual to feel insecure about what the conditions or directions for work are, despite their theorizing about what they believe is best for their employees. Increased efforts are made during the investigation period to keep everyone informed about the venture position from a commercial perspective, to inform about upcoming events like how resignations are to be handled, financial situation, or where the CEO's own level of tolerance for lack of structures is. Essentially, they are of the opinion that they make particular efforts to communicate frankly and

[114] This is an obligation after the change towards more focus on sales and payment for everything you do.

honestly about current issues and the future of the ventures, explaining why formalization does not progress.

Again, great uncertainty about the future is the fundamental reason perceived and communicated for not activating formality. Despite outspoken individual needs for more formal frameworks, formalization is not pushed by them. Adding to the argument of uncertainty about the venture's future, and the perception that progress has to be made with caution, is the concern about how to formalize. The CEOs perceive that increased formalization with the aim of increased efficiency is a new challenge to a young venture. The reason given is that individual engagement has been an important ingredient in the development thus far. Such behavior is both hard and challenging to standardize.

## ACTIONS TAKEN IN RELATION TO INCREASED FORMALIZATION

### Selective actions towards increased formalization

Despite the CEO perceptions of creating self-generated formalization and proceeding with caution, the formalization process is characterized by selective actions taken. *Selective actions* emerged through analysis of the CEOs' and the employees' recurrent references to certain issues that were occupying them as formalization attempts. They were subsequently confirmed through venture documents. Several actions are taken to activate formalization with the aim of starting self-generating mechanisms. One is to implement new routines. Such routines were written down with the purpose of stimulating individual action in new directions. Another approach is to investigate, and make everyone aware of, which mechanisms have to be improved. Such actions range from individual questionnaires about work-related issues to new guidelines with the aim of increasing individual attention to new modes of working. A third approach is to behave as an example to change present ways of working. As presented, it could be a new routine to sign expenses above a certain amount. Or that everyone has to report on sales contacts in writing, motivating the priority of the contact and estimating the sales potential. Or all sales progress is reported at weekly management meetings, aligned with how the CEO reports.[115] Thus, these actions to create mechanisms that would stimulate formalization take different forms. The mechanisms are complemented by intensified communication about why the venture is increasing formalization.

[115] The Interpretation Case.

Table 16. Selective actions from a CEO perspective

| Perspective | First-order informant | Second-order dimension |
|---|---|---|
| **CEO** | *I have forced it through, by formal requirements [related to head of development and head of usability], to make room for new development, and not simply drown in customer orders. The argument is that we have to take customer orders because we cannot afford to refuse, but we need simultaneously to prepare for something that is one year ahead to stay competitive.* | **Selective actions** |
| | *Individual career talks will be held by your closest manager. They will be informal and not confirmed in writing. Specific issues will be forwarded to me. In the fall I will meet you all again on an individual basis as a follow-up to the talks you have with your closest boss.* | |
| | *The insecurity perceived among some employees is now a new task of the members of the management group. They need to be clearer with their subordinates.* | |
| | *A substantial change is that operation works through delegation by me – like recruitment is now handled by L. That does not mean that she has taken the human resource responsibility as I have suggested. She thinks we are too small for that.* | |

Despite outspoken decisions made about increased formality through selective issues, supported by intensified communication, changes are difficult. As one CEO expresses it:

*"You tell them how to change; they say yes, but it is not followed by action. You need to create mechanisms and communicate it too, to make it real."*

To summarize this dimension from the CEO perspective, several tentative actions towards formalization are taken. They turn out as intentionally outlined formal guidelines or routines, or proceed as continuous mapping of the basis for formalization by the employees. For example, someone gets a commission to investigate the foundations for formalization of a specific task. Such investigations were referred to as laying a puzzle, where the pieces of puzzle needed are residing in individual tacit knowledge.

Table 17. Selective actions from an employee perspective

| Perspective | First-order informant | Second-order dimension |
|---|---|---|
| **Employees** | *You try different ways of working. The CEO talks to everyone to keep them informed. I take specific care with the operational staff. We write monthly newsletters to support corporate communication. It is necessary to try different ways until you find out who needs to know what.* | **Selective actions** |
| | *I think we could improve the information-sharing. It becomes apparent sometimes that it would have been good in external contacts to be informed beforehand about the content of the monthly newsletter.* | |
| | *We created a screening document but it is too structured in that knowledge is still lacking about several aspects.* | |
| | *We have decided that we should not work from written documents because you should not write down something you cannot keep alive and you do not want intense administration. But a certain amount of documentation is necessary.* | |
| | *Blueprint for license agreement is under way but we have to use the old one right now.* | |
| | *We have a current list on the intranet that informs about which role each and every one is working in.* | |
| | *There is a constant need of coordinating operations which turn up through protests. Then you have a group discussion or someone takes on the task of creating a solution.* | |
| | *We have four task groups that are commissioned to outline the basis for formalization regarding communication, competence development, projects and values.* | |
| | *There was no one but me in the beginning and no routines in place. I have started documentation of customer contacts. Potential customers are spread all over the world and they are very difficult to get in contact with.* | |

The employees witness above, in convergence with the CEOs, on actions taken towards increased formalization. Some of the formal organizational characteristics that the employees refer to are IT-based systems, meeting routines or policy rules related to customers. The general usefulness of frameworks to guide daily operations is underlined by the employees in different terms. One perception is that things become less administratively complex due to new formal guidelines. Another is that employees can concentrate on their main tasks and do not need to outline their personal systems for documentation of working hours, potential customer contacts, progress in development work, or other issues. A third perception is that policy rules guide internal and external behavior, enabling increased depersonalization of corporate communication. Structures that are outlined thus far are recurrently adjusted and refined. A particularity is that some structures have an origin that is related to an individual but is later refined to have a bearing on the work of the majority of the

employees[116]. Thus, individuals outline their own routines and structures in writing. When it becomes clear among several employees that there are additional colleagues in need of a formal structure, the written document is spread or the issue is brought to management for a decision on how to handle particular issues.

One aspect related to involvement is that anyone can volunteer to create formal frameworks. Yet formal structures are easily abandoned when the venture conditions change, and employees tend to fall back on individual management of different issues. To summarize, the quotations above indicate active employee involvement in formalization.

## Personal reassurance

Somewhat in contrast to how employees greet increased formality and take responsibility in the process, the CEOs have to build up their confidence to increase formalization. They convey a fear of personal conflicts related to organizational changes. Depending on the founding conditions, or smallness of the ventures, the CEOs are personally close to the employees. Some have been part of the team initiative, or are earlier colleagues. Increased formalization is feared to cause conflicting reactions depending on how the changes affect different individuals. In all the cases there was a tight relationship between the founders. Independently of whether the current CEO was part of that founding team or not, there is a risk perceived about individual reactions to increased formalization.

The main reason given is that progress thus far builds on individual engagement and motivation, as was touched upon in relation to the dimension *for the employees' best*. Those two aspects are judged to be at risk if efficiency is increased through formalization.

To gain in confidence when actually pursuing formalization, the executives seek reassurance among external interaction partners. Sounding-boards are found among members of the board, among peers in the industry, or earlier colleagues. But the ventures CEOs express a general lack of sounding-boards regarding the organizational development. In particular they would like to have sounding-boards with experience from venture exploitation. Presently, knowledge among board members or investors is considered as low regarding

[116] Which occurs in all the ventures.

venture formalization. The CEOs convey a sense of being alone with the ultimate decision-making about formalization.

Somewhat contradictorily, both employees and a board member[117] who are operationally engaged in the ventures report lack of priority regarding organizational issues. Nevertheless, several respondents notice that the CEOs are not given support by investors to spend more time on developing the ventures organizationally.

Some explicit advice from board members has been taken as a basis for action. In Cell Case, recruitment of industrially experienced key employees was even forced through by the investors. The negative consequences were intuitively foreseen by the CEO, but the open opposition came from existing employees. In Case for Life, one board member with experience from the pharmaceutical industry recommended business logic aligned with that. It was thoroughly implemented in the venture. Then a new member tried to suggest another business logic, which was regarded as misfit to how the venture had chosen to operate. The CEO's later reflection on this was:

*"A thought that struck me lately is how much the commercial exploitation is based on your earlier experiences. It struck me when I talked with a new member of our board who was initially pushing our development to be aligned with his earlier experiences, which we thought was misfit to how we are working. He did not do it explicitly but I could sense this through his experiences. Maybe it is that simple – that you take your earlier blueprints and just implements them and then you are running."*

Retrospectively, and at the end of the investigation period, the CEO put the initial mode of working in perspective and realized how opposing suggestions had been turned down without much discussion.

[117] In Cell Case.

Table 18. Personal reassurance from a CEO perspective

| Perspective | First-order informant | Second-order dimension |
|---|---|---|
| **CEO** | *I have not had the strength to implement a business strategy before. But when I got support from our angel investor I had the strength to go back to the office and tell my buddies that they have to charge their 'friends' 50,000 SEK because we are to formalize our commercial approach.* | **Personal reassurance** |
| | *When I have argued for increased standard procedures and efficiency I have also been clear that the speed of change will slow down and it might not be as exciting any longer. I am surprised how well the new operational measurements have been received and I wonder if I have been too kind or am just insensible to their reactions. I guess it could be both.* | |
| | *I am still tested by the employees who want to find out how I function and where I will set the limits. To be tested as a newcomer has made me restrictive and I have chosen to keep things informal, especially regarding taking notes because you risk losing the dialogue. We do not take any notes from the management meetings. I do not want to get things in writing that are too obvious, so I have to find out what is needed.* | |
| | *It was good to talk individually with the employees that were closely related to the guy who resigned. I got a tighter relationship with them. It was a relief too to dissolve the 'mafia' group around him [that resigned]. I had not had the courage to dissolve that before due to their private relations.* | |

All CEOs reported that financial and customer-related issues were the only ones discussed thoroughly with board members or investors. They felt left alone with challenges of organizational development.

## OUTCOMES OF THE FORMALIZATION PROCESS

Formalization has hitherto been presented as a challenging development because management and employees have different perceptions about the need of formalization and how it can be created. The CEOs are left alone with their caution and hesitancy, whereas employees call for and welcome increased formalization. The employees express worries about what happens to organizational behavior, and to ultimate venture performance, if you retract from handling formalization. This is in contrast to the dominant perception among the CEOs that the formalization needs and the bases for it are not identified thoroughly. Therefore the ventures progress with caution. In the next section, disturbances in the process will be presented.

## Dashed organizational development

As one of the venture CEOs verbalizes it in the text above, the venture has closed their ears to advice from some board members. There are apparent difficulties in finding forms to involve external actors. Nevertheless, the ventures claim to be generally receptive to advice from board members. Practice shows another picture. Even if it was welcomed at the time when one board member/consultant offered his services to create a product development handbook in one of the ventures, the result created frustration and finally abandonment. Another venture invited an entrepreneurially and commercially experienced board member to take an acting role as head of sales and development. This satisfied an executive need temporarily, but did not facilitate a permanent solution. The new routines created also caused a lot of arguing between organizational members, and turned out to be misaligned with what existed. As has been presented, all the ventures have downsized due to early redirections. In addition, some employees have left when the explorative work was finished. But the quotations below indicate another, more common source of disturbance to formalization, i.e. commercial setbacks and changed conditions.

Table 19. Dashed organizational development from a CEO perspective

| Perspective | First-order informant | Second-order dimension |
|---|---|---|
| **CEO** | *We look restrictively on investors' involvement because they are so inquisitive and, as soon as there is a priority to make, I [CEO] have them on the phone every day. Whereas at other periods they may turn up at the board meetings or only call once a month.* | **Dashed organizational development** |
| | *We have lost some competent employees, but some prefer to only work with the explorative first phase…it means more pressure on those that are left. We are left with broad competences, not narrow specialists that are what you need to coordinate.* | |
| | *[Referring to a product development handbook outlined by a consultant] It reflects a car production process that our venture was not ready for.*[118] | |
| | *There has been so much waste of resources in this venture due to misjudgments regarding organizational issues. That has impeded a breakthrough with our products.* | |

During the investigation period characterized by increased commercialization efforts, new setbacks turn up. In one particular case, the main external partner did not fulfill the financial agreement. In another venture the main partner

[118] An employee commented on the handbook: "someone has played with a dream model".

redirects the commercial focus and the venture loses the partnership. Such events influence formalization and underpin the caution that CEOs have. Attention to formalization is halted and becomes hard to prioritize among issues that threaten the future of the venture.

Consequently, mapping efforts made earlier to outline the basis for increased formalization develop as more disparate instead of the coherence sought. As new actions towards formalization are taken, apparent gaps between those that accept them and those that apply them emerge. It adds to dashed organizational development. When formal structures and routines are created with the purpose of becoming frameworks for increased commercial efforts, these are not immediately accepted or understood by everyone.

Table 20. Dashed organizational development

| Perspective | First-order informant | Second-order dimension |
|---|---|---|
| **From management meeting and dialogues during observations** | **About a new release**: *[Founders] We did not get the point of it. [President] It is about how we work with third part contractors. [CEO] Yes, but what is the news? [President] Most of our news is no news and we did not know where to make the pitch…[CEO] OK, I do not say no but content is more important than just to deliver something. You should not feel pressed that you have to make a release. [President] Then we have a shared opinion because we it was a hard challenge to create a story [that we did not have]. [President] The thought was that we tell about an established routine we have. [CEO] OK, OK…all I say is that we have to anchor releases in the management group.* | **Dashed organizational development** |
| | **An argument between the CEO and the president in the US about renewed contacts**: *[US president] We can take this in a separate discussion afterwards. Even if I agree that we have to find out the underlying reasons for why they do not answer, I am not convinced that to ask another time is the best approach. [CEO] I do not think we need a separate discussion about how to treat customers. I think it is time to take a new contact because it is more than 3 weeks ago since the last one.* | |
| | **Regarding who takes responsibility for what**: [employee] *We need information about responsibilities. I know the laboratory but I do not know anything about production or ISO-9000. We have to put a deal with X on hold despite the potential gain of it. First we need to look at the core processes…this feels totally useless! You need to decide first and then delegate.* [Manager] *It is also a matter of what kind of responsibility individuals want to have.* [Employee] *But I talked to X, and we need to be damned clear about x, y, and z. We need rigid discipline of our documentation that can be taken out immediately if the customer comes. We cannot keep this mess. Or, what if someone has taken the documentation on a trip to the U.S. when the customer comes? The templates need to be outlined.* [Manager] *Maybe it is not fair that you should work with the production routines as* well…[Employee] *There are so many here now that strive for* | |

| Perspective | First-order informant | Second-order dimension |
|---|---|---|
| **From management meeting and dialogues during observations** | *different roles, it adds to the mess…*[Manager] *I do not think so, because you can work on this in many different ways...* [Employee] *But everyone needs to know their organizational role.* [Manager] *I will bring this up at the management group meeting tomorrow, I will probably know by then…* | **Dashed organizational development** |
| | **An argument about financial priorities***: [Founder] It is a matter of deciding what is the key operation. It is a relatively small amount of money. It is less than we spend on a consultant that will spend days on mapping individual satisfaction. This is a non-issue if we are in the high-technology business; then we have to spend our money on patenting and not other trivial issues.* | |
| | **Regarding formalized screening of potential customers***: [Head of sales] We have to learn from our mistakes. We had done all the screening through telephone interviews, but we might need more control questions…[Researcher] It is not only about this last visit. We have a short perspective of achieving budget goals. The coming visits are vital. [Head of sales] In another case the information about the customer evolved gradually. At a certain point we cancelled that. [Employee] Yes, but also in this last case when it went wrong you knew beforehand that he was not interested in purchasing our products in the short perspective. [Founder] The problem is that we have spent our time with the wrong potential customers on several occasions. [CEO] No, that… [Head of sales] That is another perspective on this problem; that is where we are and where we travel. You happened to be on the West Coast, and X is a present client that was interested in placing more orders. We thought that he would be interested in getting direct contact with you researchers…If you think it is a complete waste of time you need to talk with me beforehand. [CEO] The question remains about how we qualify potential customers for a visit. [Employees] Exactly! [Head of sales] I would appreciate if we* could have discussions about priorities *every week to plan customer visits, because it is a very difficult and time-consuming contact process. [CEO] You need to present planned visits on the intranet too…* | |
| | **Regarding venture marketing**: *[Head of sales] We have succeeded in booking the coming sales meetings in the US within a week. My sales assistant will go with one of the researchers. [Founder] The problem is that you have no personnel that can make those visits. [Head of sales] I am prepared to join if that is judged as the right use of resources…[Founder] There are two things in this. First, the researcher has never done any sales and he feels very uncomfortable about it…and the sales assistant has no chance to discuss the subject, then trust will go down the drain. [Head of sales] I said I am prepared to join. [Founder] Do you judge you have enough competence to discuss the subject? [Head of sales] I do not need to discuss or solve the problems related to the subject, but I have 20 years of experience from sales and consider that I am prepared to meet the customer. [Founder] It is quite alright that you believe that, but the problem remains that you put confidence in a person who feels extremely unprepared and uncomfortable... [CEO] With this set-up the researcher does not need to do any sales talk. [Employee] But who will do that?* | |

| Perspective | First-order informant | Second-order dimension |
|---|---|---|
| **From management meeting and dialogues during observations** | **Regarding responsibility for corporate communication**: *[CEO] Then we have the PR draft but we cannot decide on it because it is only a draft. [President] Our assistant was to send it for print today. [CEO] It is really good but it is not even close to being printed. [President] OK, I must have misunderstood something but we sent out a final draft the other day. [CEO] I guess we are back to the problems we have with our administrative assistant; she does not get things right. You have to send it out to get proofreading, and then we can take a decision, but this is far from ready. Has she talked to our business angel too? [President] Yes, he has got it and he has said OK. [CEO] Look at this, and this... the writing is not even completed* | **Dashed organizational development** |
| | **Regarding responsibilities in the management group**: *[Employee] I wonder how we are going to execute the strategy that is taken? [CEO] That has not begun because the project update was not completed, but it should come automatically. The process of handling the project ought to become more simple. [Employee] I think it has gone in the other direction and it takes most of the time during management meetings. [CEO] Project discussions will always take substantial time at the management meetings, but the process is expected to become easier. The delays are symptoms of something. What is that? Two of the employees declared that there were accusations in the air related to that last statement. [CEO] There is a need to set limits, which has not been done.* | |

Table 20 cont.

Formalization of structures gives rise to need for interpretation to make them applicable. To some, there is still a lack of frameworks. Others do not understand or accept the formal procedures and frameworks that are created. Discussions such as those presented above were primarily identified during management group meetings where interpretations were frequently debated, but they took place in the corridors as well. The issues cover a wide range of aspects, but a recurrent theme is who is or should be responsible for what. It confers an employee impression that structures have been outlined but are not implemented. Such discussions occur also in Top Security, where particular care has been taken to outline and divide organizational roles among all members. It is apparent from the dialogues above that when new routines or procedures have been formalized; the implementation causes debate and questioning.

Another sign of the newness to formality that is created concerns terminology. When formality is created, the respondents have their own labels like:

*"I belong to some kind of 'Få-det-att-gå-runt'[119] group. I think you could call it a sales and marketing unit because that is how it functions."*

[119] "Get things running".

Established terminology derived from characteristics of large established organizations is used, as if it is familiar to everyone. Established terminology seems to add to the need for interpretation, to make formalization outcomes applicable and accepted. Much of the interpretation therefore progresses through discussion and debate, similar to the ones illustrated above. Some individuals apply the new formal structures,[120] while others question their behavior.

### *Increased commercial focus*

To summarize the analysis thus far, different actor interests and behaviors dominate the empirical findings. The benefits of increasing formalization when the number of interactions or the scope of the venture business increases are recognized by the CEOs, but are not considered being an urgent issue since the ventures has no sudden surges of commercial interactivity. Formalization is an issue possible to postpone until that happens.

The employees are of a different opinion. They perceive provoked, operationally related issues that would enable work, and they participate in the achievement of such formalization. Also external actors take part, to a limited extent, in the formalization process. They have suggestions or demands as presented above. Moreover, they get engaged in formalization when they take temporary operational roles in vacancies. Thus, to postpone formalization does not hold.

Selective formalization issues are pursued. The CEOs give rationalized explanations for these actions. They do not pursue formalization on a venture level, but create selective formal mechanisms to satisfy upcoming operational needs, and to stimulate operational development in a desired direction. The desired direction concerns both long-term and short-term goals. To increase sales and achieve venture establishment is the most desired development in a short-term perspective – that is, a demarcation of venture focus, moving beyond initially achieved milestones towards industrialization. External investors are pushing industrialization by setting up short-term commercial milestones. Despite their general hesitancy the CEOs, but primarily the employees, take tentative actions of their own towards increased formalization to attain these goals. This may be done through attention to operative procedures, activation of an issue orally, or taking concrete steps to get it formalized in writing. These actions are interpreted as creation of structures that enable individuals to find solutions and solve problems within clearer frameworks for behavior.

[120] Outcomes from *selective actions* as presented earlier.

Since the desired operational basis for formalization is not yet realized, the employees in particular pay attention to mapping of operational processes. They carefully take learning from customer interaction into consideration, bringing it into product development work or other issues. To a large extent, it is through the employees that new structures and routines are initiated and implemented. Employees carry through formalization related to certain working domains. Besides this pro-activity, there is a recurrent voice heard among employees, which highlights further needs of formalization.

## Continued exploration

The ventures do not have enough resources to pursue product development and commercialization of it in parallel, when they focus on redirecting their core processes and personnel. The short-term goal of market establishment entails increased formalization by new distribution of organizational roles, increased formal procedures and policies related to the sales and marketing process, and technology-based information systems enabling information-storing and sharing.

The desired organizational redirection, as expressed by the CEOs, has another angle to it: a learning organization. The resource allocation to intensified commercial efforts is one main activator that is pivotal to the survival of the venture in a long-term perspective. A learning organization is imagined as an accumulation of best practice through venture experiences and individual performance of tasks. When such accumulation is identifiable, including both exploitation and exploration, structures will fall out accordingly.

Accordingly, beyond market establishment, continued product exploration is a concern among the CEOs.

Table 21. Continued exploration from a CEO perspective

| Perspective | First-order informant | Second-order dimension |
|---|---|---|
| **CEO** | *It is apparent that we have new areas of application to exploit and that we need more resources to separate a project group that could pursue such exploitation in parallel with the area we are working within. We cannot continue to rely on individuals pursuing multiple roles.* | **Continued exploration** |
| | *We have come far regarding product development. In the beginning we had to create a product; now we can continue development of new products from the frameworks created, but also from standards emerging from market interaction.* | |
| | *[CEO] Let's use a search for potential patents as a working hypothesis that can strategically support our competitiveness within several areas. [Employee] OK, I have 2-3 right away, what should I do with them? [CEO] We look them through and discuss them and then we have a decision meeting. Not about all, but those that are strategically important. Not all solutions, but system solutions are the most interesting.* | |
| | *A new thing we are adding is a product plan. It contains all products we are offering, products that are under development, and products that are at the prototype stage or are simply an idea. We have added a life cycle from start to end of product life. Through this paper you can also get information about when we have agreed that a product is ready to be released to customers.* | |
| | *We have had a lot of customer projects and we have delivered in the order they come. It might have been on the cost of development. Now we have to outline the organization to contain both exploration and order delivery.* | |
| | *When I left for parental leave the guiding documents were in place, but after downsizing there is no exploration and we work solely on customer orders now.* | |

The CEOs spot a need ahead to include continued exploration. All focus has hitherto been on transforming the first venture idea, and then establishing the product on a market. Yet for continued competitiveness, beyond the next milestone of achieving commercial stability, the quotations above signal a core challenge of continuous exploration in high-technology ventures. This demonstrates multi-dimensionality in the CEO approaches to formalization, as part of a short- and a long-term perspective.

# 8 DISCUSSION

In the following my empirical findings presented in Chapters 5, 6, and 7 will be thoroughly discussed. The discussion draws on my pre-understanding of different dimensions related to formalization, which was exhibited in my investigative model in Chapter 2, and on the extended discussion of two different perspectives[121] on formalization presented in Chapter 3.

The contextual conditions for formalization, as presented in Chapter 5, support the discussion.

The second-order dimensions presented in the previous chapter are the main empirical points of discussion. They are discussed with the support of the highlights that summarize what issues were formalized during my investigation (Chapter 6). To make use of the highlights in the discussion, they are grouped according to the main activity areas of the ventures; see Figure 4 below in the initial section.

My contributions regarding the process development are presented first, and comprise the center stage of my investigative model. 'Selective actions', 'personal reassurance', and 'continued exploration' are discussed for this purpose. Together these second-order dimensions give an overview of the actions taken during my investigation period, and what role different actors take.

Underlying explanations for the actions taken will be discussed next, based on the second-order dimensions 'to proceed with caution', 'self-generated formalization', and 'for the employees' best'.

Lastly, the second-order dimension 'dashed organizational development' is discussed in relation to increased formality.

## SELECTIVE ACTIONS

In my presentation of earlier literature, human resource-related issues appeared most likely to dominate formalization in new ventures (Starbuck 1992; Beverland and Lockshin 2001). Employment models were given particular attention (Baron, Hannan et al. 1996; Burton 2001). In contrast to the research discussed amplifying the importance and impact of employment patterns (Hannan, Burton et al. 1996), the outcomes found in my investigation have a large spread. Different issues emerged in regard to the activity domains of market interactivity, information processing, product development, division of labor, human resources, and exploration, as is shown in Figure 4 below.

[121] Formalization as driven by routines or human resource issues.

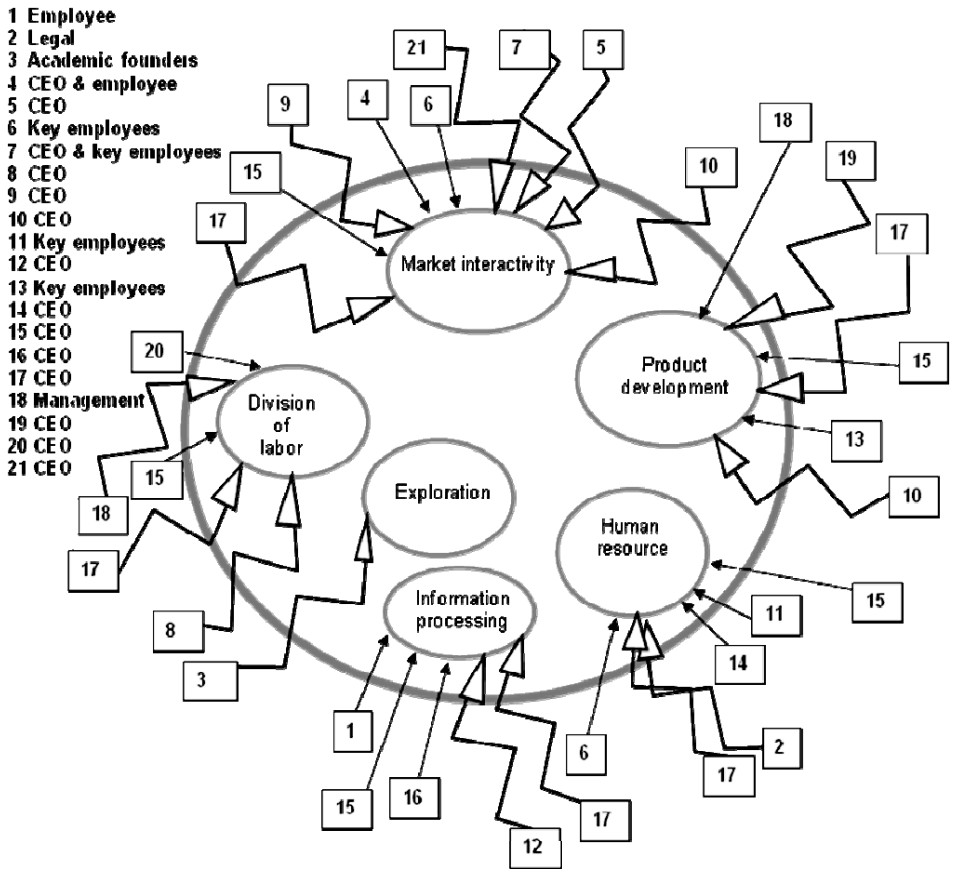


Figure 4. Grouping of the highlights presented in Chapter 6.

In the figure different issues that were formalized during my investigation are grouped. The grouping is not made according to any dominant order of main activity domains in an organization. They are grouped after analysis related to what occurred in these ventures.

The list on the side identifies the activator of each highlight. The zigzag arrows indicate that the particular issue carries an intention of breaking the existing and refers to intentional formalization. These issues concern all employees in the venture cases. By contrast, the business interaction procedure in Case for Life, highlight 4, is an already existing issue activated for refinement. Accordingly, straight arrows indicate refinements rather than actions breaking with the existing. The product development model applied in Top Security, highlight 18, is likewise about refinement. Activation for refinement

resulted in this case in a new distribution of organizational roles. This highlight is simultaneously an issue that generates two outcomes: a refinement related to product development (with a straight arrow) and new role distribution affecting all employees (illustrated in relation to division of labor through a zigzag arrow). Hence, highlight 18 exemplifies an issue that appears twice in the figure.

Some outcomes replace existing ones, like the highlights 12, 17, and 21, as Cell Case, the Interpretation Case and Top Security exemplify respectively. To close down research in Cell Case, to scrap idiosyncratic formal structures, and to introduce a new business model are all replacements. They are equated with new initiatives, illustrated by zigzag arrows. Some of the numbered outcomes that were activated intentionally to change existing structures targeted several organizational aspects, like number 17 and the already mentioned number 18. Accordingly, they too appear several times in the figure. Administrative routines regarding annual reports, budget outline procedures, and the like were already in place when the investigation was launched. They were identified as primarily legally enforced and were not exposed to any identifiable activation during my investigation. That explains why they are not illustrated among the main activity domains in the figure.

When the highlights are grouped in this manner it can be understood that several of the issues related to human resources, product development and information processing concern refinement of the existing – with straight arrows. Hence, human resource-related issues are certainly to be found in all the ventures. They cover employment conditions, working-time conditions, or individual conditions, as indicated through e.g. highlight 11. This highlight concerns implementation of an initially outlined handbook of human resource policy in Cell Case, which was activated through employees. In the Interpretation Case the 2nd CEO activated similar structures, highlight 14, whereas implementation was just to begin. These examples show that outcomes were in different stages, ranging from activation to ongoing implementation. Nonetheless, human resource-related issues do not dominate formalization. The theoretical conclusion is that the earliest formalized issues concern more than human resource and employment issues, but do not relate to all the activity areas found in this study.

Further, through the grouping, the issues receive different emphasis from a strategic perspective. Issues that break the existent, including replacements and totally new initiatives, represent intentions to direct employees for specific purposes through formalization. Feldman and Pentland (2003) refer to these as meta-routines, whereas Zollo and Winter (2002) include such creation in the concept of dynamic capabilities for continuous change and development. My

suggestion earlier was simply that new ventures would create enabling structures to overcome major challenges, since my time-limited investigation would not allow for understanding their dynamic capacity over time. During high-technology venturing the strategic purpose of commercialization is urgent for competitive and survival reasons. It is apparent that the conditions for formalization differ from established firms because informality prevails and formal structures are lacking.

Therefore, my results hit upon the suggestion that new high-technology ventures need to execute and create structures simultaneously from scratch (Baker, Miner et al. 2003). Through my results I can propose that the mainly informal ventures combine their prevailing informality with purposeful creation of new structures to support strategically important goals. Yet this finding has to be set into perspective of how cautious the CEOs are in general about increased formalization of all kinds, which will be discussed later in this chapter. In addition to some intentional formalization by the venture CEOs, some of the highlights illustrated in Figure 4 are the result of key employee activation and development. Those issues were dominated by employee engagement. Also the parallel role of employee engagement in formalization will be discussed later in this chapter.

Somewhat confusingly, the list of activators indicates that the venture CEOs are responsible for most of the issues[122]. One reason is that even if several employees are engaged in activation, it does not always result in highlights in the way they are presented. This inconsistency occurs because venture CEOs are the ultimate decision-makers, and appear for that reason as dominant activators in this grouping. The consequence is that alternative initiative-takers who possibly were the original activators are overshadowed by the CEO role in this figure.

Nevertheless, the figure gives a basic distinction regarding what kind of issues different actors activate and how they are developed. Employees activate human resource- and operation-based issues, whereas administrative, information-processing, and product development-related issues are primarily activated by the CEOs. Formalization of structures related to market interactivity is dominated by the CEOs. The first formal structures do not seem as inert as the SPEC studies outline them. My findings indicate that there is no simple explanation of how existing formality or new initiatives develop.

[122] Sometimes management is indicated as activator, which refers to a management decision rather than a CEO decision only.

## Selective actions related to information processing

Information-processing structures will be given particular attention, because they were understood as the clearest existing structures (not least to employees) among initial formalization activities. As such, considerable attention was given to information processing-related structures. Theoretically the initial framing of my research focus included particular attention to information processing. Two aspects were brought up – internalization of external information and the dissemination and application of operation-based knowledge. Both aspects were related to the importance of creating structures supporting these two challenges. Organizational learning and venture performance during initial uncertainty of a venture were the primary reasons underlying these aspects (Crossan, Lane et al. 1999; Garrouste 2002). My research confirms the vitality of information-related formalization in new ventures.

Information-sharing meetings and other structures for information handling were found to be tentatively formalized. A weekly meeting for mutual information-sharing was one such issue that had become set, except for Case for Life. The meetings were carried through according to a written agenda in two of the cases, and minutes were taken with the purpose of keeping absent employees informed. These meetings could be perceived as corresponding to the more instrumentally implemented formality that organizational ecologists and evolutionary theorists discuss (Hannan, Baron et al. 2000). Yet they served as bases for increased formalization. Apart from meetings, the ventures had implemented software-based systems for accumulating information about customers as another example, or intranets for distributing and collecting information.

An underlying activity related to increased formalization was that all the ventures had carried out internal inquiries among the employees to find out about necessary actions to improve organizational work. Among the main results of these inquiries were needs for improved structures for information processing. A change of information procedures was made in Case for Life. The change was from daily direct contact between the CEO and key employees to delegate information-sharing between key employees and their colleagues. The content of the meetings changed in the Interpretation Case from informal meetings with spontaneous discussions to meetings where the CEO reported latest status on every potential and existing customer. The agenda became set. Cell Case and Top Security had a formal set agenda. The results show that formalization of information processing includes a wide scope of activities.

My results attest several aspects in connection with information processing. One is that even if meeting procedures are interrupted they tend to arise anew, indicating an apparent need of such structures. Second, IT-based systems were installed early to store and distribute information, primarily about customers and product development, but also as complementary to face-to-face meetings. Third, in employee inquiries, information-related structures were articulated as particularly important to develop.

Apparently, several issues that were formalized could be related to information. It also aligns with suggestions from the entrepreneurship field that information asymmetry is characteristic of entrepreneurial development (West 2003), and it is revealed through my results to be a vital activity area in the formalization process. Information processing is confirmed as a central activity related to formalization, even through a simple form such as institutionalized weekly meetings.

The conclusion to draw is that formalization related to information processing is central in the process of formalization. It fulfills continuous needs and motivates new ones. It appears to be a more potent and influential issue for the development than the employment models, as suggested in the SPEC studies. Notwithstanding, it could be questioned whether e.g. information meetings or documentation of product development concern structures and not routine behavior. I would argue that, in view of the delineation made between routines and structures, they are structures. The main argument supporting this is that they are prepared through, and result in, written documents. They are intended as repeated routines, yet they are not as rigid and embedded as routines, since they are changed or interrupted. They are not repeated in all the ventures with set intervals.

The meetings illustrate intentional or informally evolving structures that are not based on any earlier routine behavior, but are implemented from general knowledge due to specific needs. As presented earlier, Case for Life has delegated the information-sharing function through different sub-groups. Cell Case exchanges the meetings for unit group meetings when the 2nd CEO takes position. Before that, the 1st CEO, a key employee, and other employees give three different versions of how often these meetings take place. The Interpretation Case changes the content of the meeting with the 2nd external CEO. Over time it turned out that all the ventures cancel meetings for different reasons, breaking the continuity of information processing. Identified as structures, information-processing structures serve as a typical example of structure development, which is part of the formalization process.

## Selective actions related to customer interaction

Market interactivity issues are a second group of activities that will be given particular attention. Due to the character of their creation they illustrate most appropriately process dynamics of formalization. As one example among several possible, highlight 4 in Case for Life is selected as a reference in this discussion. It refers to a customer interaction model.

It was formed before my investigation for two purposes. One was to streamline interaction patterns with customers. The other was to create a basis for education and introduction of new employees. During my investigation, employee interaction with individual clients fuelled several modifications. The responsibility for making such adjustments was discussed and divided between the employees. This contribution aligns with earlier research on routines regarding an ostensive, a written, and a performative aspect respectively (Feldman and Pentland 2003). The ostensive aspect makes the procedure possible to apply, and therefore takes a tentative form exposing it to further development, not simply a superficial structure created for legitimacy or other strategic reasons. This can be explained by looking into more details of the development.

When the model was initially outlined, to pursue a clinical study, there was no existing customer interactivity to base it upon. Because the desired behavior was written down, made ostensive, it could be applied. It was applied in two ways: as educational material to newcomers and by employees working with customer interaction. Through the last application it was adjusted when applied. This resulted in a performative version of the model. Performative aspects gave input to adjustments of the written model. The written model could be refined. Developed forms could therefore be applied over time, both in interaction with customers and for training of new employees. Taking the outcome of this customer interaction model a step further, it indicates that coordination is intentionally sought regarding issues related to market interaction, yet it is complex to make it happen before knowledge about the market is gained.

To summarize, the development is an illustration of how a refinement process of one structure progresses and eventually influences all the activity domains in the venture.

The way this structure developed, it can be compared to how the application of routines is a source of change due to its dynamic capacity (Feldman 2000; Feldman and Pentland 2003). In one sense, the development of the initial structure was a tentative form of continued formalization. After refinement, new initiatives could use this as a basis for other formalization intentions. My results

make clear that the first provisional version was important. Structure refinement was made as an inclusion of input from customer interactivities, and the initial structure became a basis for further development. As an example, the CEO could use the model to outline performance measures for the employees and formalize corporate communication. Comparing the development of information processing and market interactivity issues, the ventures hold on to both, but use the domain of market interactivity in a more articulated and strategic way.

Extending the idea of dynamics of applied routines (Feldman and Pentland 2003), my identification of the process adds knowledge about how high-technology ventures accumulate and make use of gained operational knowledge related to provisional structures. New structures and coercive measurements for performance, i.e. increased control of employee performance, could be developed. The contribution extends, more precisely, earlier literature suggesting a dynamic capacity of idiosyncratic structures (Miner 1990). Due to its idiosyncratically outlined character that was based in a core activity, the structure discussed could be applied as enabling further formalization. Thus, it became a reference point for refinement and creation of related routines.

The influence on the subsequent development could be treated as a downside of initial structures. However, the development found does not signal the directing power derived from arguments by SPEC researchers, limiting the choices for progress (Baron, Burton et al. 1999). Contrarily, in this empirical context the functions attributed to initial structures are perceived as having widespread application to subsequent formalization. My understanding is that the process seems to be triggered due to an early identification of core operation-based structures. This finding corresponds to an empirically based contribution, proposing that the first operation-based elements remain a core to successful organizational development over time (Siggelkow 2002). Formalization based on idiosyncratic structures becomes a generative enabler of further formalization.

### *Initial understanding of the process development through selective actions*

It is evident that the ventures are intentionally searching for patterns in their current operation in parallel with activation of different selective strategic issues and refinement of existing ones. The second-order ‘selective actions’ also illustrate that formalization is a process with intermingling of a wide range of

issues that are refined or discarded and an intentional creation of new formal structures.

Analyzing the underlying reasons of the highlights together with the second-order dimensions, contextual conditions and strategic approaches were found as influencing factors. Through the grouping in Figure 4, it can be understood that the majority of the highlights are sorted in relation to market interaction. Most of these issues are illustrated as breaking the existent. This entails breaking particular existing structures, or breaking a non-structured behavior for a strategic purpose. The highlights 5, 7, 9, 10, 12, 15, 18, and 21 can exclusively be connected with strategic activation. They are derivable from decisions of taking organizational actions to support commercialization. Earlier research implies that increased formalization is primarily necessitated by increased market interactivity (Bouwen and Steyaert 1990; O'Mahony and Ferraro 2007). These highlights reveal that intentional formalization is a search for a market-related strategic mode of continued organizational development. It happens without an increase of market interactivity, but with that target in mind. Due to this, the formalization process is not a linear development.

Earlier research denotes provisionally created working procedures as innovative ways of handling organizing (Colyvas 2007). From my investigation, we are not informed about to what extent the outcomes are regarded as provisional or established by the organizational members, or to what extent the initial outlines were innovative ways of handling upcoming organizational challenges. Yet it is clear that the existing formality of any status is taken as the accepted formal way of behaving, and can be intentionally refined on that basis, or chosen to be changed. The last choice relies on formalization as a management activity for achieving change of focus (O'Mahony and Ferraro 2007). Indeed, management takes formalization actions with the intention to modify the focus of attention among employees.

However, the second-order dimension ‘selective actions’ conveys strenuous decisions underlying the formalization activities going on, without all being related to the venture strategies. Formalization cannot be understood as an instantaneous change or prioritized process, despite the urgency derivable from the individual contexts of the ventures. When CEOs change perception through increased formalization, it influences several issues in parallel. They range from changed discourses at meetings – which are also reflected in minutes from meetings – to written rules about how to report about a new customer contact. Their modified perception towards a strategic treatment of formalization is preceded by support from external actors, which takes us to the second-order dimension of ‘personal reassurance’.

## PERSONAL REASSURANCE

From deeper analysis of my findings, formalization is pursued as a reaction to upcoming challenges, which resulted in strategic formalization as presented above. This interpretation has to do with the lack of a stable market position and operational patterns. Market interaction illustrates that much has been pursued on individual initiatives. However, the use of increased formalization to direct the employees evokes worries among the CEOs about how key employees will react. It is not only an uncertainty about how they will react, but about whether they will react at all. To take the step of activating directive formal structures is a difficult task, from the CEOs' perspectives. Earlier attempts with clear intentionality of drastically changing organizational behavior have been activated by external investors, as with the product development handbook in the Interpretation Case, or recruitment of key employees in Cell Case. These attempts have not succeeded in the desired manner, which adds to worries among the CEOs.

Earlier literature about how external actors are vital in the development of high-technology ventures emphasizes their active involvement (Kaplan and Strömberg 2000; Kenney and Florida 2000; Suchman 2000). In particular, research on early-stage technology venturing underlines the involvement of external stakeholder networks, as an active strategy of founders to extend their managing capability (Johannisson 2000; Rothaermel and Deeds 2006), implying multiple external actors possibly involved in formalization. During my first interviews with the CEOs they regretted the little support they had from board members regarding the organizational development. Correspondingly, little involvement was noticeable in the ventures investigated, with the exception of Cell Case. When board members took operational roles they became an abrupt sign of new approaches to existing and potential customers, facilitating a change of focus.

All the same, decisions to activate formalization for strategic reasons involved board members, primarily indirectly. They were part of the decision to activate formalization for the sake of increasing commercial efforts and professionalism, and they supported the CEOs' fumbling for measures to take toward commercial establishment.

Thus, the indirect support found by board members was particularly valuable to the CEOs in taking actions of formalization for strategic reasons. Earlier research with focus on the involvement of external actors presents external actors as valuable in a wide sense, based on their network positions or expert knowledge (Suchman 2000). Related to the particular issue of formalization,

they are not much involved in operational issues, but are important support to the CEOs when these have to take difficult decisions, for instance about increased formalization.

Through my investigation it becomes clear that direct involvement by external advisors and stakeholders (Kaplan and Strömberg 2000; Suchman 2000; Hellman and Puri 2002) is little evidenced. In contrast, they act as sounding-boards and discussion partners to indirectly support formalization.

Having discussed the two most influential groups of issues that are part of formalization, and set into perspective how difficult and urgent decisions are supported by external actors, 'continued exploration' will be discussed next. It emerged among selective action in relation to a long-term perspective of the ventures.

## CONTINUED EXPLORATION

In the retrospective accounts and presentation of second-order dimensions, the venture CEOs have been referred to as generally hesitant about formalization, and as being in need of support to carry through strategically based formalization as presented above. To build the organization and its culture, formalization is a subsequent development where all actions have the potential of not becoming immediately accepted, not being possible to interpret, or in other ways bringing about new actions. As such, it is a process development which is not foreseeable. The second-order dimension of 'continued exploration' differs from other activities because it is based on a long-term perspective. This formalization activity does not arise similarly to the development of market interactivity or information-processing issues.

'Continued exploration' has a long-term perspective that is part of the culture creation and ambidexterity of dual organizational culture – a commercial and an innovative. Actions related to 'continued exploration' are downplayed in Figure 4, because they are on the verge of being created when my investigation is ended. Notwithstanding, the venture CEOs selectively activate structures that would alert employees to the necessity of sorting between customer requests, and they do it with confidence in what is good for the future. This particular second-order dimension is solely alerted by the CEOs. The first-order informants indicate several formalization actions that are taken to enable continued exploration, even if the present products have not been fully exploited. It is the only issue identified where the CEOs seem to have a clear model in mind about how to address the challenge of continued innovation. This finding can be understood drawing on a parallel argument in SPEC studies, that

it is more important to have any employment model than not having one to be successful (Baron and Hannan 2002). How the CEO handle this particular issue may therefore be in line with the SPEC contributions, and turn out in the future to be of great importance to the venture development.

Exploration appears to have become overshadowed by the challenge of exploiting present products and offerings. The contribution adds to earlier literature based on the suggestion that exploitation needs to be combined with exploration for long-term sustainability (March 1991; Tushman and Reilly 1996; Gibson and Birkinshaw 2004). That suggestion is derived from established firms which have difficulties in pursuing exploration because earlier successful exploitation had become the dominant mode of operating, and organizing.

Despite the overarching challenge of becoming established on a market, 'continued exploration' reveals intentional attempts to develop parallel working logics within the venture – one that exploits present products and develop the commercial ability, and one that continues to be explorative to create new products or services. A conclusion to draw regarding 'continued exploration' is that this CEOs' activity is clearly included in the long-term perspective of formalization, based on an idea of developing a re-inventive capacity of their organizations (Van de Ven 1999) that sustains continued innovativeness. As such, it converges with the perception among CEOs that formalization issues concern the future development more than the present. Since these attempts are only about to be started during my investigation, it is hard to do other than speculate about their importance. Yet if formalization for continued exploration is pursued further, intermingling with formalization of other issues, it can be expected to become an influential factor regarding how new organizational roles are outlined, how information is processed, and how other issues are formalized.

The discussion so far covers mainly the process of formalization through actions that were actually taken. 'To proceed with caution', 'self-generated formalization' and 'for the employees' best' will be discussed next. They all convey individual cognitions about formalization and reveal individual postures towards formalization through multiple actor involvement. As such, they add important understanding to the process development and move the focus from what was actually pursued to underlying perceptions about formalization.

## TO PROCEED WITH CAUTION AND SELF-GENERATED FORMALIZATION

To get a comprehensive understanding of individual perceptions underlying formalization, two actor groups were invited to express their individual postures towards formalization: venture CEOs/founders and employees[123].

Founders and CEOs were first approached. My finding of *conceptions* about formalization extends earlier research. It is in distinction from perceptions and refers to what the interviewees spontaneously think of when formalization is discussed. Thus, it is de-contextualized from the actual venture where they work and the ongoing formalization found. The implication is that three underlying dimensions of formalization emerged through the CEOs. They are their *conceptions*, their *perceptions*, and how they influence decisions and *actions* taken.

Intra-organizational ecologists underline that formalization is intentionally created early for increased stability and survival chances (Bruderl, Preisendorfer et al. 1992; Hannan, Baron et al. 2000). Mental models of founders influence such intentionality, and in what different ways initial structures are created (Baron, Hannan et al. 1996). They were questioned by me as a too narrow dimension to take as a main explanation to understand formalization over time. Mental models were revealed, through my retrospective interviews, to influence formalization when the ventures were launched and uncertainty about how to progress was prevalent. They seem to be most influential to the different approaches taken of resisting or actively formalizing structures. However, over time mental models are not as set and influential as proposed in earlier literature. In contrast to the basic postulate that founder perceptions are a compilation of earlier experiences (Burton 2001), my findings point to the necessary breakdown suggested earlier.

First, the CEOs carry *conceptions* about formalization that is referable to organizational design (Burton and Obel 1995) and traditional outlines of highly formalized bureaucracies (Mintzberg 1983). Conceptions about formalization are spontaneously referred to as something that characterizes large established firms, which are much more bureaucratic in comparison to their ventures. Aspects such as strategic management, or the aim of increasing efficiency through formal structures, are included in this conception. This conception distances formalization as relevant to the ventures. At the same time, their conceptions were the only ones to rely on when the first formalization challenges were overcome.

[123] Which includes external actors working in the ventures.

After that, a concrete element included in this conception is the necessity of having identifiable repeatable patterns of behavior to be able to increase formalization. They express their conception about formalization as something that evolves after modes of operating have been found, or when a self-generated organization has been created.[124] The aspect that resulted in the third second-order dimension treated in this section, 'self-generated formalization', builds on a long-term perspective on formalization. It does not convey a connection to the present situation. The CEOs simply distance formalization as not relevant, or being at a satisfying level. Therefore, their conceptions are alleged as set during my investigation rather than continuously influencing formalization. Identified as set, they become comparable to the mental models referred to in the SPEC studies. Yet there is another angle to it. Conceptions in my findings appear as basic cognitions that do not converge over time with their behavior in the venture.

Thus, related to emergent knowledge about formalization (Hannan, Baron et al. 2000; Sine, Mitsuhashi et al. 2006) which accentuates the benefits of early formalization, the CEOs persistently refer to formalization as an undertaking more relevant to established firms. From their conceptions, early formalization without a stable operational connection would occupy the managerial attention too much. The venture CEOs seem to avoid increased formalization based on general knowledge. Yet perceptions are differently understood as the contextually based mental models that connect to actions.

### *Perceptions*

Perceptions include recognition that efficient organizing of resources requires formal structures in their own venture. The result is that they actually take actions towards formalization based on the present conditions and needs. In other words, their perceptions oppose their conception about formalization as an issue more relevant to large established organizations when they relate to their own venture. Due to the conceptions they bring with them and their contextualized perception resulting in actions, they perceive themselves as stuck between the need of increased formalization and the lack of conditions for creating them. This position emerges as caution.

The CEOs believe they are outspoken about their caution, but little dialogue about the formalization process is identified. Their posture is to 'proceed with caution', if proceeding at all. On the whole it is more of a wait for an operational

[124] Number of employees or interaction partners is not emphasized explicitly in relation to formalization.

basis to crystallize. This wait connects ‘proceed with caution’ and ‘self-generating formalization’.

As has been suggested through earlier research, several parallel mechanisms, such as accumulation of experience, articulation, and codification of knowledge as routines, are held necessary to emerge before managerial capabilities of using them dynamically are possible (Zollo and Winter 2002). In this context it is expressed through the CEO perceptions. Their perceptions verify the theoretical suggestion that routine emergence is a creation over years that reduces ambiguities into routine patterns (Colyvas 2007), but meanwhile has to be handled in different ways. The distinction between conceptions and perceptions so far indicates that both are paralyzing. However, perceptions about how to approach formalization in their own ventures changed somewhat during the investigation.

## Perceptions modified

The CEOs vacillate intellectually about formalization. They are therefore careful to gain comparative reference information through network contacts before they activate formalization.

They seek information among peers about how other ventures handle formalization. In line with earlier suggestions (Galunic and Weeks 2002), the replication of existing structures, or earlier experienced ways of organizing, is not easily transferred to new venture contexts without adjustments (Suchman 2000). Instead of imitating existing ways of formalizing, the CEOs intentionally expose their perceptions to new information. Their information-seeking is understood as a way to consolidate their perceptions about proceeding with caution, rather than having the intention of modifying them. My earlier conclusion that external actors are indirectly involved as supporters of management decisions is consolidated through this discussion – whereas my proposal above that their perceptions change during the investigation appears to be wrong regarding how they seek information. The explanation is that perceptions, once translated into actions, are set and consolidating information are sought. Perception of change occurs in relation to their venture performance, which seems to influence formalization more than external information.

A typical modification of perception can be exposed through Top Security. The founder/CEO had engaged a part-time employee to create a basis for fast formalization. The purpose was to achieve increased coordination and control, constituting a mediator for fast growth. He held the perception that formalization

was a necessity and enabler when more than 30 employees are involved. This belief was shared with the employee appointed. When venture growth did not occur as fast as expected, the process mapping by the engaged employee stalled. It was even discontinued when the employee was on maternity leave. Evidently, the perception held initially resulted in changed behavior due to changed circumstances. Back at work, the employee got the task again to proceed with process mapping of different tasks. The purpose now was to create a basis for outlining of organizational roles, based on product development work. By this time the venture had decreased the number of employees. It still had an intention to grow, but the main reason for proceeding with formalization was to change roles among employees and increase efficiency, not for employee-related expansion. Thus, in contrast to how intra-organizational ecologists assume founder perceptions to be set, my contextualized findings suggest that CEOs carry individual understanding about formalization that does not appear modifiable when confronted by employee perceptions, but they are adjusted to the venture performance and development.

However, to be cautious does not mean that formalization is possible to direct and pace accordingly; perceptions are continuously confronted.

In conclusion, the logical chain of conception–perception–action means that *conceptions* are brought to the ventures by the CEOs and constitute their frame of reference regarding formalization. These conceptions expose their intellectual and rational understanding of formalization from other contexts. Through them, formalization is rather distanced than approached in their own ventures, as was presented in the previous section. *Perceptions*, on the other hand, are mental models translated to their own venture contexts. Perceptions are presented as set when they refer to them, but it appears that they are modified over time, influencing the *actions* that are taken. Related to my distinction of *conception–perception–action*, selective actions discussed intermingle with caution in the formalization process. The second-order dimensions ‘to proceed with caution’ and ‘self-generated formalization’ relate to CEOs’ mental models and the distinction between conceptions and perception that will be addressed in the following, and it adds employee perspectives to the management perspective focused on so far.

### *Caution set into a new venture perspective*

Over time a dual venture structure has become established, with some formal structures intermingling with informality. However, as presented above, CEO perceptions reveal indecisiveness related to increased formalization at their

current stage of venturing. If their ventures do not continue on a growth path, they hesitate to increase formalization, even if there are explicit calls for it from employees. Cautious handling extends research suggesting that the first organizational structural characteristics are changed with upcoming needs identified by management (Mintzberg 1989). This suggestion builds on the assumption that management behaves in a consequential way on contingencies. This aspect adds to emergent theory about new venture formalization (Hannan, Baron et al. 2000; Sine, Mitsuhashi et al. 2006) through the combination of CEO caution and the previously discussed strategic actions taken.

These high-technology ventures demonstrate that there is much hesitation about continuous adaptation organizationally, but that occasionally actions are taken due to upcoming needs. The ventures try to await strong signals and robust bases for increased needs before changing initially adopted ways of working.

Cautious perceptions about formalization are not left unchallenged. The ventures have earlier been exposed to enforced formalization by their investors or early partners. Such pressure could be expected to come up recurrently, and exhibit some kind of adaptation to contingencies. Evidently, there are pressures that enforce modifications, i.e. both modifications of already created structures and the perceptions of the CEOs. Employee needs and activation occur continuously.

## FOR THE EMPLOYEES' BEST

Extending the second-order dimension entailing caution, a particular destabilizing risk of formalization is assigned to employees. This appeared through the second-order dimension of 'for the employees' best'.

Recurrently, employee activation confronts the CEO's perceptions. Employees raise voices about particular needs with reference to operations. Employee activation is in persistent opposition to how the CEOs want to preserve their perceptions about formalization. Employees identify short-term needs while CEOs refer to long-term needs. Employees present formalization as risky to avoid from a venture perspective. The CEOs use the same argument for not increasing formalization. This investigation articulates CEO caution about formalization despite employee calls for it.

The CEOs resist formalization with the argument that formalization would put the venture at risk of destabilization. They argue further that formalization would be counterproductive in relation to the commercial situation of the venture. They remain to a large extent actively, or by being passive, against formalization despite multiple employee calls for it. Active or passive resistance

refers to when they have perceived a need to increase formalization activities, but remain cautious. A main argument proposed by the CEOs is that increased formalization is in opposition to wishes among key employees. They avoid radical changes, i.e. a wide range of issues that are simultaneously formalized. Their posture is aligned with what they perceive as best for the employees, and indirectly the ventures.

Hence, when different employees express wishes for and opinions about increased formalization, they are interpreted by the CEOs as expressions of frustration due to their caution, not as vital issues to the venture development. These results are in line with how the majority of ten venture CEOs interviewed retrospectively explained their perceptions about early formalization. Their main basis for taking action connects with what they identify as best for the employees and ultimately the venture.

Confrontations between employee and CEO perceptions result in formalization actions by employees in parallel with CEO caution, resulting in a dual-actor understanding of formalization. Management and employees pursue formalization in parallel. This is in contrast to earlier research carrying the basic assumption of strategy as a basis for alignment by management of the organizational development (Burton and Obel 1995; Baron, Hannan et al. 1996), or the suggestion above that CEOs react to upcoming needs. When they take action it is to some extent on upcoming needs. But as suggested in the initial sections of this chapter, CEOs mainly take actions for strategic reasons related to the employees. To understand new venture formalization, the results of my investigation move the focus from CEOs, their perceptions and actions, to a dual-actor perspective. The continued discussion will be pursued from a dual-actor perspective on formalization.

## Human resource-related formalization rationalized away

Despite the arguments underlying ‘proceed with caution’, ‘self-generated formalization’, and ‘for the employees’ best’, we are not informed about what would substantially trigger increased formalization. Case for Life increases the number of employees continuously without accelerating formalization. The only venture actually expressing increased formalization as an enabler is Top Security, but is cautious with carrying it through.

As discussed, all the ventures had intentionally activated and implemented administrative structures during their earliest period when most of the employees were attracted. These are very shortly formulated and give few

directing details, and they remain so to a large extent. In addition, the ventures show some evidence of having communicated models for attracting and retaining employees from their earliest days. The existing models that are expressed, in Cell Case and the Interpretation Case, can be roughly compared to the star model, through their way of offering challenging work to build attachment (Baron, Hannan et al. 1996; Burton 2001). In contrast, Case for Life relies on emotional attachment in combination with functional expert recruitment, which is referable to the commitment model and star model respectively. The emotional aspect relatable to commitment is explained by the character of that venture idea, which is to help children with brain deficiencies.

To apply a commitment model would entail little need for increased formalization initially (Baron, Burton et al. 1999). Cultural fit implies that a venture like Case for Life, has attracted employees who are highly committed to the venture idea. However, they represent a diverse range of experts, which would possibly trigger formalization for increased cultural fit when new employees enter. However, none of the five models outlined in SPEC serves as a template for an interpretation of how formalization would be substantially developed.

Regarding the existing, all the current employees in the ventures can be expected to have been exposed to different dimensions that the CEOs refer to, like commitment, emotional attachment and so forth. Employment dimensions are to some extent identifiable through those CEOs who have participated in the initial recruitments, while successors are not able to formulate the existence of employment models. From the retrospect findings it can be implicitly understood that some ventures have selected employees on the primary basis of being able to quickly produce a product (e.g. the Interpretation Case and Case for Life that would be comparable to the engineering model). Others have attracted employees from their potential of being able to independently transform the venture idea into a number of products (Cell Case and Top Security getting close to the star model) (Baron and Hannan 2002). Intra-organizational ecologists are concerned with the directing power of initially adopted outlines (Hannan, Burton et al. 1996). At my stage of investigation, employment models are not discussed as points of departure for increased formalization of human resource issues. The present organizational roles, human resource policies and the like appear so basic that they are considered informal. Consequently, the needs that come up during the investigation are not clearly relatable to existing formality. My findings rather demonstrate how human resource-related formalization is set aside, compared to more focus on operations as a desired basis for formalization.

Indirectly related to employees, it is clear from my investigation that signals for increased formality are rationalized away for several reasons by the CEOs. Employment models derived from the SPEC studies are, as suggested, only relatable to my cases from certain dimensions, and through the first CEOs. As discussed previously, founding conditions are not as powerful and directive as earlier research indicates (Baron, Hannan et al. 1999). The most prominent dimension is that the ventures have built initial structures based on a merit-based logic, where experts are attracted to pursue interesting work without much control. The second-order dimension 'for the employees' best' is in line with that philosophy. The CEOs' rationale of what is best for their present employees does not seem to be recognizable among employees. Their rationales may be embedded through initial ways of attracting the employees, but they are not recognizable by or satisfying to employees over time.

## Employee activation

Employees have already been identified as part of a dual-actor perspective to understand formalization. Activation by employees differs in my work from the theoretically strongly underlined aspect of need for clarification of work roles, or reduction of uncertainty, also referred to as a sense-making aspect of formalization (Barnard 1968; Mintzberg 1983; Bouwen and Steyaert 1990; Brytting 1991; Volberda 1996; Baum and Rowley 2002). This aspect was presented as particularly important in new high-technology ventures (Mohrman and von Glinow 1990), even if employed scientists can be expected to possibly resist formalization (Adler and Borys 1996). I will return to the last aspect in a later section discussing 'dashed organizational development'.

My work reflects to some extent individual needs, or particularities related to human resource issues. As touched upon in this discussion, employees express activation individually at different occasions. These could be face-to-face with an executive, in mutual meetings, or in smaller groups. They make comparisons with earlier work places to emphasize that the venture context differs and requires different structures.

However, their concern encompasses a venture concern, and is not interpreted as primarily individual worry. Associated with employee concern, negative venture consequences of not creating relevant frameworks that the individuals can coordinate work within are identified by employees. Employee activation extends earlier research from a management perspective in adding individual employee activation to formalization. Thus, enabling aspects of formalization

are activated by employees rather than management, and they are primarily based on venture needs instead of individual needs.

Founder and venture are perceived as inseparably related to venture behavior in earlier research within the field of entrepreneurship (Slevin and Covin 1995). In my results, employees identify themselves with the venture. They are concerned about formalization issues from a venture perspective. Learning through their individual perspective in their work, they look upon formalization with individual/venture concern. This means that the venture is not yet depersonalized, and the degree of formality is low. Learning is informally brought to the knowledge of management through employees, without much response. Instead the employees pursue formalization with a separation of what is good for them as individuals, in preference to what is good for the venture. They act on behalf of the whole venture regarding formalization. When employees activate formalization, they equate themselves with a venture responsibility. This finding extends earlier understanding about the difficulty of separating new ventures from their founders. In this case the employees seem to be equally difficult to separate. My interpretation is that employees function as important actors in the formalization process. They do so both through formalizing of different issues, and when they convey worries about formalization issues to the CEOs.

When employees pursue formalization, they pursue it deductively, mapping the bases for formal structures before realizing them. When the CEOs pursue formalization they mainly do it inductively, i.e. they implement new structures to achieve a conceptual change. This adds to an understanding of formalization in new ventures as a dual-actor process.

### *Deeper understanding of employee activation*

The employees motivate their concern regarding needs for increased formalization in several ways. One is the inefficiency of having everyone doing administrative work in their individualized ways, instead of using their expert skills. Another aspect related to their concern is the perception that if nobody takes the responsibility for upcoming needs for formalization, the organizational structure will go its own way, i.e. coordination is necessary. They also emphasize that rigid formal structures are not wanted. What they are looking for is a guiding framework that works in the current context.

Through my results I suggest that employee activation includes two different contextually specific activities. The ventures are still relatively small and most employees are involved in several issues and split organizational roles. Several

of the employees get increasingly involved in customer interaction. These conditions keep the employees informed about how the venture progresses and they have the possibility to react to upcoming needs. At the same time, the CEOs stress that they make special efforts to keep everyone informed about the strategic position of the venture. This makes the employees actual holders of strategically important issues. It enables them to suggest alignment between individual needs for increased formalization and increased formalization that would be advantageous to the venture, because they have accumulated venture-specific knowledge.

Simultaneously, the CEOs continue to justify their caution towards formalization as a consideration for employee needs. This does not include implicit individual needs, because needs are not made explicit through the ways employees express venture needs of formalization. Thus, there is an incongruity between the CEOs' perceptions about employee needs and the actual worries among employees, which can be related to earlier research (Mohrman and Von Glinow 1990). Expectations among employees for guiding signals from management are expressed as venture needs in my findings.

Earlier research has highlighted that there is a built-in tension in all organizations between organizational (here represented by the CEOs) and individual interests (Blau and Scott 1962; Aldrich 1999; Hall and Tolbert 2005). In my findings such tension is recognized intellectually, but does not motivate the CEOs to increase formalization, for the reasons given above.

The suggested dual-actor perspective on formalization has an empirical explanation in the hitherto strong dependence in the venture on venture-idea-related competences, evolving as key personnel. The first employees have constituted the core workforce focused on transforming the venture idea into products. They have been involved in patent application; they have taken part in the acquisition of reference customers, and in other major initial challenges. According to the CEOs, the needs and preferences of this group have dominated the organizational approach. Clearly, the CEOs have aligned the degree of formalization according to their wishes. The consequence is that initiatives taken by employees are rationalized away. They are rationalized away as individual worries, instead of being recognized as part of the formalization process.

## A dual-actor perspective on formalization

Employees raising their voices for venture needs of formalization are, as presented, explained away in different ways by the CEOs, who do not seem

interested in the dialogue aspect that characterizes employee involvement according to earlier research (Bouwen and Steyaert 1990) – not even after direct invitations or inquiries. More precisely, the CEOs apply different aspects of employee needs to explain why they cannot consider employee activation of formalization. These aspects emerged through the second-order dimension 'for the employees' best'. Extending that discussion, they perceive that employee support for increased formalization is individualized, and differs from person to person. Some employees are considered to need clear structures to work against, while others are more productive without any formalized procedures or processes. Therefore, increased formalization is not considered a solution that would fit all.

Given the CEOs' intention to progress with caution, it is claimed that the prevailing informality is preferred by most of the employees. The CEOs are also inclined to refrain from formalization because those who prefer informality are those who are best at solving upcoming problems and creating new solutions. Obviously the CEOs and the employees talk at cross-purposes. The CEOs take a perspective of knowing what is best for the employees and indirectly for the venture. The employees activate formalization needs primarily from a venture perspective even if the CEOs understand employee expressions as individualized.

As was assumed during this investigation, the CEOs are not the only activators of formalization. The contribution regarding employee involvement goes beyond my theoretically derived assumption that individual employee needs would activate formalization. My findings confirm that they are involved to a large extent and take different roles in the formalization process. Issues activated by CEOs or employees are related to a micro-level, whereas both CEOs and employees take a venture perspective in their engagement. The conclusion to draw from this is that a dual-actor perspective on formalization in new ventures is a more relevant perspective than the prevalent management perspective.

## DASHED ORGANIZATIONAL DEVELOPMENT

Having a focus on how formalization is pursued, I delimited the implementation and other consequences of the process. Nevertheless, in the following, process outcomes will be discussed in terms of what they evoke on an individual and venture level. The second-order dimension of 'dashed organizational development' is the basis for that. It is important to include this second-order

dimension to complete the discussion about formalization, because it is part of the dynamics of the process.

During the investigation, increased formalization, or change of the existent, elicited much discussion among the employees. As has been discussed, several of the issues that evolved through CEO activation had specific underlying purposes of changing focus among employees. They cannot be considered as comprehensive approaches to increase the overall formality, but they aroused much organizational turbulence. 'Dashed organizational development' from a CEO perspective reflects consequences of formalization that occurred during my investigation.

Some specific highlights – 5, 7, 9, 10, 12, 15, 18, 20 and 21 – directly reflect consequences of formalization. Highlight 5 refers to Case for Life. They had accumulated commercial results through client interaction that could be presented as measures of performance. These were valuable measures that increased legitimacy externally during further market exploitation, and they were welcomed internally. Yet these measures also created a basis for outlining formal individual performance measures, as part of increased efficiency. Each employee needed to achieve the same performance measures. This in turn alerted the employees to needs of increased formalization of the interaction model with clients.

Highlight 7, in Cell Case, was orally introduced during information-sharing meetings. It was initially an appeal from the board that was communicated through the CEO. As a next step, the manager of sales and marketing was temporarily replaced by one of the board members. He restructured the contact database with potential customers, he introduced a commercially based language on how to communicate the venture offerings, and before leaving he picked a successor from his network who could continue his work. These actions overlapped with the introduction of a new organizational structure that emphasized market-oriented positions as essential to an increased commercial orientation, as conveyed in highlight 7. With several exchanges of key employees, increased formalization based on a new logic evolved gradually. Yet the role of research was downplayed over time, and internal meetings are dominated by customer leads rather than product progress. Highlight 10 reflects this evolvement. At the time of a new CEO taking position, research is closed down, as indicated by highlight 12.

Highlight 15 illustrates how the new CEO in the Interpretation Case uses the management group to activate increased formalization for commercial reasons. This has consequences and causes reactions related to all five groupings in my illustration. Highlight 19 exemplifies several selective actions taken for the same

purpose, to implement a clear business model guiding all organizational members.

Highlights 18 and 20 show a change of role distribution, which affects two of the founders in particular. They are both part of the management team. In the subsequent meetings, turbulence related to the change of roles occurs.

Taken together, the changes made towards increased formality affected individuals in different ways. Some were forced to change their organizational roles; others took operative actions to outline formal structures. Even if some employees welcomed the development, others questioned it. It has been stated earlier that the possibility of identifying consequences of formalization was limited due to the limited investigation period. On the other hand, different issues were found at different stages of development. One prominent result of this study, therefore, consists of the consequences of formalization.

Sorting out implications of increased formalization *questioning*, as a condition suggested in the abstraction process of creating formality (Stinchcombe 2001), will be pursued in the discussion of 'dashed organizational development'. An additional angle of 'dashed organizational development' will be related to the identified skepticism about formalization that was initially suggested theoretically (Adler and Borys 1996).

## Dashed organizational development and the abstraction process of formalization

To achieve creation of functional formality and avoid superficial embeddedness of formality, one condition suggested by Stinchcombe (2001) was that formalization has to be based in operations. Even if it is in accordance with the dominant perceptions and actions related to formalization in these ventures, it is not uncomplicated. A fundamental problem related to that suggestion is accuracy. Accuracy is needed as a basis for formalization, but is generally lacking in new ventures. The outcomes of the process accordingly evolve as only tentatively formulated frameworks, as discussed in relation to selective actions. Their applicability is complicated both by their possible inaccuracy and by difficulty in finding cognitive adequacy among employees. Empirical findings illustrating these dimensions are exposed in 'dashed organizational development'. One of the illustrations is labeled 'regarding formalized screening of potential customers'[125]. It can be characterized as a standardization attempt,

[125] It is derived from Cell Case.

with reference to Pugh et al. (1968). In this case it is about finding a standardized way of screening potential customers that allows for both qualification of the potential and accumulation of knowledge about the contact. This issue further illustrates how operations are used as a basis for formalization, in opposition to earlier research suggesting that standardization is an irrelevant issue (Sine, Mitsuhashi et al. 2006).

The first approach to screening potential customers was based on the network contacts and legitimacy of the founder. This is in accordance with earlier research suggesting that academic founders are important in the initial access to potential customers (Murray 2004). After the first reference customers had been gained, a full-time professional manager of sales and marketing was recruited. He experienced access and legitimacy problems in approaching potential customers. Consequently, the sales process continued to rely on the founder and his co-researchers, without knowing much about additional market relations. The manager in charge outlined a sales approach model that was applied and adopted by his two staff members. It was based on asserting that 'our offer ought to be interesting to all organizations over the world working within a certain area'. After about a year it was apparent that this model did not yield the expected results.

The manager was replaced by a temporarily operationally involved board member. Moreover, he was a sales and marketing professional. He took a new approach to outlining who the potential customers are and how they would be approached. This second model was based on a much smaller and geographically selective potential market. The new sales logic, including introduction of business terminology, was communicated orally to everyone. The board member picked a new employee from his network contacts taking over his temporary position. The new appointee worked like her predecessor, part-time on a consultant contract. At the time when the first-order informant sequence took place, it came out as an illustration of how formalization based on earlier experiences, in combination with evolving knowledge about the venture's potential market, constitutes a basis for a formal sales approach model. Evidently, models of how to approach customers were outlined on imagined potential customers. They were very detailed in steps to take, based on earlier experiences, yet they lacked cognitive adequacy and did not give a satisfactory picture of how to approach different new clients.

All the sequences presented as underlying 'dashed organizational development' reveals some fundamental challenges related to formalization in new ventures where the operational basis for outlining guiding structures is fuzzy. This supports the CEOs' postures of hesitancy to increase formalization

based on general knowledge, as long as operationally based knowledge has emerged. One challenge lies in the uncertainty about the future. That condition was accentuated by the CEOs and refers to the fact that substantial market segments have not yet crystallized. The ventures are still exploring different market niches, and are cautious about outlining formalization in accordance with any specific one. The result is that guiding structures are formalizations mainly based on earlier knowledge, and do not give the desired effect.

The employees, in contrast, are forced to combine the general knowledge with emergent knowledge in order to be able to proceed with operations.

A dilemma appearing from my contributions to increased understanding about the process is that when formalization is pursued as a dual-actor process, there is a lack of debate and questioning during the process and about formal structures before they are applied. The responsibility of formalizing specific issues is, as suggested above, often taken by individual employees. It is not until a problem of application, or lack of the desired guidance, becomes apparent that mutual discussion about formalization outcomes and their interpretation starts. According to the work of Stinchcombe (2001), functional formality cannot be created based on earlier knowledge. It is not applicable before it has been scrutinized and discussed. Meanwhile structures are to be considered as informal. In high-technology ventures, the actual sales model discussed above is identified in my finding as formalized because it has materialized in writing and is accepted by the sales unit as an applicable formal structure. Apparently it is also applied as a formally structured way to behave. Yet the spread, cognition, and application among fellow employees are restricted. Those who apply it come into evident conflict with others who carry legacies of earlier behavior or are not ready to accept new formal guiding structures.

Another perspective on this dilemma relates to confusion about division of work. When certain structures are formalized they break the earlier informal ways of behavior and work division. Several of the issues reflect this problem in ‘dashed organizational development’. The last first-informant illustration, labeled ‘regarding responsibility in the managing group’, refers to the CEO’s initiative to use the management group members as key nodes for stimulating development. The ultimate purpose is to create a self-generating organization where formality falls out as self-evident. When the CEO takes this initiative it breeds expectations of new initiatives among the members. Formalization falls into the hands of management, even if the purpose is the opposite.

Another angle to the confusion about division of work is that there might be errors included in the process. According to Stinchcombe (2001), formalization outcomes need to be accurate regarding what they are based on and their scope.

Again the lack of operational basis is, as discussed, a problem. It has to do with to what degree the outcome is worked through, and includes the reality that it is intended to be guiding. 'Dashed organizational development' reveals that the scope of the formalization process has been too narrow. The result is that the outcome is too narrow as well, and has excluded actors affected by the outcome.

To summarize, 'dashed organizational development' reveals some fundamental challenges related to formalization in new ventures, which will be further discussed below.

## Skepticism in the wake of formalization

A generally positive view has been taken in this thesis towards increased formalization, as necessitated for guidance and increased individual clarity, and as supportive to market establishment. The section above illustrates the challenges in achieving that. I have only briefly touched upon a contrasting view of formalization as coercive (Kunda 2006), or in other ways hampering or restricting individuals in a negative sense.

Employees' activation has further been discussed in the spirit of being an essential part of the formalization process, because they handle the process continuously. However, a list of negative assessments of formalization among employees can be made as long as the beneficial aspects (Adler and Borys 1996). Negative aspects are not related to the formalization process in earlier literature, but to already implemented outcomes. In this section an identified skepticism related to formalization implementation in the case studies will be set into perspective.

The earlier discussed dimensions of 'proceed with caution' and 'self-generated formalization' reflected a widely held skepticism about formalization among the CEOs. Through these two dimensions it was made clear that they are skeptical towards increased formalization as possibly reducing flexibility, being irrelevant as long as a stable base of operation is not identified, being provocative to key employees, or having other negative effects. Contradictorily, some efficiency aspects are initiated to support a strategic purpose.

Employees have persistently been presented as positive towards increased formalization, and actively involved to realize it. However, when the second-order dimension of 'dashed organizational development' is presented, a somewhat modified picture of employee attitudes emerges. This aligns with my theoretically derived suggestion that scientists can be expected to resist formalization other than what is related to administrative routines (Adler and

Borys 1996). As key employees in the initial development, they can further be expected to have been left alone as long as they are engaged in useful things (Aldrich 1999). Such distinctions were not made by the key employees, but they revealed another theoretical finding.

Since the initial employees to a large extent seem to be left to practicing their professional skills, they are not much exposed to formalization. They continue to document their research development, and apply routines they have gained through earlier training and experiences. At the stage of venturing I approach, the first key employees are supplemented by marketing and sales competences. The strategic venture focus is changed from research transformation to marketing and sales activities. As described, the venture is facing a new threshold, and everyone has to focus on commercial aspects. Skepticism in the wake of increased formalization evolves through questioning of fellow employees' work approaches.

The theoretical understanding we gain from this refers back to the lack of discussion and scrutiny included in the formalization process, before it results in outcomes that are applied (Stinchcombe 2001). It is further in line with the suggestion by Vlaar et al. (2006) that all employees do not willingly adapt to new organizational conditions. Once the outcomes are a fact, they arouse skepticism. The consequences are mistrust and time-consuming discussions of what is wrong. The desired guiding effect of formalized structures fails to emerge.

This is an important contribution to our understanding of formalization in new ventures because it underlines the theoretically suggested importance of process aspects like questioning and debate about formalization, apart from accuracy (Stinchcombe 2001), before the formality is implemented. Through such process activities, formalization would have a possibility to get anchored among employees even if it is not based on a stable operational ground and resulting in the conceptual change sought. Instead, new formal structures are implemented and applied by certain individuals, creating misunderstandings and skepticism among fellow employees. Thus, negative conceptions arise instead of the intended ones.

To conclude, skepticism in the wake of formalization adds further support to my main conclusion of approaching formalization as a dual-actor process in new ventures. Formalization is pursued through dual actors, but does not involve all. It seems that the suggestion by Stinchcombe (2001) to involve all employees during the abstraction process is a feasible way to pursue formalization, despite the fact that the process is pursued without a stable operational foundation during venturing stages.

## THE DISCUSSION IN BRIEF

My work offers a systematic overview of multiple dimensions related to formalization in young high-technology ventures. Taken together, the process is continuously active to some degree, it is pursued through two main actor groups, and it covers a wide range of issues.

Structures at various stages of development are found. This has been suggested as true for all organizations (Galunic and Weeks 2002), whereas new ventures are evidently more exposed to creation. The formalization issues found in my work are not measurable in traditional terms – as substantial increase of occupational titles, number of hierarchical levels, or the like. The outcomes evolve on a micro-level as an accumulating number of written documents concerning selective activities or processes. They cover a number of main activity domains in the ventures, but not all. Some activity areas appear as more important nodes for formalization than others.

Information processing evolved as a core activity group because of its existence and the attention given to it during the investigation. It is to be understood as central for much formalization work in new ventures. This finding extends the powerful character of employment models given by organizational ecologists (Hannan, Burton et al. 1996; Burton 2001; Baron 2004). Employment models were questioned by me as influencing all further formalization. My results do not yield much evidence of identifiable employment models. In that sense my assumption was confirmed. On the other hand, the skepticism that some employees revealed when new structures were implemented shows that individuals have become tied to the initial way of working, where they have had the possibility to create their own organizational identities. Although I could not relate that to how they were initially attracted to the ventures, the finding contributes to emergent knowledge about the importance of initial structures, whether these are informally or formally formalized.

Financially related formalization and corporate communication are common activity areas that are not covered. They might be part of formalization in new ventures, but they were not accessible or visible during my investigation. Despite continuous formalization in new ventures, other issues continue to rely on informality in parallel with those being formalized or prescribed through written documents.

As suggested in my investigative model, three main actors and firm events would be the prime activators of formalization. Besides venture CEO activation, my findings add evidence of employees being constant activators of formalization. They call attention to specific, often operation-based needs. Thus,

in contrast to the dominant founder or management perspective in earlier research, formalization intermingles with employee activation and execution, exposing formalization as a dual-actor process.

The intentionality of the CEOs and their activities converges with the inductive dimension of process development addressed in earlier research (Mintzberg and Frances 1992; Regnér 2003). Despite different venture conditions, all the ventures faced the same challenge of increasing their commercial ability. Therefore the CEOs are mainly involved in formalization through concrete changes intended to result in conceptual changes among the employees.

Employees' activation, on the other hand, was closer to a deductive perspective on formalization, which refers to intentional outlining of a change. They intentionally activated formalization based on learning through customer interaction. They were continuously mapping working procedures to increase their knowledge about foundations for increased formalization. Their involvement was based on perceivable operational needs and a venture responsibility. They expressed a venture need of having someone who takes responsibility for formalization.

The role of external actors was not, however, prominent in comparison to venture CEOs or employees. It was suggested early in this writing that external actors, especially venture capitalists, could be expected to be involved operationally or as supporters in the organizational development (Hellman and Puri 2002). Earlier research pointed out that they would be likely to be involved in human resource-related issues. My results imply that they have been involved in the start-up activities. Regarding increased formalization my investigation yields little evidence of their active involvement. The venture CEOs refer to their investors as sounding-boards in a general sense, and as supporters when action is taken by the CEOs. This exposes external actor involvement as indirect.

Firm events related to formalization were not of the character that they activated formalization – on the contrary. Much of the caution among executives could be related to upcoming events that stalled the process.

The sought effect of formalization was not immediate, independently of who activated formalization. On the contrary, many issues that were formalized intentionally aroused questioning and skepticism. The desired change of behavior was slow in coming. Consequently, to make use of intentional formalization, several related actions were necessitated, making formalization an intense process in many small steps. In particular, a need to scrutinize and question new structures to increase individual sense-making became apparent

through my investigation. This contribution verifies empirically the theoretical suggestion that debate and discussion need to precede implementation of formalization (Stinchcombe 2001). If this process dimension is not taken into consideration, sought implementation effects are slow to be attained.

# 9 FORMALIZATION – A RECONCEPTUALIZATION

The initially presented research question of *how does formalization appear in young high-technology ventures* was posed with the intention of extending our understanding about formalization from the perspective of high-technology venturing. This chapter summarizes my empirical and theoretical findings. Partial conclusions drawn in the previous chapter will be brought together resulting in a reconceptualization of formalization. The reconceptualization includes process characteristics and outcomes of formalization.

## HIGHLIGHTS REFLECTING FORMALIZATION OUTCOMES

In the beginning of this writing, formalization among established organizational theorists was presented as of marginal importance related to new ventures, if not irrelevant or counterproductive. By contrast, my investigation took a starting point in an emergent strand of research indicating the importance of formalization to new ventures. In Chapter 6 multiple formalization outcomes were contextualized through highlights to give an overview of empirical findings during my investigation. They illustrate relations to a wide scope of venture activity areas and new initiatives, as well as how refinement of existing formal structures is pursued. Together they indicate that formalization affects in most cases the majority of the employees, is ultimately executed by the venture executive, and concerns several core activity areas of young high-technology ventures.

## SECOND-ORDER DIMENSIONS CONDENSING MY FINDINGS

The empirically driven analysis generated a number of second-order dimensions. These were presented in Chapter 7. Strong individual perceptions about formalization were revealed. They appeared often in direct contradiction to each other, but they also revealed that different actors talk past each other regarding formalization.

The venture CEOs progress cautiously, mainly postponing substantial formalization. In contrast, employees continuously activate issues for immediate solutions. The CEOs motivate their cautious progress based on what they believe is best for the venture development and what is in accordance with employee needs. A prominent argument is also the lack of stable operations to base formalization on.

Employees motivate their continuous activation based on what they believe is best for the venture, without much reference to their individual needs. Their activation is directly related to current operations, disregarding the issues of instability and uncertainty about the future.

The CEOs outline scenarios about reduced venture flexibility and provocation of key employees if formalization were to be increased. They find support for their standpoint through comparison with peers, through reflection about earlier experiences, or through external sounding boards.

Employees imagine other scenarios from the opposite standpoint. If formalization activities are not increased, formalization will go its own way, and potential formalization effects will be lost. Further, lack of frameworks for individual behavior is considered to have come to an edge where individual responsibility is at risk of being exchanged for loss of focus. The imagined result is that without increased formalization mutual goals of establishment will not be achieved.

The second-order dimension of 'dashed organizational development' illustrated consequences of how formalization is pursued in the ventures. Even if formalization progresses with caution, selective issues are activated for strategic reasons. Many issues give rise to confusion and skepticism among fellow employees. Together the seven second-order dimensions condense my findings to the essence of how the formalization process was understood.

## THEORETICAL CONTRIBUTIONS TO KNOWLEDGE ABOUT FORMALIZATION

The theoretical discussion in Chapter 8 clarified how essential dimensions found in my investigation extend earlier research. In particular I discussed the dominating cautious managerial relation to formalization in contrast to how employees perceive needs and activate different issues continuously. Building on earlier contributions by intra-organizational ecologists, I maintain that founders/venture CEOs and their set perceptions are too narrow for understanding how formalization progresses over time. Perception has to be broken down into conceptions–perceptions–actions to understand how individually held mental models among executives influence formalization. Through this breakdown, the perceptions were found to change over time, not to be fixed as was postulated in earlier research. It was further revealed that venture CEOs postpone formalization due to *caution* as well as using it *inductively* for strategic reasons. Thus, an inductive increase of formalization can be pursued despite a generally mental resistance.

A second major advancement in my findings is the multiple *roles of employees* in the formalization process. From founding conditions and founder influence, intra-organizational ecologists trace the subsequent development of formality in terms of replication and directing power. Also my investigation reveals the staying power of the initial way of organizing human resources in an informal manner. Especially key employees have been left without much formal structure to organize their work. When the venture enters a stage where the majority of the employees are involved in commercial work, instead of transforming the venture idea into products, formalization activities are increased. In particular the employees working with increased customer interaction perceive needs of increased formal guidance and activate several issues individually. Issues already having a formal outline need to be revised and new formal structures are added. The result is an involvement by employees, as *activators*, as *sources for operation-based knowledge*, and as *executors* of formalization. It extends earlier knowledge about formalization from the dominant picture of being management-directed to a *dual-actor perspective on formalization.*

## CONCLUSIONS – A DUAL-ACTOR PERSPECTIVE ON FORMALIZATION

My results move the focus on formalization from the founder perspective in studies within the field of entrepreneurship, to a *dual-actor perspective*. Through this perspective, formalization appears as two parallel sub-processes. Formalization progresses with caution related to the founders and venture CEOs. They retain a long-term perspective while activities that serve the function of satisfying present needs are pursued on the way. Their activities are referable to a strategic intentional approach. In contrast, formalization with an employee involvement evolves through daily activities. They appear as continuous mapping of needs and adjustments of present structures and routines. Formalization from their perspective is referable to a deductive development that they take responsibility for.

The duality of formalization refers to two different actors with different perceptions that result in parallel activities. The CEOs activate formalization with the intention of achieving certain goals. In one sense they do so deductively through information gathering and strategic interpretation of acquired knowledge. These attempts appear fruitless. Therefore they pursue formalization in an inductive way through different actions. The employees transform learning into outlines of operation-related changes of structures. Some of the outcomes overlap. This could be labeled an inductive approach too. However, as Figure 4

shows, they are activators and carry out formalization, without being those that most of the outcomes can be related to. Therefore employee involvement is referred to as a deductive process approach.

## RECONCEPTUALIZATION OF ORGANIZATIONAL FORMALIZATION

The reconceptualization below, based on young high-technology ventures, illustrates how my results add refined knowledge about formalization. The centered amoebic figure and the grey shaded squares constitute the research model presented in Chapter 2. The dotted figures and process arrows complement the figure to illustrate my contributions through this investigation.

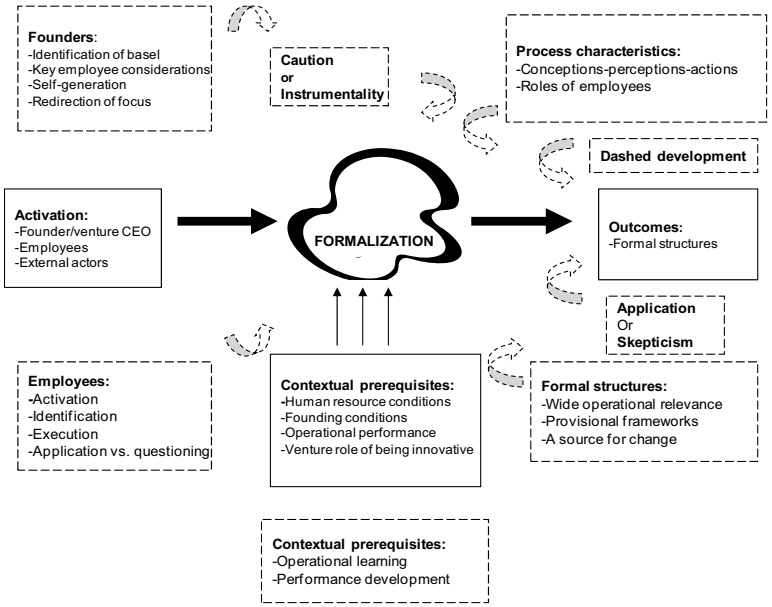


Figure 5. Reconceptualization of the formalization process

Regarding *activation* the main actors of venture CEOs and employees are separated according to what characterize their roles in the formalization process, and the perceptions they hold. Since diverse perceptions underlie founder/venture CEO actions, formalization is pursued by them in two ways: with caution, which implies great hesitancy, but also inductively, which implies strategic multiple actions for achieving a prompted specific goal of conceptual change among employees. Employees, on the other hand, continuously activate formalization based on operation identification. They are engaged in

formalization from activation through implementation, even if they do not hold the responsibility all the way.

Two underlying contextual conditions influence how the process develops: learning from operations – particularly customer interaction when related to employee involvement – and performance. Performance influences mainly the activities of venture CEOs.

The *process* pace and intensity is in turn influenced by the cautious or instrumental approach that characterizes founder activation. The result is that formalization is both opposed regarding several issues and pushed regarding specific issues by the CEOs. Employees, on the other hand, represent the continuity of identification of bases for formalization and execution of it.

*Outcomes* of formalization relate to all main activity areas of the ventures. They are characterized as provisional frameworks due to their simple formulation. Once the formalized outcomes are applied by some employees, others remain skeptical, which arouses debate and questioning after implementation. Notwithstanding, outcomes appear as change agents once they are applied. Yet the skepticism aroused can be related to how the process is initiated and pursued, and finally to how the outcome is implemented.

# 10 IMPLICATIONS AND LIMITATIONS

My reconceptualization of formalization, which was achievable due to a holistic perspective on the process development, is an abstraction of multiple aspects to investigate further. Some major implications for future research will be treated below from a dual-actor perception and process respectively.

## A DUAL-ACTOR PERSPECTIVE

One particular theoretical contribution can be derived from the reconceptualization that it is a dual-actor-driven process. In my investigation the two actor groups represent two parallel sub-processes. This implies that future research on formalization in new ventures has to include different actors with the different roles they take, and their different activities, to increase our understanding about how they relate to each other.

Another aspect to consider is to what extent CEO and employee-driven formalizations represent different formalization approaches. The underlying perceptions of these two actor groups were roughly identified as dominated by a long-term and a short-term perspective respectively. They were also characterized as inductive versus deductive approaches. Yet other differences would possibly be revealed through further studies of each actor group and the two sub-processes.

A particular aspect to develop is identity creation, which has been suggested to be closely related to initial formal structures (Baron 2004). Earlier research touches upon the involvement of employees as an ongoing dialogue and sense-making process (Bouwen and Steyaert 1990). My finding of dual-actor process indicates differently that there is little dialogue between management and employees during the creation of formal structures. The sense-making aspect was not identified as most powerful when employees pursued formalization. Their engagement was closely related to operations. To what extent formalization is an identity creation process is a different approach to understanding the process from what I assume it to be – enabling venture development. The benefits of formalization to employees are therefore in need of further exploration.

In addition, lack of dialogue related to implementation has negative consequences. An implication for future research is to focus on the communication related to formalization. It connects with my distinction between perceptions and conceptions. Expressing conceptions does not automatically

result in actions that are aligned with the conceptions, because action seems to be more closely related to perceptions.

An additional issue to explore further from the basis of a dual-actor perspective, is why the CEOs appear as hesitant and cautious as they do. The theoretical framework that has guided my investigation is derived from a different cultural society than the Swedish. My assumption was therefore that several actors would be involved in intentional formalization. It would therefore be interesting to explore in future studies why these Swedish CEOs seem generally to be somewhat reluctant to pursue formalization. Applying a cultural aspect on this would clarify if that is an additional aspect to consider in future knowledge development about the formalization process.

## PROCESS ASPECTS

One process aspect is the finding that formalization was occasionally stalled due to venture events. This was a finding through the accounts of the CEOs, and indirectly through the employees. They commented on the process development as an issue that the CEOs were not giving enough (continuous) attention to – due to their own choices or because the investors were more demanding regarding other issues. Future studies need to investigate this further through questioning of external actor and event influence on the process. It can be approached through what attention management gives to formalization in relation to other challenges, or through a pacing perspective aspect to gain an increased understanding of different contextual conditions influencing the attention given to formalization.

My encompassing approach of including multiple dimensions – from activation to outcomes – resulted in findings about the additional dimension of implementation. Implementation was distanced in my investigative model, but appeared as an important outcome during increased formalization. This has two implications for future research. First, it supports earlier research suggesting that employed scientists are likely to resist formalization beyond administrative issues (Adler and Borys 1996). My findings indicate emotional expressions among such employees related to the adoption of new formal structures and routines. These expressions need further investigation to explore the relationship between particular issues, the process and individual reactions. Not least, this finding needs to be further explored in relation to the suggested social coding effect that initial employment models have been suggested to imprint (Hannan, Burton et al. 1996; Baron 2004). In later research it is suggested that the combination of individual characteristics and the organizational development

influences reactions to organizational changes (Burton and Beckman 2007). Second, my research makes apparent that during the early histories of the ventures, employees are engaged in a wide scope of tasks or alternatively they have been left in peace to pursue their expert roles. In either case, increased formalization appears as a break to these conditions and the individual territoriality created regarding organizational roles or scope of work. Future research needs to approach the endurance of initial informally formalized informality and the conditions for new structures to be created and implemented.

The creation and implementation process has another angle to it. My results indicate that it is easier for employees to pursue formalization related to their operational work, but they are concerned about the whole venture. Similarly, the CEOs activate formalization from their strategic perspective, but also these issues concern the whole venture and are referable to a wide range of issues. Still, the debate about implementation and other conditions suggested by Stinchcombe (2201) is lacking. New investigations need to make a closer mapping of formalization of particular issues to understand the challenges encountered.

Further, the limited involvement of external actors has several implications to enhance research investigations. First, it has to be repeated that they were not contacted individually in this investigation. Yet they were identified as indirectly involved in supporting the venture CEOs. This constitutes a basis for additional investigations addressing external actors of different kinds and what roles they take in venture formalization.

## IMPLICATIONS FOR PRACTICE

My results have several implications for different actors involved in high-technology venturing. First, the myth of preserved flexibility as a reason for retained informality and adaptability remains a myth. While large established organizations become more dependent on existing design models to work efficiently and remain competitive, new ventures are dependent on an initial idiosyncratic development. The idiosyncrasy encompasses both informal and individually outlined formal structures. The venture structures that evolve were revealed to be dynamic and include the catapult effect of idiosyncratic structures. Simply expressed, provisional structures can be refined or give rise to new structures. They can be scrapped, too, if they are not applicable any longer.

Second, increased formalization of structures does not entail replacement of informality. Management worries expressed in my investigation related to increased formalization concerned the venture decision capacity or the

engagement by employees. They were expected to be influenced negatively. Such consequences were not identified. The main effect of formalization in new ventures is more efficient use of existing resources. That aligns with recent arguments, that define why it is important to formalize structures (Neilson, Martin et al. 2008). It is a foundation for implement a chosen strategy.

Yet how the activation and implementation of formalization are handled influences how much employee worries become a disturbance in the venture development. Formalization needs to be developed devoid of emotional influence or individual preferences in order to become applicable. The implementation cannot be expected to be accepted among all employees without preparation and aligned behavior by management.

How the process is handled includes the benevolent actions taken by external actors, like financial investors or board members. Their involvement needs to be integrated, based on the individual venture conditions. Active roles taken by board members can mediate challenging organizational thresholds to overcome, because such actors are strong signals that direct employees' attention.

Last but not least, the dual-actor perspective has practical implications. Apparently, employees activate and carry out much of the activity. This finding is in contrast to the burden of formalization that management expresses. Management is not alone in pursuing formalization. The activities and initiatives taken by employees could be recognized formally by management. Such distribution of power would allow formalization to be pursued subsequently on individual venture conditions.

## LIMITATIONS

Among the many limitations of my study, some major limitations in my results will be brought up.

It was explained earlier that my investigation did not reveal what would substantially trigger increased formalization, or whether the process will process in the way it was interpreted in my work. Despite outspoken urgent needs for the future, the CEOs do not specify whether the process would be pursued differently. Allusions are made to market establishment as a catapult for increased formalization, but without specifying what measures would be taken.

Further, the understanding we get about the formalization process is based on issues that stood out and could be verified through multiple sources. A more detailed list of all issues that existed or were pursued was not possible to establish, due to lack of access. Such details were repeatedly asked for, but were not received. Consequently, additional dimensions of the process or important

issues may be missing. But through my multi-method approach and the multiple dimensions included, I believe that the reconceptualization is reliable.

Regarding encompassing characterizations of the venture forms that develop, we are again not informed about the whole. The CEOs draw initial charts to present the current status of the ventures when they were first contacted. Multiple drawings existed in order to present the venture adjusted to different stakeholders. To draw one characterization was considered as irrelevant to the venture CEOs, because such drawings do not give justice to the actual venture character, even if all different existing drawings would be summarized. To establish the overall organizational form of each venture was therefore abandoned by me as a less useful understanding of formalization in new ventures.

My study had limited access to external stakeholders. Consequently their involvement is described as limited too. Nevertheless, their indirect support to the CEOs and intermittent operational engagement speaks another language. My understanding of their involvement is, however, restricted to findings during observations and the accounts of the CEOs, since I have not been in direct contact with them.

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# APPENDICES

## APPENDIX 1. AMOUNT OF EXTERNAL CAPITAL IN THE POPULATION OF HIGH-TECHNOLOGY VENTURES

| Firm | start_yr | 1 992 | 1 993 | 1 994 | 1 995 | 1 996 | 1 997 | 1 998 | 1 999 | 2 000 | 2 001 | 2 002 | 2 003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Accra | 1994 | | | | 2 253 000 | 2 000 000 | | | | | 50 873 000 | 20 000 000 | 15 314 000 |
| Aerocrine | 1997 | | | | | | | 25 200 000 | 47 211 000 | 35 584 000 | 121 269 000 | 39 600 000 | 63 527 000 |
| Affibody | 1998 | | | | | | | | | 43 200 010 | 150 000 000 | 150 000 000 | |
| Albax Systems | 2003 | | | | | | | | | | | | |
| Alligator | 2000 | | | | | | | | | | 8 500 000 | 20 600 780 | 9 500 000 |
| Alphahelix | 1990 | 465 125 | | | | 1 757 000 | 860 600 | 11 000 000 | | 24 917 469 | 56 586 400 | 5 000 000 | |
| Altitun nu:Syntane | 1997 | | | | | | | 21 421 000 | 82 570 000 | 8 610 000 | | | |
| Anoto | 2000 | | | | | | | | | 133 600 000 | 88 000 000 | | |
| Appear Networks | 2000 | | | | | | | | | | | 15 703 509 | 70 242 219 |
| Appgate | 1998 | | | | | | | | | | | | |
| Applied Sensor | 1994 | | | | 1 000 000 | 1 120 000 | 2 220 000 | 5 003 000 | 36 469 000 | 122 400 000 | | | 26 655 000 |
| Artimplant | 1990 | | | | | 9 600 000 | 67 500 000 | | 27 887 000 | 136 150 000 | | 25 909 000 | 59 040 000 |
| Bioagri | 1996 | | | | | 1 400 000 | | | | | | | |
| Bioett | 1999 | | | | | | | | | 2 500 000 | 5 950 000 | 6 750 000 | 4 000 000 |
| Bluetail | 1999 | | | | | | | | | | | | |
| Bluetronics | 1999 | | | | | | | | | | | | |
| Bone Support | 1999 | | | | | | | | | | 3 000 000 | 7 050 000 | 16 073 938 |
| C2SAT | 2000 | | | | | | | | | 15 000 000 | 5 800 000 | 3 751 000 | 7 575 245 |
| Cellavision | 1995 | | | | | 3 000 000 | 5 566 260 | 13 190 000 | 35 934 960 | 72 707 000 | 46 050 000 | 16 673 000 | |
| Cellectricon | 2001 | | | | | | | | | | | 31 604 297 | 15 784 798 |
| Cobolt | 1995 | | | | | | | | | 6 709 000 | 8 996 000 | 7 500 000 | 7 500 000 |
| Cogmed | 2001 | | | | | | | | | | | 2 339 588 | 4 200 000 |
| Columbitech | 2000 | | | | | | | | | 36 100 000 | 9 983 000 | 15 000 000 | |
| Comhat | 1998 | | | | | | | | 900 000 | | | | |
| Cycore | 1996 | | | | | | 5 275 922 | 17 127 674 | 89 886 613 | 108 341 000 | 55 220 000 | 12 328 000 | 3 850 000 |
| Decuma | 1999 | | | | | | | | | 12 843 012 | 15 167 935 | 10 621 016 | 27 856 527 |
| Dirac Research | 2001 | | | | | | | | | | 120 000 | 2 250 000 | |

| Firm | start_yr | 1 992 | 1 993 | 1 994 | 1 995 | 1 996 | 1 997 | 1 998 | 1 999 | 2 000 | 2 001 | 2 002 | 2 003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Effpower | 1999 | | | | | | | | | 4 000 000 | 100 000 | | 22 000 000 |
| Doxa Certex | 1987 | | | | | | | | | 100 000 | | | |
| FX Realm | 1998 | | | | | | | | | | | | |
| Gasoptics | 2000 | | | | | | | | | | | 250 000 | 11 000 000 |
| Global Genomics | 2000 | | | | | | | | | | | 144 636 180 | |
| Hapax | 1999 | | | | | | | | | | | | |
| Hydropulsor | 1994 | | | | | | | 27 000 000 | 46 639 000 | 21 776 000 | 17 323 000 | 7 021 000 | 22 722 000 |
| Roxen (idonex) | 1994 | | | | | | | | | | | | |
| Ilevo | 2000 | | | | | | | | | 21 341 892 | 21 295 003 | 17 695 741 | |
| Innolite | 2000 | | | | | | | | | 15 110 000 | 12 085 860 | | |
| Kevab | 2000 | | | | | | | | | | | | |
| Lightup Technologies | 1998 | | | | | | | | 1 119 850 | 18 212 360 | 3 479 130 | 16 564 629 | 4 000 000 |
| Lumentis | 2000 | | | | | | | | | 30 842 501 | 26 319 397 | | |
| Magnetal | 1993 | | | | | | | | | | 1 672 106 | | |
| Magnetic Biosolutions | 1999 | | | | | | | | | | 5 000 000 | 2 000 025 | |
| Micromuscle | 2000 | | | | | | | | | | | 4 100 513 | 7 100 462 |
| Micvac | 2000 | | | | | | | | | | 11 014 548 | | 19 499 770 |
| MIP Technologies | 2000 | | | | | | | | | | 3 987 220 | 1 785 983 | 1 840 000 |
| NFO Drives | 1996 | | | | | | 4 016 000 | 6 565 466 | | 28 366 644 | 24 494 867 | | 6 894 410 |
| Neoventa | 1997 | | | | | | | | 50 240 100 | 37 940 000 | 130 177 000 | 15 301 000 | 12 546 000 |
| Neuronova | 1998 | | | | | | | 750 000 | | 30 000 000 | | | 111 027 517 |
| Nordnav Technologies | 2002 | | | | | | | | | | | | |
| Novator | 1992 | | | | | | | | | 3 000 000 | 18 946 910 | 25 000 000 | 26 031 888 |
| Oden Control | 1996 | | | | | 2 000 000 | | | | 4 086 900 | 327 150 | 1 617 265 | 1 849 313 |
| OptoQ | 1999 | | | | | | | | 2 500 000 | 15 900 000 | 14 999 942 | | 4 429 844 |
| Optillion (Optotronics) | 1999 | | | | | | | | | 280 000 000 | 262 292 000 | 134 649 000 | 21 073 000 |
| Packetfront | 2001 | | | | | | | | | | | 45 732 000 | 55 019 000 |
| Personal Chemistry | 1998 | | | | | | 15 500 000 | 510 000 | 100 218 000 | 193 893 000 | 59 923 000 | 236 703 000 | |
| Phasein | 2000 | | | | | | | | | | | 10 008 000 | 8 308 320 |
| Piezomotor | 1997 | | | | | | | | 8 499 987 | 2 883 400 | 12 300 000 | | 4 999 456 |
| Pipebeach | 1998 | | | | | | | 637 500 | 14 165 569 | 50 000 | 678 150 | | |
| Proximion | 1998 | | | | | | | | 13 731 900 | 23 326 260 | 137 798 845 | | |

| Firm | start_yr | 1 992 | 1 993 | 1 994 | 1 995 | 1 996 | 1 997 | 1 998 | 1 999 | 2 000 | 2 001 | 2 002 | 2 003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quartz Pro | 1986 | | | | | | | | | | | | |
| Radarteam Sweden | 1992 | | | | | | | | | | | | |
| Radio Components | 1999 | | | | | | | | | 10 823 200 | 18 000 000 | 4 500 000 | 79 643 790 |
| Raysearch | 2000 | | | | | | | | | 2 000 000 | | | |
| Replisaurus | 2002 | | | | | | | | | | | | |
| Sacs | 1999 | | | | | | | | | | | | |
| Sidec Technologies | 2000 | | | | | | | | | 11 000 000 | | 11 184 701 | 12 310 909 |
| Silex | 2000 | | | | | | | | | | 2 880 025 | 23 623 657 | 52 072 324 |
| Speed Part | 2000 | | | | | | | | | 13 600 000 | | 5 000 000 | |
| Spirea | 1999 | | | | | | | | | 57 489 138 | 116 704 072 | 1 410 512 | |
| Strand Interconnect | 1997 | | | | | | | 17 628 036 | | 49 237 985 | 9 000 000 | 21 586 564 | |
| Switchcore | 1997 | | | | | | 8 164 000 | 81 343 621 | 122 101 000 | 237 664 000 | 250 933 000 | | 95 940 000 |
| Telaire (later Sensair) | 1993 | | | | | 1 000 000 | 2 400 000 | | | | | | |
| Terraplay | 2000 | | | | | | | | | 7 000 000 | 103 110 237 | | 32 299 997 |
| Time Space Radio | 1990 | | 3 550 000 | 3 000 000 | | | | | | | | | |
| Uman Genomics | 1999 | | | | | | | | | | 24 840 000 | 6 140 000 | 2 456 000 |
| WeAidU | 1999 | | | | | | | | | 33 333 | | | 525 666 |
| Wireless Maingate | 1998 | | | | | | | | | | 81 549 000 | 5 511 000 | |
| Virtual Genetics* | 1997 | | | | | | | | | | | | |
| XCounter | 1997 | | | | | | 4 000 000 | | 20 438 000 | 64 973 000 | 2 348 000 | 95 021 000 | 87 898 000 |
| Xelerated | 2000 | | | | | | | | | | 100 000 | | |
| Xenerate | 2001 | | | | | | | | | | 19 773 489 | | |
| Åmic | 1998 | | | | | | | | 200 000 | | | | |

# APPENDIX 2. CASE STUDY PROTOCOL – CASE FOR LIFE

**Case Study Period:** November 2003 – September 2005

**2003**

| | | |
|---|---|---|
| 1. (w[126] 47) Nov 18 | **Retrospective interview** | 1st external CEO |
| 2. (w 47) Nov 23 | Organizational chart[127] (e-mail) | 1st external CEO |
| 3. (w 48) Nov 24 | NDA (e-mail) | 1st external CEO |
| 4. (w 48) Nov 28 | Confirmation of NDA[128] | 1st external CEO |

**2004**

| | | |
|---|---|---|
| 5. (w 6) Feb 4 | Case study proposal (e-mail) | 1st external CEO |
| 6. (w 7) Feb 9 | Case study acceptance (e-mail) | 1st external CEO |
| 7. (w 9) Feb 23 | **Personal interview** | Key employee |
| 8. (w 10) Mar 1 | Observation request & accept E-mail | 1st external CEO |
| 9. (w 10) Mar 5 | Interview request & accept e-mail | Co-founder[129] |
| 10 (w 10) Mar 5 | 1st Observation | Informal talks |
| 11 (w 11) Mar 10 | **Personal interview** | Co-founder |
| 12. (w 14) Apr 1 | Documentation request E-mail | Key employee |
| 13. (w 14) Apr 1 | Interview request & answer E-mail | Key employee |
| 14. (w 14) Apr 2 | Observation request E-mail | Key employee |
| 15. (w 16) Apr 14 | Repeated observation request | Key employee |
| 16. (w 17) Apr 14 | Answer on request & response E-mail | Key employee |
| 17. (w 16) Apr 15 | Observation request E-mail | 1st external CEO |
| 18. (w 16) Apr 16 | Observation answer & response E-mail | 1st external CEO |
| 19. (w 16) Apr 16 | Observation confirmation E-mail | Key employee |
| 20. (w 18) Apr 29 | **Personal interview** | Key employee |
| 21. (w 18) Apr 29 | 2nd Observation | Coach meeting |
| 22. (w 20) May 11 | Observation confirmation | Key employee |
| 23. (w 20) May 12 | Internal protocols E-mail | Key employee |
| 24. (w 20) May 12 | 3rd Observation | Coach meeting |
| 25. (w 20) May 13 | Interview request & accept E-mail | 1st external CEO |
| 26. (w 21) May 17 | Protocol complements E-mail | Key employee |

[126] 'w' refers to week
[127] This was produced reluctantly upon demand.
[128] Non-disclosure agreement
[129] Founder and star scientist

| | | |
|---|---|---|
| 27. (w 21) May 19 | Interview rearrangement<br>E-mail | 1st external CEO |
| 28. (w 21) May 19 | Protocol feedback<br>E-mail | Key employee |
| 29. (w 22) May 24 | **Personal interview** | 1st external CEO |
| 30. (w 24) Jun 8 | Protocol feedback[130]<br>E-mail | Key employee |
| 31. (w 26) Jun 21 | 4th Observation | Coach meeting |
| 32. (w 26) Jun 22 | Meeting protocol & response<br>E-mail | Key employee |
| 33. (w 26) Jun 23 | Transcription forward[131]<br>E-mail | 1st external CEO |
| 34. (w 38) Sep 13 | Observation request<br>E-mail | Key employee[132] |
| 35. (w 38) Sep 14 | Request feedback<br>E-mail | Key employee |
| 36. (w 38) Sep 16 | 5th Observation | Coach meeting[133] |
| 37. (w 40) Sep 30[134] | Publication request<br>E-mail | 1st external CEO |
| 38. (w 42) Oct 12 | Observation request & accept<br>E-mail | 1st external CEO |
| 39. ( 42) Oct 14 | 6th Observation | Informal talks<br>Open house[135] |
| | **Personal interview[136]** | 1st external CEO |
| 40. (w 45) Nov 2 | Interview request & reminder<br>E-mail | Key employee |
| 41. (w 46) Nov 9 | **Personal interview** | Key employee |
| 42. (w 50) Dec 9 | 7th Observation | Sales meeting |
| 43. (w 50) Dec 10 | Observation request & response<br>E-mail | Key employee |
| 44. (w 51) Dec 16 | 8th Observation | Half year gathering |

**2005**

| | | |
|---|---|---|
| 45. (w 2) Jan 12 | **Personal interview** | Co-founder |
| 46. (w 4) Jan 28 | Report accept<br>E-mail | 1st external CEO |
| 47. (w 11) Mar 17 | Observation request & response<br>E-mail | Key employee |
| 48. (w 12) Mar 24 | 9th Observation | Coach meeting |
| 49. (w 15) Apr 12 | **Personal interview** | 1st external CEO |
| 50. (w 34) Aug 22 | Observation request<br>E-mail | Key employee |
| 51. (w 34) Aug 25 | Document request<br>E-mail | 1st external CEO |
| 52. (w 36) Sep 8 | 10th Observation | Coach meeting |
| | **Personal interview** | Key employee |

[130] Observation confirmation
[131] Observation request
[132] Copy to CEO
[133] Moderated by the marketing director
[134] E-mail was not successful until October 4
[135] Moderated by an employee
[136] Protocol written from notes due to technical problems. Commented by interviewee

| | | |
|---|---|---|
| 53. (w 36) Sep 8 | Personnel policy<br>E-mail | Employee |
| 54. (w 36) Sep 8 | Annual review 2004<br>E-mail | 1st external CEO |

**Venture documents**

| | |
|---|---|
| 1st article about the venture in Ny Teknik | 2002 |
| Press coverage listed on the homepage | Jul 24, 2002 – Dec 2005[137] |
| 'About the venture' on the homepage[138] | |
| Newsletters (Oct 2003 – May 2005) | 7[139] |
| News archive on the homepage | Jul 25, 2002-Sep 2005[140] |
| Summary of 'latest news' | October 2003 |
| Product and user information | |
| Scientific article by academic founders | 2002 |
| Milestones[141] | |
| Coaching summary | June 2004 |
| Coach meeting protocols | (Oct 31, 2003-Oct 28, 2005) 18 |
| Annual reports | 2001, 2002, 2003, 2004, 2005 |

[137] Printed on January 19, 2006
[138] Printed on January 19, 2006 and February 23, 2004
[139] Received as letter except for 1
[140] Printed on January 19, 2006
[141] Printed on November 17, 2003

# APPENDIX 3. CASE STUDY PROTOCOL – CELL CASE

**Case study period:** November 2003 – August 2005

**2003**

| | | |
|---|---|---|
| 1. (w[142] 47) Nov 17 | **Retrospective interview** | 1st **CEO** |

**2004**

| | | |
|---|---|---|
| 2. (w 04) Jan 23 | Case study proposal<br>E-mail | 1st CEO |
| 3. (w 08) Feb 17 | Reminder<br>E-mail | 1st CEO |
| 4. (w 11) Mar 10 | New interview-CANCEL<br>E-mail | 1st CEO |
| 5. (w 11) Mar 11 | Observation request<br>E-mail | 1st CEO |
| 6. (w11) Mar 11 | Answer<br>E-mail | 1st CEO |
| 7. (w 12) Mar 16 1st | Observation | **Interview 1st CEO**<br>8 informal talks<br>Weekly information |
| 8. (w 11) Mar 17 | Thank you!<br>E-mail | 1st CEO |
| 9. (w 14) Mar 31 | Confirmation 2nd obs.<br>E-mail | 1st CEO |
| 10 (w 18) Apr 27 | 2nd Observation<br>**Personal interview** | 6 informal talks<br>Key employee<br>Weekly information |
| 11 (w 20) May 12 | Observation request<br>E-mail | 1st CEO |
| 12 (w 20) May 12 | Answer<br>E-mail | 1st CEO |
| 13 (w 20) May 13 | Answer<br>E-mail | Employee |
| | 1st interview request to founder<br>E-mail | Founder |
| 14 (w 22) May 28 | 3rd Observation<br>**Personal interview**<br>Temporary key employee | |
| 16 (w 27) Jun 28 | Response<br>E-mail | CEO |
| 17 (w 28) Jul 8 | Answer<br>E-mail | CEO |
| 18 (w 32) Aug 2 | Continuity request<br>E-mail | CEO |
| 19 (w 35) Aug 23 | Reminder<br>E-mail | CEO |
| 20 (w 36) Aug 31 | Continuity request | Key employee |

[142] W refers to week

| | | |
|---|---|---|
| | E-mail | |
| 21 (w 36) Sep 3 | Confirmation observation | Key employee |
| | E-mail | |
| 22 (w 38) sep 14 | 4th Observation 3 informal talks | office |
| | **Personal interview** | Key employee |
| 23 (w 41) Oct 5 | **Personal interview** | 2nd CEO (temporary) |
| 24 (w 43) Oct 19 | Continuity request | 2nd CEO (temporary) e-mail |
| 25 (w 43) Oct 19 | Answer | 2nd CEO |
| | E-mail | |
| 26 (w 43) Oct 19, 21 | New request & answer | 2nd CEO |
| | E-mail | |
| 27 (w 44) Oct 26 | New request | 2nd CEO |
| | E-mail | |
| 28 (w 45) Nov 3-5 | New request & answer | 2nd CEO |
| | E-mail | |
| 29 (w 46) Nov 8 | Confirmation observation | 2nd CEO (temporary) e-mail |
| 30 (w 46) Nov 12 | 5th Observation | |
| | Management meeting | |
| | **Personal interview** | Key employee |
| 31 (w 51) Dec 8, 12 | Update contact | 2nd CEO |
| | Phone | |
| 32 (w 51) Dec 14 | Continuity request | 3rd CEO |
| | E-mail | |
| 33 (w 51) Dec 14 | Answer | 3rd CEO |
| | E-mail | |

**2005**

| | | |
|---|---|---|
| 34 (w 6) Feb 10 | Continuity request | 3rd CEO |
| | E-mail | |
| 35 (w 7) Feb 14 | Answer | 3rd CEO |
| | E-mail | |
| 36 (w 7) Feb 17 | Update/Cont.request | 3rd CEO |
| | Phone | |
| 37 (w 9) Mar 2 | Interview booking | 3rd CEO |
| | E-mail | |
| 38 (w 11) Mar 17 | **Personal interview** | 3rd CEO |
| 39 (w 12) Mar 21 | 6th Observation | |
| | Management meeting (?) | |
| | **Personal interview** | Founder |
| | | 4 informal talks |
| 40 (w 19) May 12 | **Update interview** | 3rd CEO |
| | Phone | |
| 41 (w 26) Jun 28 | **Update interview** | 3rd CEO |
| | Phone | |
| 42 (w 35) Aug 30 | 7th Observation | |
| | Sales group meeting | |
| | Sales meeting | |
| | 2 informal talks | |
| | **Update interview** | 3rd CEO |
| | **Personal interview** | Key employee |

**Venture documents**

| | |
|---|---|
| Minutes from weekly meetings | 24 (Jan 13, 2004-Aug 30, 2005) |
| Minutes from management group meetings | 17 (Oct 8, 2004-Aug 2, 2005) |
| Flow of information in a matrix organization | Key employee |

| | |
|---|---|
| Job Introduction | Key employee |
| Strategic Plan 2005-2008 | 3rd CEO |
| Employee handbook | Key employee |
| Non-disclosure agreement | 1st CEO |
| Accounting/financial routines | Key employee |
| Interview requests to founder | 10 e-mails |

**Public data**

| | |
|---|---|
| Prospect for issues of shares | Key employee |
| Press Pack | Key employee |
| 'News' announced on the venture home page | Key employee |
| Product information | printed material |
| Annual reports, 2001, 2002, 2003, 2004, 2005 | |

# APPENDIX 4. CASE STUDY PROTOCOL – THE INTERPRETATION CASE

**Case Study Period:** December 2003 – February 2005

**2003**

| | | |
|---|---|---|
| 1. (w 51) Dec 16 | **Retrospective interview** | CEO 1st external |
| 2. (w 51) Dec 19 | 'Weekly update' CEO<br>E-mail | 1st external CEO |

**2004**

| | | |
|---|---|---|
| 3. (w 4) Jan 23 | Case study proposal<br>E-mail | 1st external CEO |
| 4. (w 5) Jan 27 | New case study proposal<br>E-mail | 2nd external CEO |
| 5. (w 5) Jan 28 | Response on request<br>E-mail | 2nd external CEO |
| 6. (w 5) Jan 29 | Interview request<br>E-mail | 2nd external CEO |
| 7. (w 6) Feb 3 | Interview confirmation<br>E-mail | 2nd external CEO |
| 8. (w 7) Feb 10 | **Personal interview** | 2nd external CEO |
| 9. (w 7) Feb 15 | 'Program declaration'<br>E-mail | 2nd external CEO |
| 10. (w 9) Feb 27 | 'Weekly update'<br>E-mail | 2nd external CEO |
| 11. (w 10) Mar 1 | Observation request<br>E-mail | 2nd external CEO |
| 12. (w 11) Mar 12 | 1st Observation<br>Weekly information<br>Management meeting | |
| 13. (w 11) Mar 12 | 'Weekly update'<br>E-mail | 2nd external CEO |
| 14. (w 12) Mar 15 | Follow-up of observation<br>E-mail | 2nd external CEO |
| 15. (w 12) Mar 19 | 'Weekly update'<br>E-mail | 2nd external CEO |
| 16. (w 13) Mar 26 | 'Weekly update'<br>E-mail | 2nd external CEO |
| 17. (w 14) Mar 31 | Observation alert<br>E-mail | 2nd external CEO |
| 18. (w 15) Apr 1<br>E-mail | Document request | 2nd external CEO |
| 19. (w 15) Apr 1 | Documents<br>E-mail | 2nd external CEO |
| 20. (w 18) Apr 30 | 'Weekly update'[143]<br>E-mail | 2nd external CEO |
| 21. (w 20) May 11 | 2nd Observation | |

[143] All weekly updates received by being on the mail list are included in the protocol to show the continuation in the information gathering. This means that they are also included in the documents listed under 'archival data'.

| | | |
|---|---|---|
| | Weekly information meeting | |
| 22. (w 20) May 11 | **Personal interview** | 2nd external CEO |
| 23. (w 21) May 17 | Interview request | Co-founder/1st CEO, e-mail |
| 24. (w 22) May 26 | Interview request | Co-founder/1st CEO, e-mail |
| 25. (w 23) Jun 2 | Interview request | Co-founder/1st CEO, e-mail |
| 26. (w 23) Jun 2 | Interview confirmation | Co-founder and 1st CEO, e-mail |
| 27. (w 23) Jun 3 | Observation request<br>E-mail | 2nd external CEO |
| 28. (w 23) Jun 4 | 'Weekly update'<br>E-mail | 2nd external CEO |
| 29. (w 27) Jun 28 | Information request<br>E-mail | 2nd external CEO |
| 30. (w 27) Jul 2 | **Personal interview** | Co-founder/1st CEO[144] |
| 31. (w 27) Jul 2 | 3rd Observation | |
| 32. (w 35) Aug 26 | Notes management meeting<br>E-mail | 2nd external CEO |
| 33. (w 35) Aug 27 | 'Weekly update'<br>E-mail | 2nd external CEO |
| 34. (w 36) Sep 2 | Notes management meeting<br>E-mail | 2nd external CEO |
| 35. (w 36) Sep 3 | Observation request<br>& confirmation, E-mail | 2nd external CEO |
| 36. (w 36) Sep 3 | 'Weekly update'<br>E-mail | 2nd external CEO |
| 37. (w 37) Sep 9 | | |
| 38. (w 38) Sep 13 | 'Weekly update'<br>E-mail | 2nd external CEO |
| 39. (w 39) Sep 24 | 4th Observation<br>Weekly information | |
| 40. (w 39) Sep 24 | **Personal interview**<br>Proofreading of interview[145] | 2nd external CEO |
| 41. (w 39) Sep 24 | Notes management meeting<br>E-mail | 2nd external CEO |
| 42. (w 39) Sep 24 | 'Weekly update'<br>E-mail | 2nd external CEO |
| 43. (w 40) Sep 30 | Publication request<br>E-mail | 2nd external CEO |
| 44. (w 40) Oct 1 | Comments on manuscript<br>E-mail | 2nd external CEO |
| 45. (w 43) Oct 18 | Proofreading request[146] & update phone | 2nd external CEO |
| 46. (w 48) Oct 21 | Notes management meeting<br>E-mail | 2nd external CEO |
| 47. (w 44) Oct 27 | Agenda management meeting<br>E-mail | 2nd external CEO |
| 48. (w 45) Nov 1 | Key personnel contact request<br>E-mail | Key personnel |
| 49. (w 45) Nov 5 | 'Weekly update'<br>E-mail | 2nd external CEO |
| 50. (w 47) Nov 16 | Due diligence information<br>E-mail | 2nd external CEO |
| 51. (w 47) Nov 17 | Personal interview request | Key employee[147] |

[144] 2 of 3 founders.

[145] The recorder was out of function. The written reconstruction was made from notes and was proofread by the interviewee.

[146] Refers to a reconstructed personal interview from September 24.

| | | |
|---|---|---|
| | E-mail | |
| 52. (w 48) Nov 24[148] | **Personal interview** | 2nd external CEO |
| 53. (w 48) Nov 24 | **Personal interview** | Key employee |
| 54. (w 50) Dec 8 | **Information update** | 2nd external CEO |
| | phone | |
| 55. (w 51) Dec 13 | 'Weekly update' | 2nd external CEO |
| | E-mail | |
| 56. (w 51) Dec 16 | 'Weekly update' | 2nd external CEO |
| | E-mail | |
| 57. (w 51) Dec 16 | **Information update** | 2nd external CEO |
| | E-mail | |

**2005**

| | | |
|---|---|---|
| 58. (w 4) Jan 26 | Information and publication | 2nd external CEO |
| | E-mail | |
| | Request | phone |
| 59. (w 4) Jan 26 | **Information update** | 2nd external CEO |
| | E-mail | |
| 60. (w 4) Jan 26 | 'Weekly update' | 2nd external CEO |
| | E-mail | |
| 61. (w 4) Jan 27 | Update and publication accept | 2nd external CEO |
| | E-mail | |
| 62. (w 4) Jan 27 | Discussion about how to | 2nd external CEO |
| | E-mail | |
| 63. (w 6) Feb 8 | Clarification request | |
| | Co-founder/1st CEO, e-mail | |
| 64. (w 12) Mar 23 | **Update contact** | 2nd external CEO |
| | phone | |

**Venture documents**

| | |
|---|---|
| Notes from management group meetings, 2004-11-11 | Key employee |
| Strategic overview, 1998-2002 | Key employee |
| Business Plan, August 2001 | Key employee |
| Ppt. presentation from September 2001 | Key employee |
| Notes from board meeting, September 9, 2001 | Employee |
| Strategic business plan, Nov. 2003-May 2005 | Key employee |
| Ppt. board meeting, 2003-11-17 | Key employee |
| Ppt. presented to the board by CEO[149] | 2nd external CEO |
| Example of 'internal role uncertainty' | Employee |
| Employee policy | 2nd external CEO |
| Non Disclosure Agreement | 2nd external CEO |
| Annual reports, 2000, 2001, 2002, 2003, 2004 | |
| Follow-up contact 2005-12-20 | 2nd external CEO[150] |

**Archival data**

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[147] This key employee had promised at every observation to give an interview without fulfilling the promise.
[148] Handwritten observation notes.
[149] Including organizational overview.
[150] Confirmed that she gradually left during spring, had a 'good-bye' party in mid-May 2004, and left end of May.

| | |
|---|---|
| 1st article in Ny Teknik about the venture | 2002 |
| Press release product launches | 2004 |
| Press release about acquisition | 2004 |
| Press release about acquisition | 2005 |
| Press release about acquisition | 2005 |
| Press release about product launch from Lund | 2005 |
| Press release about product launch from Lund | 2005 |
| Press release about product launch from Lund | 2005 |
| Press release about product launch from Lund | 2005 |

# APPENDIX 5. CASE STUDY PROTOCOL – TOP SECURITY

**Case Study Period:** December 2003 – September 2005

**2003**

| | | |
|---|---|---|
| 1. (w.49) Dec 5 | **Retrospective interview** | 2nd CEO/co-founder |

**2004**

| | | |
|---|---|---|
| 2. (w 5) Jan 26 | Case study proposal | 2nd CEO/co-founder, e-mail |
| 3. (w 7) 9 feb | Response & acceptance | 2nd CEO/co-founder, e-mail |
| 4. (w 6) 9 feb | Interview booking | Key employee/co-founder, e-mail |
| 5. (w 7) 16 feb | **Personal interview** | Key employee |
| 6. (w 7) 16 feb | **Personal interview** | Key employee/co-founder |
| 7. (w 12) 17 mar | Observation request | 2nd CEO/co-founder, e-mail |
| 8. (w 14) 30 mar | Observation accept | 2nd CEO/co-founder, e-mail |
| 9. (w 14) Apr 3 | 1st Observation[151] | |
| | Weekly meeting | |
| 10 (w 14) Apr 3 | Management meeting | |
| 11 (w 19) May 5 | Observation request | 2nd CEO/co-founder, e-mail |
| 12 (w 20) May 12 | Observation request | 2nd CEO/co-founder, e-mail |
| 13 (w 22) May 25 | Observation request | 2nd CEO/co-founder, e-mail |
| 14 (w 22) May 28 | Request & response | 2nd CEO/co-founder, e-mail |
| 15 (w 23) Jun 1+2 | Confirmation | 2nd CEO/co-founder, e-mail |
| 16 (w 23) Jun 3 | **Personal interview** | 2nd CEO/co-founder, office |
| 17 (w 37) Sep 10 | 2nd Observation | |
| 18 (w 38) Sep 13 | Request & response | 2nd CEO/co-founder, e-mail |
| 19 (w 38) Sep 15 | **Personal interview** | Key employee |
| 20 (w 43) Oct 22 | 3rd Observation | |
| | Weekly meeting | |
| 21 (w 43) Oct 22 | Management meeting | |
| 22 (w 43) Oct 22 | **Personal interview[152]** | 2nd CEO/co-founder |
| 23 (w 45) Nov 8 | 4th Observation | |
| 24 (w 45) Nov 8 | **Personal interview** | Key employee |

**2005**

| | | |
|---|---|---|
| 25 (w 4) Jan 30 | Publication request | 2nd CEO/co-founder, e-mail |
| 26 (w 6) Feb 7 | Publication accept | 2nd CEO/co-founder, e-mail |
| 27 (w 6) Feb 10 | Publication details | 2nd CEO/co-founder, e-mail |
| 28 (w 16) Apr 20,22 | Observation request | 2nd CEO/co-founder, e-mail |
| 29 (w 17) Apr 29 | 4th Observation | |
| | Management meeting | |
| 30 (w 17) Apr 29 | **Personal interview** | 2nd CEO/founder |
| 31 (w 20) May 18 | Interview request | Key employee |
| | E-mail | |
| 32 (w 20) May 19 | **Personal interview** | Key employee |
| 33 (w 34) Aug 24 | Observation request | 2nd CEO/co-founder, e-mail |

[151] Informal talks with 4/6(13) (2 said they were too busy). A group of seven product developers sat closely in a room.
[152] An informal, not pre-booked, interview initiated by the CEO.

| | | |
|---|---|---|
| 34 (w 37) Sep 16, 23 | Request and accept | 2nd CEO/co-founder, e-mail |
| 35 (w 38) Sep 23 | 5th observation | |
| 36 (w 38) Sep 23 | Management meeting | |
| 37 (w 38) Sep 23 | Reflections by CEO on formalization activities | |

**Venture documents**

39 Management team, January 13, 2004
40 Roles and distribution of information, March 1, 2004
41 Responsibility and roles in the product cycle, April, 1, 2004
42 Business plan – September 2001
43 Product release schedule

**Management group meetings 2004 – agendas and notes**

44 Jan 23
45 Apr 2
46 Jun 4
47 Jun 11
48 Oct 7
49 Oct 18
50 Oct 22
51 Oct 29
52 Nov 12
53 Nov 19
54 Dec 3

**Management group meetings 2005 – agendas and notes**

55 Jan 28
56 Feb 4
57 Apr 1
58 Apr 8
59 Apr 15
60 Apr 22
61 Apr 29
62 May 26
63 Jun 3
64 Jun 10
65 Jun 13
66 Jun 17
67 Sep 9
68 Sep 23

**Archival data**

Annual reports: 2000, 2002, 2004, 2005
Article in Ny Teknik
Advertisement leaf
Article in the daily Swedish Press
About one co-founder that had left
Advertisement brochure (June 1, 2005)
Product Description, Management Extension Service

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