



# The Fountainhead of Innovation Health

A CONCEPTUALIZATION & INVESTIGATION

**Charlotte Glassér**



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Charlotte Glassér



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To

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of their extraordinary leadership qualities, care of fellow  
human beings, personhood and friendship





# Preface

This report is a result of research carried out within the Fenix project, a PhD educational program in cooperation between the Stockholm School of Economics and Chalmers University of Technology, Gothenburg.

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

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Stockholm, May 6, 2010

Richard Wahlund  
Professor  
Head of the Department of Marketing and Strategy  
Stockholm School of Economics



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*We shall not cease from exploration  
And the end of our exploring  
Will be to arrive where we started  
And know the place for the first time<sup>1</sup>.*

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Stockholm June 19, 2010

In Laudem Glorïae,  
Charlotte Josephine Glassér

<sup>1</sup> T.S Eliot



# Table of Contents

Preface	7
Acknowledgements	9
Table of Contents	13
1. Introduction	17
1.1 The link between Early Childhood Developmental Health (ECD), human lifetime developmental trajectories and the Knowledge and Innovation movement	19
2. Inequality & Human Development – a brief overview	27
3. Conceptualizing & Defining Innovation Health	33
3.1 The Philosophical and Ontological underpinnings of Innovation Health	39
3.2 Innovation Health & Human Beings	42
3.3 Innovation Health, Institutional Settings, Economic Growth and Corporate Profitability	46
3.4 Innovation Health and human developmental trajectories	48
4. Innovation Health – A Summary of Theoretical and Empirical Contributions, Treatises 1–4	50
Treatise 1: The Fountainhead of Innovation Health – a Conceptualization & Investigation	50
Treatise 2: Creativity, Innovation & Regions	53
Treatise 3: Human Beings, Situational Space & Developmental Health	55
Treatise 4: Organizations, Innovations & Human Beings	58
5. Innovation Health and the Knowledge & Innovation Movements	60
5.1 Schumpeterian Endogenous Growth models	62
5.2 Economics of Human Development or Technologies of Skill Formation	63
5.3 The System of Innovation Approach	63
5.4 The Knowing & Innovating Firm – towards an extended view and emerging theory	67





6. Future research	67
7. In closing	70
8. References	72
9. Endnotes	87
10. Appendices Treatise 2–4	93
Treatise 2: Creativity, Innovation & Regions	95
<b>Study I:</b> The Knowing & Creating Region – with Foundations for Innovation, Enterprise and Growth (Glassér 2003)	97
<b>Study II:</b> Creativity and Regional Prosperity – a critical study of Florida’s Creative Capital Theory (Glassér 2004)	119
Treatise 3: Human Beings, Situational Space & Developmental Health	145
<b>Study III:</b> A collaborative research effort to bridge boundaries and support deviant youths in contemporary welfare systems (Adler, Glassér & af Klinteberg 2005)	147
<b>Study IV:</b> Governing the Knowing & Innovation Space – a Situational Study at the ‘Demographic Bottom of the Pyramid’ (Glassér 2006/ 2009)	161
Treatise 4: Organizations, Innovations & Human Beings	199
<b>Study V:</b> Organizations, Innovations & Human Beings, (Glassér 2006/2009)	201
<b>Study VI:</b> Prototyping the Knowing & Innovating Theory of the Firm, including an appended Case of Corporate Nation and Innovation Health (Glassér Spring 2010)	255



Earth Bubbles

# 1. Introduction

In an increasingly global and competitive world, companies, industries, regions and nations strive to enhance and improve prospects and conditions of societal development and economic growth. The OECD, European Community member states, China and the World Bank are examples of countries and institutions that, since the beginning of the 1990s, have intensified their focus on knowledge production and innovations as key developmental dynamics. Knowledge production and innovations are claimed to be fundamentally interlinked with the quality of human skills, capabilities and entrepreneurial actions fostered and governed by favourable and co-determining institutional settings (Metcalf 2006 a, b; North 2005; Sen 1999; Zander 1991, pp. 64-68). At the same time, serious concerns are being raised in relation to the sustainability of current global developments, growth policies and financial market regimes (Earthscan 2010), losses of low-skilled labour market opportunities in the US and Europe, and increasing focus on investments in the BRIC economies.

This thesis addresses the convergence between several strings of currently emerging research, in the quest for a better understanding of the co-dependence and co-evolution of the human being and her ability to innovate and provide products and services through competitive and long-term sustainable firms. In the seminal work “Developmental Health and the Wealth of Nations” by Keating & Hertzman (1999), four key dynamics and interrelated conditions are identified as impacting on human development, capability formation and societal progress. They are claimed not to be fully acknowledged in organizational studies, innovation research and growth models, and are listed as: (a) the developmental health of populations; (b) the biological embedding of early human experiences contributing to developmental health; (c) the nature of human social organization, structuring the ways in which support of developmental health is maintained, renewed, and distributed; and (d) the specific processes of community, family, and other societal networks (firms and organizations) that shape the contexts in which human development actually transpires (Keating 1999, p. 338). These four dynamics rest on the key argument that the origins of human developmental differences can to a great extent be

attributed to effects of early childhood experiences, as they sculpt genetic dispositions in different aspects of human functioning, or the human being's "biological embedding" (ibid. p. 337; see further Foresight 2008; Le Doux 2002; LeDoux et al. 2003; WHO 2007 a, b). Developmental health can be measured by examination of the socioeconomic gradient (Hertzman 1999, pp. 21-40). In this thesis, the introduction and development of the concepts "Innovation Health" and "Systems of Innovation Health" aim at capturing these human developmental conditions, to the extent that they are relevant for economic change, an extended sustainable view or theory of the firm, and the generation of firms' competitive advantage through knowledge generation and innovation.

In the following thesis introduction, the concept of Innovation Health is defined and investigated:

First, the notation of Innovation Health covers the hitherto rather unexplored link between the research fields of Early Childhood Development (WHO 2007 a, b), its impact on the life-spanning developmental possibilities and trajectories of the human being and the "Knowledge & Innovation research movements" (see Eisenhart & Santos 2002). Consequences of an improved understanding of Innovation Health for the further development of innovation research and the knowledge-based view of the firm are discussed. Specifically, the aim is to improve the understanding of micro-level determinants of the most cited version of the knowledge-based view of the firm, delineated by Kogut and Zander (1992, 1993, 1996); Zander & Kogut (1995) as initiated by Zander (1991) and further developed by Zander & Zander (2005). In this thesis, I would like to suggest an extended view or emerging theory of the "Knowing and Innovating Firm".

Second, emerging dramatic shifts in global, demographic trends and skill formation that I have conceived as Innovation Health are analyzed in relation to potential business development, sustainability and potential firm strategy.

An explorative, sequential and transformative research design (Creswell 2003), also known as a mixed-method design (Creswell 2003; Creswell & Plano Clark 2007; Tashakkori & Teddlie 2003), has been used throughout this research project. Transformative research design applies a "theoretical lens as an overarching perspective within a design that contains both quantitative and qualitative data. This lens provides a framework for

topics of interest, methods for collecting data, and outcomes or changes anticipated by the study. Within this research lens there could be a data collection method that involves a sequential or concurrent approach” (Crestwell 2003:16, 216-217; see also Green & Carachelli 1997). The theoretical lens provided in this research design consists of innovations and their interrelatedness to the skills<sup>i</sup> and capabilities of the human being in their realization. With our definition of innovations below, this lens further provides a direct connection between the human being and the knowledge- and innovation-based firm entity, as well as the institutional settings “Systems of Innovation Health”, which condition and generates “Innovation Health”. By the end of this research effort, it is possible to acknowledge that the theories of Innovation Health, System of Innovation Health Approach and the potentially emerging “Knowing and Innovating Theory of the Firm”, converge towards the notations and constructs of “Knowing and Becoming” (Polanyi 1969; Stein ([1922] 2000). The key understanding is that the ability to create and adapt to new understandings and scientific evidence is at the core of our entire research effort. “Adapting to new knowledge” (WP Glassér 2005<sup>ii</sup>), was also the initial title of this research effort. This research proposal and plan has now been pursued in the next step in an effort to enhance our understanding of the emerging research field of Innovation Health while it is still in its infancy. The method used in the studies undertaken in this exploratory and abductive research project is a combination of qualitative and quantitative research design (Wachs 1999; Sen 2004). I have made an effort of applying a broad interdisciplinary approach to the developing research field of Innovation Health and its double meaning, with the ambition of creating a theoretical framework and empirical evidence. The research effort is positioned in the intersection of traditional international business and innovation research in management science, organizational economics and growth theories, and also bordering to traditional finance theory of the firm.

### **1.1 The link between Early Childhood Developmental Health (ECD), human lifetime developmental trajectories and the Knowledge and Innovation movement**

In the “knowledge movement<sup>iii</sup>” (Eisenhardt & Santos 2002), firm competitiveness and strategic advantage rest on the foundations of superior knowledge creation (including R&D) and long-term, commercially

successful recombination capabilities of existing knowledge – also termed innovations (Kougut & Zander 1992, 1993, 1996; Zander & Kogut 1995; Zander & Zander 2005). The “knowledge movement” in parallel with Schumpeterian endogenous growth models<sup>iv</sup> has evolved over the past 15 years and is an important, influential theoretical and empirical contribution in organizational, firm and strategy research (Foss 2009), spurred by the seminal contributions of Rodgers (1962); Nelson & Winter (1982); Kogut & Zander (1992, 1993, 1996); Zander & Kogut (1995), as well as in evolving models of growth theories López-Casasnovas et al. (2005)<sup>v</sup>.

Extensive efforts have been made to investigate determinants, sources and processes of knowledge and innovation. The “innovation-movement” discourse, partly overlapping with the “knowledge-movement” and Schumpeterian endogenous growth models, has recently been dominated by the systems of innovation approach (SI) (Breschi & Malerba 1997; Carlson 1995; Freeman 1987, 2002; Edquist 1997, 2005; Lundvall 1992; Nelson 1993, 2002; Nelson & Rosenberg 1993). The systems of innovation approach (SI) has, with its pros and cons, became the dominant OECD and European member states framework for addressing competitiveness, growth of clusters, development of industrial dynamics, and corporate success. The systems of innovation approach is a fairly modern analytical framework, designed in order to consider **all** important factors which play a possible part in shaping and influencing innovation processes. In SI approaches, technological change and innovation are seen as the primary and most important sources of economic growth (Edquist 1997). There are several definitions of a system of innovation. However, they are all broad and provide “*no sharp guide*” to what exactly should be included in the innovation system and what could possibly be left out (Edquist 1997, 2005; Nelson & Rosenberg 1993, p. 5-6). “*Systems of innovation may be supra-national, national or sub-national (regional or local) – and at the same time they may be sectoral, within any of these geographical demarcations*” (Edquist 1997, p. 14). The characteristics, attractiveness and importance of SI approaches are well addressed in a string of articles (see Edquist 1997, 2005; Carlsson & Jacobsson 1997; Fischer et al. 2001; Malerba 2003; Nelson 1992; Nosi et al. 1993). Organizations, firms and institutions are identified as the main components in a system of innovation. Key driving forces and activities are considered to be processes of learning, knowledge creation and adaptation, generating different kinds of innovations. As already stressed, these activities are fundamentally dependent on the quality of human skills and capabilities. Surprisingly, the human being and

her entrepreneurial actions have thus far been implicit or even invisible in the SI approaches. It has been suggested that in further SI approaches research more attention should be paid to clarifications of key concepts, and increased efforts should be made to study learning and knowledge infrastructures in a broader societal context (Edquist 2005, pp. 202-203). More specifically, a higher focus on an enhanced understanding of three distinctions in learning and their possible systematic interrelatedness, importance and impact is advocated, covering not only innovations but also R&D, competence building, and enhancement of the human capital in formal education and on-the-job training (Edquist 2005). The outcome would be a new theoretical framework of “systems of knowledge, innovation and entrepreneurship”. In this thesis I will argue for the adoption of an alternative framework of “Systems of Innovation Health”. It should be noted that the “Systems of Innovation Health” approach, is a broader context for addressing the “nature of human social organization, structuring the ways in which support of developmental health is maintained, renewed, and distributed” in a society (Keating 1999 p. 38; see also Keating & Hertzman 1999; Gatti & Boggio 2009), than contemporary studies on medical and health innovation systems and topics addressing specific innovations in the healthcare sector (see Christensen, Grossman & Hwang 2009).

Recent Schumpeterian endogenous growth models articulate the importance of “health” issues in relation to economic growth and societal development. The following health-related dynamics are claimed to contribute to a country’s long-term relative technological and innovation capacity, determining the region’s or nation’s relative growth positioning: (a) increased productive efficiency, (b) longer life expectancy, (c) higher learning capability, (d) increased levels of creativity, (e) enhanced coping skills and (f) reduced inequality (Howitt 2005, pp.29–37). Further, Howitt argues that “the main effects that the Schumpeterian growth models bring out and that were not present in either neoclassical growth theory or the earlier ‘AK’ versions of endogenous growth theory (Romer 1986, 1987; Lucas 1988; Rebelo 1991) are those that work through the equilibrium rate of innovation” (Howitt, p. 37). Further, Howitt claims that “the effects on creativity and coping skills are specially important, in this respect, Schumpeterian theory<sup>vi</sup> underscores the importance of recent research<sup>vii</sup> showing the beneficial effects that early childhood health and maternal [family] health have on these critical dimensions of human capital”<sup>viii</sup> (ibid., p. 37). In a recent string of research<sup>ix</sup> labelled “Economics of Human Development” or “Technologies of Skill

Formation”, Cunha & Heckman (2007) and Heckman (2007) suggest that traditional measures of skill development should be complemented by studies of human abilities (cognitive and non-cognitive) and health capacities (both physical and mental). The importance and impact of early childhood development in founding the human being’s lifetime developmental skills and capabilities are also acknowledged (Cunha & Heckman 2007; Heckman 2007; see also Knudsen et al. 2006).

The formation and leverage of human beings’ individual skills and collective capabilities have received expanding attention in firm, cluster and industry investigations as well as in contemporary growth theories. Recently, and despite the augmenting attention, these profuse strings of knowledge- and innovation-based research have been thoroughly criticized for their lack of explanatory “micro-foundations”. Common terms and constructs previously used in defining resource-, evolution- and knowledge-based theories of the firm are questioned (Felin & Foss 2005; Felin & Hesterly 2007; Gavetti 2005). What do meso-level, industry and firm theory constructs like “routines, skills, capabilities, rigidities, dynamic capabilities, absorptive capacity, and tacit knowledge” contain? Are they only residuals of yet unknown conditions and real content? Nicolai Foss argues:

In terms of its implications for the knowledge research lens, such an emphasis on micro foundations means at least two things: First, firm-level constructs such as capabilities must be rooted in assumptions about individuals and their interaction; second, the impact of these constructs on firm-level outcomes must be shown to be mediated by individuals and their interaction (Abell, Felin & Foss 2008). However, [...] most work so far has been content with pointing out the need rather than showing in the concrete what micro foundations may look like (Foss 2009, p.3).

Extant research in the fields of knowledge-based views of the firm and strategic advantage, endogenous growth, evolutionary theories and human capital movements is generally analogous to attempts at measuring the fumes coming out of a car. I perceive and observe generated knowledge, innovations and strategic long-term advantage of certain firms, regions and nations. But few care to open the “hood” of the car and examine the engine and technology at hand in determining where the fumes at the rear come from and how they can be influenced and altered – i.e. what the micro-foundations of knowledge generation, adaptation and innovations of firms are and where they derive from.



## The Research Process & Thesis Synthesis

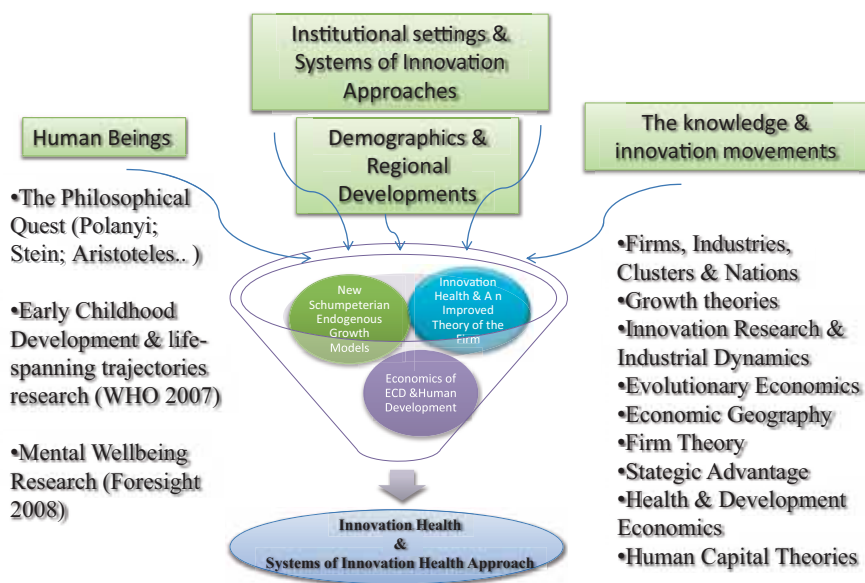


Fig. 1. The research process and an emerging new theory of Innovation Health.

The answers to the continued quest for better understanding of micro-foundational content are now increasingly being sought on an interdisciplinary scale (Keating & Hertzman 1999; Morsella 2009). In the following, I suggest the possibility of finding better answers to these questions by integration of the emergent findings of Developmental Health (DH) and particularly the growing body of research advancing our understanding of Early Childhood Developmental Health (ECD), in conditioning life-spanning human skill and capability formation (Bronfenbrenner & Morris 1998; Caneiro et al. 2003; Fox et al. 2007; Gluckman & Hanson 2006; Foresight 2008; Keating & Hertzman 1999; Shonkoff & Phillips 2000; The World Bank 2006, Ch. 7; WHO 2007 a, b). In established ECD (WHO 2007 a, b) and mental well-being research (Foresight 2008; LeDoux 2002; LeDoux et al. 2003), it is a common understanding that the human developmental process in prenatal, infant and early childhood stages of life establishes the foundation of the individual's future possibilities of successfully undergoing vocational training or entering and completing formal second- and third-level education. As stated by the

WHO: *“the environmental conditions to which children are exposed in the earliest years of development are consequential over the entire life course”* (WHO 2007 a, pp. 12). Further, competitively participating in the labour force may have an impact on firm innovation, competitiveness and success. Evidence for the importance of early formational impact of the environment on a range of health, behavioural and labour market outcomes in adult life indicates that common developmental processes are at work (Friedman & Wachs 1999; Knudsen et al. 2006; Mustard 2006). The WHO (2007 a, b) has delineated a “Total Environmental Assessment Model of Early Childhood (TEAM-ECD)”. In this research project I have chosen their framework as the key reference, for the current best understanding of ECD research and its impact, as it builds on a synthesis of a wide body of interdisciplinary evidence and on previous models and understanding of ECD central in my studies. The period of childhood is defined differently in different theoretical frameworks and policy documents. In the TEAM-ECD model and reports, childhood is defined as the period from conception to eight years age. In my research I have chosen a more fluid and transcending age span in defining the early childhood period (Fig. 1 below) The sources of WHO’s TEAM-ECD model are Bronfenbrenner’s bio-ecological model (1979, 1986); developmental psychology perspectives by Brokks-Gunn, Duncan & Maritato (1997); notations of biological embedding by Hertzman (1999a); frameworks of social epidemiology and social determinants of health by Dalgren & Whitehead (1991) and Emmons (2003); and research regarding social relations in human society by Putnam (2000) and Weber (1946); and further, they have reviewed and used literature on political economy by Siddiqi, Irwin & Hertzman (2007) and WHO’s Framework on Social Determinants of Health as discussed by Solari & Irwin (2005), (WHO 2007 b, pp. 16-17, see also WHO 2007 a, pp. 1-17; for introduction to the TEAM-ECD model). Three primary principles are at the core of the TEAM-ECD model (WHO 2007 a, p. 15):

1. Early Childhood Development – physical, socio/ emotional, and linguistic/ cognitive – is the result of interactions between children’s biological factors and the environment in which children are embedded.<sup>x</sup>
2. Successful ECD occurs when environmental conditions – physical, social, and economic – demonstrate characteristics that are known to be ‘nurturant’ for children.
3. Using an equity-based approach<sup>xi</sup> to provide ‘nurturant’ environments for all children will lead to equity of Early Childhood Development and equity in well-being throughout the life course.

WHO claims that its research findings and the TEAM-ECD model have universal and global applicability. However, the value of local knowledge in human development should not be underestimated or ignored, according to the report. WHO also regrettably acknowledges that the TEAM-ECD model still is suffering from the conditions of unbalanced information in research sources from resource-rich countries and that further evidence on the general applicability and relevance of the model in resource-poor countries, and local environments also in the OECD is urgently needed (ibid p. 14). An emerging string of research in economics (Cuhna & Heckman 2007; Knudsen et al. 2006; Heckman 2007), new endogenous growth models (Howitt 2005) and management science (Adler, Glassér, Klinteberg 2005) examines and acknowledges key findings of the cross-disciplinary research on ECD and mental well-being. This thesis is an attempt to treat these issues in the context of innovation, organizational and firm research, and to embed them in a broader framing of economic change processes and societal development.

I argue that if human skills, capability and entrepreneurial action contribute to corporate strategic advantage and sustained development, then these capacities can only be derived from the human being's constitutional and embodied faculties of (a) physical and motor skills, (b) cognitive and language skills, (c) social and emotional skills, and (d) individuality, executive functioning, motivation and personhood (Stein<sup>xiii</sup> [1922] 2000; WHO 2007 a, b). They are founded at conception and developed through the embryonic and early childhood stages, in an interdependent and dynamic process moulding genetic disposition and environmental impact (LeDoux 2002; LeDoux et al. 2003). Further, they are leveraged or de-leveraged over the life-span of the individual. Interdependent, human and firm institutional settings, and formational environmental dynamics on the micro-, meso- and macro-levels, also have to be taken into consideration (for discussions see Berger & Luckman 1966; DiMaggio & Powell 1983; Metcalfe 2006a and 2006b; North 2005; Ostrom et al. 1993<sup>xiii</sup>, 2005; Stein 2007). Evidently, human beings' as well as firms' skills and capabilities of learning, knowledge creation and innovative action are highly differentiated in time, space, and between as well as within diverse geographic, organizational and institutional settings, steaming from differentiated ECD conditions (WHO 2007 a, b).

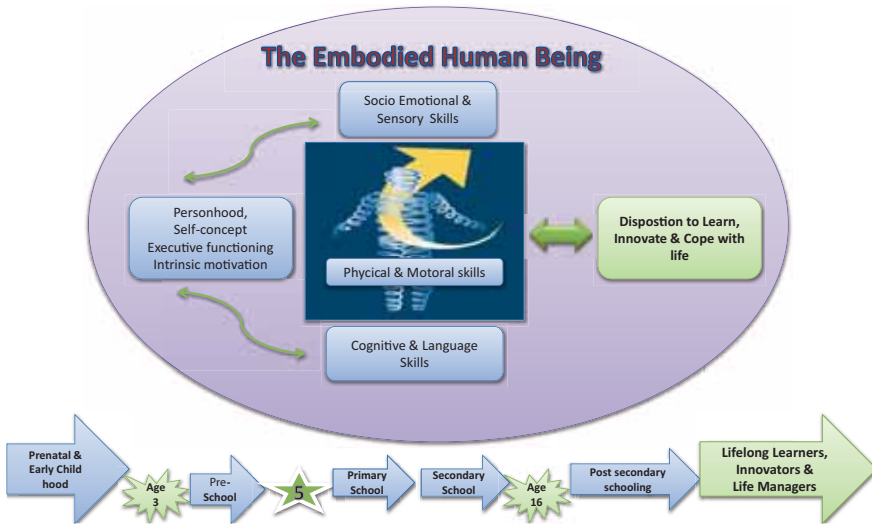


Fig. 2. Interrelated dimensions of the developing human being.

My proposition is that current and future competitive advantages of firms depend on their ability to: (a) attract and organize the most qualified workers, specialists, managers, directors, executives, board members and owners; (b) integrate the firm in competitive and complementary networks of vertical and horizontal industry cooperation (outsourcing, suppliers, distributors, etc.); (c) innovate, develop, adapt and position the services and products of the firm in existing leading customer markets as well as in the development of new emerging markets (Prahalad 2004, 2009; Prahalad & Krishnan 2008; Sirkin et al., June 2008; Teece, D. 2009). This argument rests on Penrose's (1959) classical work on the growth of the firm, her case study of "Hercules Powder Company" and the formulation of the "inside track" concept, as discussed by Zander & Zander (2005). Further, an extension of the notations of the "inside track" and "systemic combinative capabilities" (Zander & Zander 2005, p. 1534) of the firm is made, not only addressing the opportunities and advantages arising in the firm's client relationships (Penrose 1959; Zander & Zander 2005), but rather focusing on leverages and optimizations of the firm's entire horizontal and vertical value-chain integration or disintegration (outsourcing), giving rise to an altered View of the Knowing & Innovating Firm. I will also argue that not only "micro-foundations" of firm theory need to be empirically anchored and better understood. A philosophical underpinning and ontology needs

to be established as well that allows a consistent analysis and discussion of determinants and interdependences between institutional settings on the macro-level, industry and firms' existence and operations on the meso-level, and human beings' on the micro-level. In this research project, Stein's ([1917] 1989, [1922] 2000) philosophical and ontological principles of human beings, associations and communities are introduced, explored and deployed with the aim of further developing existing theories and views of the firm.

A key condition for firm competitive advantage and sustainable long-term development is claimed to be the "Innovation Health" of human beings and entire populations, enabling human knowledge creation, adaptation, creativity, innovation and entrepreneurial actions, elaborated from the pioneering works of Keating & Hertzman (1999), WHO (2007 a, b), Penrose (1959); Nelson & Winter (1982); Kogut & Zander (1992, 1993, 1996); Zander & Kogut 1995; Zander (1991) and Zander & Zander (2005).

## **2. Inequality & Human Development – a brief overview**

It is often perceived that lack of basic human skills and capabilities is a Third World phenomenon. This is a delusive view; it is a common problem in the OECD countries as well as in all other regions of the world. Let us just look at an illustration of the skewed distribution of literacy skills within some countries in the OECD:

Country	Levels 1 & 2	Levels 4 & 5
Sweden	23%	34%
Canada	42%	23%
Australia	43%	17%
United States	48%	18%
Chile	85%	3%
Mexico	84%	1.7%

**Table 1. Document literacy, Ages 16 to 65**

(5= full proficiency of language, 1= elementary command of language. Source: Second OECD report on literacy, 2002, 2005, adapted from Mustard 2006).

The concern about lack of skills in mathematics in the US and the OECD has recently been expressed in an editorial in *Science*<sup>xiv</sup> by Augustin, emphasizing that this is not only a concern of the developing world problem:

More than half of the increase in U.S. gross domestic production (GDP) has been attributed to advancements in science, technology and innovation. The solution to many of America's, and the world's, greatest challenges depends on advancements in science and technology – improving the global standard of living. But there are a few problems. The United States ranks 16<sup>th</sup> and 20<sup>th</sup> among nations in college and high-school graduation rates; respectively 60<sup>th</sup> in the proportion of college graduates receiving natural science and engineering degrees. [...] The number of U.S. citizens receiving Ph. D. degrees in engineering and physical science has dropped by 22% in a decade. U.S. high school students rank near the bottom in math and science.

Further, it is a common misconception that countries having reached a high level of developmental health and well-being of their populations, and hence derived economic prosperity from corporate successes, will remain in this position. This faulty conception is currently being experienced in the US, emphasizing that it is not just the developing world's concern, but rather a consequence of impoverished human developmental conditions and lack of nurturing, particularly in the ECD period of life. The US and its institutions and companies are felt by influential scholars to be rapidly losing competitive and strategic edge in the world (American National Academy of Science 2007<sup>xv</sup>; Florida 2005; J. Kao 2007; Snowdon, B. & Stonehouse, G. 2006; Sirkin et al. 2008).

At the same time, a number of investment climate surveys indicate that more than a fifth of all firms in developing countries rate inadequate skills and education of workers as a major obstacle to corporate development and expansion (World Bank 2006; Sirkin et al., pp. 85-109). As pointed out by the World Bank, this concern about the quality and relevance of basic training is emphasized at this particular point in time, when demand for advanced skills and problem-solving abilities has reached a critical level for many industries. Yet, and regrettably, global society is still losing tremendous resources of human skills and capabilities also in developing countries (Prahalad 2009). Exploiting young children as well as adults in the manufacturing of commodities, despite the perceived global deficit of human talent, skills and capabilities, is certainly nothing new, but only by considering the number of children occupied in child labour can we start to comprehend the magnitude and potential of the issue. Figures provided by the International Labor Organization (2002) have estimated that 246 million children participate in child labour. This number *“excludes the activities of children 12 years and older who are working only a few hours a week in permitted light work, and those of children 15 years and above whose work is not classified as ‘hazardous’”*. It is estimated that 171 million child labourers are working under “hazardous” conditions. By region, the figures are as follows: Asia-Pacific, 127.3 million; Sub-Saharan Africa, 48 million; Latin America & the Caribbean, 17.4 million; the numbers of boys and girls are approximately equal. In the world, 599 million children under the age of 5 are estimated to live in developing countries, 200 million of them being at severe risk of socio-emotional and cognitive developmental impairment. Approximately 50% of these children live in ten countries: India, Nigeria, China, Ethiopia, Indonesia, Pakistan, Democratic Republic of Congo, Uganda and Tanzania (WHO 2007 a, b).

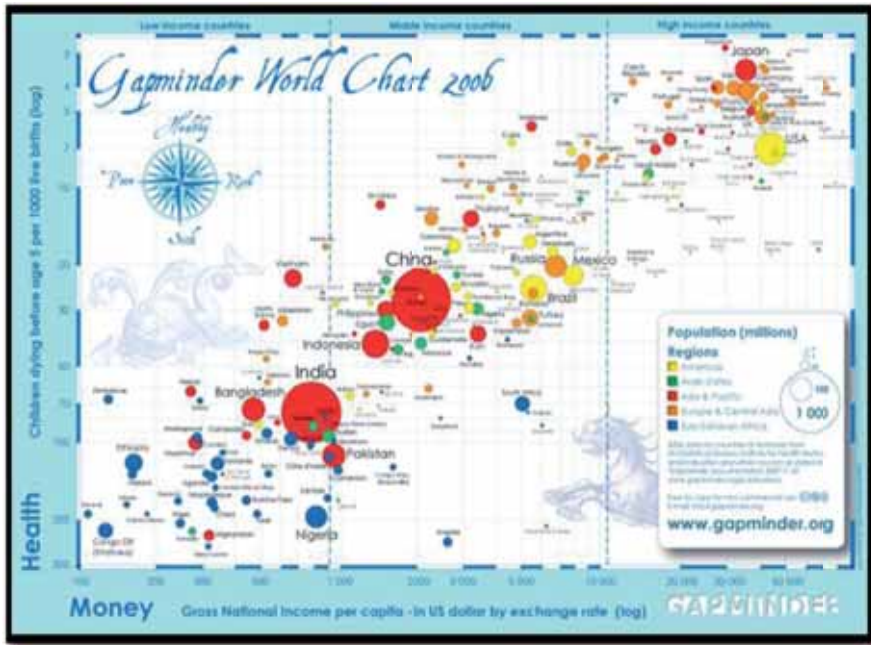


Fig. 3. Gapminder World Chart, 2006 ([www.gapminder.org](http://www.gapminder.org))

Digesting the rapid and dramatic changes over the past 30 years in health and income between the regions of the world (Rosling)<sup>xvi</sup>, it can be concluded that countries and regions which have invested in human development and capability expansion are beneficiaries of more advanced competitive positioning in the world economy – for example Japan, Korea, Thailand, and Singapore. It is also evident that the Sub-Saharan region has lost a competitive edge even further through lack of investments in human development and capability, having seen its economic output plummeting to one fifth of the 1970 level (ul Haq 1995; UN Human Development Report 1992). In Figure 4 below, taxonomy has been put in place to describe the different stages of development that a nation has been placed in historically, according to some different research traditions.



**Time Period      Taxonomy of Countries into named groups**

(adapted from Lindstrande et al. 2007)

Early Historic	Empires and Babarians
Colonial	Colonial Powers & Colonies
1946–1960	Developed and Underdeveloped
1960–1990	Industrial and Developing
1975–	North and South
1946–	First-, Second-, Third-World
1983–	Industrialized, Newly industrialized, Developing and Least Developed
1990–2010	High-income countries, Middle-income Countries and Low-Income Countries
2010–	Innovation Healthy Regions & Societies and Others Sub categories (see Fig 14): Leading Edge, Challengers, Reformers? and Disaster Districts of the World

**Fig. 4. Taxonomy of nations based on their level of “development”.**

However, over the past five years some noteworthy changes have also taken place in the least fortunate and developed parts of the world, documented by Prahalad and his research team in “The Fortune at the bottom of the pyramid, eradicating poverty through profits” (Prahalad 2004, 2009). This phenomenon was addressed already in 1993/2004 and phrased in the following way by Huq in the 1992 UN Human Development report: “It does not take a genius to figure out that the ongoing, rapid structural adjustments in the South and in the former socialist block have a logical corollary in the North. Yet, this simple truth is being largely ignored – sometimes bitterly contested. Buffeted by recession and unemployment, many northern economies are unprepared to invest in changing their production and job structures, not recognizing that their lack of adjustment will greatly frustrate the liberal market experiments they are so actively encouraging all over the world.” (ul Haq 1995, p. 25). The statement even seems to be addressing the currently ongoing global financial, industrial turmoil and dramatic global restructuring of economies, industries and companies in 2008–2010.

On a global scale, the prospects and conceived developmental conditions of knowledge production, adaptation, innovation, and wealth creation have been discussed and analyzed in two consecutive World Development Reports (2005, 2006). The issue is also addressed annually by the World Economic Forum in its “Global Competitiveness Report”. The World Development Report 2007 (World Bank 2006) gives a thorough overview of current global demographic changes and challenges. There is a demographic “youth bulge” in the global population: approximately 1.5 billion people 12 to 24 years old, the coming generation of social and economic actors. In developing countries, this is probably the largest number of youth that there is ever likely to be, due to falling fertility rates. The number aged 12-24 is expected to increase slightly and reach a plateau in 2035 of 1.5 billion, of which 1.3 billion will be found in 3<sup>rd</sup>- and 4<sup>th</sup>-world countries. One can ask whether these global economic, structural and demographic changes will yield a development in which well-educated, innovative and entrepreneurial human beings are in short global supply, or a dynamic and expandable resource advanced by effective implementation of leading-edge understanding of Innovation Health.

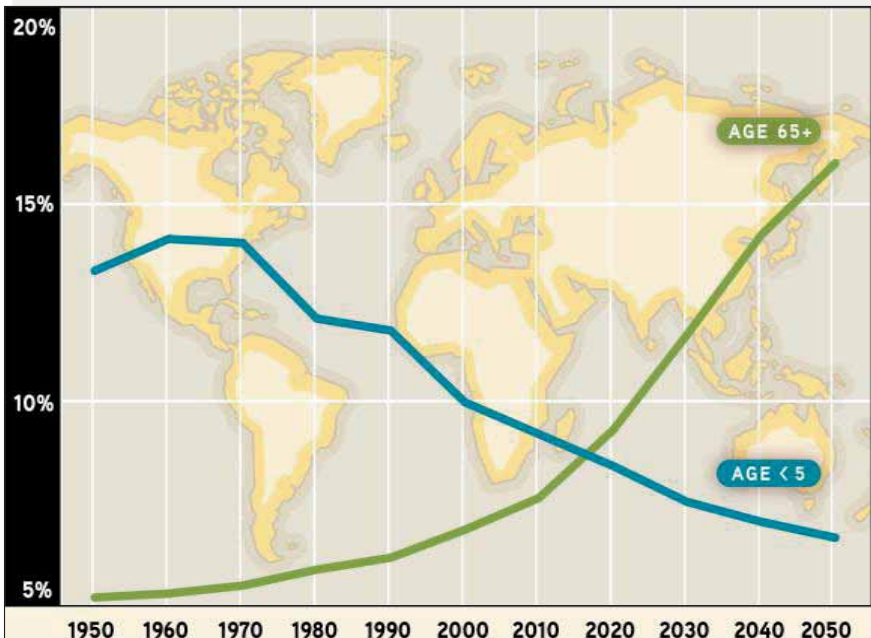


Fig. 5. Global demographic transitions (Source: World Bank 2006 Report)

These dramatically changing demographics are due to differing rates of decline in population growth and age diversity, manifested in different time spans and trends, in distinct regions and countries across the world, creating different “windows of opportunity” and distinct regional differences and trends. However, in most developing countries the youth population will have peaked in ten years’ time. Many of these young people in developing countries are healthier and better educated than ever before. At the same time, concerns are raised of worsening health and lower basic primary school achievement in developed OECD countries. Changing global demographics create social, fiscal and economic challenges, risks and opportunities (World Bank 2006). Still, many questions need to be answered in managing these challenges on a global scale, such as: Why does illiteracy seem so persistent when primary school rates have gone up so dramatically? Why do large numbers of university graduates go jobless for long periods of time, while businesses complain of the lack of skilled workers? From the aggregated empirical evidence and introduction above, it can be concluded that human beings’ potential skills and capabilities of learning, knowledge creation and innovative actions are highly differentiated in time and space, and between as well as within diverse geographic and organizational settings. Individual differences in human skill and capability development open up in early life stages and remain over the life cycle (Caneiro et al. 2003; Cuhna & Heckman 2007; Foresight 2008; Heckman 2007; WHO 2007 a, b). This recent evidence has yet to be acknowledged and incorporated in theories of and research on firms and their sustained competitiveness. In this thesis, I approach these challenges through the following conceptualization and investigation of what will become known as “Innovation Health” and “System of Innovation Health Approach”.

### **3. Conceptualizing & Defining Innovation Health**

Knowledge generation, adaptation and innovations are visible evolutionary signs in time and space of human beings in action, individually, in association and in community. The term “Innovation Health” acknowledges and delineates the interdependence and co-evolution of human developmental

well-being, over the life-span of the individual as well as in populations, with the development and conduct of knowledge- and innovation-based enterprise.

At the core of my research endeavour I am searching for a combined model integrating the understandings of human life-spanning development of WHO's Total Environmental Assessment Model of Early Childhood Development (TEAM-ECD), briefly introduced in Figure 6 and the traditional models used by the Systems of Innovation approach.

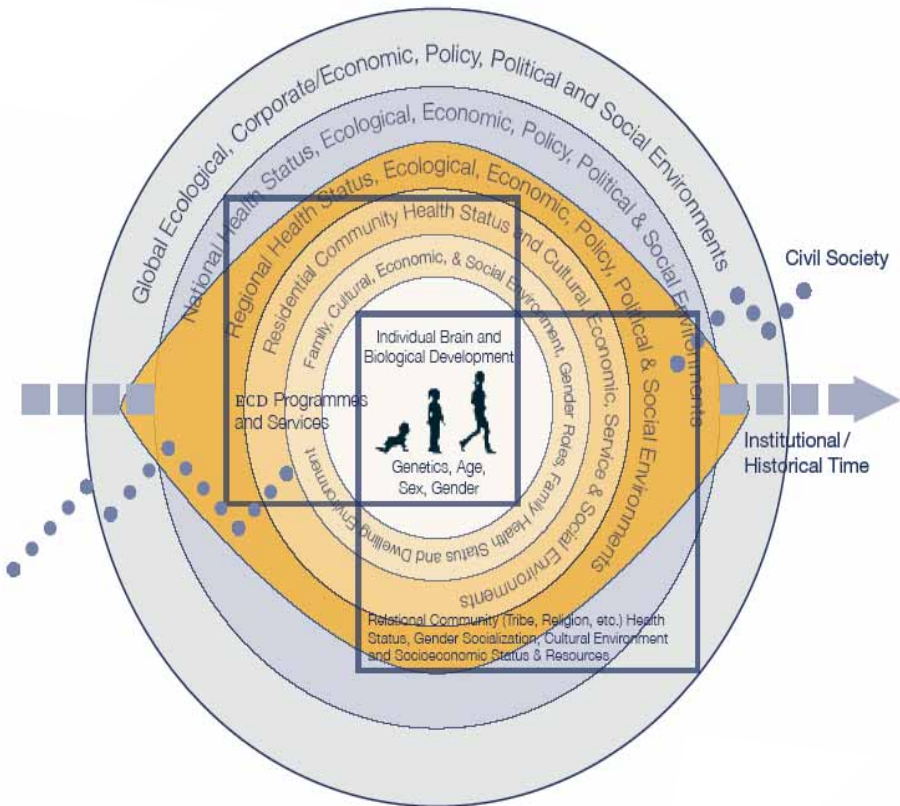


Fig 6: TEAM- ECD (adapted from WHO 2007 a, b)

As discussed initially, it is noteworthy that the human being is completely invisible in the theoretical framework and research of SI approaches. For an illustrative example, consider the human being replaced by a mobile phone in the centre of the TEAM-ECD model in Figure 7. It seems that we have difficulty in understanding the human being as the developer and producer as well as the simultaneous user of, in our example, the Telephone System of Innovation. I would argue that they are two sides of the same token and inseparable from each other, following our definition of “Innovation Health”.



Fig. 7: The Telephone System of Innovation

Let us consider yet another example. Few would think that the most crucial explanatory factors in finding individuals capable of (a) successfully reaching and undertaking pilot training, (b) the development and operation of the innovative technology of the air carrier, and development and operation of the necessary advanced technological support system and organization, are to be found in the *in utero* environment and in the nurturing of a newborn baby and toddler. Most countries in the world, through the course of human history, have spent considerable resources on developing and deploying their military forces. “*Keeping a pilot in the air requires an extensive and well-organized support network. A pilot is a rare individual, with extraordinary personal traits. The selection process is thorough, throughout training and service. The pilot has been tested, educated and extensively trained for the profession [...] The cost of training and educating one pilot is approximately 1.2 million Euros and the cost for 1 hour in the air approximately 5000 Euros. A modern combat carrier costs 25-50 million Euros and a substantial societal investment will be lost if the plane crashes*” (Adler, Glassér, Klinteberg 2005, p.1). The efforts and priorities of making infants survive their first five years of life and enabling them to develop Innovation Health are of lower priority in most parts of the world, despite our increasing understanding and evidence of the importance of ECD and its impact on the possible future developmental trajectories of the region and its enterprise sector.<sup>xvii</sup>



Fig. 8. A baby and a pilot (Adler, Glassér, af Klinteberg 2005, p.1)

In our two examples above we can perceive the importance of well-educated engineers and mathematically apt human individuals in developing and operating an airbase system as well as a telecommunication network, in agreement with Dodgson et al. (2005): *“Skills in mathematics often lie at the heart of these forms of analyses [the strategic management of innovation] and interpretations”*. Mathematical skills are understood to be grounded in the ECD period of life (Mustard, 2006; Case 1991; Case et al.1999; Fuchs & Reklis 1994; Lee & Burkham 2002). It is fairly easy to comprehend, and consistent with Heckman’s model (2007), how this initially acquired logical and mathematical skill foundation is leveraged at different stages of schooling, from simple numeric exercises in pre- and primary school, to algebra, geometrics, trigonometry, and integrals in secondary schooling, partial differential equations, dynamic modelling, and finally applied research in the fields of architecture, physics or finance at university level and in working life. However, it should be stressed in this context that it is never possible, and is most likely not desirable, to precisely predict in infancy who will win the Nobel Prize, or develop the next IBM or Microsoft or Intel processor – this is a cumulative life-span path-dependent evolutionary outcome impacted by a certain degree of serendipity. In the words of Mustard: *“It is essential for communities to have outcome measures for early child development that are not a screening tool to identify children with special needs, does not diagnose children with special learning disabilities, does not select children to be placed in special education categories and is not used to develop curricula for early child development program”* (Mustard 2006, pp. 40-43). ECD constitutes and give direction to the human being’s life-time developmental possibilities or lack of the same, but does not determine specific outcomes. Rather, satisfactory ECD conditions are to be understood as necessary rather than sufficient determinants of human progress and achievement of “Innovation Health” as conceptualized and investigated in the following. Anonymous reviewers of the papers included in this thesis, have expressed their frustration of a lacking precise and clear-cut evidence of how ECD generates innovations in firms by human beings in adult age. At this point of research we can only provide evidence that if sufficient ECD conditions are not provided, there will be no knowledgeable and innovation apt human beings as co-workers, collaborators and firm customers in the future. As the demographic landscape of competition shifts rapidly the next 15-20 years this will be crucial to assess and address in organizational research as well as firm and regional strategies.

## Conceptualizing and Defining “Innovation Health”

The conceptualization of Innovation Health builds on three interdependent and co-evolving components: (a) Innovation, (b) Early Childhood Developmental Health (ECD) and (c) Firm Strategic Advantage.

**“Innovation Health”** is the state of the human being’s developmental skills and capabilities, enabling her/his participation: (a) in knowledge generation, adaptation, innovation (recombination of knowledge and resources) and entrepreneurial actions in economically productive adult life, (b) as an apt user and beneficiary of these firms’ products, services and economic activities.

An individual’s “Innovation Health” thus consists of having developed a sufficient degree of (a) physical and motor skills, (b) cognition and language skills, (c) sociality and emotion/sentiment skills, and (d) individuality, motivation, executive functioning and personhood (Stein [1922] 2000). These are formed in utero and during early childhood, and reflected in Early Childhood Developmental Health (ECD), and further leveraged or de-leveraged over the life-span of the individual (Gluckman & Hanson 2006; Heckman 2007, Keating & Hertzman 1999; Knudsen et al., 2006; Mustard 2006; Foresight 2008; WHO 2007 a, b). Infirmary does not necessarily impede “Innovation Health”, and lack of “Innovation Health” does not necessarily depend on absence of diseases or handicaps in the life of a human being, e.g. as in WHO’s (1948, 1977) definition of health. The governing institutional system is designated as a “System of Innovation Health”, resting on the studies of North (2005) and (Sen 1999).

An innovation is conceptualized as the recombination of new and existing knowledge into new products and services. An innovation can also include organizational and social novelties, enhancing firm and industry practices. Innovations are new products or services successfully commercialized through human agency, entrepreneurial actions and interactions by firms and non-profit institutions (associations and communities, Stein ([1922] 2000) in markets, governed by common institutional settings understood as a “System of Innovation” (SI) (Edquist 1997; Edquist 2005; Nelson 2002). Successful commercialization refers to being above the industry break-even return (Barney & Clark 2007, p. 24).

Firm Strategic Advantage depends on the firm’s superior long-term knowledge generation and recombinatory skills and capabilities (ability to innovate successfully) and hence refers to its ability to generate sustainable development and profitability under competition (Kogut & Zander, 1992, 1993, 1996; Zander & Kogut 1995; Zander 1991; Zander & Zander 2005), through Innovation Health. Sustainable firm development is understood as meaning that the entity should be governed in such a manner that products and services rendered to its clients do not, according to current best understanding and ‘due diligence’ cause harm to the firm’s stakeholders (Freeman 1984, 1994; Donaldson & Preston 1995; Thompson 1967; Dill 1958 & Mason & Mitroff 1982). The process of economic change through firm value creation impacted by industry competition is understood as a necessary, evolutionary-process selection mechanism, governed by legal and institutional framing (Metcalf 2006a & 2006b; North 2005).



### **3.1 The Philosophical and Ontological underpinnings of “Innovation Health”**

In the definition of Innovation Health I take an anthropocentric approach to the topic of strategic advantage and firm theory, and investigate, so to speak, the maker and developer of our earlier described metaphorical car as well as the owner and able driver of the vehicle. The knowing, adapting, recombination- (innovation-) and conscience apt human being is placed at centre stage, based on our expanding theoretical and empirical understandings of Early Childhood Development (ECD) and its impact on the life-time developmental trajectories and mental well-being of human beings. The ontological and epistemological underpinnings of “Innovation Health”, and hence the understanding of the human being and her endeavours in organizations, associations and communities, are based on Stein’s theories of “Empathy” ([1917] 1989) and on her “philosophy of psychology and the humanities” Stein ([1922] 2000) as presented and interpreted in Treatise 4 Study V of this thesis. I suggest a four-layer model as a good “prototype” of our current best understanding of the human being. The existing research related to the four dimensions of the human being in our synthesising model in organizational and management research is not reviewed or discussed in detail in this thesis<sup>xviii</sup>. However, it is an important next step contribution, as pointed out by anonymous AOM 2010 reviewers of several of the individual studies included in this thesis.

Dimensions framing human abilities, skills and action	Phenomenal realms, mutually permeable within an individual	Layers of human being	Permeability of each realm for transfer of influences beyond the individual
Mechanical causality	The physical/ motor	Matter, physical, motor components and capacities of the body	Causally connected to the physical world, but not to other sentient beings as such
Sentient causality	The sensory or sensitive	Sentience, the living responsive body	Open to causal influences among intelligent individuals
Rational motivation	The mental or intellectual	Unindividuated mind, intelligence, spirit	Open to motivational influences among intelligent individuals
Personal motivation	The personal or individual	Individual person, unique personality	Motivationally connected to the world of values, but not other beings as such

**Table2. Schematic layers of the human being and dimension's framing human abilities, skills and action adapted from Stein ([1922] 2000) and Sawicki (in Stein [1922] 2000).**

At the core of this model is the human constituting capacity of “*Empathy*” as defined by Stein ([1917] 1989) and discussed by Sawicki (1998)<sup>xix</sup>. Without this constituting capability of “*Empathy*”, human beings are not capable of perceiving themselves or other human beings in the world, nor other constructs or life-events. It is also argued that this capability is fundamental for human learning, knowledge, creativity and innovation. The unique permeability of the living human body enables (1) mental [individuality and personhood] and (2) physical/motor realities to come into contact. The interchange within the human being is feasible through the two “mediating” (3) sentient (socio-emotional) and (4) cognitive and intellectual realms, which are also open to communication among individuals (Stein [1922] 2000; Sawicki 2000). Sen (1989:4-5) makes an argument similar to the theoretical framework of Stein ([1922] 2000) in defining the conceptual roots of his human “capability approach”. He argues that “the constituting elements of life should be seen as a combination of

various different human functions (a “functioning n-tuple”). This amounts to seeing a person in an “active” rather than “passive” form. [...] The claim is that the functions constitute a person’s being and that an evaluation of a person’s well-being has to take the form of an assessment of these constituting elements. [...] A functioning is an achievement of a person: what he or she manages to do or be, and any such functioning, reflects a part of the state of that person. The capability of a person is a derived notation. It reflects the various combinations of functioning (doings and beings) which he or she can achieve”.<sup>xx</sup> Stein’s ontology takes an “*emergentis*” (Clare 1997) perspective of the human being and the world, most likely inspired by the tradition following Aristotle’s *De Anima* (On the Soul) and Bergson’s contemporary process-philosophy *L’Evolution créatrice* [Creative evolution] (1907), philosophy of mind *Matière et mémoire* [Matter and Memory] (1896) and *Mind-energy* (1920)<sup>xxi</sup>. In this thesis I use the notation of “Being and Becoming” in expressing the *emergentis* ontology. It has its analogue in contemporary early childhood development research as expressed by Nelson (2007) and also in Treatise 4, Study IV. Hence, our understanding in this thesis is that human beings, firms and societies are participants in co-evolving and co-dependent processes of continuous being and becoming. *Knowing*, *Innovation* and *Human Organizing* are central capacities of human beings in resolving emergent and perceived human needs and concerns in the process of being and becoming. Both Stein and Sen have been influenced by, and build their arguments and theories on, the philosophical foundations and empirical traditions of reasoning derived from Aristotle<sup>xxii</sup> and Kant.

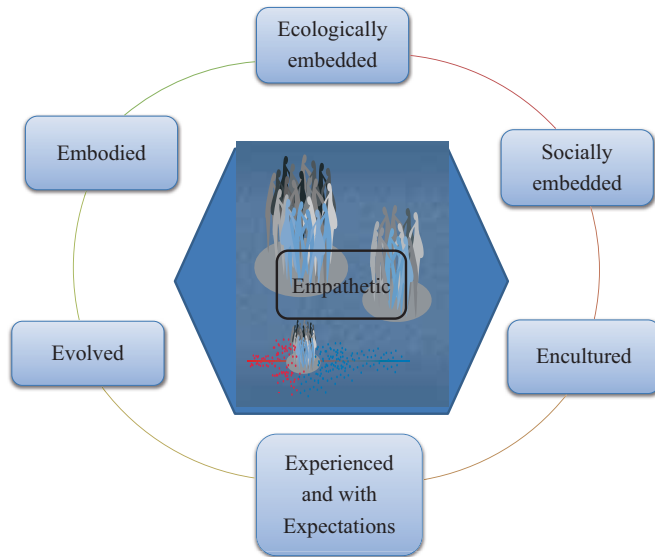


Fig. 9. Key Dimensions of the Interactive Human Encounter (adapted from Nelson 2007 and Glassér 2010, Study IV and V).

### 3.2 Innovation Health & Human Beings

The evolution of Human Health<sup>xxiii</sup> is as old as the human being: “If we are trying to account for the evolution of human health, we must consider its development over the course of history of the human species. In doing so, we have to try to make the best of the knowledge acquired so far concerning our past, covering a time span of some [...] 100,000 generations if we consider the human genus in its entirety – under changing environmental and cultural conditions. [...] The *Homo* is today reckoned to be about 2.7 million years old. [...] Things kept changing as the humans evolved. The volume of our brains increased steadily from the age of *Homo habilis* onwards, and intelligence must have been developing side by side with human technological capabilities in the manufacturing of tools<sup>xxiv</sup>. [...] The impact of natural selection is such that every living organism is basically healthy: proof is the fact itself of its being alive and giving birth to offspring. [...]” (Cavalli-Sforza 2009:95-97; see also Mustard 2006). I argue in line with Cavalli-Sforza (ibid. p. 95) that human developmental health

“is the product of evolution, and that success or lack thereof in evolutionary strategies explains much of the present state of global [innovation] health. Throughout human history, and most markedly with respect to modern humans and since the inception of history proper, cultural evolution has increasingly gained the edge over biological evolution, to the extent that life expectancy and the unequal distribution of disease burdens largely depend upon imbalances in the development of different regions in the world, rather than on lack of [understanding of human developmental health conditions], medical know-how and healing skills” (ibid., 95; see also Bowman, Burns, eds., 2000:1; Donald 1991; Shonkoff & Phillips 2000, pp. 3-4).

This is a dynamic, interdependent process of development, in which initial genetic human dispositions, environmental impact and stimulus amalgamate and reinforce each other over time, coming into play visibly in corporate and societal settings in adulthood. In order to survive and develop Innovation Health, human beings need a sufficiently good start in life, from conception to approximately around age five. A number of views and approaches to infant, early childhood and human developmental change can be found in contemporary research and literature. Each of these models emphasizes differently the roles of environment and biology/genes in influencing human development and behaviour. In summary, as investigated and discussed in Treatise 3, Studies III and IV, two basic conceptions of the human mind and its development compete in current research (Nelson 2007, p. ix-xi): (1) “A top-down, abstract, genes-first, neural-first native realized in terms of domain-specific modular theories” (ibid., p. ix); and (2) “A bottom-up, pragmatic, experience-dependent, bio-social-cultural developmental system of knowing” (ibid., p. x; see also LeDoux 2002, LeDoux et al. 2003). As pointed out by Nelson (2007), these different conceptions emanate from different understandings of the evolution, representation, conceptual development and role of language in developmental and cognitive psychology. In this research project, the understanding of the “pragmatic, experiential, bio-social-culturally dependent” and the interaction model of infant and early-childhood development is assumed to be valid. This is in line with WHO’s “Total Environmental Assessment Model (TEAM-ECD)” (2007), and to our understanding it is also consistent with the ideas and theorizing put forth by Nelson (2007) based on on Vygotsky’s model, opposing Piaget (1926, 1929, 1952, 1962), of the “culturally historical child” (Vygotsky 1962, 1978, 1986, 2004) and what Donald (1991) calls “the mind-culture symbiosis”.

Using the words of John Paul II: “Culture is the expression of man. It is the confirmation of his humanity. Man creates it and through it creates himself” (Dherbier & Verlhac 2005). Knowledge creation, adaptation, innovations, human beings, corporations, and societies are understood as (a) time-, (b) location- and (c) path-dependent evolutionary processes in being and becoming. These evolutionary processes of economic change are interdependent and determined by institutional settings. One can also call “Innovation Health” a source of opportunities to develop “full humanness”, and describe the lack of sufficient conditions for it as “deprivation, stunting or diminution of the opportunity to develop full humanness” (Maslow 1971:283).

Perhaps, as claimed by Cuhna, one of the biggest inequities in the world is the event of a human being’s birth into a particular family, at a particular historical time, at a certain location on our planet. The event of birth certainly determines a substantial fraction of the human being’s developmental possibilities and conditions, particularly in the period from conception to approximately five years of age.

# Being & Becoming: Nurturing nature & The Developing Human Being

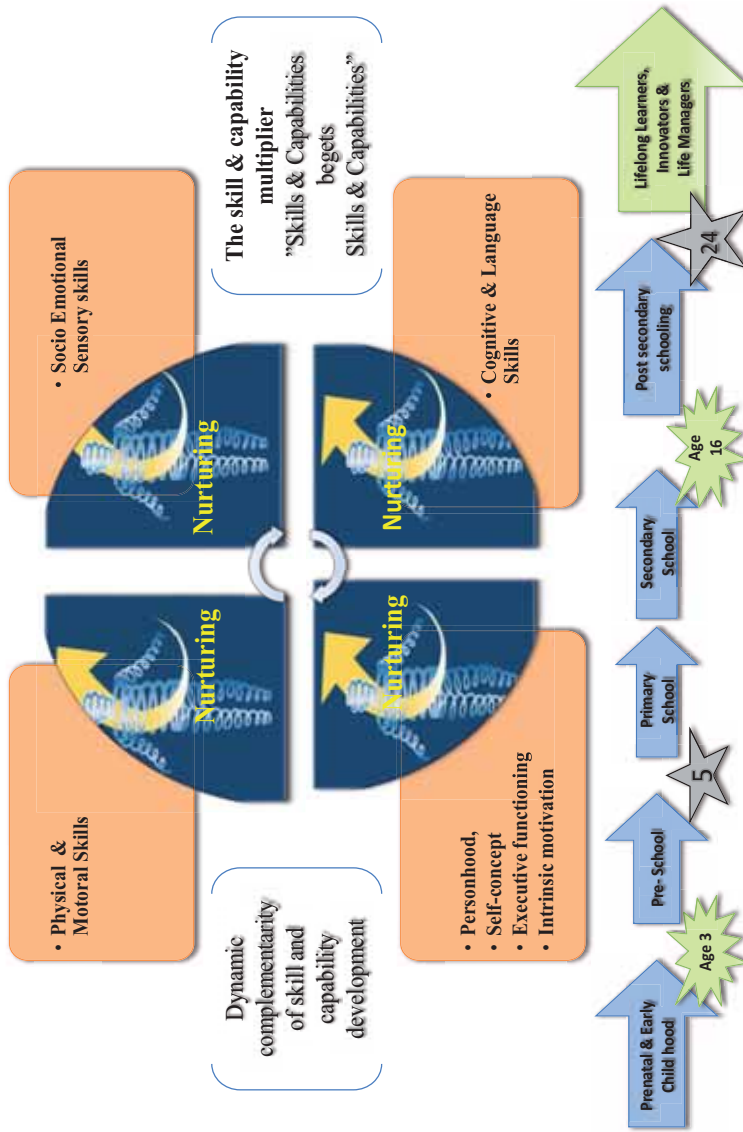


Fig. 10. Being and Becoming – nurturing the developing human being (adapted from Foresight 2008; Heckman 2007; Nelson 2007; WHO 2007 a, b and Treatise III to V of this thesis)

### 3.3 Innovation Health, Institutional Settings, Economic Growth and Corporate Profitability

In the definition of “Innovation Health, the terms “economic growth” and “corporate profitability” are framed in a different manner with a broad context of global societal development and transformation in mind. This rests on the philosophical and theoretical foundations of Sen (1989, 1999) and the “Human Development Paradigm” of ul Haq (1995), to our understanding also consistent with the propositions advocated by Sison (2008). Economic growth and corporate profits are considered “means” rather than ends to achieve human development and progress. A distinction is made between the term “human capability” and the theory of “human capital”. Human capital is considered a subset of the entire pool of human capability, defining human skills and capabilities useful as means in economic and corporate activities (Sen 1997)<sup>xxv</sup>. Further, traditional human capital theories disregard the importance of contemporary ECD research and its determining impact of life-time developmental possibilities of the human being and entire populations. Sen, in parallel to our work, advocates an anthropocentric approach to societal development, and defines desired outcome and success as human capability expansion and freedom (Sen 1989, 1999; ul Haq 1995), consistently with the theoretical framework of Stein ([1922] 2000). I advocate an *a priori* argument for material and human developmental sufficiency, using an Aristotelian-Thomistic ontology<sup>xxvi</sup> and building on the work of Stein ([1922] 2000) and Barrera (2004). Human developmental and material sufficiency is understood as conditional, and dependent on free and intelligent secondary causality, defined as the human being’s capability and propensity for knowledge generation, adaptation, creativity, innovation and entrepreneurial human actions. Theories of economic scarcity or fundamentally limited resources, needing allocation of given and predetermined endowments, build on the assumption of lacking “Innovation Health” and insufficient human developmental conditions, i.e. deprivation, stunting or diminution of the opportunity to develop full humanness.<sup>xxvii</sup>



Adapting the arguments of Barrera (2004) and Stein ([1922] 2000), consistently with the conceptions and assumptions of Sen's capability approach and the institutional framing discussed by North (2005), we suggest that human beings are social by developmental nature and thrive only in communities, organizations and associations. Given that human beings are intelligent, capable of acting freely and not by necessity, the proximate end of the economic order can only be advanced and attained through moral agency anchored in cultural value-systems (North 2005, Donald 1991; Sison 2008). It is assumed that economic life and enterprise are associative and communal in nature and that most goods, products and services can only be provided and enjoyed in collaboration with other human beings (Stein [1922] 2000, Sen 1999). According to Barrera and Sison, there are at least three identifiable proximate ends for economic enterprise: (a) It is meant to furnish material provisions and necessary developmental services and conditions, particularly during early childhood life stages, for human well-being. (b) It is an essential venue for growth in moral excellence through the personal effort and interpersonal cooperation required by economic activity. (c) It provides the setting within which humans are able to discharge their obligation of caring for the goods of the earth and each other through virtuous economic activity (Barrera 2004; Sison 2008). Sison argues: "Any business organization should exist, above all in order to contribute to the common good of society. Rather than as a machine, a company should be thought of as a community of workers who seek their own integral human development by producing the goods and services that society needs. Profits should be regarded as a supervening prize for recognized value attribution and a job well done, not something to be gained at all cost, regardless of means" (Sison 2008 p.x, see also Woods 2005:35-36).

The institutional theory and underpinning applied in this research process and the definition of Innovation Health are delineated by Keating (1999), North (2005); Metcalfe (2006 a, b) and Sen (1999). A detailed summary and discussion of North (2005) and Metcalfe (2006 a, b) and Sen (1999) are beyond the limits of this summary of the research project. Enabling human skill, capability development, deployment and expansion, five distinct types of freedom necessary in a society are defined and investigated by Sen (1999, p. 10) and adopted in this research project: (1) political freedoms, (2) economic facilities, (3) social opportunities, (4) transparency guarantees, and (5) protective security. The ongoing global struggle for adaptation to

and evolution of human freedoms and human rights is discussed, with a lens of human developmental impact and trajectories, in the UN Human Developmental Report (2000). Further, it is summarized in Fukuda-Parr & Kumar (2003:56-59, Ch. 1.5). From my research perspective it is interesting to note that the concept and institutionalization of “the rights of the child” were not established until 1989 by the members of the United Nations. Further, in arriving at a fuller understanding of the role of human skills and capabilities, we have to consider: “(a) the *direct* relevance to the well-being and freedom of people; (b) the *indirect* role through influencing *social* change; and (c) the *indirect* role through influencing *economic* production” (Sen 1999:296). Freedoms of different kinds are complementary and can leverage one another. Individuals can effectively shape their own destiny and help each other or create joint misery and distress.

### **3.4 Innovation Health and human developmental trajectories**

The two different trajectories of human development have been phrased in the following way by Cavalli-Sforza (2009). *On the negative trajectory*: “If we add to iatrogenic diseases the sum of nutritional disorders resulting from unhealthy diets, or diseases directly induced by environmental pollutants, and of those contributed by unhealthy lifestyles, [...] the grand total may lead us to feel that the undesired side effects of human efforts can be overwhelming.” *On the positive trajectory*: “It is said that in ancient China doctors were paid on regular basis as long as the patients stayed healthy, and stopped receiving payment when the patient was sick. In the contemporary world, every effort and expense incurred in promoting the prevention of disease [and early childhood developmental health] is bound to bring a manifold return to societies that engage in it: an economic return in terms of savings and of increased productivity, and social return in terms of general well-being and public happiness” (ibid., 106).

# Core Features of the Developing Human Being

(Adapted from Adler, Glasser & af Klinteberg, 2005; Forsight Mental Capital & Wellbeing Project, System maps, 2008 & WHO 2007 a, b)

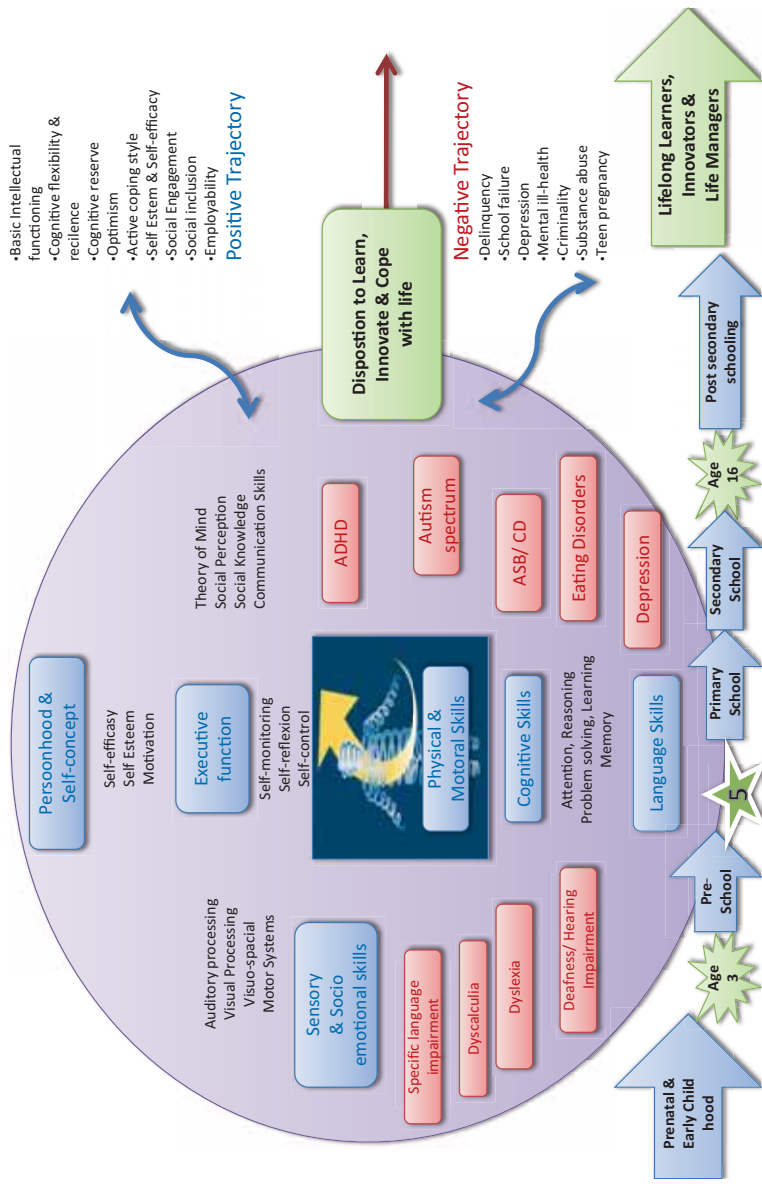


Fig. 11. Core features of human developmental well-being.

The routes of positive and negative developmental trajectories (Fig. 11) of individual and entire populations of human beings are increasingly framing the competitive landscape of firms, clusters and nations around the globe, particularly when simultaneously considering the dramatic ongoing demographic worldwide changes (Dychtwald et al. 2006; Rosling www.gapminder.org, 2009; World Bank 2006). Summing up the argument, firms competing in “globality” (Sirkin et al. 2008; Prahalad & Krishna 2008) certainly have to acknowledge “Innovation Health” leveraging the firm’s strategic positioning and advantages, growth, long-term return and sustained profitability. Innovation Health is not a capacity crucial only in firm recruitment of personal; in order to succeed in knowing and innovation-based enterprising, the Innovation Health of the firm’s entire horizontal and vertical integration in its value-creating space has to be acknowledged and managed. Has anyone yet come across a title “human resource management in client firms and customer markets – key to firm strategic advantage”? An emerging effort of addressing this topic is found in Prahalad & Krisnan (2008).

## **4. Innovation Health – A Summary of Theoretical and Empirical Contributions, Treatises 1–4**

### **Treatise 1: The Fountainhead of Innovation Health – a Conceptualization & Investigation**

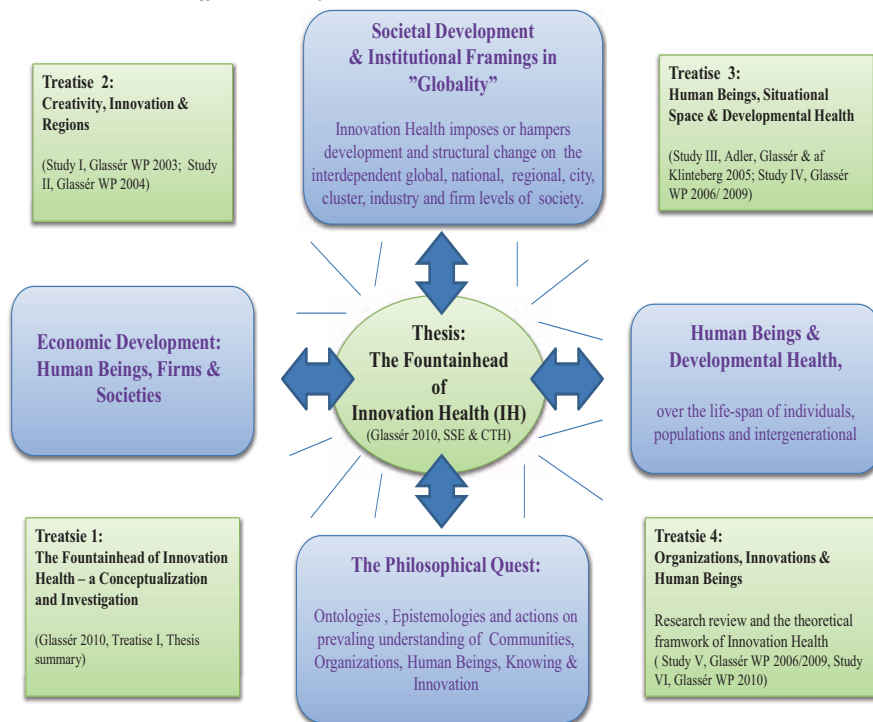
This treatise, “The Fountainhead<sup>xxviii</sup> of Innovation Health – a Conceptualization & Investigation” (Glassér 2010), addresses the convergence between several strings of currently emerging research, in the quest for a better understanding of the co-dependency and co-evolution of the human being and her ability to innovate and provide products and services through competitive and long-term sustainable firms. The introduction and development of the concepts “Innovation Health” and “Systems of Innovation Health” aim at capturing emerging interdisciplinary understanding of Early Childhood Developmental Health and human life-

spanning developmental conditions, to the extent that they are relevant for economic change, knowledge- and innovation-related theory and research. An overview and analysis of global demographic changes, as they relate to Innovation Health is provided. Further, an extended “View” or possible emerging “Theory of the Knowing and Innovating Firm” is proposed and elaborated. The philosophy and ontology of the human being, association and community by Stein, is introduced as the theoretical framework of this research effort.

The complexities and interdependences of a System of Innovation Health are illustrated below. The studies undertaken in this conceptualisation, investigation and exploration of Innovation Health are also positioned in the figure:

## Systems of Innovation Health, SIH

System of Innovation Health (SIH) depends on and interrelates in : (a) Institutional Settings & Evolutionary Processes; (b) Time, Space & Location; (c) Generation, Diffusion, Absorption and Application of Knowledge & Innovations



**Fig. 12. Systems of Innovation Health<sup>xxix</sup> and undertaken Studies (Treatise 1-4).**

#### Contributions of Treatise 1:

Treatise 1 consists of the conceptualization and investigation of Innovation Health, with extension as well as alteration of traditional Human Capital Theories (Schultz 1961; Becker 1964, 1975, 1993) acknowledging contemporary interdisciplinary research on Developmental Health (Keating & Hertzman 1999) and Early Childhood Developmental Health, ECD, (WHO a, b). A System of Innovation Health (SIH) approach is suggested, altering the traditional System of Innovation (SI) approach in advocating a more narrow focus on factors and institutions governing the state and development of Innovation Health. A “Knowing and Innovating View of the Firm” is suggested and further elaborated in Treatise 4, Study VI, potentially establishing an embryonic prototype of a new firm theory, departing from Penrose’s classical growth theory of the firm (Penrose 1959) and the perspective of Kogut & Zander’s (1992, 1993, 1996); Zander & Kogut (1995); initiated by Zander (1991) and extended in Zander & Zander’s (2005) ‘Knowledge-based View of the Firm’.

Finally, I contend that the market’s hand is not invisible (Smith [1776] 1937). Its dynamics in operation are suggested to be the same as those of the “creatively destructive” Schumpeterian human being in association and community (Glasser & Redhe 1987, 1987a; Schumpeter 1942)<sup>xxx</sup>. I agree with Keating and Hertzman (1999 p. 341): that it is a valuable understanding and potent convergence that the forces underlying ‘Innovation Health’ may be as important to sustainable firm and societal development as are ‘market forces’. Innovation Health is the pillar of economic and sustainable firm development, and it behoves firms and nations to devise investment strategies that leverage this potential return. In the beginning of Williamson’s world, “there were markets” (1975). The philosophical underpinning, ontology and research approach of this thesis brings the understanding that first there were knowing, innovating, entrepreneurial and conscientious human beings, and then institutional legal settings and markets developed.

## **Treatise 2: Creativity, Innovation & Regions**

### **Study I:**

#### **The Knowing & Creating Region – with Foundations for Innovation, Enterprise and Growth (Charlotte Glassér 2003)**

This study is a limited case study of the Swedish innovation system in transition in connection with Sweden's membership and integration in the European Union. The article introduces the concept of "Creative Capital Theory" (Florida 2002) and the growth of the "creative class". Further, a comparative analysis is made of the theoretical framework for a System of Innovation approach. These two theories are set in relation to the ongoing transformation of Swedish innovation policy and regional policy. Moreover, the article gives an introductory literature survey of relevant existing research on innovation systems. The intention of the study is that the discussion will provide an additional dimension to bridge between the policy areas of regional development and innovations, as well as leading to a shift of focus from only companies, industries and structures to include human beings as the bearers of "creative capital" – and that this in turn will stimulate continued dialogue on policy design and implementation processes.

This study was undertaken and the article written at the Royal Institute of Technology, Stockholm Spring 2003, and presented to directors of the Swedish Regional Development and Innovation Authorities (ITPS, NUTEK and VINNOVA) in the summer of 2003. The article has been slightly revised and edited spring 2010. Advisory and examining professors: Folke Snickars and Börje Johansson, Department of Infrastructure.

### **Study II:**

#### **Creativity and regional prosperity – a critical study of Florida's Creative Capital Theory (Charlotte Glassér 2004)**

The study provides a critical analysis and examination of Florida's "Creative Capital Theory" (Florida 2002), scrutinizing his suggestions of the importance of environmental factors, outlined as his "3T's of Technology, Talent and Tolerance", and the impact of realized human

creativity supposedly leading to higher relative rates of entrepreneurship, innovation and growth in certain regions and innovation system contexts. Further, a systemic model of creativity presented by Csikszentmihalyi (1996) and some additional sources of literature on creativity are used in assessing the importance and possible impact of “personal creativity”, alternatively expressed as “creative personality traits”. The analysis and discussion are framed in the US innovation system context. Florida’s definition of “*Creative Capital Theory*” is presented in summary. Further, an analysis and discussion follows on how Florida’s research relates to other growth theories and models, the systemic model of creativity and the system of innovation approach. The paper concludes with some reflections on the contribution of Florida’s research as well as identified gaps, mainly in relation to theories of entrepreneurship, enterprising and management science, opening up for alterations and extensions of Florida’s research model and theory.

This study was written at Chalmers University of Technology, 2004, advised by Professor Maureen McKelvey, RIDE. The working paper was web-published and presented at the International Innovation Conference at the Royal Institute of Technology, CECIL, Nov 2004, Stockholm, Sweden.

**Contributions of Treatise 2 to the conceptualization and investigation of Innovation Health & the System of Innovation Health:**

The contributions of Study I (Treatise 2) are: First, an improved understanding of Systems of Innovation approaches and their introduction in the Swedish Welfare state. Second, pointing out the need to develop and integrate a contemporary understanding of the human being and the conditions as well as impact of her/his developmental health in the System of Innovation framework. Indicators of regional development are analysed and discussed.

Study II (Treatise 2) arrives at the understanding and conclusion that a more developed theory of the firm is needed. It should be based upon contemporary, interdisciplinary research on the human being. Conditions generating early childhood developmental health and establishing lifetime development trajectories of skills and capabilities, vital in adult work-life, have to be evaluated and considered.



## Treatise 3: Human Beings, Situational Space & Developmental Health

### Study III:

**“A collaborative research effort to bridge boundaries and support deviant youths in contemporary welfare systems” (Adler, Glassér & af Klinteberg 2005)**

This paper analyzes the challenges of introducing new approaches to care for deviant youths in contemporary welfare systems. The specific study of early intervention programs within the area of psychosocial disturbances will be used to explore the interplay between the emerging research results and the introduction of new approaches in different functionally specialized welfare-carrying organizations. This paper is based on a collaborative research effort between researchers from education, psychology, psychiatry, economics and business administration and key actors from schools, police, criminal care, social security administrations, municipal health care and municipal politicians and administrative managers. The paper demonstrates that successful introduction of new coping strategies necessitates significant efforts to support the bridging of boundaries, the challenging of legacies and learning from evidence to change established structures.”

First, the effort was intended to contribute to the understanding of *psychosocial implementation methodology* for care of children and youth with neuropsychological behavioral disturbances. In particular, we have been intrigued by the opportunity of introducing collaborative research methodology into the service sectors and domains of the Swedish welfare state. The result is a boundary-spanning effort departing from the dominant field of collaborative research practice undertaken in corporations and enterprises (ibid. p. 89). An interesting systemic networking model for the child and youth school situation, in line with Bronfenbrenner’s theories (Bronfenbrenner 1979, 1999; Bronfenbrenner & Morris 1998), is presented [...]. Second, the intended contribution was to increase the understanding of developmental health and its possible effect on societal development and economic growth. We were especially influenced by the research outlined in works of Daniel P. Keating and Clyde Hertzman in their research on ‘Developmental health and the wealth of nations – Social, Biological and Educational Dynamics’ (Keating & Hertzman 1999) as articulated below:

We need a robust understanding of human development dynamics as they operate in society to complement and when necessary contend with, the understanding of market dynamics as they operate in the economy. That the social forces underlying developmental health may be as crucial to economic prosperity as are market forces is a potent and potentially valuable convergence. If developmental health and economic growth are fundamentally independent in the innovation dynamic, then it behooves learning societies to devise an investment strategy that maximizes this potential return (Keating & Hertzman 1999 p. 341).

The above phrasing came to be a guiding principle for our entire research effort of Innovation Health, as presented in this thesis.

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#### **Study IV:**

##### **Governing the Knowing & Innovation Space - a Situational Study at the 'Demographic Bottom of the Pyramid', Working Paper HHS/IB (Glassér 2006/ 2009)**

An emerging body of research acknowledging the cross-disciplinary research on early childhood development verifies the existence of critical periods in early life impacting on formation and development of human skills and capabilities over the life-span of the individual. Labor market outcomes in adult life indicate that common processes occur.

This article presents a study of 186 students' evaluation of their classroom climate and identifies a number of factors that can be seen as candidates for affecting successful learning, knowledge creation and adaptation. The context is the school system of a mid-sized Swedish municipality, Sävsjö, which has been involved in a seven-year longitudinal study, undertaken by the Karolinska Institute, aiming at an investigation of developmental health, cognitive capabilities and socialization among pre-school and primary school children. This study was made at the closing time of this larger research project. On the foundation of S. Schwartz' research and modelling of "Universals in the content and structure of values: theoretical

advances and empirical tests in 20 countries” (Schwartz 1992), a measuring tool, “Goals, Attitudes & Values in School, GAVIS” was developed and forms the basis for data collection. The objectives of the empirical study are: (a) to further improve the understanding of factors and processes affecting the learning, knowing and innovation space; (b) to draw more general conclusions making the GAVIS measuring tool more apt for future exploration, evaluation and determination of critical success factors in corporate knowledge, innovation and R&D-intensive settings. Nine factors explaining 64% of the total variance were generated, among them “Empathy & Reciprocity”, “Trust & Mindfulness”, “Attention & Motivation”, “Responsibility and Governance”. These factors seem plausible candidates for using in further tests of variables affecting the learning, knowing and innovation space.

This study was initially prepared in collaboration with The Institute of Education (Lärarhögskolan) and Karolinska Institute, Department of Women’s and Children’s Health Stockholm, Sweden. The finalization of the study was made at the Stockholm School of Economics in 2009, advised by Professor Anders Westlund (2006) and Udo Zander (2009)<sup>xxx</sup>.

**Contributions of Treatise 3, in conceptualization and investigation of Innovation Health & the System of Innovation Health:**

The contribution of Study III (Treatise 3) is an improved understanding of the processes at work when introducing and implementing contemporary, interdisciplinary research on human developmental possibilities in the Swedish welfare state. The study also brings forth an improved understanding of collaborative research practices and methodology, in the context of interdisciplinary project efforts.

Study IV (Treatise 3) brings improved empirical understanding of environmental conditions potentially influencing ‘knowing and innovating situational practices’. Methodology and challenges in measuring the impact of the environment on human development are explored and discussed.

Both studies in Treatise 3, especially Study III, are an important first step in establishing better understanding of adaptation to new knowledge and scientific evidence in a System of Innovation Health.

## Treatise 4: Organizations, Innovations & Human Beings

### Study V:

“Organizations, Innovations & Human Beings”, SSE, (Glassér 2006 / 2009)<sup>xxxii</sup>

To understand how corporate strategic advantage is attained, sustained, or lost through innovation and enterprising, an appropriate view of the human being is required in organizational theories and research. In this article, a review and analysis of the basic assumptions of the human being according to some schools of organizational theory, and at the interface between organizational theory and economics, are provided. The emphasis is on depicting key characteristics and assumptions of chosen paradigms or schools of thought regarding the human being as a member of organizations. Different ontological paradigms stemming from shifting philosophical underpinnings about the human being are explored. Further, the origins of the conflicting positions of economics and organizational theory are discussed. The article advocates a synthesizing discussion aiming at the adoption of an alternative analytical framework, “A model of a human being”. This model is based upon interdisciplinary and contemporary research on Early Childhood Development (ECD) and Human Mental Wellbeing. Finally, Stein’s effort in the early 20th century to create a new philosophy of the humanities and a model of the human being is revisited. Her ontology of association, community and the human individual is discussed in the context of organizational economics and knowledge-based theories.

This study was initially prepared at the Stockholm School of Economics, spring 2006, and further extended with the philosophical underpinnings of Stein ([1917] 1989); [1922] 2000;[1993] 2000a) in 2009. In the period of 2006-2009, studies in philosophy and of anthropology were undertaken at the Newman Institute and in Health Philosophy under the auspices of Professor Per-Anders Tengland, Malmö Högskola, supporting the finalization of the theoretical model underpinning the conceptualization of “Innovation Health”.

## **Study VI:**

### **“Prototyping the Knowing & Innovating Theory of the Firm”, SSE (Glasser Spring 2010)**

This study aims at prototyping a “Knowing and Innovating Theory of the Firm”, based on an extension and further development of the most referred Knowledge-Based View (KBV) of the firm presented by Kogut & Zander (1992, 1993, 1996); Zander & Kogut (1995), as initiated in the research of Zander (1991) and elaborated by Zander & Zander (2005). The critique of lacking micro-foundations and a low ambition of integrating contemporary interdisciplinary understandings of the human being in the ‘KBV’ is pursued with the introduction of contemporary research on ECD (WHO 2007 a, b) and its life-spanning impact and, on the mental well-being (Foresight 2008, LeDoux 2002; LeDoux et al. 2003) of the human being. Stein’s ([1917] 1989, [1922] 2000) philosophical and ontological principles of human beings, associations and communities are introduced, explored and deployed with the aspiration of providing a consistent framework of how to understand the interrelatedness of the human being and the life and functioning of various forms of organizational entities and communities. It is argued, that the core components of what can be considered as the micro-foundations of the knowing and innovating firm are established through the conceptualization and introduction of the concept of Innovation Health in firm theory and research (Glasser 2010).

**Contributions of Treatise 4 in conceptualization and investigation of Innovation Health & the System of Innovation Health:**

In Study V (Treatise 4) the philosophical and ontological underpinning of “Innovation Health” and the “Knowing & Innovating View of the Firm” is established, based on the introduction of Stein’s concept of ‘Empathy’ ([1917] 1989) and her ‘Philosophy of Psychology and the humanities’ ([1922] 2000). It is our understanding that this is one of the first times Stein’s theories are applied in management and economic theory and research. Further, a review of perceptions and understandings of the human being in Organization Theory and Research is provided.

In Study VI (Treatise 4) the emerging theory of the “Knowing & Innovating Firm” is prototyped based on the understanding and establishment of “Innovation Health”, and an extension and alteration of Penrose’s classical growth theory of the firm (Penrose 1959) and Kogut & Zander’s version of the Knowledge-based View of the Firm (1992, 1993, 1996); Zander & Kogut (1995); initiated by Zander (1991) and extended in Zander & Zander’s (2005). Further, the “Knowing and Innovating Space” of the Firm is defined and discussed.

## **5. Innovation Health and the Knowledge & Innovation Movements**

Initially I addressed four strings of research central in what have been named the “Knowledge and Innovation movements” in this research process. It is now time to sum up the arguments, learning and implications of the conceptualization, investigation and implementation of Innovation Health and the System of Innovation Health approach in relation to the “Knowledge and Innovation movements”. Further, I will suggest alterations and extensions of extant theories and investigation models. I have been

trying to identify, conceptualize and investigate the connection between contemporary understanding of human developmental health and particularly how ECD conditions the human being's life-time developmental possibilities and the co-evolution of knowledge- and innovation-based enterprising. On the one hand, we have to understand the foundations of human skills and capabilities' development, and on the other hand the impact, conditioning and interrelatedness of these on firm competitive positioning and sustainable development over time and in various industries, schematically described below:



**Fig 13. The integrative dynamic effects of Innovation Health (The arrow stretching across the boxes indicates the interrelatedness of their content).**

Given our improved understanding of developmental health and particularly ECD as acknowledged in the conceptualization and investigation of innovation health and based on a consistent ontology of the human being, associations and communities Stein ([1917]1989, [1922] 2000) discussed in Treatise 4, I conclude that I have to re-think and extend existing theories and views of the firm. Before I enter into the discussion of a possible altered view or theory of the knowing and innovating firm found in Treatise 4, Study VI, I will make some summary statements of our research's implications for extant research in economics, Schumpeterian growth models and Systems of Innovation approaches.

## 5.1 Schumpeterian Endogenous Growth models

Let us repeat the suggestions of Howitt (2005), stating that recent Schumpeterian endogenous growth models articulate the importance of “health” issues in relation to economic growth and societal development. Long-term growth is claimed to be conditioned by improved population health, stemming from the following dynamic factors: (a) increased productive efficiency, (2) longer life expectancy, (c) higher learning capability, (d) increased levels of creativity, (e) enhanced coping skills and (f) reduced inequality. Further, Howitt argues that “the main effects that the Schumpeterian growth models bring out are those that work through the equilibrium rate of innovation” (ibid., 37). Extending and improving the Schumpeterian endogenous growth models, the interdependence between health and human capability for innovation and enterprise – Innovation Health – must be more clearly established. An effort in this direction is found in Aghion et al. (working paper 2009) and Vandebussche et al. (2004)<sup>xxxiii</sup>. Not only does the leading international technology frontier need to be determined, as well as each region’s or nation’s relative position and movement in relation to this frontier, but primarily the leading “Innovation Health” frontier and each region’s or country’s relative position in determining growth and development. Further, the interdependencies and time lags in the development of human skills and capabilities (Stein [1917]1989, [1922] 2000; WHO 2007 a, b) as defined in the Innovation Health concept must be determined and modelled in relation to the movement of the leading technology frontier and the equilibrium rate of innovation in a nation. weaknesses of these Schumpeterian endogenous growth models are also: (a) the lack of a detailed and more specific analysis and discussion of how firms’ and corporations’ contribute in the process of economic growth and societal development; (b) the understanding that growth is derived only from technological progress and not also from innovations in services and organizational development; (d) the lack of an explanation, definition and modelling of how the relation between human developmental health, and particularly ECD, knowing and innovating firms and economic growth operates and depends on the institutional setting of the economy. Recent examples of efforts in extending the understanding of the institutional framework in relation to endogenous Schumpeterian growth models are found in Aghion (working paper 2007)<sup>xxxiv</sup> and Aghion et al. (working paper 2008).



## 5.2 Economics of Human Development or Technologies of Skill Formation

It is suggested that this important and recent string of research by Cuhna & Heckman (2007) and Heckman (2007)<sup>xxxv</sup>, extending traditional human capital theories (Becker 1964; Schultz 1961) by acknowledging the effects of ECD and lifetime trajectories, could be extended and remodelled by acknowledgement not only of the broad categories of “cognitive and non-cognitive skills”, but rather of Innovation Health, as conceptualized and defined on the basis of Stein ([1922] 2000) and WHO (2007 a, b) in the following categories: (a) *physical and motor skills*, (b) *cognition and language skills*, (c) *sociality and emotion/sentiment skills*, and (d) *individuality, motivation, executive functioning and personhood*. Further, that Stein’s ([1917] 1989, [1922] 2000) consistent ontology and philosophical underpinning of human beings, associations and communities could be adopted, enabling the introduction and consistent analysis of knowing and innovating firms in relation to the model and theory of human “Skill formation”. Further, that the analytical framing of Systems of Innovation Health could also be adopted, enabling a consistent analysis of the micro-, meso- and macro-level processes impacted by the “Technologies of Skill formation”, now only discussed with focus on the impact of Early Childhood Development at the micro-level of analysis.

## 5.3 The System of Innovation Approach

In the innovation debate and research, systems of innovation approaches (SI) (Edquist 1997, 2005; Nelson 2002) have been dominant over the past decade. I suggest that this analytical framework and concept can be modified and extended, based on our conceptualization, investigation and definition of Innovation Health. In a System of Innovation Health approach (SIH) the human being is reintroduced and her distinct capacity to innovate, given satisfactory developmental conditions and institutional settings, is acknowledged. The co-evolution of the human being and her ability to innovate and enterprise at high levels of “Innovation Health” could also be identified and positioned at the centre of analysis and investigation. Particularly the importance of ECD is acknowledged, as ECD constitutes and give direction to the human being’s life-time developmental possibilities or lack of the same, but does not determine specific outcomes.

The focus of traditional SI approaches should also be extended, covering the coexistence and co-evolution of human beings, firms and institutional settings with, none of the dimensions of the analysis to be left outside the analytical framework. It will be critical to identify relevant empirical criteria and measurements of Innovation Health and development of Systems of Innovation Health, beyond simple regression analysis, where dependent and independent variables remain unknown as in the research by Florida (2002) investigated in this thesis and the currently published research by Wilkinson & Pickett (2009) or Gapminder's Graphs displaying correlations between rough estimates of, for example, the life length of humans beings in various parts of the world and GDP outcomes at the same point in time. Rather, it is proposed that further analysis and research be based on the key dimensions underpinning the human being's Innovation Health: (a) *physical and motor skills*, (b) *cognition and language skills*, (c) *sociality and emotion/sentiment skills*, and (d) *individuality, motivation, executive functioning and personhood*. Further, a better understanding of environmental variables impinging on the development of these capacities, identified in Treatise III, Study IV of this thesis, suggested to be favourable in governance of situational learning, knowing and innovation practices, should be attained. In future research, the analysis and investigation of favourable governing mechanisms and systems of innovation health practices should also be extended to include meso- (firm and organizational level, clusters and industries) and macro (regional, societal level) constructs and identification of dependent, independent and interdependent relations between the levels of analysis and factors of impact. From Treatise 3, Study III we can also gain important understanding of how improved knowledge and emerging scientific findings about the human being's developmental health and particularly childhood developmental health, can be introduced and managed in a well developed System of Innovation Health, the Swedish Welfare state. As Innovation Health will be increasingly important in gaining and sustaining favourable developmental conditions and co-evolution of human beings, firms and societies, it becomes crucial to master the applied processes of introducing, re-evaluating, implementing and management of scientific evidence, in relation to human developmental health, and particularly ECD.

The following institutional matrix displays the possible states of a System of Innovation Health:

I assume that the (i) human beings in a region, cluster or nation and (ii) firms operating in the same region, cluster or nation possess or do not possess the qualities necessary for a competitive Innovation Health System. In the base case of analysis, firms are considered to be locally operating entities. Innovation Health is by our definition held by human beings. Hence, the so-called “Innovation Health” of the local firm in the framework below is a derived notation and constituted through the ‘Innovation Health’ of the human beings in the firm and the participants in its related “Knowing and Innovating Space”. The analysis can in a next step be extended to MNEs. If the firm is a MNE, it is possible that it originates and has its home base in a different SIH than the region, cluster or nation being evaluated. In these cases, it is particularly interesting to further understand knowledge- and innovation-based firms being successful in nations, regions or cluster with poor general innovation health (lacking promotional institutional settings and an innovation-healthy population), indicating that the firms’ internal states of governing and institutional set-up are stronger than the local environment in generating Innovation Health and firm competitive advantage. Further, the case of nations, regions and clusters with good Innovation Health of the population, but a weak enterprise sector based on knowledge and innovations, indicates poor institutional support for enterprising. Countries currently found in this situation are for example Chile, Cuba, Tunisia and Sri Lanka. I get a four-box possible state diagram below. In this second case, a firm can be “Innovation-Healthy” as a corporation, but if entering into some markets where the governing local institutional setting produces a low degree of general innovation health, the firm may be dominated by the local conditions generating poor ‘Innovation Health’ and hence the firm will fail to operate successfully in this local setting. An alternative development would be when the entering foreign firm has a stronger institutional setting than the local conditions and can maintain its members’ “Innovation Health” and possibly contribute to a favourable development of the local ‘system of innovation health’ by its operation. The latter case is particularly interesting to evaluate in further investigations and research, addressing successful Scandinavian MNEs, seemingly transferring “Innovation Health” maintained in the home country to other regions of the world (see related discussion in Zander 1991).

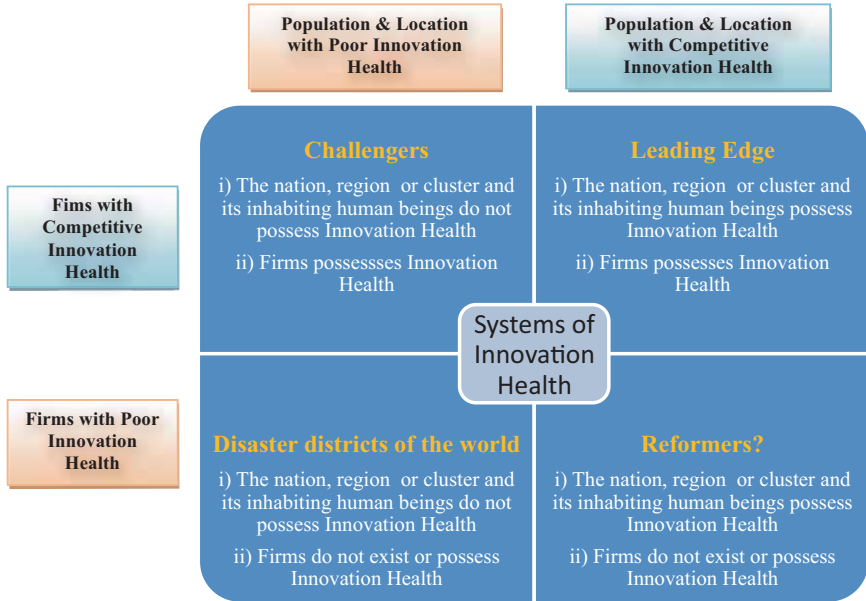


Fig. 14. Systems of Innovation Health and their developmental characteristics

Summing up this section, the thesis proposes that human beings and development of their individual skills and collective capabilities to enable innovations and process development of large technological systems, hence contributing to societal transformations and wealth generation, should be studied in an integrative mode and research designs by System of Innovation Health approach. Firms do not innovate in isolation! Rather, they are becoming increasingly enchained in local and global societal networks. At “the universal bottom” of this societal and global demographic pyramid, early childhood developmental health (ECD) is determining future prospects of any nation, region, cluster, city, industry or firm, and this understanding needs to be modelled and empirically investigated in any attempt at discussing and researching the System of Innovation Health.

## **5.4 The Knowing & Innovating Firm – towards an extended view and emerging theory**

In applying the concept and understanding of “Innovation Health” (Glasser 2010), based on contemporary ECD research and its life-spanning effects supported by the introduction of Stein’s ([1917] 1989; [1922] 2000) philosophy and ontology of the human being, association and community, it has been made possible to prototype an suggestion of the “Knowing and Innovating Theory of the Firm”. This theoretical elaboration and embryonic beginning of a new strategic firm theory (Foss 2005 pp. 24-25) is found in Treatise 4, Study VI.

# **6. Future research**

Having pursued an explorative research approach and agenda, it seems like more avenues of future research are opened than could possibly be addressed in the closing sections of this thesis. I will address some issues of key concern in the following:

1. It is vital to review and organize existing research strings in the organizational and management areas and integrate them with the improved interdisciplinary understandings of Innovation Health. This is especially salient in relation to the deployed model of the human being and her constitutional and embodied faculties of (a) physical and motor skills, (b) cognitive and language skills, (c) social and emotional skills, and (d) individuality, executive functioning, motivation and personhood (Stein [1922] 2000; WHO 2007 a, b). The global malnutrition epidemic, affecting all dimensions of the developing human being, is an urgent health priority under investigation (The Lancet, Vol 374, 2009). Currently, there are experiments and research projects being pursued by the UK Government in the field of providing micro-nurturing food to children 2-3 year old in poor and population-rich countries. The emerging understandings are important to acknowledge as the facts are stark: A child dies every ten seconds from malnutrition. A third of all children under five are stunted. Twenty per cent of maternal

deaths are associated with malnutrition. A third of child deaths in the developing world are as result of malnutrition. “Even more powerful than these stark figures is the experience – which I’m sure many of you will have shared – of walking into a classroom in an area that suffers from malnutrition and seeing 6- year-olds that look like 3-year olds” (D. Alexander, International Development Secretary, in speech at World Food Program 2010).

In management science there are important strings of research related to the human being’s cognitive and language capacity following in the tradition of Simon and emerging new approaches (Nelson & Nelson 2002), that should be organized in relation to our model of the human being as discussed in Treatise 4, Study V. There is also extensive research on topics such as “social capital” (Granovetter 1973; Coleman 1988; Nahapiet & Ghoshal 1998; Arrow 2000), “social embeddedness and networks” (Granovetter 1985; Burt 1992, Zukin & Di Maggio 1990; Uzzi 1997), social identity (Rao, Davis & Ward 2000) and organizational culture<sup>xxxvi</sup> to be integrated for going forward. Further, strings of research on the topic of personhood are appearing, in the organizational research domain (Ibarra & Barbulescu 2010; Sluss & Ashford 2007; Barrera 2007 pp. 153-160), and inter-subjectivity (Bruner 2004; Cohen 2007; Mischel 2004). Research on executive functioning and leadership abilities are important to integrate, as well as research on inspiration and motivation, for overview see Clegg, Kronenberg & Pitsis (2005, Ch. 7<sup>xxxvii</sup>). Interdisciplinary research efforts related to the personhood and executive functioning dimension in our model should be encouraged, in collaboration with philosophers and theologians (Barrera 2001, 2007; Clark 1997; 2008). Interdisciplinary collaboration with researchers addressing the issues of human action in social and cognitive neuroscience (Morsella, Bargh & Gollwitzer 2009) is also a high priority on the future agenda of Innovation Health. Gender differences in development of “Innovation Health” also needs to be researched and understood.

2. Stein’s construct of “empathy”, as the human constituting capacity, needs further research and development, through improving understandings of contemporary and interdisciplinary research in social-neuroscience (Decety & Ickes 2009), philosophy (Avramides 2009; Clark 2007, 2008) and mind-science (Mc Laughlin et al.

2009; Markman et al. 2009). Efforts of consistently applying Stein's 'emergentis' ontology in organizational research and design should also be encouraged, in line with the initial effort of Nonaka et al (2008), as well as analysis and discussion of her Treatise "On the State" (2007).

3. The research on better understanding determinants and environmental conditioning in the Systems of Innovation Health approach is in its infancy, and needs extensive empirical investigation. The Lancet (Vol. 374, 2009) refers to the terminology of "health illiteracy", positioned at the core of our understanding of Innovation Health in its double meaning, as the silent global epidemic hindering progress and development: "It is the inability to comprehend and use medical information that can affect access to and use of the health-care system. It exacerbates health inequity since those whose health and life expectancy is already low—e.g., elderly people, poor people, and minorities—are the ones without the ability to make health-related choices, seek health-related information, or engage in health-related communications." The first undertaken health literacy survey should provide first-time data for health literacy in European countries in 2010. The survey results, will hopefully guide our understanding of how to better design Innovation Health Studies in the future.<sup>xxxviii</sup> It is also important to gain a better understanding of how different value systems contributes to and determines the success of the human development climate and hence the level of Innovation Health in different countries and regions (North 2005, pp. 166-179; Schwartz 1992). A central topic in future research efforts on Innovation Health will be to address the capacity of adapting to new knowledge and scientific evidence in different Systems of Innovation Health. It is particularly urgent to arrive at a better understanding of Early Childhood Developmental effects on life-spanning development, in resource-poor countries and regions.
4. Continued theory development of the "Knowing and Innovating Firm" is a high priority, as well as research aiming at better understanding and prediction of determinants of the Firms "Knowing and Innovation Space". Further, research on MNE's direct investment, alliances and merger and acquisitions activities and global strategies, should be further explored linked and integrated with research in development economics, as initiated by the UNTAC Geneva in March 2010.
5. Researchers and developers of 'Schumpeterian Endogenous Growth' models are encouraged to adapt and adhere to the improved understanding and implications of Innovation Health and System of Innovation Approach. It is particularly important that the time-

lag between effects of early childhood development and innovation health in adulthood is investigated and correctly modelled.

6. The concept of Innovation Health should be introduced and discussed in traditional health- philosophical theorising and research, bringing forth a better understanding and adaptation to ECD and its life-spanning effects.
7. Finally, an interesting idea has been brought forward suggesting that a well-functioning ECD supporting infrastructure of a country or region could potentially be an attractor of high-potential couples of other nationalities to settle in locations with the best set-ups. Those who are affluent, well-educated and tired of mediocre childhood care in their home countries may be the ones to leave first, further drying-up the supply of a next generation with potentially well- developed Innovation Health (see Zander, 2000 for a related argument). It is suggested that ECD infrastructures and immigration patterns should be jointly studied.

Establishing and funding an interdisciplinary research institute of Innovation Health, International Business and Philanthropy seems to be the ultimate agenda in gaining further progress also in addressing interdisciplinary project- and process-management as well as mission critical methodological and research design concerns.

## 7. In closing

In this research project, an exploratory journey has been made in search of the “human capital expansion multiple” (Glassér Study I) of sustainable economic development and societal prosperity.

A key condition for firm strategic advantage and sustainable long-term development is claimed to be the “Innovation Health” of human beings and entire populations, enabling human knowledge creation, adaptation, creativity, innovation and entrepreneurial actions, elaborated from the pioneering works of Keating & Hertzman (1999), WHO (2007 a, b), Penrose (1995), Nelson & Winter (1982), Kogut & Zander (1992, 1993,



1996), Zander & Kogut 1995, Zander (1991) and Zander & Zander (2005).

The notation of Innovation Health (IH) and Systems of Innovation Health (SIH) has been conceptualized, investigated and discussed, enabling a suggestion of an embryonic and emerging “Knowing and Innovating Theory of the Firm”. The research process is documented in four Treatises. Treatise 1 consists of the project and thesis summary, the conceptualization of Innovation Health and the System of Innovation Health approach. Further, a rapidly changing global demographic situation is presented and analysed in relation to firm sustainable competitive advantage and strategy. Treatise 2, consists of two studies addressing the theme of “Creativity, Innovation and Regions”. Treatise 3, explores the theme of “Human Beings, Situational Space and Developmental Health” in two studies. These studies address the complex issues faced when adapting to new knowledge and scientific evidence in a System of Innovation Health and also the challenges in interdisciplinary academic research projects. Treatise 4 consists of two studies introducing and elaborating the theoretical contributions of this thesis. An ontology of the human being, associations and community (Stein [1917]1989, [1922] 2000) is introduced and deployed, in a firm and organizational context. The “Knowing and Innovating Firm Theory” is prototyped in the final paper of the thesis.

Summing up the argument, I have proposed that firms competing in “globality” (Sirkin et al. 2008; Prahalad & Krishna 2008) certainly have to acknowledge “Innovation Health” and “Systems of Innovation Health”, in leveraging the firm’s competitive positioning and advantages, and sustained profitability. Innovation Health is not a capacity crucial only in firm recruitment of personnel. In order to succeed in knowledge and innovation-based enterprising, the Innovation Health of the firm’s entire horizontal and vertical value-creating space has to be acknowledged and managed. Increasingly, current “Innovation Health” and its continued development in the firms’ existing and potential future client base and markets, have to be monitored and included in successfully securing the strategic position of the firm.

Finally, I have to ask whether firm and industrial activities can stake their success program and strategy on the apparently unbounded “freedom of men and women”, adapting activities only to manifold constraints.

A different understanding of the firm and its stakeholders' responsibilities would be to acknowledge that "liberty was not given to man only as a gift but also as a duty. It is a duty which I and each of you are given as a task for himself and herself. It is the duty which measures life. It is not a property, which I may make use of in any way whatever and squander as well" (Canisius & Van Lierde 1984). In the words of the Identity Project of Notre Dame, the organizing forum of the university's Edith Stein Project<sup>xxxix</sup>: "We must seek a deeper understanding of who we are as men and woman, from whence our dignity stems, and how we can better uphold and celebrate our unique masculine and feminine natures, our inherent worth, and the distinct gifts that we have to offer society. With a clear articulation of the truth about themselves, humans can more confidently define and work towards helpful political and cultural goals; they may also discern authentic vocations that develop their [...] gifts, rather than deny them."

*"Know the truth, and the truth will set you free"* (Jn 8:32)

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## 9. Endnotes

- <sup>i</sup> The concept of human skills is rather broad and academic in the organizational research field. At World-Skills International home-page and portal, more vivid overviews of important human skills and capabilities are found: [http://www.worldskills.org/index.php?option=com\\_content&task=section&id=20&Itemid=429](http://www.worldskills.org/index.php?option=com_content&task=section&id=20&Itemid=429), [www.worldskillsportal.com](http://www.worldskillsportal.com).
- <sup>ii</sup> The paper was presented and awarded a best international paper acknowledgment by the Organization Behaviour Division at the Academy of Management Meeting 2005 in Hawaii and was advised by Professor Alexander Styhre, Chalmers University of Technology.
- <sup>iii</sup> The research labelled “organizational learning” (see for example Fiole, C.M. & Lyles, M.A., Oct., 1985 and Simon, H. 1991) is part of the foundation that the “knowledge-based” thinking is departing from. In this thesis I have chosen not

to address the wide body of research on organizational learning, rather it is incorporated in the understanding of the “knowledge movement” as defined by Eisenhart & Santos (2002). For an introduction to the topic see Eisenhart & Santos (2002). Keating & Hertzman (1999, Part III, pp. 235-289) provides an introductory discussion on “Human Development and the Learning Society”.

- iv Important contributions to the development of Schumpeterian endogenous growth models have been made by, for example, Aghion et al. 2009; Aghion & Howitt 1998; Dinopoulos & Thompson 1999; Howitt 2005.
- v For an extensive overview of health and economic growth theories and research, see López-Casasnovas, Rivera & Currias (2005), The MIT Press, Cambridge, Massachusetts, including classical references as well as more recent contributions of growth theories.
- vi An example of “A Schumpeterian Perspective – a formal model” is found in Appendix A of Howitt (2005).
- vii See McCain & Mustard, 1999, Ch 1.
- viii Howitt (2005) defines “Health” as a subcomponent of Human Capital as traditionally defined by Becker (1964, 1975, 1993); see also Weil (2007).
- ix In a recent string of research, Cunha and Heckman, has delineated an extension of traditional human capital theories, labelled “The Economics of Human Development” or “The Technology of Skill Formation”, primarily focusing on the application and effects of the emerging interdisciplinary understanding of early childhood development and the crucial impact of family conditions on economic growth and societal prosperity. Their emerging findings are presented and summarized in Cunha & Heckman (2007; 2008; 2009; 2009 forthcoming; see also Heckman, Stixrud & Urzua 2006). Cunha and Heckman’s research focus is the economic impact of early human life-stages skill and capability formation, similar in vein to the research effort denoted “Innovation Health” (Glassér 2010). The research, theorizing and concept of Innovation Health, in contrast to Cunha and Heckman, advocates not only the importance and impact of early childhood development and human life-spanning developmental possibilities, but also the indispensable contribution, co-evolution and effect of innovations, enterprising and institutional settings in generation of economic prosperity and societal development in Systems of Innovation Health.
- x Sources as diverse as the Book of Genesis, ancient Greek philosophical texts, Jacobean poetry and contemporary literature all acknowledge that relationship is integral to human identity. Human relationships and activity are what make community, culture, and nations. They make human beings human. In contemporary society, there exists a significant movement towards the objectification of relationships. This trend has caused a crisis in the recognition of true dignity and identity of the human person, leaving many people physically, emotionally and spiritually broken. While the effects of this phenomenon exist on a global level, this crisis is strikingly evident in the relationships most immediate to us: personal friendships, marriages, and families. In many ways, distortions of these

human relationships are at the root of larger human problems. As Pope Benedict noted in his most recent Encyclical, "Caritas in Veritate" (2009), "As a spiritual being, the human creature is defined through interpersonal relations. The more authentically he or she lives these relations, the more his or her own personal identity matures". Only when this human identity is properly understood can life be lived in a manner that is truly human, with respect for the authentic value and dignity of all human persons (<http://nd.edu/~idnd/edithstein/2010.html> / 20100415).

- x<sup>i</sup> The theories and concept of health equity based approaches are not discussed in detail in this thesis. For further understanding see The World Bank 2005; Anand, Peter & Sen 2004 and Salvereda, Nolan & Smeeding 2009.
- x<sup>ii</sup> "Edith Stein (1891-1942), took an interest in the philosophical study of human identity and relationships, writing about the individual and community, [the constituting human capacity of empathy], and the nature of men and women. Edith Stein, celebrated women's unique gift to act as instruments of empathy in her writings and through her exemplary life. She was one of the first women admitted to university in Germany, and was a brilliant student of philosophy" [the initial Phenomenological movement] as a fellow Ph D student and researcher with the more known philosopher Heidegger and under the auspice of Professor Husserl. "As an advocate for women in the professional world, she herself worked as an educator, a nurse, and a philosopher. For a decade between the time that she converted to Catholicism and when she entered a Carmelite convent, she fought for upholding the truth about the dignity of [the human being] through her writings and frequent lectures. Her life in the solitude of the cloistered convent, [as Theresa Benedicta of the Cross], gave her the opportunity to live her teachings. [...] She [sacrificed herself in martyrdom] for all those people who were suffering under Nazism, and then she died at Auschwitz in 1942. We look to Edith Stein for inspiration and a model of [...] a woman who worked to live out her vocation through the genuine human spirit of self-gift". (<http://nd.edu/~idnd/edithstein/stein.html>, 20100415).
- x<sup>iii</sup> The importance of the family as an institutional arrangement in society is discussed by Ostrom et al. (1993, pp. 63-70) and Maddison (2007, p. 314).
- x<sup>iv</sup> Science, Vol. 321, September 19, 2008, [www.sciencemag.org](http://www.sciencemag.org).
- x<sup>v</sup> "Today, Americans are feeling the gradual and subtle effects of globalization that challenge the economic and strategic leadership that the United States has enjoyed since World War II. A substantial portion of our workforce finds itself in direct competition for jobs with lower-wage workers around the globe, and leading-edge scientific work is being accomplished in many parts of the world. Thanks to globalization, driven by modern communications and other advances, workers in virtually every sector must now face competitors who live just a mouse-click away in Ireland, Finland, China, India, or dozens of other nations whose economies are growing" (American National Academy of Science 2007, p. 2). "Having reviewed trends [...], the committee is deeply concerned that the scientific and technological building blocks critical to economic leadership is

eroding at a time when many other nations are gathering strength [...] great minds and ideas exist throughout the world. We fear the abruptness with which a lead in science and technology can be lost – and the difficulty of recovering a lead once lost, if indeed it can be regained at all” (ibid., p. 3). [...] “The committee notes that the nation is unlikely to receive some sudden ‘wake-up’ call; rather, the problem is one that is likely to evidence itself gradually over a surprisingly short period” (ibid., p. 3).

- xvi [www.gapminder.org](http://www.gapminder.org)
- xvii The high correlation between early life-time developmental health and economic progress of a country is roughly displayed by Gapminder’s graphs ([www.gapminder.se](http://www.gapminder.se)), and also illustrated in Fig. 2 above.
- xviii A concise discussion on this topic of modelling the human being and human development is provided by Wojtyla (1984, pp. 88-91): “Experts in the field no doubt could – or would – fill out the picture of the person in development that I have sketched in a rather summary and fragmentary fashion” (ibid. p. 90).
- xix The German word for “Empathy” is “Einführung”. The word originally means to be in-feeling, as the double meaning of feeling-into and at the same time feeling within oneself (Sawicki 1998); for a more technical discussion see Sawicki, M. (2001), *Body, Text and Science*.
- xx For a more detailed discussion on the technicalities of n-tuples as defined by Sen (1985), see *Commodities & Capabilities*, Ch. 2, 4 & 7.
- xxi For a more detailed discussion see Styhre (2008, pp. 31-42).
- xxii An examination of the Aristotelian approach and its relation to contemporary research on skills, capabilities and human action is found in Naussbaum, M. (1998) “Nature, functioning and capability: Aristotle on political distribution”, *Oxford Studies in Ancient Greek Philosophy*.
- xxiii For in-depth discussion of contemporary health theories and philosophy see Brylde & Tengland 2003; Lindstand et al. 2007; Tengland 2006; and Tengland 2007.
- xxiv See Weaver, H.G. (1947, March, 1953), *The MAINSPRING of Human Progress, U.S.A., The Foundation of Economic Education, Inc.*, for a discussion on the topic.
- xxv A comparison of the Human Development and Neo-Liberalism paradigms by Jolly (2002) is found in Fukuda-Parr & Kumar (2003). I have not come across any similar piece of research comparing the two paradigms and “Evolutionary Economics”. It seems conceivable that the Human Development paradigm and Evolutionary Economic theory would be closely compatible in a detailed analysis.
- xxvi Thomistic ontology and economics: The case for material sufficiency by Barera, Providence College. Presented at the Conference on Theorizing Ontology, Girton College, Cambridge; August 17-19, 2004.

- xxvii See extended discussion of the topic at <http://www.csog.group.cam.ac.uk/iacr/papers/Barrera.pdf>, (20090604).
- xxviii A fountainhead is defined as a point of origination: beginning, derivation, fount, fountain, mother, origin, parent, provenance, provenience, root, root-stock, source, spring, and well. (<http://www.answers.com/topic/fountainhead>, 20100512)
- xxix Note that FX regimes are becoming increasingly important to consider as corporate personnel costs normally are 40-60 % of total costs in the firm. As countries in "former" developing and "catch-up" regions increasingly gains competitive advantage through relative increases in innovation health multiplied by relatively larger number of people than in Europe and the USA. The FX regime will be a strategic tool for any joint currency and population region or nation in "Globality" (See Sirkin, Hemerling & Battacharya 2008).
- xxx This line of research and investigation was initiated by Glassér & Redhe (1987 and 1987a) at The Stockholm School of Economics.
- xxxi This paper has been reviewed by AOM 2010 and Journal of Management Studies. Comments and suggestions from anonymous reviewers are gratefully acknowledged and have been considered.
- xxxii This study also exists in a more extensive working paper version (Glassér SSE WP 2006 / 2009). This shorter version of the paper has been reviewed by Organization Science 2009 and Academy of Management 2010 Conference. The comments provided by Argyres (OS) and AOM 2010 reviewers are gratefully acknowledged and have been considered in the overall finalization and framework of this thesis.
- xxxiii The working paper is found on [http://www.economics.harvard.edu/faculty/aghion/papers\\_aghion](http://www.economics.harvard.edu/faculty/aghion/papers_aghion) (20100224).
- xxxiv The paper is found on [http://www.economics.harvard.edu/faculty/aghion/papers\\_aghion](http://www.economics.harvard.edu/faculty/aghion/papers_aghion) (20100223).
- xxxv See [jenni.uchicago.edu/human-inequality/](http://jenni.uchicago.edu/human-inequality/), 2008-01-27.
- xxxvi For overview see Clegg, Kronenberg & Pitsis 2005, Ch. 8, *Managing Culture*, pp. 265-297.
- xxxvii Chapter 8: "Managing leadership, Motivation, Inspiration & Transformation, pp. 225-262.
- xxxviii <http://inthealth.eu/research/health-literacy-survey/>
- xxxix The Identity Project seeks to join all those at the University of Notre Dame in the development of our understanding of our human identity and dignity. Information on the project is found on: <http://nd.edu/~idnd/index.html> and <http://nd.edu/~idnd/edithstein/index.html>.



Earthy Balloons

## **10. Appendices**

### **The Fountainhead of Innovation Health**

#### **Treatise 2–4**





# **Treatise 2: Creativity, Innovation & Regions**

## **Study I:**

The Knowing & Creating Region – with Foundations for Innovation, Enterprise and Growth (Glassér 2003)

## **Study II:**

Creativity and regional prosperity – a critical study of Florida's Creative Capital Theory (Glassér 2004)



Earth on fire

TREATISE 2, STUDY I

# The Knowing & Creating Region

WITH FOUNDATIONS FOR INNOVATION,  
ENTERPRISE AND GROWTH

Charlotte Glassér  
2003

This study was undertaken and the article written at the Royal Institute of Technology, Stockholm Spring 2003, and presented to directors of the Swedish Regional Development and Innovation Authorities (ITPS, NUTEK and VINNOVA) in the summer of 2003. The article has been slightly revised and edited Spring 2010. Advisory and examining professors: Folke Snickars and Börje Johansson Department of Infrastructure.<sup>1</sup>

<sup>1</sup> Advisory support from the Royal Institute of Technology, Department of Infrastructure and financing received from Glassér Corporate Advisors and associates is gratefully acknowledged

## Introduction

Sweden, in connection with membership in the European Union, has carried out a paradigm shift in its regional development policy, as established in the Government Bill “A policy for growth throughout the country” (2001/02:4). At the same time, innovation policy has acquired increasing importance in Sweden. Since the beginning of the 1990s, the OECD has been a driving force in the work of giving national innovation systems a central role. The EU Commission has striven during the past ten years for the innovation-system approach to permeate all aspects of the member countries’ growth policies. The focus on issues of growth and innovation should be seen against the background of the weak economic development that has characterized Europe since the 1970s and the goals that were set forth in the EU’s Lisbon process in 2001<sup>i</sup>. The ambition is that the growth gap, particularly between the EU and the USA, should be closed through creation of “the most competitive knowledge-based economy in the world by 2010”. Both regional development policy and innovation policy are inter-sectorial in their design, and bear upon several traditional areas of policy. Now that the new innovation policy takes shape, it will contain components from educational, R&D, labor market, industrial and regional policies (Edquist 2002). The Government’s innovation policy and essential concepts within innovation policy, innovation systems and factors that influence these, are described in the Government Bill “R&D and collaboration in the innovation system” (Prop. 2001/02:2)<sup>ii</sup>:

Knowledge and innovations are regarded to an ever greater extent as the most significant driving force for economic growth and increased material welfare. In order to conduct an effective growth policy it is important to understand what drives this development and how knowledge is created and exploited in the innovation system. [...]The design of the state innovation policy has great significance for growth and development in the country. Companies within expansive and knowledge-intensive advanced industries often turn to countries with effective innovation systems, high-quality research and well-educated workers. [...]The state has a responsibility to create preconditions for growth and development in all parts of the country. This requires, among other things, a good infrastructure, well-developed welfare services and social structures that provide opportunity to exploit the knowledge and initiative which exist at local and regional levels.

VINNOVA and the Ministry of Education are responsible for implementation of innovation policy. VINNOVA is to work for “developing strong and internationally competitive innovation environments”. In the regions, this is done through the program VINNVÄXT, which builds upon an innovation-system view and actor collaboration in the so-called Triple Helix Model (VINNOVA’s operational planning 2003–2007, 2002).

During 2001, VINNOVA has begun work to be able to design a methodology for supporting the development of innovation systems in regions. VINNOVA will, for instance, collaborate with ALMI/Nutek as well as regional actors within the framework of the regional growth agreements in order to create more growth regions and develop effective innovation systems in the country ( Prop. 2001/02).

Parallel with carrying out the VINNVÄXT program, the regional development policy is implemented through the regional growth agreements/programs. The form of collaboration for the regional growth programs consists of different constellations of actors in so-called “Partnerships”. Both of these processes are intended to create regional dynamics and growth. The design of the new policy areas and their implementation has led to a number of concepts simultaneously being introduced at national and regional levels: innovation systems, Triple Helix, and clusters. All these concepts are relatively new and the empirical experiences are comparatively limited. For an external observer, it seems that the implementations of regional policy through growth agreements and of innovation policy through VINNVÄXT are complementary as well as overlapping. It also seems that a certain conceptual confusion prevails<sup>iii</sup>.

This article is a limited case study of the Swedish innovation system in transition in connection with Sweden’s membership and integration in the European Union. The article introduces the concept of “Creative Capital Theory” (Florida 2002) and the growth of the “creative class”. Further, a comparative analysis is made of the theoretical framework for a “System of Innovation approach” (Breschi & Malerba 1997; Carlson 1995; Freeman 1987; 2002; Edquist 1997; Lundvall 1992; Nelson 1993, 2002; Nelson & Rosenberg 1993). These two theories are set in relation to the ongoing transformation of Swedish innovation policy and regional policy. Moreover, the article gives a literature survey of relevant existing research on innovation systems. The discussion is intended to provide an additional dimension to

bridge between the policy areas of regional development and innovation, as well as leading to a shift of focus from only companies, industries and structures to include human beings and local situational practices as the bearers of “creative capital” – and that this in turn will stimulate continued dialogue on policy design and implementation processes. It is desirable that ideas about the significance and understanding of how to improving our urban environment, following the seminal research traditions of Jacobs (1961, 1969, 1984) extended by Florida (2002), are awakened not only from a Swedish or European perspective, but also by widening our field of view toward urban growth environments in other parts of the world. The aim to introduce and discuss the concept of “creative capital” and the emergence of the “creative class” (Florida 2002), along with an approach to analysis of what they may mean for the design of innovation policy and regional policy in Sweden has thus far received little attention in Sweden and Europe. The Study is organized as follows. Section 1 gives a summary of theories in traditional research on innovations. Section 2 discusses how urban/regional attractiveness can be measured. Section 3 presents “Creative Capital Theory” and closely related concepts. Section 4 contains an analysis of factors that may be essential to consider in the borderland between innovation policy and regional development policy, followed by some concluding remarks.

## **Innovation systems**

### *National, regional, and functional innovation systems*

Innovation systems may be national, regional or functional; these kinds coexist and complement each other. During recent times, innovation-system theory has been developed and adopted in large parts of Europe as well as the OECD. We borrow some definitions and summaries from Edquist’s report, *Innovation policy for Sweden – goals, reasons, problems and measures* (2002):

By “innovations” are here meant new creations of economic value which are usually developed by companies, but to which other organizations can make important contributions. Innovations have to do with knowledge. They may be based on entirely new knowledge, but often on new combinations of existing knowledge. [...] “Innovation policy” consists of public efforts that influence the

processes through which innovations are created. The innovation-system approach is a rather new one for the study of innovations [and policy making]. An innovation system can be defined as including all important factors that influence the development, diffusion, and utilization of innovations, as well as the relationships between these factors. [...] In the innovation-system approach, a long-range perspective is natural and meaningful. The reason is that innovation processes take time, even decades. They also have evolutionary features, i.e. the processes are path-dependent. It is not always clear – even to the actors involved – what the final result will be, that is, which paths will eventually be followed. [...] Since innovations arise – to greater or lesser degree – everywhere in an innovation system, and due to the innovation process’s evolutionary character, an innovation system never reaches equilibrium. Neither do we know whether the potentially “best” or “optimal” path of development is followed, since we do not know which one it is. This means that the concept of optimality is irrelevant in regard to innovation systems. We cannot specify an optimal or ideal innovation system. And this naturally means in turn that we cannot compare an existing system with an ideal or optimal one.

The difficulties of comparing different types of innovation systems are well illuminated in the report “Development of regional innovation systems through actor collaboration – Three European examples” (Arena for Growth 3-02).

The foregoing means that growth and innovations usually – and rightly – are considered to be the most important determinants behind growth in productivity. “Growth policy” and “innovation policy” are thus not independent of each other. An innovation policy has great effects on growth, and growth generally requires dynamic innovation processes.

The preceding paragraph will be returned to when we discuss the coordination, or lack of it, between the regional development policy and innovation policy in Sweden. The innovation system’s properties and characteristics obviously have consequences for how the policy can and should be designed. Viewpoints on the policy’s possibilities to intervene successfully in the innovation area and in a market economy are also

presented in Edquist's report (Edquist, VFI 2002:2; see also the report ITPS, Malmberg 2002:008). Edquist points out the importance of: "... *distinguishing between what needs to be done for an innovation system to function well and what the state can and should do. A distinction is often not made in discussions of innovation policy.*" Against the background of the above central terms and concepts in modern research on innovations, I do not intend to make an exhaustive exposition of innovation theories and applied research on innovation systems. The contributions to research and the articles involved are of wide range, and I therefore content myself with referring those who want to learn more about the subject to further reading of Edquist's survey in the treatise *Innovation policy for Sweden* (2002).<sup>iv</sup>

### *Clusters*

The cluster concept has been built up around Porter's research from the 1990s onward. Initially the concept was formulated to describe how international competitiveness arises in assemblages of related companies and industries. Clusters were at first regarded as nationally organized industrial systems. These often have a geographic concentration within a country. In the above survey of the innovation-system approach, we can see that the concept has acquired a primary importance among central authorities in Sweden, and it also plays a role in the regional growth agreements/programs. The cluster approach has likewise become central in these constellations. There are differences between the cluster and innovation-system approaches, but there is much that unites them. They both have a geographic point of departure, and an interplay is expected to occur between actors in spatially limited environments, which leads to innovations, developmental energy and renewal (Malmberg ITPS 2002). Malmberg mentions in his report that the cluster concept has gradually acquired the dual meaning of functionally connected industrial systems and geographically limited agglomerations, the latter of which have given rise to confusion and misunderstanding.

In policy contexts, the cluster has become more or less synonymous with industrial policy programs and a number of directed policy efforts. The definition then becomes purely discursive. A cluster is what someone decides to call a cluster. Such "discursive clusters" may have a coupling to existing – functional or geographically



defined – clusters, but this is far from always the case. (Malmberg ITPS 2002)

Further, he points out that it could be fruitful to study clusters empirically, if one avoids the assumption – in his opinion dubious and probably wrong – that clusters must be defined spatially. His view is that industrial clusters should rather be defined functionally and studied in global contexts. Rather than, “*trying to ‘press’ functional clusters into narrowly limited geographic areas (where there is seldom ‘room’ for them) we should systematically analyze the hypotheses that can be inferred in (Porter’s) diamond model regarding the significance of the local environment and of geographic distance for the processes that lead to innovative power, dynamics and growth*” (Malmberg 2002). Finally, Malmberg makes clear that the only factors which are relatively local in today’s global economy are people. If we take greater account of people’s importance in cluster research, the focus will be shifted toward local labor markets’ function and from companies and industries to individuals and competences. The local environment in this view acquires importance since it is there that people live their lives. In the most developed and globalized economies, only a minority of people has gone out into the world away from their local contexts. Moreover, if it is true that innovations and learning arise between people who exchange ideas, it becomes important to consider the limited mobility of individuals (Maskell & Malmberg 1999). Companies must, by this reasoning, strive to be in creative environments so as to maintain their innovative ability and competitiveness. For a survey of the extensive research on the significance of concepts of nearness and accessibility, and their importance for the emergence of innovations, I refer to (Andersson & Karlsson 2002 a, b further Breschi & Lissoni 2001 a, b; Breschi & Malerba 2001; Jaffe & al. 1993; Lagendijk 2001). Malmberg’s arguments bring us to Florida’s research, which he has formulated in “Creative Capital Theory”. Let us try to clarify what consequences the individual’s choice of domicile can have for the emergence of innovations, enterprise and growth. Before doing so, the following chapter will look at studies which aim to quantify regional attractiveness, since this is central to Florida’s “Creative Capital Theory” (Florida 2002).

*The local and regional forces of attraction – what is measurable, developable and important?*

The authors of the book “*Knowledge for welfare – The universities and the transformation of Sweden*”, Sörlin and Törnquist (2000), are not the only ones who have asked these questions: “Economic welfare, renewability and growth are positively charged concepts in our time and stand for properties that are quite unevenly distributed around the world. Why are certain areas and places successful in various respects while others are not? Why are some regions but not others attractive for people and businesses?” The subsequent questions are how we can measure forces of regional attraction, and how the indicators of this should be composed and weighed together. In the following we will review some suggestions proposed.

### *ITPS – Regional growth indicators*

The report “Regional growth indicators – Theoretical aspects, concepts and empirical illustrations” (Eliasson, Westerlund, ITPS, Appendix A) gives the following proposals for regional growth indicators:

#### **Population-geographic structure**

Population density, degree of urbanization, and accessibility.

#### **Human resources**

Relative labor force index, employment frequency, relative unemployment index, long-term unemployment, labor market policy steps, absenteeism index, inflow and duration of unemployment and vacancies, employment growth, measures of structural unemployment and matching problems

#### **Industrial structure**

Industry diversification and working-life diversification

#### **Infrastructure and other real capital**

Networks for road, air and train transport, IT infrastructure, real capital in industry and the real estate sector, educational and research capacity at universities and colleges, capacity in regional and public sectors

## *Arena for Growth – Navigator for regional attractiveness*

Arena for Growth has designed what it calls a “Navigator” for measuring regional attractiveness. This is presented in the report “Local and regional attractive force” (2003). The authors think that it is difficult to measure regional attractiveness, but that several patterns can be identified from the study. They note the need to supplement their indicators with variables that measure “quality of life in the form of attractive residences, good service, and diversity in supply of culture, trade and entertainment”. Further, they want indicators that measure industrial preconditions in the form of innovation climate, entrepreneurship, and traditions which influence the climate of cooperation between the public and private sectors as well as between municipalities and larger regions”. Eight indicators have been divided into three main groups:

### **Demographic indicators**

Proportion of pensioners in the population, population development in absolute numbers

### **Economic indicators**

Municipal tax base and net cost, salary development in form of growth in households’ salary total

### **Labor-market and industrial indicators**

Unemployment, labor-force proportion of university graduates, degree of new enterprise

### *Social classes according to Florida’s professional categories*

Let us now proceed to consider how Florida (2002) structures his models for measuring regional attractive force and creativity. Florida’s empirical studies are mainly limited to American urban regions. Studies have also been conducted in Ireland. Florida’s central focus is the growing Creative Class and its effects on society’s productivity and growth. This class becomes visible when the American labor market is structured according to individuals’ professions as follows:

**The Creative Class** (38.3 million Americans, 30% of the labor force): in the **super-creative core** (15 million Americans, 12% of the labor force) are professions within computer science, mathematics, architecture, engineering, medical, chemical, biological and social sciences, as well as within education, training and information services.

**Creative professional persons** (23.3 million Americans, 18% of the labor force) are found in the professions of company management, banking and finance, law, medicine and technical expertise, as well as in marketing and qualified sales.

**The worker class** (33 million workers, 26% of the labor force) consists of professions in construction and raw-material extraction, installation, maintenance and repair, production and different types of transport.

**The service and official class** (55.2 million employees, 43% of the labor force) has professions consisting of less qualified activities in medical and elderly care, restaurant-related occupations, cleaning and simple maintenance, personal care, simple sales, office work and administration, municipal and social services, as well as protection and security.

**Professions in agricultural industries** (1%): farming, forestry and fishing.

### *Florida's regional indicators*

To measure a city's or region's capacity for attracting creative people, which according to Florida is the prerequisite for innovations, enterprise and growth, he uses the following indicators: High-Tech Index, Innovation Index, Gay Index, Bohemian Index, Talent Index, Melting Pot Index, Composite Diversity Index (a combination of Gay Index, Bohemian Index and Melting Pot Index), and Creativity Index (a joint weighing of Innovation Index, High-Tech Index, Gay Index, and Creative Class which is the relative proportion of the total working force). These indicators are the result of extensive qualitative and quantitative empirical work<sup>v</sup>. Full definitions of the indices used can be found in the appendix to Florida (2002).

## **Creative Capital Theory**

### *Background of Creative Capital Theory*

Geographers, economists and sociologists have been engaged, ever since Marshall's path breaking work at the previous turn of the century (Asheim 2000), in issues relating to companies and industries. Where companies are established, how the labor force is distributed, and phenomena such as agglomerations, clusters, and the formation of industrial complexes have been illuminated (Henderson 1974, 1988; Porter 2000, Krugman 1991). Less attention has been devoted to the economic, social and geographic factors that influence the spatial diffusion of individuals who start and run companies and operate in different industries. During recent years, though, an interest has arisen in clarifying how human capital affects regional growth (see Lucas 1988, Simon 1998 and Mathur 1999 for an overview). This research builds initially on Jacobs' ideas (1961, 1969, 1984) about regional growth arising through aggregations of human capital in certain cities, known as "Jacobs's externalities". A broad range of empirical research shows connections between human capital and regional growth (Glaeser, Scheinkman, Sheifer 1995; Simon 1998, Glendon 1998, Glaeser 2000). Romer expresses these as follows in his "New Growth Theory": "What is important for growth is integration not into an economy with a large number of people, but rather into one with a large amount of human capital" (Romer 1990). Florida aims at taking research on the importance of human capital a step further, when he formulates his "Creative Capital Theory" through results of extensive empirical studies. He thinks that too much has been said about companies, industries and regions. Growth policy must shift focus to individuals and where they choose to live their lives, since they are human beings who are bearers of creative capital, which is the prerequisite for innovations, enterprise and economic growth. Companies follow the individuals and create industrial groupings and clusters in turn.

If creativity and the ability to create meaningful new forms, according to Webster's dictionary, is claimed to be the foundation for competitive advantages and is the principal contributing factor in the modern economy. How, then, does creative capital take form and in turn influence the climate of innovation, enterprise and growth in a region? We follow the thinking of Sörlin & Törnquist one more time:

The embryo of a successful accumulation of enterprising spirit can in surprisingly many cases be traced to an apparently trivial historical circumstance. Behind the successes are usually *individual persons* (my emphasis) whose initiative has started a long-term process, like a spark igniting a chain reaction. Regional successes, however, can seldom be derived from conscious, systematic planning (Sörlin & Törnquist 2000).

### *Creative Capital Theory*

Florida claims that essentially his theory brings about the understanding:

That regional economic growth is driven by the location choices of people – the holders of creative capital – who prefer places that are diverse, tolerant and open to new ideas. It thus differs from the human capital theory [developed Becker (1964) and Schultz (1961)] in two respects: (1) It identifies the type of human capital, creative people, as being key to economic development; and (2) it identifies the underlying factors that shape the location decisions of these people, instead of saying that regions are blessed with certain endowments of them (Florida 2000 p. 223).

Hence, places must have low entry barriers for companies as well as highly skilled people, i.e. a high degree of system openness. Such places gain a creativity advantage. All else being equal, they are likely to attract greater numbers of talented and creative people who power innovation and growth.

### *Technology, Talent and Tolerance – the 3T determinants of economic development*

In more pragmatic terms, Florida states that in the creative capital theory regional growth comes from the 3Ts of economic development: Talent, Technology and Tolerance. He argues that: “There is much to be gained economically from being an open, inclusive and diverse community. Regions need to offer the 3Ts. If they fail to do so, they will fall further behind” (ibid. p. 266). Florida looks at how the factors of technology and talent variates together, by studying four regional indicators: (a) the proportion of the labor force that consists of the creative class; (b) the Talent Index, comprising the proportion of highly educated people in the labor force; (c) the Innovation Index, in the form of the number of patents

per capita; (d) the High-Tech Index, or proportion of growth companies in high-technology business. He establishes statistically significant results which generally indicate that the occurrences of both innovations and high-technology companies are strongly covariant with the occurrence of high concentrations of the creative class and of talent. The statistical correlation between regions with a high density of the creative class and of talent is the strongest significant analytical variable in Florida's research. Conversely, traditional industrial regions with a high concentration of the worker class show an equally strong negative correlation with the Talent Index. According to Florida this could be taken to mean that the worker class has the lowest level of human capital in society. To measure the level of tolerance in a region, Florida uses the Composite Diversity Index (CDI). CDI weighs together: (a) the Gay Index, giving the relative proportion of homosexuals in a region; (b) the Melting Pot Index, measuring the number of persons in a region who were born in another country; and (c) the Bohemian Index, a measure of the number of individuals in the region who have artistic professions (authors, designers, singers, musicians, composers, actors, directors, artists, sculptors, photographers, dancers and performers). Florida again finds statistically significant connections between the degree of openness in a region, measured by CDI, and the occurrence of innovations as well as high growth indices driven by high-technology companies. Moreover, CDI is a very strongly significant, leading indicator for high-technology growth in a region.

### *Creativity, innovations and economic growth*

A further test of "Creative Capital Theory" was carried out by Florida and his research team with several statistical analyses, arriving at the following conclusions: Diversification and creativity in combination drive *population growth*. Neither high-technology enterprise nor the composition of human capital has any importance in this context. The strongest indicators for population growth are the CDI, Bohemian Index and Melting Pot Index. Creativity drives an increase in the number of job opportunities in a region. The main indicator is the Bohemian Index. Neither talent nor high aggregation of technology-driven companies is important in this case. Creativity and diversification drive growth in both the number persons and the number of job opportunities. CDI and the Bohemian Index are the only indicators that give a significant result in regions with more than 2.2 million inhabitants. In small and medium-size regions, immigration seems to be more important for growth. The Melting Pot Index is the only

significant explanatory variable. Finally, Florida and Youl Lee (2001), through a series of advanced statistical analyses, could establish that the rate of innovation (number of patents per capita) in a region is strongly associated with creativity and diversification, measured in terms of the Bohemian Index as well as the number of researchers and engineers in the region. This last study referred, study neutralizes the effects of the region's industrial structure and the human capital's composition.)

## **In the borderland between Regional Development Policy and Innovation Policy**

The question remains of what we can learn from a summary and synthesis of the preceding chapters? First, it is noticeable that Sweden, in line with membership in the European Union, has set a course for a new regional policy. The innovation policy and its design have acquired a central role in the country at both the national and regional levels. Both of these policy areas are young, and continued empirical research should be relevant for their development. The degree of public intervention in the innovation system should be carefully considered, along with the difficulties that exist in the assessment of policy effects, because of the innovation system's complex properties. There is a relationship of dependence between innovation policy and regional policy. It therefore appears urgent to define, as far as possible, the distribution of responsibilities and the interfaces for these policy areas' activity and practical implementation at different levels in the country. It seems urgent to design a unified terminology which does not decrease the value of concepts such as the innovation system, clusters and Triple Helix, and which reduces the risk of conceptual confusion between different actors in the innovation system and in the regional policy development arena. Further, to supplement from a point of departure in Florida's research results, the existing national models for measuring regional attractiveness and growth, with quantitative indicators of (a) degree of diversification and variety in a wide sense, (b) tolerance and (c) degree of openness to new ideas or could we possibly depart from Sen's Nobel Prize awarded theories on this topic as summarized in Sen (1999)? He advocates an anthropocentric approach to societal development and defines desired outcome and success as human capability expansion and freedom (Sen 1989, 1999; ul Haq 1995) consistent with Florida's view. Enabling human skill, capability development, deployment and expansion, five distinct



types of freedom necessary in a society are defined and investigated by Sen (1999:10) and adopted in this research project: (1) political freedoms, (2) economic facilities, (3) social opportunities, (4) transparency guarantees, and (5) protective security. The ongoing global struggle for adaptation to and evolution of human freedoms and human rights is discussed, with a lens of human developmental impact and trajectories, in the UN Human Developmental Report (2000). Further, it is summarized in Fukuda-Parr & Kumar (2003:56-59, Ch. 1.5). The basis for design of these indicators can suitably be the indices presented by Florida in "Creative Capital Theory". This type of supplementary indicators would hopefully lead to new interesting analyses and conclusions, regarding which regions the innovation policy should focus upon to achieve desired results. We should consider whether Florida's structuring of the labor market, partly in new categories, could be a foundation for interesting conclusions also in Sweden. Is there a creative class and, if so, what would this mean for the design of innovation policy and regional policy? Moreover, it appears urgent to think about Florida's research results indicating that the worker class at traditional plant and workshop places has a weak capacity for innovation and renewal, which also leads to weak economic development. Florida's research results suggest that the development of urban environments is important for a country's innovative ability and growth as a whole. It should thus be of interest to use Florida's methodology for comparing our Swedish cities with each other. In addition, it would be interesting to compare the Stockholm region with other Scandinavian capitals and urban centers around the Baltic Sea. This research approach could hopefully be refined to include international comparisons between European cities and urban centers in other parts of the world. It should also be remembered that Florida and research team, in the tradition of Jacobs (1961, 1968, 1985) is not the first one to be fascinated about the city as a human dwelling. The institutional framework of living together in the community of a city can be found already in the Old Testament and its metaphors of the heavenly city of Jerusalem, symbolizing the final fulfillment of human creativity and endeavors. The city is often characterized as "a mother that nourishes her children" by the Psalmist. Hence, the Judo-Christian value system and cultural tradition may also be suggested as the institutional framework that underpins Florida's three T's of Technology, Talent and Tolerance and human progress. This topic has been discussed in recent contributions by Novak (1997, 1999) Stark (2006), Woods (2005) and North (2005). Stark (2006) along with Woods and North argues that: "Christianity and its related institutions are directly responsible for the most significant intellectual,

political, scientific and economic breakthroughs of the past millennium. [...] What we most admire about our world – scientific progress, democratic rule, free commerce – is largely due to Christianity” (Stark, back cover). Florida’s cities of the US-continent are all inheritors of this value-system. North argues that we ought to spend more time and effort understanding how human value-systems develop and evolve into institutional settings giving rise to human prosperity as well as distress and destruction (North 2005 pp. 166-167). Further, he firmly states “We must know where we have been in order to know where we can be going. Understanding the cultural heritage of a society is a necessary condition for making “doable change” (ibid p. 163). From North’s point of view, maybe Florida’s approach is too limited in only assessing the development of American and European cities. Finally, against the backdrop of Florida’s research results, it should be considered whether policies for innovation and regional development ought to contain, in greater degree business promotion strategies that aim at attracting talented persons, fostering attractive environments for life and work, and increasing openness to creativity, diversity and varied thinking.

## In closing

May you, the reader, have found something new to contemplate after coming so far in this study? My presentation can be taken as a working document, and perhaps your mindful reflections and comments on its content, structure and form will bring the creative process further. It is, of course, you the super-creative individual in the research world, who is expected in large degree to contribute to the multiple expansion of creative human capital, which in turn leads to economic growth and progress, but don’t forget to assess the impact of the value and belief system that fostered your thinking and understanding of the universe (Rhodes & Westwood 2007).

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## Endnotes

- <sup>i</sup> In bundling this thesis together in March 2010, we know that the Lisbon process and strategy has not yet reached its desired goals. 79 structural indicators were to guide the Community's members in enhancing its international competitiveness in relation to the US and the BRIC-economies. The strategy turned into failure long before the global financial and economic structural turmoil in 2008-2010.
- The third of March 2010, the European Commission announced a re-start with the announcement of "Europe 2020". The learning will be to focus on fewer and more precise indicators in guiding the economic process forward. We hope that what this paper and the conceptualization and improved understanding of "Innovation Health" will be guiding the Community's process forward, in enhancing our conditions of sustainable and prosperous development ahead.
- <sup>ii</sup> Those who want deeper analyses concerning the design of Swedish innovation policy are referred to the following reports: Innovation systems – challenges for society and for policy (Andersson, Asplund & Henrekson 2002), Innovation policy for Sweden – goals, reasons, problems and measures (Edquist 2002), VINNOVA's operational planning 2003-2007, Need-motivated research and effective innovation systems for sustainable growth (Vinnova 2002), Regional innovation systems – a deeper survey of knowledge (Nilsson & Uhlin 2002), and Cluster dynamics and regional industrial development (Malmberg 2002).
- <sup>iii</sup> See the reports "Obstacles and driving forces for collaboration – experiences from Vinnova's pilot project for development of regional innovation systems", Arena for Growth and ITPS, Malmberg (2002), Nilsson & Uhlin (2002).
- <sup>iv</sup> See also Edquist's article "Systems of Innovation Approaches – Their emergence and characteristics (1997). A good summary of the innovation-system concept can be found in the introduction to the book "Metropolitan Innovation Systems" (Fischer, Diez, Snickars 2001).
- <sup>v</sup> See Human Capital, Quality of Place, and Location (Arora, Florida, Gates, & Kamlet 2000; The Economic Geography of Talent (Florida 2000); The Geography of Bohemia (Florida 2001); The Rise of the Creative Class (2002); Innovation, Human Capital, and Diversity (Florida & Youl Lee 2001); Emergent Cities: A Microeconomic Explanation (Axtel & Florida 2001).



Earth rolling in



TREATISE 2, STUDY II

# **Creativity and Regional Prosperity**

## A CRITICAL STUDY OF FLORIDA'S CREATIVE CAPITAL THEORY

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2004

This Study was written at Chalmers University of Technology, 2004, advised by Professor Maureen McKelvey, RIDE. The working paper was Web-published and presented at International Innovation Conference at The Royal Institute of Technology, CECIL, Nov 2004, Stockholm, Sweden.<sup>1</sup>

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## Introduction

In 2002, Richard Florida, Professor in Regional Economic Development at the Heinz School of Public Policy and Management, launched his bestselling book *“The rise of the Creative Class and how it is transforming work, leisure, community and everyday life”*. Further, a report *“Europe in the Creative Age”* was published in early 2004, extending the research from the USA to the member states in the European Union. Over the past year, a vivid and broad public debate has taken place in the US, regarding the relevance of Florida’s statements and research conclusions, engaging prominent scholars as well as politicians, on the left as well as on the right side camps. Glaeser (2004) summarizes the debate about Florida’s research: “Florida’s basic thesis is that the economy is transforming and creativity is to the 21<sup>st</sup> century what the ability to push a plow was to the 18<sup>th</sup> century. Creative occupations are growing and firms now orient themselves to attract creative. Employers now prod their hires onto greater bursts of inspiration. The urban lesson of Florida’s book is that cities that want to succeed must aim at attracting the creative type who is, Florida argues, the wave of the future (Glaeser 2004)”. Florida continues himself by claiming that: “It would be an understatement to say that my book *the rise of the creative class* has generated heated debate (see, [www.creativeclass.org](http://www.creativeclass.org)). With the national culture wars escalating on all fronts, it’s not surprising that most of the controversy revolves around the idea that cities with thriving arts and cultural climates and openness to diversity of all sorts also enjoy higher rates of innovation and high-wage economic growth” (Florida, 2004 p.5). The aim of this study, is to provide a critical analysis and examination of Florida’s “Creative Capital Theory” (Florida 2002), scrutinizing his suggestions of the importance of environmental factors, outlined as his “3T’s of Technology, Talent and Tolerance”, and the impact of realized human creativity supposedly leading to higher relative rates of entrepreneurship, innovation and growth in certain regions and innovation system contexts. Further, a systemic model of creativity presented by Csikszentmihalyi (1996) and some additional sources of literature on creativity, will be used assessing the importance and possible impact of “personal creativity” alternatively expressed as “creative personality traits” as presented by Florida. I will frame the analysis and discussion, in the US innovation system context. In the following pages, I will start by presenting Florida’s definition of *“Creative Capital Theory”*. Further, an analysis and discussion follows on how Florida’s research relates to other growth theories

and models, the systemic model of creativity and the system of innovation approach. Finishing, the paper with some reflections on the contribution of Florida's research approach and findings as well as identified gaps, mainly in relation to theories of entrepreneurship, enterprising and management science, opening-up for alterations and extensions of Florida's research model and theory.

## **The Creative Capital Theory**

The idea that human creativity, innovation and entrepreneurship are increasingly important in fostering societal development and poverty alleviation is not a unique idé expressed by Florida alone. Novak (1997, 1999 p. 61) has stressed this thesis as well, even referring to John Paul II: "Whereas at one time the decisive factor of production was the land and later capital, understood as the total complex of instruments of production- today the decisive factor is increasingly man himself, his knowledge, especially his scientific knowledge, his capacity for interrelated and compact organization, as well as his ability to perceive the needs of others and to satisfy them." Let's begin by recapitalization of Florida's (2002) central propositions:

### *Creative Capital Theory*

Essentially my theory says that regional economic growth is driven by the location choices of people – the holders of creative capital- who prefer places that are diverse, tolerant and open to new ideas. It thus differs from the human capital theory (developed by Glaeser) in two respects: It identifies the type of human capital, creative people, as being key to economic development; and (2) it identifies the underlying factors that shape the location decisions of these people, instead of saying that regions are blessed with certain endowments of them. Hence, places must have low entry barrier for companies as well as highly skilled people, i.e. a high degree of system openness. Such places gain a creativity advantage. All else being equal, they are likely to attract greater number of talented and creative people who power innovation and growth (Florida 2002, p. 223).

## **The 3T's determining economic growth**

In more pragmatic terms, the creative capital theory says that regional growth comes from the 3Ts of economic development: Technology, Talent and Tolerance. There is much to be gained economically from being an open, inclusive and diverse community. Regions need to offer the 3T's. If they fail to do so, they will fall further behind (Florida 2002, pp. 249-252).

## **The Creative Class**

Comparing US urban regions is a big part of Florida's research endeavors. Doing so, he has developed a number of new and some of them quite unorthodox measures and indices. Further, he has structured the US professional labor market in new categories, highlighting the growth of what he has named "the creative class" numbering to approximately 30% of the workforce, earning approximately 50% of the US wage share in 2002 (Florida 2004). Florida uses a number of indices and Regional Growth Indicators, measuring a regions potential for economic growth (3T's) and hence ability to attract creative people<sup>i</sup>. Florida and research team's indices and regional benchmarking measures are developed during extensive series of research efforts.<sup>ii</sup>

## **Creative Capital Theory and Technology Management**

### *Economic Growth – Science, Technology & Innovation*

The string of research in the field of economic growth, technology and innovation is extensive. A good overview is provided in F.M. Scherer<sup>iii</sup> (1999 pp. 49-118). From mercantilism, to Smith's free –trade policies, followed by Keynesian and Neoclassical Models. Further, the Nobel Prize awarded research of Solow (1959), recognizing technology as a driving force of productivity growth and giving research contributions of Schumpeter and Marx, outside the neo-classical turfs, renewed attention, initiating the transition to new economic growth paradigms based on the importance of human capital (Becker 1964, Schultz 1961; Lucas 1988; Romer 1986, 1990) and evolutionary economic growth theories (Nelson & Winter 1977; Nelson 1990; Fagerberg 2002). Technological progress, has uncontested been the prime driving force in modern economic development. However,

this has not always been the case. Before 1750 growth was primarily driven by institutional changes and consequent effects on increased trade and allocation of resources (Mokyr 2002a): *“It is generally felt that without modern technology, Europe and the West might have ended up like China after 1800, when the gains from internal trade ran into diminishing return and supporting institutions such as internal law and order were weakened by political instability* (Mokyr 2002a, p. 25). Kuznets stated in 1965, that modern economic progress is based on the growth of stock of useful or *“tested knowledge”*. Further he claimed that “one might define modern economic growth as the spread of a system production [...] based on the increased application of science” (Kuznes 1965, pp. 84-87). Today, there are few scholars that would contradict Kuznet’s view that knowledge lays at the core of modern economic growth (Mokyr 2002). However, finding knowledge at the core of most modern theories of economics of technological change, it is surprising how few (with exception of F.M. Scherer, Nelson and Rosenberg) that have been trying to open up the “black box” of knowledge evolution in the past. Morkyr argues that it is of vital importance distinguishing between the “what” and “how” knowledge. “What” knowledge representing growth of useful knowledge in itself and “how” knowledge mapping this knowledge onto techniques, bringing forth inventions and innovations (Morkyr 2002).

Now, how does Florida’s research fit in to this long string of old and new theories of economic growth? Florida has ultimately spelled out his research agenda, in the article “Revenge of the Squelchers” (2004:5): *“our common determination is to identify the key factors that drive technological innovation, spur growth, and ultimately bring about improved living standards”*. Florida is not the first researcher with this ambition! Florida’s core message is that human creativity is the ultimate source of economic growth and it prospers in metropolitan regions with certain attributes. In order to harness the creativity of individuals’ society, its companies and institutions must be *tolerant, diverse and inclusive*. Furthermore, he states that culture and foremost diversity has a powerful indirect effect on the development of technology and talent and hence on the economic growth rate. It is somewhat surprising, that Florida does not spend more effort on relating his theory to the Schumpeterian research tradition, with a view of economic change entailing the efforts of creative and entrepreneurial individuals. It seems like Schumpeter’s classical notation and legacy of “creative destruction”, could be the same force at work possessed by human beings and investigated by Florida. This topic is further elaborated in recent Endogenous Growth Models (see Howitt 2005 for overview).

*What makes “Creative Capital Theory” different from previous efforts explaining economic growth?*

Florida argues that his creative capital theory builds on the research of influential academics and scholars. Formulating his 3T's of economic growth, technology, talent and tolerance he refers to the following researchers contributions: *Technology* – Solow's Nobel Prize winning work isolating technology as the driving force of economic growth. The school of new economic growth, pioneer Romel's endogenous growth theory, based on the assumptions of continuous accumulation and exploitations of human knowledge, through combined private and public aspects of investments in R&D (innovation) and patenting. *Talent* – Lucas (1988) and Glaeser et al.'s (1995; 2000) work arguing that regional economic growth steams from clustering of human capital or what Lucas refers to as “Jane Jacob's externalities”. Cities accumulate and cluster skill specific human capital being the ultimate cause of firm agglomeration. Hence, urbanization is a key element in driving innovation, enterprising and economic growth.<sup>iv</sup> *Tolerance* – is the less explored variable in the 3T formula. Here we have to rely on Florida's own research. We find support for the importance of system characteristics such as “openness” and “variety” in the system of innovation approach, based on theories of evolutionary economics (Nelson 1992; Fagerberg 2002; Carlsson & Jacobsson 1997). Further, Sen's theories of Human Capability Development and Freedom discusses tolerance and democracy as one of the ‘freedoms’ needed for human capability development and expansion (1985, 1989, 1997, 1999). Florida mentions econometric research by Ottavino, University of Bologna and Peri, University of California, supporting his research findings by confirming the relationship between cultural diversity and economic growth for a large sample of U.S. regions. However, no references are yet listed in Florida's current articles and reports. Perhaps an obvious but important remark, is the fact that Florida is American and his research is greatly influenced and framed by the condition that he live and work in the United States, where the national system of innovation for generations have been characterized by “*Capitalism as an engine of progress*” (Nelson 1990; Novak 1997, 1999). At the core of the Creative Capital Theory we find creative individuals and assumptions of how the location decisions of these people impacts on urban economic growth. Florida states in his article “Revenge of the Squelchers”

(Florida 2004), that one of the most overlooked and single most important element of his theory is that all human beings are creative by nature:

Each and every person is endowed with an incredible capacity for innovation and adaptation. Creativity is thus a virtually limitless resource, and we can no longer grow by tapping and rewarding the creative talent of a minority. In, my opinion, the great challenge of our time will be to spark the creative furnace inside every human being (Florid 2004).

This statement can be partly questioned, in the light of research brought to the fore by Keating & Hertzman (1999). Keating and Hertzman (ibid.) advocates that human skills and capabilities also fundamental to creative expression in adult life, are to be developed in early childhood life-stages (Early Childhood Developmental Health), i.e. not all human beings are given the opportunity and sufficient conditions in order to develop their full human potential in early age and bring it to the benefit for themselves and organizations in society in adult age. This is indeed a great challenge to address, supported by interdisciplinary findings about human development health (Keating & Hertzman 1999).

## **Creative people, what are we looking for?**

The effect of personality on creativity is a very well researched topic. In Feist & Barron (2002) a good summary can be found. Over the past half-decade, most every personality theorist from Freud to Skinner has addressed the issue of creativity. On an average 3500-4000 creativity references were added to the academic literature in the period 1970s-1990s. A number of extensive reviews have been published on creative person, product, and process (Barron & Harrington 1982; Dellas & Gaier 1970; Eyseneck 1995; Freeman, Butcher & Cristie 1971; Gilchrist 1972; McKinnon 1978; Martindale 1989, Mumford & Gustafsson 1988; Simonton 1999a; Stein 1968). In early 1990's Barron & Harrington (1991) summarizes that the most significant and robust correlates of creative achievement were aesthetic sensitivity, broad interests, attraction to complexity, independence of judgment, intuition, high energy level, self-confidence, and creative self-concept. The first meta-analysis of the subject of creativity and personality (Feist 1998) concludes that "creative people in general are more, autonomous, introverted, open to new experiences, norm-doubting,

self-confident, self-accepting, driven, ambitious, dominant, hostile and impulsive” (Feist & Barron 2002). Further, Feist and Barron (2002) outlines and proves that early manifestations of creativity most often are stable behaviors and lasts over the life-span of the individual. Creative people have many traits in common with what Jung considered a mature personality. *Complexity* is the one word M. Csikszentmihaly (1996) would use identifying a creative person. Addressing the individual’s extraordinary capacity and ability moving from one extreme to another with equal intensity and without inner conflict, in a boundary spanning fashion as occasion requires. “..*They show tendencies of thought that in most people are segregated. They contain contradictory extremes – instead of being “individual”, each of them is a multitude, like the color white that includes all the hues in the spectrum, they tend to bring together the entire range of human possibilities within themselves*” (Csikszentmihaly 1996, p.57)<sup>v</sup>. Hence, there seem to be sufficient academic proof for the existence of persons with creative personality traits, creative persons. However, it is important noticing that in a normal population, there are only a limited number of individuals possessing these above mentioned creative personality dispositions. Hence, we are discussing a possible scarce number of individuals in society. It should also be taken into consideration that not all acts of personal creativity are for the positive advancement of companies and society. Some creative persons constantly balance on the edge of what is in line with corporate policies and legal, with the prime motive of fulfilling their personal objectives by developing their own ideas. Unfortunately, a number of highly creative people even turn their energies in to criminal activities. Seemingly, actions they engage in can be transformed into crime. These individuals score high on both creativity in terms of manipulation and psychopathic personality traits. This stresses the importance of very careful selection processes, appropriate organizational structures and management skills, if companies and institutions are poised to engage a higher number of creative persons, harnessing the positive effects of human creativity and rather not positioning themselves for decline and failure due to corruption<sup>vi</sup> and ‘white collar’ criminality (Babiak 1995; af Klinteberg 2004, personal discussion<sup>vii</sup>). Consider, Enron, Andersson Consulting, and World Com, Scandia only to mention a resent few corporate scandals<sup>viii</sup>, <sup>ix</sup>.



### *The systems model – or where do we find creativity<sup>x</sup>?*

Where do we find creativity and how does it transform into inventions, innovations, product, services, companies, markets, industries and growing prosperous regions? In the works on creativity by Csikszentmihalyi (1996) it is claimed that creativity only can be explained and observed in the interrelation of a systems model made up of three main parts: domain, field and person. The domain consists of a set of symbolic rules and procedures. Mathematics, physics and chemistry are examples of domains. Further, domains are “nested in what we usually call culture, or the symbolic knowledge shared by a particular society or humanity as a whole” (Csikszentmihalyi 1996, p. 28). The field includes the domain’s experts and all other gatekeepers. They full fill a selection mechanism, deciding which ideas and novelties that formally should be recognized and included in the domain. The third component of a creative system is the person bringing a novelty to the domain and field. The definition of creativity follows from the system model:

Creativity is an act, idea or product that changes an existing domain, or transforms an existing domain into a new one. And the definition of a creative person is: someone whose thoughts or actions changes a domain, or establishes a new domain. Because creativity is jointly constituted by the interaction among domain, field and person, the trait of personal creativity may help generate novelty that will change the domain, but it is neither a sufficient nor necessary condition for it (Csikszentmihalyi 1996, p. 28-29).

An implication of the systems model is that the level of creativity in a certain place at a certain time does not solely depend on the level and existence of individual creativity. It is equally important how receptive the domain and field is to recognition and diffusion of novelties. Furthermore, it is claimed that creativity, depending not only on personality traits and personal insight, rather being an outcome of the interdependencies between domain, field and persons can be constructed, deconstructed and reconstructed several times over history.

How is the creative process started is an appropriate question phrased by Csikszentmihalyi (1996 p. 95): “There is a puzzle somewhere, or a task to be accomplished. Perhaps something is not right, somewhere there is a

conflict, a tension, a need to be satisfied [...] Without such felt tension that attracts the psychic energy of the person, there is no need for a new response. Therefore, without a stimulus of this sort, the creative process is unlikely to start". Somehow, it must be a stimulus making the individual curious and willing to explore a perceived opportunity. Most often the problem is already known and formulated, but no one has found the solution to the issue. Sometimes no one knows there is a complex to be solved. Then the creative person both identifies and possibly also solves the problem. Further, being in the right place seems to be important: "In science and in arts, in business and in politics, location matters almost as much as in buying real estate. The closer one is to the major research laboratories, journals, departments and institutes, and conference centers, the easier it is for a new voice to be heard and appreciated" (Csikszentmihalyi 1996 p. 132). The place where the individual lives is important, in relation to creativity, for three reasons. First, one needs to be in a position to access the domain in which one plans to work. Second, novel stimulation is unevenly distributed and being in certain places may increase creativity. Third, access to the field is not evenly distributed in space; rather it resides in certain permanent and temporary geographical centers. Further, creative individuals seem to place high importance on a personally fitted living and working environment.

From the reasoning above the following reflections can be made on Florida's "Creative Capital Theory": There is sufficient support for the existence of creative people. However, it can be questioned if the resource is limitless, as stated by Florida. Rather, findings seem to support that there is a limited number of individuals in a normal population, with creative personality traits making the supply in short demand in society. The research of Keating & Hertzman (1999), indicates that human creativity and entrepreneurial skills may be a dynamic and expandable resource, given emerging understandings of human developmental health and Early Childhood Health. Supported by the fact that professional people belonging to the creative class, enjoys higher than average salaries. As Florida has pointed out they represent 30% of the professionals in the US, earning approximately 50% of the nation's wage share. Human creativity is not always materializing for the progress of companies and society. This fact needs to be considered and accounted for in policy making, implementation and management. How important is personal creativity? The systemic aspects of creativity are not explicitly accounted for in "Creative Capital Theory". The need of an interrelation between a person, field and domain

sparkling creativity, as outlined by Csikszentmihalyi should further be considered. A discussion of how the systemic qualities of creativity – person, field and domain relates to and transform into growth of cities and enterprises would be a valuable extension of the theory. There is good support for Florida's emphasize on the location decisions of creative people and their need of highly customized and personalized working and living conditions in the research of Csikszentmihalyi. However, it is not perfectly clear that all creative people prefer the multifaceted metropolitan culture. Evidence seems to support that they also prefer country side locations, each to their own preference and individual working and living-style.

*Can Florida's urban growth engines be seen as Systems of Innovation – what does theory says?*

The system of innovation approach<sup>xi</sup> (SI) is a fairly modern analytical framework, designed in order to consider for **all** important factors possibly shaping and influencing innovation processes. In SI approaches technological change and innovations are seen as the primary and most important sources of economic growth (Edquist 1997). There are several definitions of SI ( Edquist 1997; Carlsson & Jacobsson 1997; Fischer et al. 2001; Malerba 2002; Nelson 1992; Nosi et al. 1993; Patel, P. and Pavitt, K. (1994). However, they are all broad and provide “*no sharp guide*” to what exactly should be included in the innovation system and what possibly should be left out (Edquist 1997; Nelson & Rosenberg 1993 p. 5-6; Patel, P. and Pavitt, K. 1994).

Systems of innovation may be supra national, national or sub national (regional or local) –and at the same time they may be sectoral within any of these geographical demarcations (Edquist 1997 p.14).

In Fischer, Revilla Diez & Snickars (2001), the first extensive and systematic study of major European metropolitan systems of innovation, we find the following argumentation:

There is no doubt in mind that the system of innovations approach provides an important framework for understanding why some firms, regions or nations are economically successful and others are not. Its attractiveness steaming from three features: First, it places innovation and knowledge at the very center of focus, and goes

beyond a narrow view of innovation to emphasize the interactive and dynamic nature of innovation. Second, it represents a [...] decisive shift in focus from firm to territory, from knowledge-creating firm to knowledge-creating territory. Third, it views innovation as a social process that is institutionally embedded and, thus, special emphasis is laid on the institutional context and forms in and through which the process of knowledge creation and dissemination occurs.

There is increasing support focusing on metropolitan regions as primary engines of industrial innovation and growth in national economies. Metropolitan regions contribute to a significant degree to the aggregates of the national innovation system (Oinas and Malecki 1999). Further, the increased importance of the regional dimension, in SI analysis and research, is explained by the fact that regional/urban agglomerations provides the best context for an innovation based learning economy (Hudson 1999). Particularly, tacit knowledge formation and technological learning, is found to be localized as well as territory specific (Fischer, Revilla Diez & Snickars 2001). The benefits offered by metropolitan areas can be categorized in two major groups (Fischer, Revilla Diez & Snickars 2001, p.16):

- (a) Supply of factors of production and infrastructure. Such factors include the quality of available labor (existence of pools of labor with agglomeration specific skills and forms of habituation), the availability of capital, [...]. Communications and research infrastructures or socio-cultural infrastructures that is often critical to the effective operations of the entire economic system.
- (b) Quality of the regional industrial fabric in terms of subcontractors and suppliers of input. Full exploitation of technological opportunities requires a satisfactory division of labor between small and large enterprises as well as the co-presences of many different kind of producers offering specialized inputs and services in timely and flexible response to needs and when they arise.

## **Systems of Innovation, public policies and implementation**

Carlsson and Jacobsson (1997) suggest that policy making in relation to technological systems needs to be broad, including not only technology policy but also aspects of educational-, science- and industry policy. In

assessing SI's, not only market failure needs to be accounted for, but also the possibility of malfunction and failure of the entire system. Further, three features of technological systems (SI) are particularly important assessing in policy making: First, improved *receiver competence* of the economy has to be considered. This type of policies relates towards prime movers, being key actors who raise awareness, give legitimacy to, invest in and spread new technology locally. Policies should promote the creation of prime movers and increase their linkages to the rest of the economy. Second, *increased connectivity*, influencing and improving the amount of information and knowledge diffused through the system. Policymaking should concern both monitoring and influence of network creation and change. Third, policy makers need to consider and monitor how to, *sustain and improve variety*. Prime movers, academia, capital markets and venture capital as well as the birth and formation of new technology-based firms, influence on variety. Further, the emergence of new networks can serve as amplifiers of these variables influence on SI. Carlsson and Jacobsson emphasize the difficulties sustaining variety in a SI: "*Given the strong path dependence and the powerful market mechanism which weed out most new initiatives, perhaps the most important area for public policy is to build institutions which sustain and increase variety.*" Variety requires multiple players, each acting under different assumptions and with different knowledge. The most important vehicle for variety creation is free entry into markets"(Carlsson & Jacobsson 1997, p. 310).

### *Creative Capital Theory and Systems of Innovation*

It seems reasonable assuming that Florida's growth engines, cities and metropolitan areas can be considered and systematically analyzed in the framework of a Metropolitan System of Innovation<sup>xiii</sup>. Florida, have limited his research to a number of variables and indicators possibly affecting the rate of growth in a metropolitan SI. Indices indicating the existence of technology and talent in the same location, in combination with indices indicating "system openness" manifesting tolerance, diversity and inclusiveness have been identified and empirically tested (as discussed above). Following, the broad definitions of the systems of innovation approach the framing of the analysis seem proper. The importance of "system openness" and *variety* are emphasized in the "Creative Capital Theory". Carlsson & Jacobson's argumentation above seem to support this research position to a high extent. In policy making and implementation, supporting the "*Creative Capital Theory*", Carlsson & Jacobson's advice

summarized above, needs to be taken in careful consideration, given all documented misunderstandings and the heated debate particularly in relation to the implications of the Gay and Bohemian indices (Glaeser 2004). Florida's research does not imply that cities will enjoy higher growth if they are or implement "gay friendly" or "family friendly" public policies. Rather, the implication of his research is that cities need to be "*people friendly*" *recognizing and providing options for many different lifestyle preferences*. All else being equal, Florida has received extensive critique for exclusion of traditional leading growth indicators, foremost corporate friendly measures including low corporate taxes and investment incentives. However, as pointed out by Florida (2004) his research model does explicitly not account for all possible factors stimulating growth in a metropolitan area. The selection of the research indicators and measures does not mean that all other factors are mutually exclusive in the model and his theories; rather they should be seen as possible collectively inclusive in further research. This leads us to the next section of this paper.

### **Next Step Research Design – Gap's to be filled!**

In closing his response, on Glaeser's review (2004), Florida makes the following statement: "We are going to try to do more empirical work on what exactly conditions economic growth or what we would like to call regional prosperity (meaning much more than just employment and population growth), using various measures and models<sup>xiii</sup>". In the following section I will take the opportunity discussing some topics we would like to include in future extensions and alterations of Florida's research and theories. The whole issue of how the creative capital of individuals, as outlined in "*Creative Capital Theory*", can be transform into entrepreneurship and growth of existing firms, once people have made their location choices, is sparsely treated by Florida's current research. This is the almost forgotten message of the Schumpeter's entrepreneur and his phrasing of the economic process entailing "creative destruction"<sup>xiv</sup>.

Large technological systems: The history of evolving, or rather expanding, large technological systems can be presented in different phases, in which the named activity predominates: invention, development, innovation, transfer and growth, competition and consolidation. The different phases do not follow in sequential phases; rather they overlap and backtrack over time. Further, the different phases can be identified by the kind of

system builder (inventor, entrepreneur, manager, financier and various advisors and consultants) being most active in making critical decisions (Huges 1990). Could the “Creative Capital Theory” be further extended acknowledging the need of different competences and levels of creativity over the development span of large technological systems?

Entrepreneurship<sup>xv</sup>: How is high technology companies conceived, the business models developed and spurred into firm growth? There is a vast body of literature on entrepreneurship and theories of the firm, of particular interest is the Austrian school (Kirzner 1997), evolutionary, knowledge- and resource-based theories of the firm (Kogut & Zander 1992, 1993, 1996; Nelson & Winter 1982; Penrose 1959; Rumelt 1987; Spender, J.-C. 1996; Wenfeldt 1984), followed by the dynamic capability approach of the firm (Tecece et al. 1997) and cognitive perspectives of the firm (Porak & Thomas 2002). In my view, it would be valuable further elaborating on how Florida’s “Creative Capital Theory” could be understood and related to the above mentioned entrepreneurial and growth theories of the firm. How can “Creative Capital” be transformed into entrepreneurship, firm specific resources and how does it relate to the firms dynamic capabilities? Further, sustaining growth of large corporations and maturing industries is a major challenge. Over time growth rates of technology companies normally slow down and hence businesses stagnate. This phenomenon has been named the “Innovator’s dilemma” or “the law of large numbers” (Christensen 1997; Christensen & Raynor 2003; Leonard-Barton 1992). Regions and cities predominantly dependent on a single or few large enterprises and/or industries, will be adversely affected by maturing business. How can “Creative Capital Theory” be related to the issues of sustaining and managing high growth in large companies? Is more creativity and change always better than less or is there an optimal level of creativity, corporate and market change? Eisenhardt and Martin (2000) discuss the relevance of the resource-based theory of the firm and dynamic capabilities in different industry and market conditions. Can the need of “creative people” as a firm specific resource be further explained, in relation to different market and industry patterns over time? The article “Bridging the relevance gap” (Starkey & Madan 2001) highlights the problem of scientific knowledge not always transferring into corporate and firm developments. The “what” or scientific knowledge does not match-up with the “how” knowledge. This is a management issue. Can “Creative Capital Theory” be related to management of scientific and technology based companies and further extended acknowledging for the need of “management of creativity”?<sup>xvi</sup>

## Conclusions

Summarizing, Florida's research and formulation of "*Creative Capital Theory*" highlights some interesting issues:

Florida, in line with the argument of John Paul II, proposes that creativity and the human abilities of creating meaning full new forms, lies at the core of driving economic growth and societal development in the twentieth century. Florida distinguishing his research from developed "human capital growth theories" (Lucas 1988; Glaeser et al. 1995; Glaeser 2000), based on human knowledge as the prime driver of economic growth. He brings about the importance of highly skilled and educated professionals, creative people, in urban and metropolitan innovation system analysis and their impact on regional economic growth, following the research endeavors of Jacobs, Lucas and Glaeser. Further, Florida aims at explaining the importance of some urban innovation system specific qualities, improving the conditions for urban economic growth and development in his 3T's formula of Technology, Talent and Tolerance. The first two T's are strongly supported by leading scholars in developed economic growth theories. The third T for tolerance or the importance of "system openness" and exposure to variety bolstering urban economic growth has been highlighted in SI theories and the research of Sen (1985, 1989, 1997, and 1999). However, few except for Florida, have embarked on the journey proving their validity, by developing new sets of measures and indicators that can be tested, analyzed and discussed.

Creativity and the implications of its systemic aspects could be clearer defined in the "Creative Capital Theory. A further articulated and clearly defined System of Innovation Approach could most likely be beneficial in explaining and further developing the "*Creative Capital Theory*. There are viable options of next steps research end extensions of a "*Creative Capital Theory*", relating to several fields of technology management research and a possible development of a new 'Creative View or Theory of the Firm'. In this potential new theory of the firm, the understanding and contribution of human beings in societal and economic development, enterprising and innovation, should be evaluated against the backdrop of emerging research findings about human developmental conditions in early life stages and its interrelatedness to human inventiveness and creativity in adult age as suggested by Keating & Hertzman (1999).



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## Endnotes

- i High-Tech Index, Innovation Index, Gay Index, Bohemian Index, Talent Index, Melting Pot Index, Composite Diversity Index, a composite measure combining Gay Index, Bohemian Index and Melting Pot Index, Creativity Index, which is a composite index based on Innovation Index, High Tech Index, Gay Index and Creative Class (in proportion to entire work force). A complete listing of indices and classes are found in appendix of "The rise of the Creative Class" (Florida 2002).
- ii See Florida, Human Capital, Quality of Place 2000, The Geography of Talent 2000, The geography of Bohemia 2001, The rise of the Creative Class 2002, Innovation Human Capital, and Diversity, Florida, Youl Lee 2001, Emergent Cities: A microeconomic Explanation, Axtel, Florida 2001.
- iii Two other volumes, providing extensive overviews of technological innovation and economic growth are: Steil, Victor & Nelson (2002) and Freeman & Soet (1997), see also Kline, S. & Rosenberg, N. (1986).
- iv See Lagendijk 2001, for an overview of theories.
- v For a closer examination of the ten most characteristic, dialectic creative personality traits see further p.57-76.
- vi Recent contributions on the topic are Burke, R.J. & Cooper, C. L. (2009); Fleming, P. & Zyglidopoulos, S. C. (2009).
- vii See also a more recent contribution by Scott, H. and Clow, K., (2006-11-01) "The psychopath goes to school: Examining psychopathic personality traits in different fields of study". *Paper presented at the annual meeting of the American Society of Criminology (ASC), Los Angeles Convention Center, Los Angeles, CA*, [http://www.allacademic.com/meta/p126003\\_index.html](http://www.allacademic.com/meta/p126003_index.html).
- viii See further discussion in North (2005, pp. 166-170). Different leadership and governing regimes are discussed by Sison (2008 p. 98-142). Stein 2008 provides an interesting analysis and discussion of leadership and governance styles divided into two distinct categories of either (a) "the community man of the people" or (b) "the association man and instrumental demagogue" (Stein 2000 p. 130-132).
- ix In assembling the thesis in early 2010, we can also consider the dramatic impact of the global banking crisis in 2008 and the global economic recession, caused by high levels of financial creativity under investigation in the largest and most prestigious American investment banks.
- x I have chosen to focus on the contribution and discussion of systemic creativity as presented by Csikszentmihalyi (1996) in this study. In organizational literature additional and complementary references of interest are found in Amabile (1982, 1988, 1996, 1997, 1999a, 1999b); Amabile et al (1996); Amabile & Conti (1999); Amabile & Gryskiewich (1989); Amabile et al (2004); Ford C.M. (1996) and Woodman et al. (1993).



- xi The characteristics, attractiveness and importance of systems of innovation approach are well outlined in a string of articles. See Edquist, 1997; Carlsson & Jacobsso, 1997; Fischer, Revilla Diez & Snickars 2001; Marleba, 2002; Nelson 1992; Nosi, Saviotti, Bellon & Crow 1993, see also Etzkowitz & Leydesdorff (Eds.) (1997).
- xii This line of research has been discussed and extended in a contribution by Hemlin, Allwood & Martin (2004) appearing after public presentations of study I and II in Treatise 2 of this thesis.
- xiii The research pursued by Florida and his research partners in the period 2004-2010, is found on <http://www.creativeclass.com>.
- xiv For recent examples of Endogenous Schumpeterian Growth Models, see Howitt (2005).
- xv This line of research on Entrepreneurship has been extended by several researchers, see Acs, Z.J. (2010 forthcoming); Acs, Z.J. (2010a, Eds., forthcoming); Karlsson, C., Johansson, B. & Stough, R.R. (2010 forthcoming). In my research effort I have explicitly focused on a development of the “knowledge based theory of the firm”, and the extensive body of current research on “Entrepreneurship” has not been investigated in detail.
- xvi In 2005, Styhre & Sundgren released a title on the topic of “Managing Creativity in Organizations, Critique and Practices”, Palgrave Macmillan. Alexander Styhre was my Ph D advisor and had access to this study and also Study I of this thesis, when the book was produced. Unfortunately, not one trace or acknowledgement is made in relation to the suggestions in this study indicating the need of investigating creativity management in organizations. It is my understanding that some of the ideas and suggestions in this study were appreciated.



# **Treatise 3: Human Beings, Situational Space & Developmental Health**

**Study III:** A collaborative research effort to bridge boundaries and support deviant youths in contemporary welfare systems (Adler, Glassér & af Klinteberg 2005)

**Study IV:** Governing the Knowing & Innovation Space - a Situational Study at the 'Demographic Bottom of the Pyramid' (Glassér 2006/ 2009)



Earthset

**A collaborative research effort to  
bridge boundaries and support  
deviant youths in contemporary  
welfare system**

Adler, Glassér & af Klinteberg  
2005

This is a post-peer-review, pre-copyedit version of an article published in *European Management Review* (2005) 2, pp. 88-99. The definitive publisher-authenticated version of “A collaborative research effort to bridge boundaries and support deviant youths in a contemporary welfare system” by Adler, Glassér & af Klinteberg (2005) is available online at: <http://www.palgrave-journals.com/emr/index.html>.

## A collaborative research effort to bridge boundaries and support deviant youths in contemporary welfare system

Adler, N., Glassér, C. and Klinteberg, B. a. 2005. A collaborative research effort to bridge boundaries and support deviant youths in contemporary welfare systems. *European Management Review*, 2: 88–99. [doi:10.1057/palgrave.emr.1500024](https://doi.org/10.1057/palgrave.emr.1500024)

[Page 148-159]



A New Earth

# **Governing the Knowing & Innovation Space**

A SITUATIONAL STUDY AT THE 'DEMOGRAPHIC  
BOTTOM OF THE PYRAMID'<sup>1</sup>

Charlotte Glassér  
2005, 2009

<sup>1</sup> This paper is written in 2005 and revised in 2009. I gratefully acknowledge the support in organizing this paper by Professor Anders Westlund and the generous sharing of data from the Sävsjö-study by Professors Per Anders Rydelius and Siv Fischbein. The patience displayed in dealing with all enquires and questions by Assisting Professor Mara Allodi Westling and her sharing of valuable experiences from developing the GAVIS measuring tool. Financial support by CHESS – Center for Health Equity Studies, Karolinska Institute and Lärarhögskolan is also gratefully acknowledged.



## Introduction

The formation and leverage of human beings' individual skills and collective capabilities has received expanding attention in firm, cluster and industry investigations as well as in contemporary growth theories. Recently, and despite the augmenting attention, these profuse strings of knowledge- and innovation-based research have been thoroughly criticized for their lack of explanatory "micro-foundations". Common notations and constructs previously used in defining resource-, evolution- and knowledge-based theories of the firm are questioned (Abell et al. 2008; Foss 2005; Felin & Foss 2005; Felin & Hesterly 2007; Gavetti 2005). What do concepts like "routines, skills, capabilities, rigidities, dynamic capabilities, absorptive capacity, and tacit knowledge" contain? Are they only residuals of yet unknown conditions and real content? The answers to the continued quest of better understanding of micro-foundational content are now increasingly being sought interdisciplinary (Keating & Hertzman 1999; Morsella 2009).

In the following, we suggest the possibility of finding better answers to these questions by integration of the emerging findings of Developmental Health (DH) and particularly the growing body of research advancing our understanding of early childhood development (ECD), in conditioning life-spanning human skill and capability formation (Bronfenbrenner & Morris 1998; Caneiro et al. 2003; Fox et al. 2007; Gluckman & Hanson 2006; Foresight 2008; Keating & Hertzman 1999; Shonkoff & Philips 2000; The World Bank 2006, Ch. 7; WHO 2007 a,b). In established ECD (WHO 2007 a,b) and mental wellbeing (Foresight 2008) research, it is a common understanding that the human developmental process in prenatal, infant and early childhood stages of life establishes the foundation of the individual's future possibilities of successfully undergoing vocational training or entering and completing formal second- and third-level education. Further, competitively participating in the labor force may have an impact on firm innovation, competitiveness and success. Evidence for the importance of early formational impact of the environment on a range of health, behavioral and labor market outcomes in adult life indicates that common developmental processes are at work (Friedman & Wachs 1999; Knudsen et al. 2006). An emerging string of research in economics (Cuhna & Heckman 2007; Knudsen et al. 2006; Heckman 2007), new endogenous growth models (Howitt 2005) and management science (Adler, Glassér, Klinteberg 2005; Glassér 2010) examines and acknowledges key findings of the cross-disciplinary research on ECD and mental wellbeing.

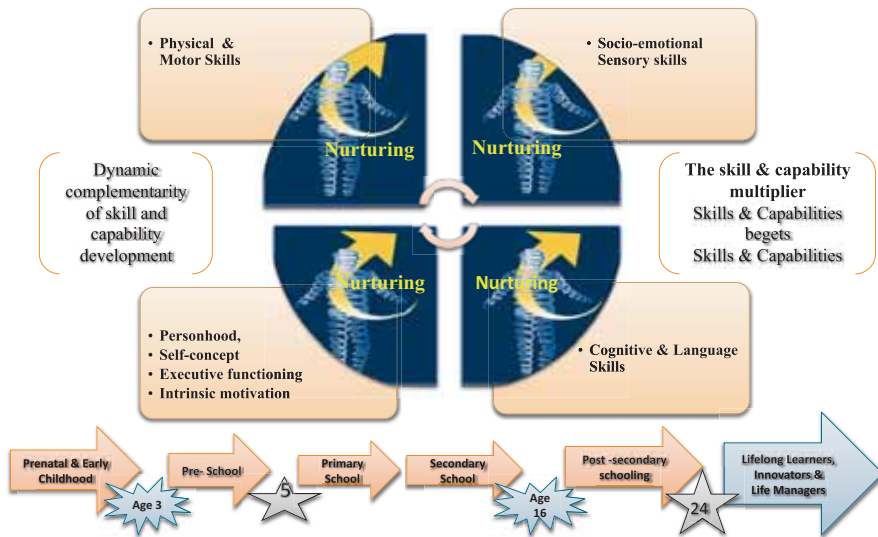


Fig. 1: Being and Becoming, nurturing the developing human being (adapted from Foresight 2008, Heckman 2007, WHO 2007 a, b; and Study III - VI of this thesis)

We advocate that if human skills, capability and entrepreneurial action contribute to corporate strategic advantage and sustained development, then these capacities can only be derived from the human being's constitutional and embodied faculties of (a) physical and motor skills, (b) cognitive and language skills, (c) social and emotional skills, and (d) individual motivation, executive functioning and personhood (Stein [1917] 2000; WHO 2007 a,b). They are founded at conception and developed through the embryonic and early childhood stages, in an interdependent and dynamic process molding genetic disposition and environmental impact (LeDoux 2002). Further, they are leveraged or de-leveraged over the life span of the individual. Interdependent, human and firm institutional settings, and formational environmental dynamics on the micro-, meso- and macro-levels also have to be taken into consideration (for discussions see Berger & Luckman 1966; DiMaggio & Powell 1983; Metcalf 2006a and 2006b; North 2005; Ostrom 1993<sup>i</sup>, 2005; Stein 2007). Human beings' skills and capabilities of learning, knowledge creation and innovative action are highly differentiated in time, space, and between as well as within diverse geographic, organizational and institutional settings (American National Academy of Science 2007; Florida 2005; Kao 2007; Snowden & Stonehouse 2006, see also Fig 2. below).

## **Point of Departure: The learning, knowing & innovation space, a situational study**

During the past half decade, a paradigm shift has taken place regarding child welfare in Sweden (Hessle 2003). A networking model has come to dominate as the most successful implementation approach, it is influenced by Bronfenbrenner's bio-ecological model of child development (Bronfenbrenner, 1979, 1999; Bronfenbrenner & Morris 1998), further developed in WHO's Total Environmental Assessment Model (WHO 2007a, b) and The Foresight Mental Wellbeing Project (2008). The new caretaking principle requires knowledge and well-developed support networks in the local living environment of the child, and particularly in the school and classroom environment. Hence, the ability of accurately assessing and measuring classroom climate becomes crucial and a pre-condition for formulating effective policies and interventions that aim at desired human developmental progress.

In early 2004 the Ministry of Health and Social Affairs, Sweden, expressed an interest in implementing the scientific knowledge acquired in the research program jointly developed by Stockholm University in the Centre of Health Equity Studies (CHESS), the Karolinska Institutet (KI), in collaboration with the Department of Women and Children's Health and Forum for Special Education. Researchers at CHESS, KI and Forum for Special Education considered the difficulties of effectively introducing their boundary spanning research to authorities and local practitioners, at different system levels of the welfare-state. A project group was formed with researchers from FENIX Centre for Innovations in Management at Stockholm School of Economics, Chalmers University of Technology and Ecoles des Mines de Paris (FENIX), CHESS, Karolinska and Forum for Special Education, with the mission of creating better understanding of the possibilities for successful dissemination and implementation of research findings in this area.

This article presents a study of 186 school children at age 12, evaluating their classroom environment in the school system of a mid-sized Swedish municipality, Sävsjö. The municipality has been involved in a seven-year longitudinal study, undertaken by the Karolinska Institute, to investigate developmental health, cognitive capabilities and socialization among pre-school and primary school children. The survey was conducted at

the final stages of their primary school training, a schooling level that approximately 60-80% of children in the world receive and complete with uneven success rates, even within the same school or classroom. The surveyed group of children has, at the point of investigation, outperformed the age group's average scores in national school achievement and aptitude tests. It is also important to acknowledge that surveyed children are raised and educated in Sweden, one of the nations in the world with the highest human developmental health and lowest socio-economic population differences (Hertzman 1999)<sup>ii</sup>. On the foundation of S. Schwartz's research and modeling of "Universals in the content and structure of values: theoretical advances and empirical tests in 20 countries" (Schwartz 1992), a measuring tool called "Goals, Attitudes & Values in School, GAVIS ©" was developed at the Stockholm Institute of Education by M. Allodi Westling (2005), forming a basis for data collection. We have chosen to analyze the survey data on the primary school and classroom climate in Sävsjö with the intent of identifying factors that could later be tested as conditions underlying the development and progress of learning and knowledge spaces and the human beings involved in these processes of development.

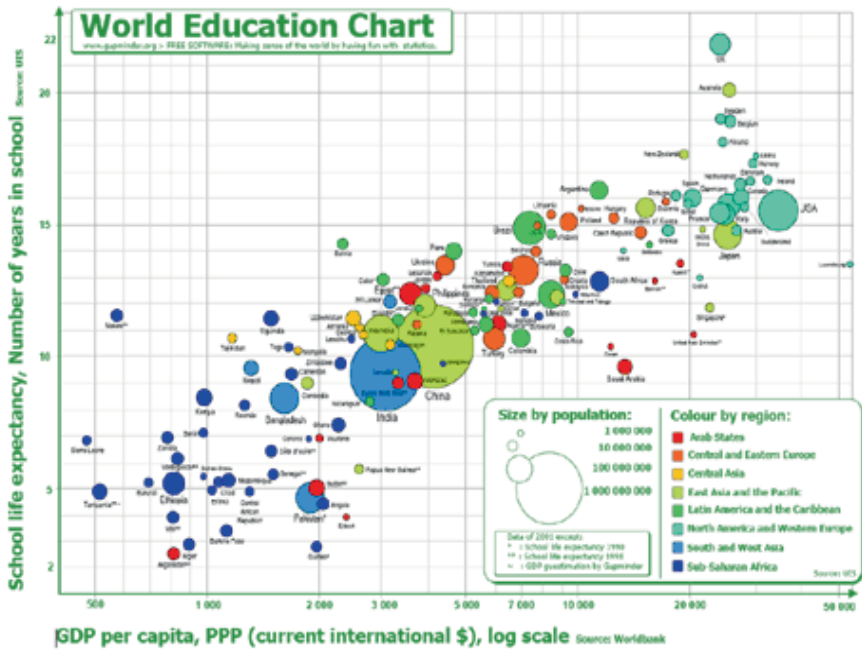


Fig. 2. World Education and GDP Correlation Chart (2005), for details see: [www.gapminder.org](http://www.gapminder.org)

The choice and relevance of this situational study is based on consideration of the following conditions:

a) Most children around the world enter and more or less successfully participate and complete primary schooling; b) There is a global “demographic bulge” of young people between the age of 12 and 24 growing up in the period until 2035. These young people’s educational and skill levels will be crucial in fostering economic development and economic growth (Prahalad 2009; Prahalad & Krishna 2008, p. 205-235, p.245; The World Bank 2006). c) It is the underlying assumption of this research project that development of human skills and capabilities are leveraged and de-leveraged over the life span of the human individual, impacted by environmental conditions, particularly in early life stages. Hence, our quest of exploring micro-foundational environmental factors of the classroom could potentially reveal important information about similar conditions in other knowledge- and innovation-generating organizational settings. d) We aim at bringing further clarification to commonly used knowledge and innovation research constructs, such as tacit knowledge, absorptive capacity, dynamic capabilities and their potential environmental conditioning or impact. The objectives of the empirical study are the following: First, to analyze the empirical material collected in the municipality of Sävsjö, in order to detect possible new and previously unrecognized, underlying patterns in the data, further improving the understanding of factors affecting learning and knowing processes in the classroom space. Second, to applying the GAVIS measuring tool, based on “universals in human values” in order to draw more general conclusions and increase its potential applicability in disparate geographical and organizational settings. This include improvements or alterations of the GAVIS-environmental measuring tool, making it more apt for future exploration of success factors in corporate knowledge, innovation and R&D settings, as well as understanding entrepreneurial activities and inclusive growth.

## Theoretical framework & Summary of key literature

*Being & Becoming<sup>iii</sup>: The experiential child and conditions of infant, toddler and early childhood development*

Before we enter into the empirical analysis of factors potentially affecting the learning, knowledge and hence developmental environment of primary schools, an understanding of the preceding prenatal, infant and pre-school child's developmental achievements has to be established. A number of views and approaches to infant, early childhood and human developmental change can be found in contemporary research and literature. Each of these models emphasizes differently the roles of environment and biology/genes in influencing human development and behavior. In summary, two basic conceptions of the human mind and its development compete in current research (Nelson 2007, p. ix-xi): (1) "A top-down, abstract, genes-first, neural-first nativism realized in terms of domain-specific modular theories" (ibid p. ix); and the other (2) "A bottom-up, pragmatic, experience-dependent, bio-social-cultural developmental system of knowing" (ibid., p. x; see also LeDoux 2002). As pointed out by Nelson (2007), these different conceptions emanate from different understandings of evolution, representation, conceptual development and role of language in developmental and cognitive psychology.

In the overview of "Developmental Psychophysiology: Conceptual and Methodological Issues", Fox et al. (2007, pp. 453-481) underscores that the application of one of the four following generic models listed below to a particular study will influence the manner in which questions are asked, variables measured and outcomes defined (see also Nelson 2007):

1. *Biologically and genetically determined models of development:* In these models the timing of neural development is thought to be pre-programmed, i.e. in place from conception, and to occur in an orderly fashion in the absence of negative environmental events (see for example Chomsky 1965; Edelman 1987; Pinker 1994, 1997, 2002)<sup>iv</sup>. (Fox et al. 2007, p. 454).
2. *Critical periods of development:* In this model the concept of "critical periods" implies that at certain developmental stages in infancy and early childhood, there are "windows of opportunity through which

particular input will have major influence on the organization of behavior” (Fox et al. p. 454) and skill development (Hubel & Wiesel 1970).

3. *Stage models of development:* The stage model of childhood development is explained as a series of different periods of reorganization of physiology and behavior (Case 1992; Fischer 1983, 1987; Thatcher 1991, 1994). “A number of ‘stage’ or re-organization models describes the transformation of existing behavior/cognitive structures at particular periods of time into more sophisticated structures for the purpose of assimilating new and more complex information (Case 1992; Fischer 1980)”, (Fox et al. 2007 p. 455). These models are derivatives of Piaget’s theories and developmental modeling (1926, 1929, 1952, and 1962).
4. *Interactions models of development:* The interaction approach of studying child and human development understands the process as an ongoing interexchange and interaction of genetic pre-disposition of the individual and the environmental conditions that impinge on the developing organism (Fox et al., p. 455).

To clarify the contemporary understanding of the interaction between genes, biology and external environment in human development, we can refer to the research and articulations of the leading neuroscientist:

Let’s start with a fact: People don’t come preassembled, but are glued together by life. One reason for this is that we start out with different sets of genes; another is that we have different experiences. What is interesting about this formulation is not that nature and nurture both contribute to who we are, but that they actually speak the same language. They both ultimately achieve their mental and behavioral effects by shaping the synaptic organization of the brain. [...] Genes actually do two things in the broadest biological sense: they make us all the same (we’re all humans), and they also distinguish us from one another (each of us has a unique genetic makeup that contributes to our individuality). [...] Still, it’s important to recognize that genes only shape the broad outline of mental and behavioral functions. [...] We hear a lot these days of how identical twins, reared apart by separate adoptive parents, can

have similar habits and traits. We hear less about how they may differ. [...] The personality disorders of Romanian orphanages are a shocking testimony to the fact that experience can have profound effects on behavior. Genes are important, but not all-important (LeDoux 2002, pp.3-4).

In this research project the understanding of the “pragmatic, experience, bio-social-cultural dependent” and the interaction model of infant and early-childhood development is assumed to be valid. This is in line with WHO’s “Total Environmental Assessment Model (TEAM-ECD)” (2007), and to our understanding it is also consistent with the ideas and theorizing put forth by Nelson (2007) based on Les Vygotsky’s model, opposing Piaget, of the “culturally-historical child” (Vygotsky 1962, 1978, 1986, 2004) and what Donald (2001) calls “the mind-culture symbiosis”. The understanding is that:

Children come into the world eager to learn. The first five years of life are a time of enormous growth of linguistic, conceptual, social, emotional, and motor competence. Right from birth [conception] a healthy [infant and] child is an active participant in that growth, exploring the environment, learning to communicate, and, in relatively short order, beginning to construct ideas and theories about how things work in the surrounding world. The pace of learning, however, will depend on whether and to what extent the child’s inclination to learn encounters and engages supporting environments. There can be no question that the environment in which a child grows up has a powerful impact on how the child develops and what the child learns (Bowman et al., p. 1).

This is the infant, child and human being whom Nelson (2007) calls the “experiential child” in a simultaneous developmental process of being and becoming:

Being an infant means adapting to the requirements of being in a particular unfinished developmental state within a particular social/physical and cultural environment, while under conditions of rapid physical and mental growth, total dependence on others for survival and care, and relative immobility, among others. Looking, touching, and hearing are initial ways of experiencing the world, which is at first totally novel but rapidly becomes familiar



over small bits of space and time. Because human physical and cultural conditions are extremely various and thus unpredictable – beyond a small set of universals, such as the existence of people and objects in space – the particulars of the environment must be discovered through experience. While being requires continuous adaptation, becoming a different person (a crawler, a walker, a talker) is ongoing at the same time, (Nelson 2007, p. 59).

Human intelligence accomplished through cognitive/ language, socio-emotional and physical/motor skills are certainly to be considered a result of the dynamic (expandable and diminishable) environment and the situational, relation-dependent and relative capacity of human beings! This human capacity has to be nurtured over the entire life span of the individual, schematically illustrated in Figure 1 above.

### Summary of developmental changes from infancy to preschool years

	Social	Communication	Mind	Self	Consciousness
<b>Infancy</b>	I - You	Affective	Private, No representation	I	Awareness-> Social->
<b>Toddlerhood</b>	Familiars	Gesture / Word	External representation => Internal representation	Me	Cognitive->
<b>Early childhood</b>	Groups	Language / Symbols	Representation & Integration of other sources	My meaning/ Other meaning	Reflective->
<b>Preschool</b>	Communities	Representational Language, External/ Internal	Differentiated mine/ other sources	Self in time: past, future, imagined	Narrative-> Cultural->

Fig 3. Schematic summary of developmental changes from infancy to school entry (adapted from Nelson 2007, p. 240)

Key infant and pre-school developmental stages and achievements are outlined in Fig. 3 and Fig. 4. It is important to recognize that even though developmental trends evolve in comparable modes for all children; this does not entail uniformity of progress. Rather, a high level of variation among children can be observed. These individual developmental differences arise due to genetic and experiential variations in differing social and cultural context. Bowman et al. (2000, p. 6) suggests: “Children present themselves to preschool [and school] teachers or caregivers with many differences in their cognitive, social, physical and motor skills. These differences are associated with both ‘functional’ characteristics – such as temperament, learning, style, motivation – and ‘status’ characteristics – including gender, race, ethnicity, and social class. Data on children as they enter kindergarten suggest that there are significant differences in many aspects of development by the time children reach the schoolhouse door.” The same researchers suggests that resources like books and recordings, activities in the forms of reading literature, narratives and verbal interaction, to which children of higher socioeconomic status (SES) are normally exposed, are highly correlated with cognitive development. The SES is claimed to correlate with favorable social, physical and motor development as well.

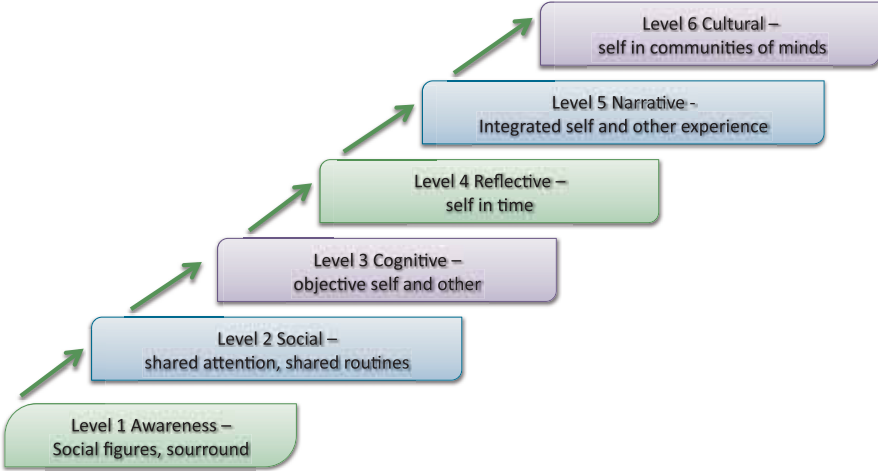


Fig 4. Course of early infancy and childhood consciousness development (Adapted from Nelson 2007, p. 25)

### *Features of quality early childhood pre-school development programs*

If we are to invest in mothers-to-be, their families, infants, toddlers and small children, how should quality investment schemes and programs be designed? In our case this is working at the “demographic bottom of the pyramid”, in any economy of the world!

Heckman argues: We have bailed out banks, propped up Detroit’s automakers, and approved billions of dollars for highways and bridges. Now it is time to invest smartly in children. [...] Investing in the youngest among us yields rates of return that are comparable to the high return on stocks (8-10 % p.a.) over the long run. In times of economic adversity, governments look for temporary stimulus packages, be it cash for clunkers or shovel-ready jobs filling potholes. More often than not, they overlook America’s best economic stimulus package with lasting benefits long after the money is spent—investing in the youngest among us and producing significant economic and social benefits with rates of return that are comparable to the high return on stocks over the long run. Smart, high-quality, and targeted early childhood development promotes health, economic, and social outcomes by fusing cognitive skills with the critical social skills of attentiveness, persistence, and sociability. That is why it is heartening to see the federal government seriously considering large investments in early childhood education from birth to age five (Heckman August 7, 2009<sup>v</sup>).

To guide investments ‘at the universal demographic bottom of our pyramid’ the following findings are considered to constitute a broadly supported foundation of quality, pre-primary school development programs and trainings (adapted from Bowman et al. 2000, pp. 7-9) in preparation for successful entry of primary school:

- Cognitive, socio-emotional (mental-health) and physical development are complementary, mutually supportive areas of growth all requiring active attention in pre-school years.
- Responsive interpersonal relationships with teachers nurture young children’s disposition to learn and their emerging abilities.

- Both class size and adult-child ratios are correlated with greater program effect.
- While no single curriculum or pedagogical approach can be identified as best, children who attend well-planned, high-quality early childhood programs in which curriculum aims are specified and integrated across domains tend to learn more and are better prepared to master the complex demands of formal schooling.

It is argued that findings of particular relevance include:

1. Children who have a broad base of experience in domain-specific knowledge (for example, in mathematics or an area of science) move more rapidly in acquiring more complex skills.
  2. More extensive language development – such as rich vocabulary and listening comprehension – is related to early literacy learning.
  3. Children are better prepared for school when early childhood programs expose them to a variety of classroom structures, thought processes, and discourse patterns. This does not mean adopting methods and curriculum of the elementary school; rather it is a matter of providing children with a mix of whole class, small group, and individual interactions with teachers, the experience of discourse patterns associated with school, and such mental strategies as categorizing, reasoning, and meta-cognition.
- Young children who are living in circumstances that place them at greater risk of school failure – including poverty, low level of maternal education, maternal depression, and other factors that limit their access to opportunities and resources that enhance learning and development – are much more likely to succeed in school if they attend well-planned, high-quality early childhood programs.

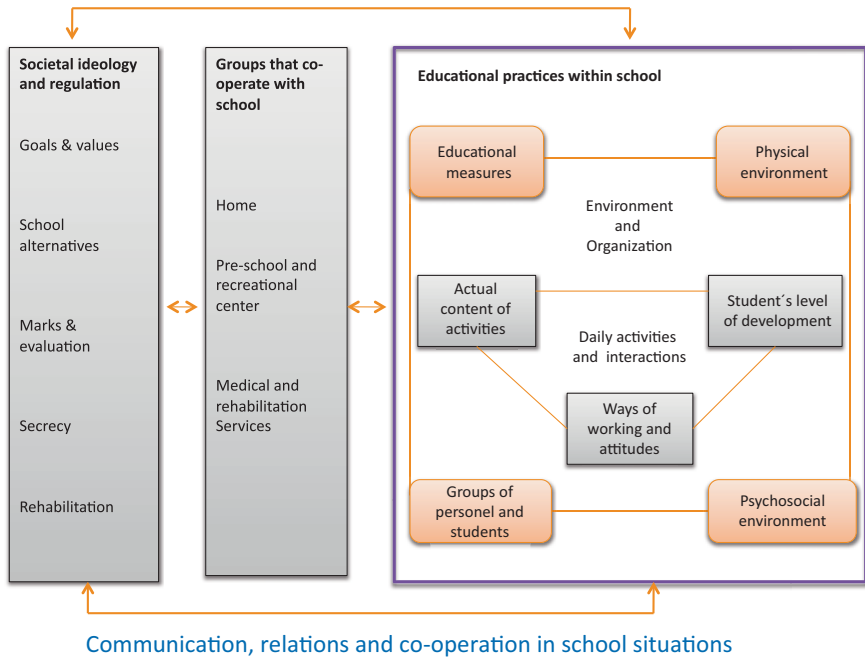
These dynamic and interdependent processes of human development have been modeled in economic language and mathematics by Cuhna & Heckman (2007) and Heckman (2007). Heckman et al. introduced a stage-specific investment and evaluation model of human developmental health, explaining the importance and effects of ECD investment. The framework is labeled “The Technology of Skill Formation”, and it introduces three concepts: a)

complementary dynamics of capabilities, indicating that the aggregated stock of investment made in ECD renders investment at the next life stage more effective; b) self-productivity, which occurs when higher levels of capabilities and health in one period generate higher levels of capabilities in the following period; c) the “capability multiplier (y)”, which clarifies how “capabilities beget capabilities”, through the combined effect of complementary dynamics and self-productivity (see Fig. 1 above)<sup>vi</sup>. In Weaver (1947)<sup>vii</sup>, the “capability multiplier” is addressed in relation to human capacities of innovation and mass adaptation to novelties: “The great multiplier: Through foresight, imagination, and individual initiative, man develops tools and facilities [in certain institutional settings and environments] which expand his efforts and enable him to produce things which would not otherwise be possible.” This is phrased mathematically by the American Economic Foundation as  $MMP = (NR + HE)^T$ : “Man’s material [economic and societal] progress depends on natural resources plus human energy [today expressible as human skills and capabilities, derived from a healthy early childhood development], multiplied by tools [a proxy of innovations and possible infrastructure].” The existence of a significant “social multiplier” has also been put forward in the research of Glaeser, Sacerdote & Scheinkman (2003).

## **Measuring Environment and Developmental Impact**

Measuring the environment and its relation to human action, interactions and development is a complex, inter-epistemological, as well as challenging mission. The topic and needs of multi-level theories and research have recently been addressed in organizational science (Dansereau & Yammarino 2005; Foss 2009, p. 22). The field of research has evolved progressively during the past 70 years, but is still under-investigated. Evidence and understanding of environmental impact on individual development over the life span are still fragmented in different epistemological fields of research (Wachs 1999). In summary, two insights stand out in this research: First, the increased understanding of the interrelated, multilevel-multidimensional structure of the environment. Second, researchers cannot aspire to understand the nature of human behavior and development without reference to the context within which the individual lives and functions. Further, as stressed by Bronfenbrenner: “Human development takes place through processes of progressively more complex, reciprocal interaction in-between an active, evolving biopsychological human organism and the persons, objects, and symbols in its immediate external environment. To be effective, the

interaction must occur on a fairly regular basis over an extended period of time.” These enduring forms of dynamic interaction in the immediate environment are referred to as “proximal processes”<sup>viii</sup>. Also, “the form, power and content, and direction of the proximal processes affecting development vary systematically as a joint function of characteristics of the developing person and the environment, both immediate and more remote. In short, in the bioecological model, the characteristic of the person is both a product and a producer of environment (Bronfenbrenner 1999, p. 5; see also Stein 2000). A “working definition” of what is meant by the environment is outlined as the “organized conditions or patterns of external stimuli that impinge on and have a probability of influencing the individual” (Wachs 1999, p. 39). In this definition of the environment, it is implicitly understood to be a multilevel, multidimensional, hierarchical system ranging from physical, ecological features down to specific proximal transactions between individuals, for example pupils and teachers in the school and educational environment. Further, there is a “parallel” environmental universe present in individuals’ subjective perception of their environment and how they feel about this perceived environment. One of the more critical aspects in determining individual behavioral patterns is considered to be how the individual perceives the nature of his or her environment rather than the actual environment itself (Wachs 1999, pp. 356-384). Jacobson (2002) offers a suitable framework and situational analysis of the learning and knowing space in a school system:



**Fig 5. The situational and interdependent system components of learning, knowing, innovation and entrepreneurial action in a school (adapted from Jacobsson 2002).**

The current state of research and development of methodological approaches and scientific models aiming at enhancing the understanding of the field of measuring environment across the life span, is outlined and well explored by S. Friedman & T. Wachs (1999). A specific section of the volume discusses organizational settings that act to organize activities of individuals, through the existence of regulations pertaining to the operation of the settings – i.e. child care, school settings, after-school settings and work places.

Some methodological issues and concerns have been raised in attempting to measure developmental impact of environments:

- Linear multiple regression models are by far the most common in estimations of the “independent” effect of each factor included in research design in the fields of sociology and psychology.
- The multiple regression model, as typically applied, requires the assumption that various factors affecting the outcome operate

independently and hence the combined effects are presumed to be additive. However, the assumption of “homogeneity of regression” is rarely met in sociological and developmental research. Distortions of reality arising from unwarranted assumptions of homogeneity of regression are seen as likely in applying “the technique of causal modelling or structural equation modelling”, as the models do not allow for inclusion of interaction items (Bronfenbrenner & Morris 1998).

- The existence and importance of “proximal processes” operating over time and space calls for careful and well-thought-through research designs (Bronfenbrenner 1999).
- Measurement strategies integrating large-scale survey research and in-depth case studies of school and classroom environments, and comparative analyses of qualitative and quantitative data, are recommended by Talbert & Maclaughlin (1999).

### **Introducing the initial measuring tool – Goals, Values & Attitudes in School © (GAVIS)**

The GAVIS measuring tool, presented below, has specifically been developed and aimed at learning environments in a string of research by Allodi Westling and Fischbein at the Stockholm Institute of Education. The tool measures how children perceive their classroom environment at the particular time of the investigation, rather than any assumption of what it objectively might be. The students are believed to have a more accurate view of the environment than the teachers. The appropriateness of this approach has been discussed by Allodi Westling (2005). A combination of exploratory factor analyses and confirmatory structural equation modeling has been applied in developing the GAVIS measurement tool. The theoretical foundation of the structural equation modeling work is found in Schwartz (1992), (see also Allodi Westling 2002; 2005, p. 24). Ten aspects of universal human values and perceived underlying needs as presented in Schwartz’s theory have been selected in the GAVIS model: Creativity, Stimulation, Achievement, Efficacy, Safety, Control, Helpfulness, Participation, Responsibility and Influence. In a questionnaire, four questions were formulated under each of the ten initial



headings of the model, making up the 40 questions of the measuring tool. The questionnaire (presented in Appendix 1) was used for collecting the data in the municipality of Sävsjö, intended to measure factors affecting the learning and knowing space of the classroom.

### *Method and examination of empirical data*

For the purpose of this study, a principal-component exploratory factor analysis with varimax rotation, using the SPSS software, was chosen. The analysis scheme and considerations in applying the method basically follow the stages outlined in the “Factor Analysis Decision Diagram” outlined by Hair et al. (1984) and SPSS instructions by Field (2000) and StataSoft Inc. (2004). The main applications of factor analytical techniques are: (1) to reduce the number of variables and (2) to detect structure in the relationships between variables, that is, to classify variables and further provide the potential for creation of composite measures or selection of a subset of variables for further confirmatory factor analysis and structural equation modeling. Basically, the extraction of principal components amounts to a variance-maximizing (varimax) rotation of the original variable space. The criterion of the variance-maximizing rotation is to maximize the variance (variability) of the “new” variable (factor), while minimizing the variance around the new variable.

### *Assumptions and appropriateness of applying factor analysis*

As correlation coefficient fluctuates from one sample to another sample, the reliability of the factor analysis is dependent on sample size. There are different views of the appropriateness of sample size (Hair 1984, p. 99). In this study the guideline of “at least 100 samples or larger” has been applied. Further, Hair (1984 p. 99) points to the fact that critical assumptions underlying factor analysis are “more conceptual than statistical”. The statistical assumptions of normality, linearity and homoscedacity apply only if they diminish the observed correlations. Some degree of multicollinearity is desirable, as the objective of the factor analysis is to identify interrelated sets of variables. Normality is only required if statistical tests are applied to the significance of the factors. Sufficient correlations among factors must be ensured in order to justify factor analysis, and if no correlations above .3 are found in the correlation matrix, the factor analysis should not be applied. Correlations above 0.9 could indicate a problem in undertaking the factor analysis because of singularity. Measures and evaluations of the

appropriateness of the factor analysis are found in the Anti-image correlation matrix, as large partial and anti-imaging correlations are an indication for running a factor analysis. The KMO statistic, checking for inter-correlation of variables and appropriateness of factor analysis following Kaiser's (1974) recommendations, should be no lower than 0.5, values between 0.7 and 0.8 being considered as good, 0.8 to 0.9 great and above 0.9 excellent (Hair 1984; Field 2000). Bartlett's test of sphericity, checking for the presence of correlations among variables, should indicate a significance value less than 0.05. Checking for excessive multicollinearity, the determinant in the correlation matrix should exceed 0.00001.

Examination of our data in the light of the above criteria, reveals that factor analysis is an appropriate method for structuring the data. Specifically:

- Sample size – the initial sample's two subsets of individuals in test (N=94) and control (N=91) schools were at first analyzed independently. However, these factor simulations revealed the independent groupings to be too small for extracting "sensible" factors. The control and test groups have been combined in one joint sample in the factor analysis of this study. It is recommended to have "at least" five to ten times as many observations as there are variables. Following this rule, we fall somewhat short of observations (N=186 individuals in the entire sample and thereof 40 missing in final data) given the 40 questions/variables in the GAVIS measurement tool and hence in the study undertaken.
- Missing values – the missing observations (19.3%) are explained by families moving from the municipality (15%) and parents declining their children's participation in the study (4.3%). There is no knowledge of why certain parents declined their children's participation and this matter should possibly be further investigated, improving the reliability and validity of results.
- Normality of data in the sample could not be confirmed in investigations of histogram plots of data, "skewedness" and "curtosis" analyses. This might improve with larger sample sizes, following "the law of large numbers".
- Multicollinearity is not a problem as the determinant is 0.0131 and larger than the required 0.00001 level.

- Correlations in the initial matrix are in the 0.3 to 0.9 range, indicating that factor analysis is a good choice and no large partial and anti-imaging correlations indicative for the factor analysis were found.
- The KMO statistic = .882 (after eliminating the fourth question yielding a SMA value below .5 and Barlett test with a significance of  $0.0001 < 0.05$  yield acceptable results for proceeding with the factor analysis.
- The residual matrix showed no significant values, indicating a “good” factor analysis model.

### *Number of factors to extract?*

**1. The Kaiser criterion, or Latent root/ Eigenvalue criterion**, stipulates a rule of retaining only factors with eigenvalues greater than 1. This criterion was proposed by Kaiser (1960) and has been applied in the analysis. **2. The scree test** is a graphical method first proposed by Cattell (1966). In the scree test, the plotted eigenvalues show a simple line plot. Cattell suggests finding the place where the smooth decrease of eigenvalues appears to level off to the right of the plot. Which criterion to use: the first method (Kaiser criterion) sometimes retains too many factors, while the second technique (scree test) sometimes retains too few; however, both do quite well under normal conditions, that is, when there are relatively few factors and many cases. In practice, an additional important aspect is the extent to which a solution is interpretable. Therefore, one usually examines several solutions with more or fewer factors, and chooses the one that makes the best “sense” (StataSoft 2004). Nine factors were extracted in the exploratory factor analysis of this study, explaining 65% of total variance, by applying the Kaiser selection criterion and not finding any indication for applying different numbers by examining the Scree test, while scrutinizing several different iterations of the factor analysis. Eigenvalues before and after extraction and varimax rotation are found in Appendix B.

**The commonalities** for each variable indicate the proportion of variance that each item has in common with other items. Commonalities of the variables in the undertaken factor analysis are satisfying.

## Rotating the factor structure

The varimax rotation was selected for the analysis and the resulting factors are presented below:

## Results of the Exploratory Factor Analysis

The following nine factors, explaining 64% of total variance, based on the chosen 39 questions (question 4 was eliminated from the initial questionnaire) were finally determined and named after varimax rotation:

### 1. Empathy & Reciprocity

27. We accept each other in my class	0,817
30. Everyone feels well treated in my class	0,770
28. Everybody's helpful in my class	0,723
26. We care about each other in my class	0,713
17. Everyone feels secure in my class and the school	0,695
32. Everybody in my class feels that they are valuable	0,694
29. Everyone in my class feels they're taking part	0,673
25. Everyone can cooperate in my class	0,652
16. In my class pupils don't easily give up, if tasks are difficult	0,471

### 2. Trust & Mindfulness

5. Everyone is improving their results in my class	0,680
21. It's calm in my class	0,679
20. There are no fights and no violence in my school	0,626
22. The lessons are well organized in my class	0,566
18. It's not dangerous for anyone to be in my school	0,542
8. It's fun in my class	0,538
19. Nobody feels threatened in my school	0,512
24. In my class we're good at listening to each other	0,483

### 3. Attention & Motivation

14. Our teachers believe that all pupils have abilities	0,624
13. Everyone in my class feels that people pay attention to them	0,602
31. In my class everyone can tell about their own experiences	0,597
36. The teachers have trust in the pupils	0,576
6. The teachers love their work and their subjects	0,564
39. The teachers listen to the pupils' ideas and suggestions and try them out	0,522

### 4. Learning & Knowing

10. Everybody in my class is making improved results	0,772
9. Everyone in my class is making progress in learning things	0,646
12. Everyone is developing their knowledge in different areas in my class	0,567

### 5. Responsibility

15. The pupils in my class feel they are clever	0,653
33. Pupils take responsibility for activities common to the class, such as selling things at open house, decoration at parties, etc.	0,595
35. We take responsibility ourselves in my class	0,584

## 6. Creativity & Self-expression

1. In my class we work with creative activities and various media	0,733
11. Everyone can develop different interests in my class	0,604
3. In my class we show other people what we do in school	0,511
7. Teachers care about all the pupils in my class	0,393

## 7. Governance

40. We discuss regularly in groups with our teachers how things are in class and in the school	0,706
23. There are rules to be followed in my class	0,476
34. In my class pupils have most of the responsibility for their progress in school	0,426

## 8. Enactment

38. The pupils decide a lot of what happens in my class	0,801
37. The pupils can change important matters in the class (lessons, content etc.)	0,627

## 9. Imagination, Conceptualization & Know-How

2. In my class we write our own texts (poems, stories etc.)	0,824
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Extraction Method: Principal Component Analysis, Rotation Method: Varimax w/ Kaiser Normalization  
a) Rotation converged in 17 iterations

These factors have been named with an ambition of potentially relating to existing research contributions in the “knowledge and innovation movements”, as well as an enhanced future research agenda of social entrepreneurship and inclusive growth.

## Discussion: Sense-making<sup>ix</sup> and human achievements in global learning and knowing spaces

The child psychologist Nelson (2007 p. 10) claims that “The major breakthrough in human development, the one I believe finally made us different from all other animals, was the ability to share subjective meanings. This capacity begins to develop through nonverbal social exchanges in infancy and early childhood, but it takes a leap into the stratosphere where sufficient language has been acquired to enable the child to participate in the talk of the social world, and join in sharing of minds through talk, narrative, and other modes of discourse.” Further, “the community of minds holds the key to ‘mind sharing’ of cultural knowledge” (ibid, p. 28). Many children pass along this developmental pathway without seeming difficulty, and the opportunities of participating in school as well as at work

open up their lives. Many other toddlers and children, however, do not get a sufficiently good start in life and have a difficult time succeeding in school as well as vocational training or professional engagements in adult age (See Fig 2. above of Gapminder's current world scenarios). Sachs (2005) points to the fact that the right to education is not only an informal commitment of governments around the world. It is also enshrined in international law, most importantly in the Universal Declaration of Human Rights:

- Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.

Further, according to Article 28 of the Universal Declaration, "Everyone is entitled to a social and international order in which the rights and freedoms set forth in this declaration can be fully realized. [...] A follow-through on the millennium development goals would mark a major practical application of that article" (Sachs 2005, pp. 253-254). Given our increasing understanding of ECD, it could be suggested that high-quality pre-schooling should be mandatory for all children around our globe, in order to get ready for successful entry in the primary schooling system available to most children – and that it should have a higher priority, when not commonly accessible in developed as well as developing countries, than expansion of secondary- and third-level educational systems. Moreover, an important question to answer is how the declaration is fulfilled in reality, by ensuring "entitlement to a social and international order in which the rights [in our case, educational achievements] and freedoms set forth in the declaration can be fully realized." Of course, universal and specific situational factors impinging on the quality of schooling at all levels becomes absolutely central (see Allodi Westling 2009 a). As the OECD has pointed out in their data above, there is high risk that many students in the developing as well as the developed world continue to spend 6-18 years in schooling, without achieving at the best basic literary and numeracy skills. This has also become a concern in talent and personnel recruitment for many companies in rapidly developing economies, where a person with a high-school diploma or a university degree not necessarily becomes successful in corporate settings dependent on high quality R&D and innovations. Rather, firms are now beginning to search for individuals with high levels of "learnability" or "nascent potential" derived from early childhood development (Sirkin et al. 2008, pp.92-95). This makes the result of this

study especially interesting for understanding and promotion of learning, knowing, innovation and entrepreneurship in “the bottom-of-the-pyramid” economies, as well as in the least fortunate human population development pockets of developed OECD countries.

In this study we have aimed at a better understanding of favorable and potentially universal micro-foundations and environmental conditions, impacting on and benefiting human learning, knowledge generation, innovation and entrepreneurial action. We have chosen to study the primary school and classroom climate in a mid-sized town, Sävsjö, in a country with the world’s lowest socioeconomic gradient and developmental health differences within the population (Hertzman 1999, pp. 21-40), in our quest for identifying plausible conditions and determinants generating human developmental progress, learning and knowledge. This can be seen as a first step towards eventually establishing universal factors impacting favorably on processes or determining outcomes in successful “Systems of Innovation Health”.

Naming the factors in an exploratory factor analysis is both science and art. Organizational theory has spent much effort on discovering and understanding how values, norms and cultures are shared, how they construct meaning and make sense within organizations, for an overview see Nelson (2007), Styhre et al. (2002) and Weick (1999, pp. 43-44; 2009). Studies of classroom climate indicate that the social climate in the educational setting is highly impacted by values, attitudes and norms (Allodi Westling 2005, p. 19). Several studies have demonstrated the social life in classrooms to constitute an affective background to the learning process and to influence students’ achievements (Fraser 1986). Further, the social abilities of the group members depend highly on the quality, quantity and interactions in the group and cannot be exclusively considered an individual attainment (Allodi Westling 2002, p. 138). The two major political goals of Swedish primary school education are a) selection of individuals for skill-specific higher education and b) socialization. A democratic classroom climate is considered an important condition in fostering pupils in democratic values, creating a feeling of belonging and responsibility, not only in the class and school, but also in society in a broader sense. A unifying theme of various forms of organizational sense-making is that it is regarded as a relational process (Dachler & Hoskings 1995; see also Gertler, pp. 203-222). Team work, in this particular study taking place and being studied in the classroom, can be regarded as a process where individuals relate to

each other in producing shared norms, values and world-views (Styre et al. 2002). Allodi Westling also points to the fact that “The classroom climate is formed through interactions among students and between students and teachers; it is influenced by the direction, quality and quantity of the interactions and it influences students’ satisfaction, self-concept and learning processes” (Allodi Westling 2002, p. 139). This mutual exchange process is referred to as “Care of the other human being” (Styhre et al. 2002, p. 504), care being the basic human property of being able to continuously direct attention to other human beings (von Krogh 1998; Allodi Westling 2004, 2005). Gertler (2008, p. 209), argues that there is a “strong consensus that the transfer of specialized knowledge, particularly that which contains a strong tacit component [see Kogut & Zander 1992, 1993, 1996; Nonaka et al. 2008] depends on shared cognitive frameworks between parties involved”.

In the research and modeling of Stein ([1917] 1989, [1922] 2000) this capacity of individual and collective “mind-sharing” has been named “empathy” and is perceived to be human beings’ fundamental and constituting capacity, of perceiving themselves as well as other human beings, objects and world events. The original German word as established in the early 1900s is “Einfühlung”, meaning “in-feeling”, with the double sense of feeling into and at the same time feeling within oneself (Sawicki 1998). The contemporary research field related to the concept of “empathy” has blossomed on interdisciplinary grounds over the past few years. In a recent cutting-edge volume, “The Social Neuroscience of Empathy”, Decety & Ickes (2009), the biological, cognitive, social and personhood dimensions of empathy are explored and analyzed. Contemporary discussions in philosophy are found in Clark (1997 p. 83-84) and Avramides (2009).

### *Conclusions and suggested next step*

The ambition of this article has been to bring improved understanding of potential, universal factors and conditions positively affecting global inclusive growth, through innovation and entrepreneurship. The findings of what factors can be extracted from a data set of how children in an arguably conducive environment describe their classroom environment are an important first step in this direction (see also more recent research by Allodi Westling 2007). In summary, it is concluded that a better understanding and governance of potentially universal and specific situational factors determining systems of learning, knowing,



innovation and entrepreneurial action may amplify with multiple stages of leverage (see also Allodi Westling 2009 b) in bringing forth organizational innovations for inclusive competition and growth (Bornstein 2007). First, it will potentially generate suggestions and implemented strategies for improved school achievements in all parts of the world, through improved early childhood developmental conditions and high quality pre-schooling. Second, higher numbers of skilled and capable young individuals will, conditioned by favorable over all institutional conditions; generate social and societal transformations through knowledge and innovation based firm and industry organizational development. At the “universal bottom of the pyramid” we find improved early childhood developmental health and high quality pre-schooling (Heckman 2009), as the key long-term sustainable success factors of higher levels of innovation and entrepreneurship in any part of the world (Keating & Hertzman 1999).

*Some final considerations in further developing the GAVIS measuring tool are as follows:*

First, a finer division of measuring scales in the questionnaire should be sought. Second, an extended research effort of analyzing dependence and independence among the factors in this study is suggested. Third, larger groupings of variables in factors seem to make an important contribution, if proceeding with a next step of confirmatory structural equation modeling of the current results. The suggestion would be to proceed with the first four to seven factors classified in this study and, depending on attainable sample sizes, reduction of the number of questions/variables should also be considered. Fourth, the combinations of qualitative, quantitative and longitudinal studies may constitute the best possible research design. Experimentation and combinations of quantitative methods and, more specifically, collaborative and action-research approaches are therefore suggested (see Callon 2006; Dumez & Jeunemaitre 2006; Michel 2006; Piore 2006; Sen 2004) for further evaluation regarding the effort to improve measurements and determinants of learning, knowing and innovation spaces and its environmental impact on individual, group and firm achievements, and inclusive growth. Fifth, an extended selection of research in the “knowledge and innovation movements” and organizational research could be discussed and analyzed through a lens focusing on the most important factors of Empathy & Reciprocity, Trust & Mindfulness, Attention & Motivation, Responsibility, Governance Learning & Knowing, Creativity & Self-expression, and Enactment as well as Imagination,

Conceptualization & Know-How [innovation] derived in this study. In conclusion, the “Golden Rule” of measuring and governing the learning, knowing and innovation space may not yet have been established by this study. However, some possible alterations of the initial GAVIS model are suggested by findings in the study.

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## Endnotes

- i The importance of the family as an institutional arrangement in society is discussed by Ostrom et al. (1993, pp. 63-70) and Maddison (2007, p. 314).
- ii There is a high correlation between democratic governing structures, lower levels of inequality and the level of education in a country, i.e. those with higher levels of average number of years of schooling (Acemoglu & Robinson 2006, pp. 54-55; Salverda, Nolan & Smeeding 2009; The World Bank 2005, pp. 34-36). It is also acknowledged that family conditions and socioeconomic status have a significant impact on students' school achievements (Machin 2009, Ch. 17). It is noteworthy that 'family' is an old institution often underestimated in importance in analyses of Western society's and its offspring's development (Maddison 2007, p. 314; Ostrom 1993, pp. 63-70). The effect of particular family belonging on school accomplishments has not been possible to investigate independently in this study. Nor are gender differences analyzed or discussed in this study. Research indicates that there might be important gender differences in influential environmental factors and environmental conditions. It is also found that these aspects may vary over the developmental life span of the sexes (Whittenberg-Cox & Maitland 2008, Ch. 2; World Bank 2005, p. 34).
- iii The evidence that the whole world is in a continuous process of "being & becoming" is quite clear when studying the Rosling and teams' graphs at [www.gapminder.org](http://www.gapminder.org).
- iv For a detailed discussion on this topic see Nelson 2007 and Fox et al. 2007.
- v Article on <http://www.american.com/archive/2009/august/stimulating-the-young>.
- vi Discussion on skills, capabilities and organizational routines in Evolutionary Economics is presented in Nelson & Winter (1982, Ch 5) and further discussed by Winter in Smith & Hitt (2005, Ch. 24.5).
- vii The publication is found in reprint at [www.mises.org](http://www.mises.org)
- viii An overview of this topic in organizational research is found in Amin & Roberts (2008, pp. 179-282).
- ix See Weick 1999 and 2009 for general discussion on the topic of sensemaking in organizations.

# Appendices

## A. GAVIS measuring tool – Questionnaire instructions and format

	Goals, Attitudes & Values in School – A survey instrument		
	Mara Allodi Westling	LHS 08-7379633	Mara.Allodi@lhs.se
Date..... Year of birth.....Sex.....			
School ..... Class.....			

### Instructions

This form is not a test. Your answers can help us understand what your class/group and school are like just now. It is important that you answer all the questions without skipping any.

Each statement describes something about what your class or school is like. Put a cross in the box after each statement describing what you think your class and school are like.

1. Not true at all
2. Partly true
3. Mostly true
4. Completely true

EXAMPLE	41. In my class it's easy to learn things			
	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
If you think this is not true at all, put a cross in square 1				
	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
If you think this is only partly true, put a cross in square 2				
	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4     ...

### A measuring tool – questions and groupings

#### Creativity

1. In my class we work with creative activities and various media
2. In my class we write our own texts ( poems, stories, etc.)
3. In my class we show other people what we do in school
4. In my school we find out what other people have created (by going to museums, performances, exhibitions)

#### Stimulation

5. In my class we work with fun things
6. The teachers love their work and their subjects
7. Teachers care about all the pupils in my class
8. It's fun in my class

#### Control

21. It's calm in my class
22. The lessons are well organised in my class
23. There are rules to be followed in my class
24. In my class we're good at listening to each other

#### Cooperation

25. Everyone can cooperate in my class
26. We care about each other in my class
27. We accept each other in my class
28. Everybody's helpful in my class

**Learning**

- 9. Everyone in my class is making progress in learning things
- 10. Everyone is improving their results in my class.
- 11. Everyone can develop different interests in my class
- 12. Everyone is developing their knowledge in different areas in my class

**Self-efficacy**

- 13. Everyone in my class feels that people pay attention to them
- 14. Our teachers believe that all pupils have abilities
- 15. The pupils in my class feel they are clever
- 16. In my class pupils don't easily give up, if tasks are difficult

**Safety**

- 17. Everyone feels secure in my class and the school
- 18. It's not dangerous for anyone to be in my school
- 19. Nobody feels threatened in my school
- 20. There are no fights and no violence in my school

**Participation**

- 29. Everyone in my class feels they're taking part
- 30. Everyone feels well treated in my class
- 31. In my class everyone can tell about their own experiences
- 32. Everybody in my class feels that they are valuable

**Responsibility**

- 33. Pupils take responsibility for activities common to the class, such as selling things at open house, decoration at parties, etc.
- 34. In my class pupils have most of the responsibility for their progress in school
- 35. We take responsibility ourselves in my class.
- 36. The teachers have great trust in their pupils

**Influence**

- 37. The pupils can change important matters in the class (lessons, content etc.)
- 38. The pupils decide a lot of what happens in my class
- 39. The teachers listen to the pupils' ideas and suggestions and try them out
- 40. We discuss regularly in groups with our teachers how things are in class and in the school

## *B. Total Variance Explained*

### **i) Initial Eigenvalues**

Component	Total	% of Variance	Cumulative %
1	12,77	32,74	32,74
2	2,82	7,23	39,97
3	1,86	4,77	44,72
4	1,54	3,95	48,69
5	1,48	3,78	52,48
6	1,40	3,59	56,06
7	1,22	3,12	59,19
8	1,18	3,01	62,20
9	1,07	2,74	64,94

### **ii) Extraction Sums of Squared Loadings**

Component	Total	% of Variance	Cumulative %
1	12,77	32,74	32,74
2	2,82	7,23	39,97
3	1,86	1,86	44,74
4	1,54	1,54	48,70
5	1,48	1,48	52,48
6	1,40	1,40	56,06
7	1,22	1,22	59,19
8	1,18	1,18	62,20
9	1,07	1,07	64,94

### **iii) Rotation Sums of Squared Loadings**

Component	Total	% of Variance	Cumulative %
1	6,53	16,74	16,74
2	3,88	9,97	26,70
3	3,12	8,00	34,71
4	2,49	6,39	41,10
5	2,09	5,37	46,47
6	1,97	5,06	51,53
7	1,88	4,81	56,34
8	1,86	4,77	61,11
9	1,49	3,83	64,94

Extraction Method: Principal Component Analysis.

# **Treatise 4: Organizations, Innovations & Human Beings**

**Study V:** Organizations, Innovations & Human Beings, (Glassér 2006 / 2009)

**Study VI:** Prototyping the Knowing & Innovating Theory of the Firm, including an appended Case of Corporate Nation and Innovation Health, (Glassér Spring 2010)



Earth Appearance

# Organizations, Innovations & Human Beings

Charlotte Glassér  
2006/ 2009

The article was originally written as a working paper at The Stockholm School of Economics, IIB in spring 2006 and has been updated to the current format during 2009.<sup>1</sup>

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## Introduction

Why do organizations exist, and how do human beings fit into organizations?

The first question can be answered as follows: “The development of organizations is the principal mechanism by which, in a highly differentiated society, it is possible to get ‘things done’, to achieve goals beyond the reach of the individual” (Parson 1960, p. 41, cited in Scott 2003). A plausible answer to the second question is articulated and analyzed in a 1960 article by the distinguished scholar and Nobel Prize laureate Herbert Simon, “The Corporation: Will it be managed by machines?”. In this article Simon argues that the human being’s (Man’s) comparative advantages in traditional manual and physical labor have been truncated in most circumstances of economic activities and production. The human being has also been displaced in many situations of economic production requiring simple and repeated performances and coordinating of “eye-brain-hand sequences”. Simon claims that the human being “has retained his/ [her] greatest comparative advantage in [economic production] in: (1) the use of his brain as a flexible general-purpose problem-solving device, (2) the flexible use of his sensory organs and hands, and (3) the use of his legs, on rough terrain as well as smooth, to make this general-purpose sensing-thinking-manipulating system available wherever it is needed” (Simon 1960, p. 31).

In different phrasing, based on the reasoning and philosophical quests of the post-structuralist French philosophers, the answer to our second question could be that human beings exist in organizations but are only one artifact among many others. Cynicism can be raised against the postulate that human beings are at the centre of creativity, reason and rationality in economic and organizational life. This position is advocated by Styhre and Sundgren (2005) in an exploration of organizational creativity: “The dependence upon the individual human agent in the explanatory framework [in the literature of organizational creativity] reduces a rather heterogeneous network of relations between humans, technology, laboratory equipment, information systems, and so forth, to the level of the individual – an anthropocentric view of organizational creativity.”

Foss approaches our initial issue from a more traditional standpoint of organizational economics and as an influential participant in the “Knowledge Movement” (Eisenhardt & Santos 2002) by what has become known as “methodological individualism”, an approach that sometimes misleadingly

has been and is perceived as equivalent to “atomism”<sup>ii</sup>, with a mathematical ontology and world-view. He asks “what exactly is the nature of the mechanism that aggregates from individual knowledge and actions to routines and organizational behavior?” Foss argues that a satisfactory explanation for these mechanisms never really has been identified in the seminal work of evolutionary economics by Nelson and Winter (1982). Further, an alternative research agenda is outlined by Foss, aiming at alleviating the prevailing, contradictory and opposing positions of traditional organizational economics and what he labels the capability (or resource-based) literature, in innovation, strategy and evolutionary economics research (Foss 2009). His agenda aims at integrating the research positioning of knowledge networks (Granovetter 1973, 1985; Burt 1992).

The answers to these initial philosophical and “perennial” questions have of course changed and evolved over time.<sup>iii</sup> Hence, these above-mentioned eminent researchers arrive at different conclusions about the achievements possible in organizations through human endeavour. The introductory examples of scholarly viewpoints illustrate the fact that organizational theory and analysis, like a turning kaleidoscope, is mainly about applying and contrasting chosen perspectives of organizational phenomena and views, omission or deconstruction of the human being and her embodied faculties of mind. The implicit or explicit philosophical underpinnings, ontology and anthropological presuppositions, inherited or explicitly stated and chosen, will to a large extent determine the answers that can be obtained through an investigation.

Organizational theory is interdisciplinary in nature. However, a persistent antagonism has existed between neo-classical economics, Rational Choice Theories (RCT) underlying organizational economics, transaction cost analysis, agency analysis, game-theoretical and property-rights perspectives, and the sociology of organizations in management research. Can these views successfully be integrated, or was Schumpeter possibly right when he suggested that “cross-fertilization [between two or more sciences] easily results in cross-sterilization” (Swedberg 2005, p. 374)?

In the following, a review and analysis of the basic assumptions concerning the human being in some schools of organizational theory, and at the intersection of organizational theory and economics, is provided. This intersection is particularly interesting to analyze (Swedberg 2005, p. 373), as various streams in what has become known as “the knowledge movement”

(Eisenhart & Santos 2002) are starting to integrate into new understanding. In the “knowledge movement”, traditional Solow-based growth theories, and new (endogenous) economic growth theories, there is a high focus on the production of knowledge, R&D and its application in commercially viable innovations. However, little or no time and effort are spent on discussing the human being as the “knowledge generator and recombinator” and the conditions for her continued failures, progress and success.

An important assumption in this paper is that the capacity of developing and using advanced tools and techniques, to create and innovate, is a distinctive and evolutionary human individual characteristic (Weaver 1947). We use the words of Fagerberg in *Oxford Handbook of Innovation*:

Innovation is no new phenomenon. Arguably, it is as old as mankind himself. There seems to be something inherently ‘human’ about the tendency to think about new and better ways of doing things and to try them in practice. Without it, the world in which we live would look very, very different. Try for a moment to think of a world without airplanes, automobiles, telecommunications, and refrigerators...Or – from an even longer perspective – where would we be without such fundamental innovations as agriculture, the wheel, the alphabet, or printing? (Fagerberg et al. 2005, p.1).

The human being is often not seen or assessed as a production input factor, available ex ante in endowments. In innovation research there is traditionally a focus on the single “entrepreneur” as the innovator, in our view constituting a limited approach to economic development and enterprise. *The aim of the current article is to contribute to the interdisciplinary research and theory integration in the “knowledge and innovation movements” by offering a consistent ontology and model of “the human being” and her endeavours, which open up opportunities to effectively integrate and synthesize organizational economics and capabilities perspectives, as well as contemporary human capital and growth theories and models.*

In his essay “Modes of explanation in organizational theory”, Scherer (2003, pp. 335-336) discusses the reasons for the diversity of models and theories in organizational research in detail, and the subsequent need of defining the underlying “philosophy of science” (Scherer 2003). The ontological and epistemological foundations of different paradigms in

organizational research can broadly be divided into two strands of debate. Burrell & Morgan (1979, p. 29) have introduced an analytical scheme of how different ontological and epistemological assumptions are grouped with regard to their underlying beliefs regarding the human being and her relation to the environment. The following quote captures the gist of their argument: “All social sciences, clearly, must be predicated on assumptions [concerning human nature and, in particular, the relationship between human beings and their environment] since human life is essentially the subject of enquiry” (ibid., p. 2).

With the intention of integrating the research evidence from Early Childhood Developmental Health, ECD (Gluckman & Hanson 2006; WHO 2007a,b), and Mental Wellbeing over the life-span of the human being (Foresight 2008) into our thinking on organizations and innovation, we first have to analyze the existing and current philosophical underpinnings – ontological, epistemological and anthropocentric assumptions of organizational theory. Further, we need to choose a foundational philosophy of science with an ontology supporting a “model of the human being” with consistent anthropocentric assumptions on the micro-, meso- and macro-levels of analysis. This model should be open for the integration of new and emerging findings in ECD and brain neurological research. We will begin with a brief review of the different organizational paradigms where; we do not intend to cover all the dimensions of different schools of organizational theory and economics in detail. Rather, the emphasis will be on depicting key characteristics and assumptions in chosen schools of thought concerning the human being as an organizational subject.

There after we present a discussion of possibilities of developing a more consistent “model of the human being” in corporate and economic life<sup>iv</sup>. It is suggested on the basis of integrative, interdisciplinary and contemporary research. An initial draft of this model of the human being is sketched, originating from currently developing understandings in ECD research, summarized in the WHO report “*Early childhood development – a powerful equalizer*” (2007). Further, Edith Stein’s initial effort in the early 20th century of creating a new philosophy of the humanities and a model of the mind of the individual person, by integration of classical philosophical theories and phenomenology with the emerging fields of psychiatry, psychology and sociology, is revisited (Stein [1922] 2000). Her conceptualization of human “empathy” and ontology of association, community and the human individual is presented.

The aims of introducing Edith Stein's theories into the "knowledge and innovation movement" research are twofold. First, they provide a consistent theory and ontology embracing the individual human being, the associations and communities where the latter enacts her life activities. Second, Stein's theories provide an integrated framework and model of the human being, jointly considering and analyzing the interdependent and integrated human capabilities of (a) *physical/motor skills*, (b) *socio/emotional skills*, (c) *language/cognitive skills* and (d) *individuality/unique personality*. Stein's model and ontology, even though not addressing in her day the unknown and currently developing field of early childhood development and its impact on the individual human being's lifetime developmental possibilities and trajectories, corresponds to the framework chosen by leading researchers in the ECD field (WHO 2007a,b; Foresight 2008). In our understanding, Stein's theoretical framework offers a comprehensive and jointly integrative model of the human being and organizational ontology, particularly suited for taking human skills and capabilities into simultaneous consideration. "Stein demonstrates that the concept 'individual person' is oxymoronic – an unreal and unrealizable abstraction – and that *multi-person community is the necessary condition for personhood*, not a mere option open to persons" (Sawicki 2000). It is the position and suggestion of this article that Stein's model and theoretical framework can facilitate an interdisciplinary, contemporary, analytical and integrative dialogue among our understandings of the human being, the conditions and motivations of her endeavours in diverse organizational and community settings". Using Stein's own words: "*All we wanted to do here was to define mind-science [Geisteswissenschaft] preliminarily and very generally, in its peculiarity, which is grounded in the essence of mind*" (Stein [1922] 2000). Through this quotation we also want to alert the reader to the fact that Stein's ambition was to outline an integrated theory of what has become labelled as "mind science" in contemporary writings (for overviews of current debates see Chalmers 2002; Markman et al. 2009; McLaughlin 2009), not to be confused with the current research fields of psychology and psychiatry (see Bermudez 2005).

## **"Innovation Health" – a brief introduction**

In 2007, the rapidly developing front-line corpus of interdisciplinary medical, psychological and sociological research on ECD was aggregated and summarized by WHO (2007a,b) in what it named the "Total

Environmental Assessment Model of Early Childhood Development (TEAM-ECD). The model has been chosen as the fundamental guideline of ECD.

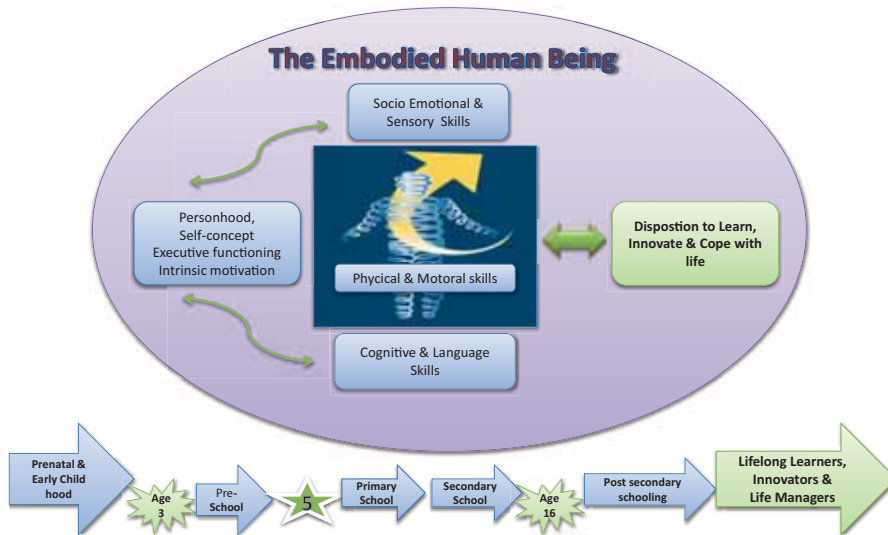


Fig.1. A schematic model of the inter-related dimensions of the developing human being

ECD<sup>vi</sup> is founded in four general, interdependent and jointly developed human capacity categories: (a) *physical/motor skills*, (b) *socio/emotional skills*, (c) *language/cognitive skills* and (d) *individuality/unique personality*. These are positioned at the core of the undertaken analysis and investigations of the human being's comparative advantages, skills and capacities of knowledge creation, adoption and innovation.<sup>vii</sup> These basic human capacities are anchored more or less well in the ECD period of life, in a dynamic interplay between genetic disposition and environmental impact (Gluckman & Hanson 2006; LeDoux 2002; Mustard 2006; WHO 2007a,b). Further, they are leveraged or de-leveraged over the life-span of the individual. This is a dynamic, interdependent process of development, in which initial genetic human dispositions, environmental impact and stimulus amalgamate and reinforce each other over time. We can distinguish positive and negative developmental core trajectories that may result from early life stages. On the positive track we find: basic intellectual functioning, cognitive flexibility and resilience, optimism, cognitive reserve, active coping style, self-esteem and self-efficacy, social engagement, social inclusion and employability. On

the negative trajectory slope we find outcomes such as: delinquency, school failure, depression, mental ill-health, criminality, substance abuse and teen pregnancy (Adler & al 2005; Foresight 2008). The importance of the institutional setting and interdependences between micro-, meso- and macro-environmental levels are highlighted in numerous research models and presentations. (See e.g. Foresight 2008<sup>viii</sup>; WHO 2007a, b). ECD formational success or failure lays the foundations for the individual's future possibilities of reaching, entering and completing formal primary, secondary and third-level educations, and hence affects the development of vocational skills. Furthermore, it determines the individual's chances and opportunities of competitive participation in the labour force (Knudsen et al. 2006), positively impacting on firms' innovation, competitiveness and strategic success. Hence, any theory of innovation, competitiveness and strategy, based on the assumption of firms' superior capacities of knowledge generation, application and recombination, should acknowledge and consider these interlinked and lifetime-spanning human development conditions, established *in utero* and during early childhood.

Keating (1999) identified four key dynamics and interrelated conditions which impact on human development, capability formation and societal progress, not yet fully being acknowledged in organizational research, economics and growth models: (a) the developmental health of populations; (b) the biological embedding of early human experiences contributing to developmental health; (c) the nature of human social organization, structuring the ways in which support of developmental health is maintained, renewed, and distributed; and (d) the specific processes of community, family, and other societal networks [firms & organizations] that shape the contexts in which human development actually transpires (*ibid.*, p. 338). These four categories of highlighted dynamics and conditions will be used in the analysis section of this paper below. They rest on two major claims (*ibid.*, p. 337): (a) Physical and mental health, well-being, coping, and competence of human populations, labelled "developmental health", are at large a function of the overall quality of the social environment [innovation health system]. Developmental health can be measured by examination of the socioeconomic gradient (Hertzman 1999, pp. 21-40); (b) The origins of human developmental differences can to a great extent be attributed to effects of early childhood experiences, as they sculpt genetic dispositions in different aspects of human functioning (see further WHO 2007a,b and Le Doux 2002). These processes are termed the

human being's "biological embedding". In this article, the introduction of the concept and theorizing of "Innovation Health" aims at capturing these human developmental conditions, to the extent that they could be relevant to firm strategic advantage, through knowledge generation and innovation further elaborated and discussed in Glassér (2010).

## **Homo Oeconomics, Rational Agents, Human Capital & Capability, Consumers & Production Factors<sup>ix</sup>**

In the following we will see that theories of economic growth, human capital and capability do not explain in any detailed manner how activities of human beings are transformed through entrepreneurship and innovations into products and services and sustained competitive advantage and value of corporations.

To find the dividing line between economic and social theorizing, we have to travel some 200-300 years back in time to the Enlightenment period. This is the culture and milieu which advanced the science of political economy to a position and perception of an independent field and domain, detached from moral philosophy. Mathematical modelling and the logic of natural laws of scientific research were celebrated and applied. Further, the belief in the human being as a "rational agent" was extensively integrated into economic theorizing. *"This period eschews natural law and metaphysical speculative deliberations in favor of the precise logics of science and mathematics"* (Barrera 2001; see also Hozelitz 1965). Until medieval times, the individual was seen as subordinated to the community; economic theorizing had its foundations in moral philosophy, and was integral with the social doctrines of the church and state:

There is no place in medieval theory [scholastics] for economic theory that is not related to a moral end, and to found a science of society upon the assumption that the appetite for economic gain is a constant and measurable force, to be accepted, like other natural forces, as an inevitable and self-evident datum, would have appeared to the medieval thinker as hardly less rational or less immoral than to make the premises of social philosophy the unrestrained operation of such necessary human attributes as pugnacity or the sexual instinct (Tawney 1938).



Barrera further claims, based on Streeten (1954), that there are three principal legacies derived from the classical school of economics: (1) *Liberalism* with complete individual autonomy and freedom in economic life and a minimum of government intervention, known as the “laissez-faire” principle. (2) Maximization of individual happiness, known as *Utilitarianism*. (3) The doctrine of harmony of interest, advocating that private and public interests automatically coincide through individual self-love. Thus, important and underlying assumptions regarding the nature of the human individual are: “self-interested behavior, the [Pareto-optimizing] ‘homo oeconomicus’ model and utilitarianism”. These models are hedonistic or amoral in nature, as the maximization of individual utility and economic growth regardless of means is the sole end of human activities and existence (Barrera 2001).

### *Organizational Economics and Rational Choice Theory*

In current organizational theory the principles of “self-interested behaviour, the [Pareto-optimizing] ‘homo oeconomicus’ model and utilitarianism” are expressed in what has become known as Rational Choice Theory (RCT). The RCT model develops a mode of explanation contradictory to functionalism or holism. One central ambition of RCT is to explain macro-level outcomes not by the simplification of referring to “social facts”, but rather through the mechanisms at the individual level and their interdependences with the macro-level. RCT is discussed by Scherer (2003)<sup>x</sup> and we will only take a brief look at the underlying assumptions, not often advocated or discussed explicitly in organizational economics (Abell 2000, p. 23, adapted from Scherer): (1) *Methodological Individualism*, rejecting Durkheim’s (1895/1965) ontology of collectives and claiming that there are “social facts”. (2) *Optimality*; unlike neo-classical economics, modern RCT proposes only a weak model of optimality. Actors are not completely rational; instead they are “satisficers”. This implies that individuals do the best they can, given the circumstances of their actions as *they* see them. (3) *Self-regard*, individuals act to satisfy their self-regarding preferences, i.e. they are completely concerned with their own welfare. These fundamental assumptions and theories in organizational economics have also had a radical impact on the way firms and corporations are perceived, and on theories of the firm and its strategic advantages.<sup>xi</sup> Using the words of O. Williamson in his closing remarks at the 2009 Nobel Prize Laureate Lecture in Stockholm: “Now we need to scale-up from ‘toy-models’ to “real-world models” of firms.” Defining human rationality, even the weak

form of “bounded rationality” is not a simple task. The obsession of arguing for human beings’ rationality has preoccupied philosophical debate for millennia. For a detailed discussion of this “perennial” issue we refer to the memorial essay in honour of Simon by Pitt (2004).

### *Economic Growth Paradigms & Human Capital Theories*

The foundation of “Human Capital Theories” has been outlined by Schultz (1961). He suggested that the improved productivity and, hence, yield on human capital in the US economy was larger than that based on physical capital due to investments in education and training. Becker based his theories on the idea that expenditures on education, training and medical care could and should all be considered as investments in human capital (Becker 1993, p. 15). “The concept of investment in human capital simply organizes and stresses these basic truths. Perhaps they are obvious, but obvious truths can be extremely important” (ibid., p. 251). In economic growth theories, human beings have essentially been categorized into two different groups of production input variables in the creation of economic value: “Labour” and “Human Capital”. Labour denominates human beings without formal secondary schooling, and human capital denominates human beings with a college diploma or higher degrees. Recent, Schumpeterian endogenous growth models articulate the importance of ‘health’ issues in relation to economic growth. Howitt (2005, p. 37) claims that “the effects on creativity and coping skills are especially important; in this respect, Schumpeterian theory underscores the importance of recent ECD research showing the beneficial effects that early childhood and maternal [family] health have on these critical dimensions of human capital”.

In evolutionary economics, the constructs of industry and firm growth are defined as human “skills”, “capabilities” and “routines”. The precise definition and contents of these constructs are largely unexplored, and have come to spark a heated debate recently – primarily in the field of innovation, strategy and competitiveness research (Felin & Foss, June 13, 2005; Foss 2005; Winter 2005). Nevertheless, many research gaps are still to be investigated in relation to growth and human capital theories (see for example Dinopoulos & Thompson 1999; Lucas 2002, pp. 109-175). Cuhna and Heckman have delineated an extension of traditional human capital theories, labelled “The Technology of Skill Formation”, primarily focusing on the integration of the emerging interdisciplinary understanding of

early childhood development and the crucial impact of family conditions on economic growth (Cunha & Heckman 2007; Heckman 2007). Their research focus<sup>xiii</sup> is similar to the research effort denoted “The Fountainhead of Innovation Health – a conceptualization and investigation (Glasser 2010)” briefly discussed in this article. In contrast to Cunha and Heckman, the concept of Innovation Health favours not only the importance and impact of ECD, but also the indispensable contribution and co-evolution of innovations, enterprise and institutional settings in the generation of economic prosperity.

### **“Freedom as Development” & Human Capability**

The designations “economic growth” and “corporate profitability” are framed in a different manner with a broader context of global societal development and transformation, resting on the philosophical and theoretical foundations of Sen (1999) and “The Human Development Paradigm” of ul Haq (1995). Economic growth and corporate profits are considered “means” rather than ends to achieve human development and progress. A distinction is made between the notation of “Human capability” and the theory of “Human capital”. Human capital is considered a subset of the entire pool of human capability, defining human skills and capabilities useful as means in economic and corporate activities (Sen 1997; Jolly 2002). Sen advocates an anthropocentric approach to societal development and defines desired outcome and success as human capability expansion and freedom (Sen 1989). Enabling human capability development and expansion, Sen identifies five distinct types of freedom necessary in a society: (1) political freedoms, (2) economic facilities, (3) social opportunities, (4) transparency guarantees, and (5) protective security. Further, Sen states that “in looking for a fuller understanding of the role of human capabilities, we have to take note of: (a) the *direct* relevance to the well-being and freedom of people; (b) the *indirect* role through influencing *social* change; and (c) the *indirect* role through influencing *economic* production” (Sen 1999, p. 196). Freedoms of different kinds are complementary and can strengthen one another. Individuals can effectively shape their own destiny and help each other. “There is indeed a strong rationale for recognizing the positive role of free and sustainable agency – and even of constructive impatience” (Sen 1999, p. 11).

Summing up this section of the paper, it has to be noted that the discussed theories of economic growth, human capital and capability do not explain in any detailed manner how the activities of human beings are transformed through entrepreneurship, R&D, and innovations into products and services and sustained competitive advantage and value of corporations and organizations.

### *Setting the stage: Organizational Theories, Models & Human Beings*

Now let us consider in some detail some of the organizational schools of thought which have had lasting impact on the way we perceive the dialectic process between human beings and organizations<sup>xiii</sup>. The pre-historians of organizational thought, for example Smith, Babbage, Durkheim, Marx and Schumpeter, and the following classical authors have had a lasting impact on contemporary organizational research (Ericsson-Zetterquist et al. 2005).

### *Classical & Pre-modern (Weber) influences<sup>xiv</sup>*

Let us start with the famous political economist and his “pin factory”: Smith (1723-1790). He was the first to articulate a theory explaining efficient production in systematically organized work practices. His theory describes the techniques of division of labour to produce economic efficiency at work. The division of labour, including the differentiation of work tasks and the specialization of labourers, is central to the concept of social structure in organization theory (Hatch & Cunliffe 2006, p. 28). Interestingly and often forgotten, Smith took a positive view of all human beings’ potential for education, training and development (Smith 1976, pp. 29-29), also discussed by Sen (1989, pp. 294-295). Next, the organizational research by Babbage (1835), relating to the use of skill-specific human capital to enhance firms’ efficiency and profitability, leads us further to the work of Taylor. Taylor (1856-1915), the founder of “*Scientific Management*”, though greatly debated, is arguably the organizational scholar who has had the most lasting impact on contemporary organizational theories. Taylor’s main thesis was that the process of work had to be investigated scientifically, and then subjected to optimal efficiency measures. Primarily, Taylor advocated a strict division between unskilled and uneducated manual workers, and skilled human capital with superior intellectual and administrative abilities. His theories stated that all “brain work” should be removed from the shop floor and placed in skilled functions,

whilst shop work was assigned to the blue-collar workers. He writes: “The very first requirement for a man who is fit to handle pig iron as a regular occupation, is that he shall be so stupid and so phlegmatic that he more closely resembles in his mental make-up the ox than any other type. [...] He is so stupid that the word ‘percentage’ has no meaning to him, and he must consequently be trained by a man more intelligent than himself into the habit of work in accordance with the laws of science before he can be successful” (Taylor 1911, p. 59). Of course these kinds of statements provoked an opposing response (Gramsci 1971, pp. 302-303). Over the years the criticism of Taylorism has been moderated to some extent. Those who resist scientific management and its practices emphasize how strict working methods alienate the human being. The same critique has been raised against the development of the assembly line and what has come to be known as Fordism and large-scale modern manufacturing production (Hatch & Cunliffe 2006, p. 33). Marx (1961) is best known for his *Theory of Capital* and related theories concerning the exploitation and alienation of the working class. Marx’s theory of the dialectic struggle between capital owners and labour still dominates many labour market debates. However, capital owners also possess skill-specific human capital in managing investments and corporate growth. This is a unique human skill set, which has scarcely been touched upon in this paper, but is well addressed, in current historical research regarding the development of enterprise in Sweden during the nineteenth century (Nilsson 1999).

Early modern organization theory has its origin in Weber’s model (1924/1947) of the ideal bureaucracy. The objective of Weber’s theory of bureaucracy was that authority in organizations should be granted in line with rationally determined rules and by legally binding procedures, rather than being default conditions from the past or via inheritance. The bureaucratic organization was supposedly technically superior to any other form of organization, through exactness, predictability, continuity and lack of conflict. In other words, in the modern organization, it was required that work by human beings be performed “*sine ira et studio*”, rationally and without anger or any other emotion. Hence, according to Weber’s theory, the emotions of human beings were increasingly rationalized and supposedly removed from any form of organizational life. However, Weber also warned that formal rationality would lead to an “iron cage” capable of imprisoning humanity and making the human being a “cog in an ever-moving mechanism” (Hatch & Cunliffe 2006, p. 31).

## *Modern Influences*

In modern organizational theory, developed in the period after the Second World War, the admiration of new ideas and leading-edge techniques supports the denotation of scientific progress as a series of linear, cumulative steps towards the ideal of complete knowledge and human perfection (Hatch & Cunliffe 2006, p. 36). Contingency theory, socio-technical system theories, the human resource movement, cognitive aspects of decision-making and strategy theory highlight organizational research efforts on organizations' capacity to adapt to a changing environment and competitive conditions. In the period 1930-1960 the foundations of Human Resource Management were laid through the research of Mayo and the Hawthorn Studies (see further Ericsson-Zetterquist et al. 2005). There was an increasing interest in understanding human motivation in the work place, and corporations taking greater responsibility for their workers and the social environment of their operations in efforts to improve corporate competitiveness. Barnard should be mentioned as the first theorist to re-introduce the human being into organizational science in the 1930s, as a consequence of his affiliation with the Hawthorn Studies. Barnard (1939) presents a theory of human incentives regarding organizational activities. He states that the human being's primary organizational incentive is friendly cooperation. An organization is "a system of consciously coordinated personal activities and forces" (Barnard 1939, p. 72). Whyte (1956) contributed to organizational theory in his classic study "*The Organization Man*" (1956), via an important analysis of the development of the corporate administrative specialist – chiefly the Human Resource Manager. Increasing corporate administrative hurdles led to the articulation and discussion of the vanishing of "the true American entrepreneurial spirit" and the entrepreneur.

Theories regarding human beings' cognitive capacity and ability to make decisions are arguably among the most important in organizational theories and management science. Simon, March and Cyert are incontestably the founders of this line of research. March claims that: "In a society based on reason, rationality, and conception of intellectual human control over diversity, decision-making is a sacred activity. The world is imagined to be produced by deliberate human action and responsive to human intention (March 1994, p. 216)." The single most important contribution to these theories has been made in *Organizations* (March & Simon 1958). Simon and his team developed the theory of bounded rationality, based on research and improved understanding of the human being's limited

cognitive capacities. In complex decision environments, “satisficing” decision-making, rather than rational optimizing, has become a common description of how decisions are made. A clear distinction can be made between organizational theories based on the Rational Choice School and cognitive behavioural theories assuming “bounded rational human beings”. The “weaker form of human rationality” underlies contemporary Rational Choice Theories in organizational economics. The research team further developed the organizational behavioural theories in the seminal work of Cyert and March (1963). The decision-making process and its related complex organizational context are still a highly relevant and important research topic in contemporary organizational and management research.

Strategy theories were established in the early contributions by researchers like: Selznick (1957), Penrose (1959), Chandler (1962), Andrews (1965) and Ansoff (1971) . These early theories focused on the strategic planning aspects of organizational development, apart from Penrose (1959), who adopted a more dynamic growth perspective. The human individual is important as the strategizing manager and implementer of the plans, but not visible in the strategies themselves during this period. One of the more important opponents of the static planning strategy approach is Mintzberg (1978, 1994; see also Chakravarthy & Doz 1992). He advocates a view of organizational strategies as evolving dynamic processes. Strategy should be seen as a way for organizations to deal with and adapt to ever-changing internal and external demands. In the 1980s, Michael Porter (1980, 1985) developed his economics-based five-force model and value-chain of industrial competition and development. In Porter’s models, the human being in the strategic behaviour and development of firms and industries is completely overlooked, or the best hidden<sup>xv</sup>. Positioning themselves in stark contrast to Porter, Wenfeldt (1984) and Barney (1986a, 1986b, and 1991) outlined the resource-based view of firm strategy. Firms’ resources are combined and recombined in unique ways in relation to their existing capabilities in order to create and sustain competitive advantages. The resource-based theory of the firm has been extended by Teece et al. and Teece (1997, 2009), increasing the focus on the “dynamic capabilities” of the firm as the key competitive advantage.<sup>xvi</sup> In “*Thinking from Within*”, Roos (2006) suggested that strategy theory and practice have thus far been rooted in the positive scientific paradigm of natural sciences inhabited by invisible human beings who are seen and used in an instrumental way. The author advocates that “strategy practice is, or at least should be, a human activity rather than, like short-cycle assembly work, following standard

operating procedures. “When it isn’t, we have a deeper problem.” By disregarding human qualities in strategy practice, both theory and practice risk becoming amoral. Furthermore, it is stated that “strategy is inherently normative” (Statler & Roos 2005; see also Ghoshal 2005).

### *Social Interpretive Influences*

The ontology related to social constructivism and interpretive philosophies (see Berger & Luckmann 1966) leads us to a quite different understanding of the human being and her endeavours in organizing activities and the world. Basically, the human being in social interaction with others is the self-creator of his/her world in the processes of creating meaning. Hence, social and interactive dimensions of organizations are emphasized in this field of organizational theory, and interpretation becomes important. Weick’s (1979, see also Weick 2009) process-based theory of *Social Psychology of Organizing*, focusing on lived experience and socially constructed reality, has been one of the most influential contributions in the interpretive social sciences field. Weick argues that “There is not an underlying ‘reality’ waiting to be discovered. Rather, organizations are viewed as the inventions of people, inventions superimposed on flows of experience and momentarily imposing some order on these streams” (ibid. 1979, pp. 11-12). Later, he explicitly states as his interpretive assumptions that sense-making is social, inter-subjective, and composed of multiple realities, and proposes a theory in which organizational sense-making emerges from continuous processes, or renegotiating and reconciling understandings (Weick 1998; Weick 2009). Bijker, Law and Pinch are early proponents of theories emphasizing the social construction of technology. These scholars argue that there is nothing inevitable about technological developments, as they mirror complex social trade-offs. Hence, technology and innovation are not seen as pure applications of science; rather they are co-determined by social, cultural, economic and technical factors in the environment that contextualizes the full range of activities and performance of the organization (Hatch & Cunliffe, p. 155). “The implications of these findings are profound because they indicate that managing technology (old or new) is not just about the technology itself, but also about the interactions and interpretations made by people using the technology” (Ibid. 2006, p. 156).

In a sequence of research, Kogut and Zander expounded a knowledge-based theory of the firm (Kogut & Zander 1992 and 1993; see also articles in 1996), grounded in the assumption of firms as a social community, in which



they obtain and sustain competitive advantages through their capacity to recombine existing knowledge [innovate]; “new ways of cooperating cannot be easily acquired, growth occurs by building on social relationships that currently exist in the firm” (ibid. 1992, p. 383). They propose “that a firm must be understood as a social community specializing in the speed and efficiency in the creation and transfer of knowledge” (ibid. 1996, p. 503). This more dynamic knowledge-based theory of the firm, and its capacity to build growth through knowledge-based innovations, stood in stark contrast to the predominant theories at the time of the publication of these articles, such as the well-established, more static transaction cost theory (e.g. Williamson 1975) and modern organizational theories of the firm’s strategic competitive advantage. The knowledge-based firm theory clearly builds on the assumption that the “firm’s unique knowledge base” exists and constitutes more than the sum of the individuals’ aggregated knowledge and competence contribution. Nahapiet & Ghoshal (1998) outline an extension of the knowledge-based view of the firm. They take the argument of the organization’s dependence on its social and environmental structures in creating competitive advantages one step further, by claiming that the creation of intellectual capital is only possible through the social interaction of human beings. Unlike other forms of capital, social capital is owned jointly by the parties in the relationship, and no one player has, or is capable of having, exclusive ownership rights.

### *Post-modern and contemporary influences*

Post-modernism encompasses many different schools of thought, without any particular arguments or agreements in common. Nevertheless, they share a common desire to challenge the modernist notions of reality, knowledge and identity, often adopting a critical theoretical approach to research and theorizing about organizations (Hatch & Cunliffe 2006, p. 47). Discursive analysis of human language and dialogue has been developed in the post-modern research tradition. In post-modern theory, a key assumption, often expounded in *post-humanism* or *anti-humanism*, is the idea that the human being is not the emperor of the world, nor the creator of the universe. Rather the view is held that the human being is a *subject* constructed of various knowledge formations and societal innovations, building primarily on the French philosopher Michel Foucault’s theories (Foucault 1997). From a post-modern perspective, organizations are arenas in which subjects are created, constituted and reproduced. The view of the human being as a market construct, in the theories of Foucault, is determined

by contemporary liberal market conditions in society (Ericsson-Zetterquist et al. 2005, p. 333). Gender issues<sup>xvii</sup> are also highlighted in contemporary critical management and feminist organizational studies, thus putting the topic of human individuality and uniqueness onto the research agenda. Opposing Weber's ideal of rational and unemotional human beings in organizations, a theory addressing the importance of human embodiment of knowledge and competence, as well as the existence of emotions, has emerged, commonly known as "Emotional Management" (Clegg et al. 2005). Influenced by post-modern theory, a new line of organizational strategy theory is currently under development: *Strategy-in-Practice* focuses on micro-processes and human beings' individual contributions to firms' strategy formation. Current research efforts in this field are discussed in a recent series of research and publications (see for example Regner 2003, 2008).

## **Analysis & Discussion**

*"A model of the human being" – philosophical underpinnings, anthropological assumptions and interdisciplinary research in search of an integrative work model*

In this section we have reached the point where it is necessary to conform to one of the already existing modes of investigation and explanation in our field – conforming to the "Popperian worldview" – and advocate the application of a new universal model of how to understand human mankind in organizational activities, or else to pursue the position of Morgan adding one more choice to the menu of organizational researchers' options of approaches. "The domain of organizational theory is coming to resemble more of a weed patch than a well-tended garden (Pfeffer 1982:1)." However, I conform to Scott's view: Without denying the existence of weeds, I prefer to pick up a hoe and lay some borders and fences" (Scott 2003, p.ix). Summarizing the review and analysis of organizational theories and the varying ontological and epistemological assumptions underlying their foundations, it can be stated that overtime the human being has become more and more visible and important to consider in organizational theories.<sup>xviii</sup>

A clear distinction can be made from theories with a far-reaching reductionism, not at all acknowledging the existence of human beings in organizations. There is also a distinct dividing line between reductionist theories – instrumentally treating human beings as objects, artefacts and

factors of production and selfish, utility-maximizing consumers, hence depriving them of their “full humanness” (Maslow 1971; Sen 1999) – and theories acknowledging human beings as vital and heterogeneous, organizational subjects of “full humanness”, with developmental potential bringing opportunities for progress. Initially, it was established that even though our organizational literature review was searching for a foundational philosophy of science, with an ontology supporting “a model of the human being” with consistent anthropocentric assumptions on the micro-, meso- and macro-levels of environmental analysis, we open up the integration of new and emerging findings in ECD and brain neurological research, also labelled “Mental Well-being”.

We are not alone in this current pursuit. Only a brief review of two volumes recently released by Kincaid & Ross (2009) and Morsella et al. (2009), reveals that in two separate fields as seemingly divergent as traditional economics and experimental research and theorizing on the mechanisms of human action (covering the fields of motor control, behavioural and cognitive neuroscience, psycholinguistics and biology, as well as cognitive, developmental, social and motivational psychology), the search is increasingly interdisciplinary (see also Ostrom & Walker 2002). Morsella assesses the situation: “[...] Enthusiasm can today be held for the study of human action, which is finally investigated at all levels of analysis and by diverse fields, with each camp yielding fruits that benefit the other. It is clear that, for this scientific challenge, these are the most exciting times in intellectual history. Still, it appears ironic that the most difficult thing to understand in the universe is our very own nature and how it enables us to act on the world” (Morsella 2009, p. 21-22).

Traditionally, the human mind has been appreciated as *an interdependent trilogy of physically embodied (1) cognition, (2) affect (emotion) and (3) conation (motivation)* (LeDoux 2002). These are also the dimensions of analysis in early human life development that the WHO has chosen in its model (WHO 2007a,b) and the Foresight project (2008). What the classical models of the trilogy of the mind and human beings’ skills, capabilities and actions do not explain so well are the relation and interaction between human beings and the impact of the broader environmental and institutional setting on developmental trajectories, also called “proximal processes” (Bronfenbrenner 1999, p. 5), being highlighted as central in the WHO and Mental Well-being reports. This topic has been addressed with surprising foresight and little attention to current time, as early as

1917 and 1922 in the theories of Stein. “Before anything else, if you want to understand in what sense you can talk about a universe of sentient reality into which the lone psyche fits as a member, you have to clarify a determinate form of the living together of individual persons” ([1922] 2000). In the Oxford handbook on human action, this future research direction of “experimentally overlooked ways by which we interact on the world” is still in 2009 indicated as one of the most important! Stein’s theories will be introduced and briefly discussed in the closing sections of this article. Further, let us look at how well our previous categories of analysis of organizational theory correspond to a contemporary integrated view of the human being and the human mind, as appreciated in the following interdependent human faculties of a) embodied physically and motor skills; b) cognitive- and language skills; c) socio-emotional skills and d) individuality, personhood, executive functioning and intrinsic motivation, also delineated in ECD and Developmental Mental Well-being.

This is schematically described in Table 2 below. At first glance at Table 2, it may appear that the post-modern research tradition has acknowledged all the dimensions of the human being in an integrated framework. This is illusionary, as the summary rather displays a fragmented research tradition and disintegrated view of the human being.

Human faculties considered/ Theory field	Traditional Economics	Classical & Pre- Modern	Modern, Cognitive	Social Interactive	Post- modern
Physically embodied, motor skills	X (Malthus, Bentham, Ricardo)	X (Smith) X (Taylor) X (Weber)	X (White, Mayo, Barnard, Simon, Cyert, March, Selznick, Penrose, Chandler, Mitzberg, Wernfeldt , Tecce)	O	X (Foucault, Regner, Sundgren & Styhre)
Socio-emotional	O	X (Smith) X (Weber)	X (White, Mayo, Barnard, Simon, Cyert, March, Selznick, Penrose, Chandler, Mitzberg, Wernfeldt , Tecce)	X (Berger & Luckmann, Weick, Bijker, Law & Pinch, Kogut & Zander, Naphapiet & Goshal)	X (Foucault, Regner, Sundgren & Styhre)
Cognitive skills, Language	O	X (Smith) X (Taylor) X (Weber)	X (White, Mayo, Barnard, Simon, Cyert, March, Selznick, Penrose, Chandler, Mitzberg, Wernfeldt , Tecce)	X (Berger & Luckmann, Weick, Bijker, Law & Pinch, Kogut & Zander, Naphapiet & Goshal )	X (Foucault, Regner, Sundgren & Styhre)
Individuality, Personhood, Executive-functioning, Intrinsic Motivation	X (Malthus, Bentham. Ricardo)	X (Smith) X (Taylor) O (Weber)	O	X (Berger & Luckmann, Weick, Bijker, Law & Pinch, Kogut & Zander, Naphapiet & Goshal)	X (Foucault, Regner, Sundgren & Styhre)

**Table 1.** (X) = considered and discussed, fully or partly

The table mainly serves the purpose of illustrating the fact that basically none of the categories reviewed takes an *integrated approach* to the human being as we understand her from ECD research, the Foresight reports, and the modelling by Stein presented in the following section. Rather, each grouping of theories has been highly influenced by research in other fields of science and tends to focus on the field's major characteristics, when applied to organizational theory and research. Some examples of scholars reviewed and discussed in each section above have been named. It is interesting to

note that Adam Smith had an early integrated view of the human being, as discussed by Sen, most likely still influenced by the scholastic tradition. There is a stark contrast in the view of the human being between Smith and Taylor, signalling the transition of values during the Enlightenment period and the industrial development of the Western world. We have used the labels and groupings of theories and research below in the previous chapters, and will use them again in summarizing the review:

### *Traditional Economics*

The key influence on how the human being is perceived in traditional economics is the deviation away from moral philosophy in the Enlightenment period. Personhood, individuality and self-conception are solely determined by utility maximization and amorality. Physical and cognitive faculties of the human being are mainly discussed in terms of production factors. Socio-emotional human factors are acknowledged only in the happiness achieved through consumption.

### *Classical Theories*

In summary, until 1930 the human being was basically invisible, or could be neglected and replaced within the organization. The most important concern was to increase efficiency in production. Theories were therefore focused on how the human being could be subordinated and controlled within the organization as a means of production input by capital owners. An instrumental approach was dominant in management practices, aimed at maximum production output, rather than care of personnel and co-workers (Ericsson-Zetterquist et al. 2005, p. 109). Classical theories leave us with the reductionist view of physical assets of production and of the division of human mankind into managers and labour. The human being makes her living with her cognitive or physical faculties (manual and unskilled labour). The cognitively skilled manager of higher training, scientifically apt and able to run corporations and organizations, is entering organizational theory. Socio-emotional factors are emphasized to the extent that they should be eliminated from rational management and work settings. Personhood, individuality and intrinsic motivational aspects of the human being get further lost in these theories. It is somewhat surprising that relatively few organizational textbooks address the important topic of entrepreneurship and conditions of innovation dynamics (one exception found is Clegg et al. 2005). It would seem that the field of innovation research and general

organizational theories have developed along separate, parallel tracks over the past of societal, industrial and organizational development. None of the reviewed organizational science books address or discuss the classical theories of economic development and entrepreneurship by Joseph Schumpeter, which are central to many meso- and macro-level analyses and theories of innovation, industrial dynamics and growth.

### *Pre-modern influences*

Human socio-emotional attributes are further suppressed in Weber's theories of bureaucratic organization.

### *Modern influences*

In summary, it can be stated that in modern organizational theory the human being becomes visible and integral to the performance of the organization through his or her understanding of situations, and the contextual factors impacting on the organization's operation and performance. The human being is brought onto the stage of organizational theoretical analysis and debate, primarily by the recognition of the importance and effects of individuals' cognitive capabilities and limitations in organizational settings. The human resource manager enters the scene of organizational theories and research. Higher attention is being paid to the socio-emotional and physical conditions impacting on workers' and management's contributions and achievements. The advent of strategy research is found in this period. However, in strategy theory the human being at times still remains almost invisible. It is interesting to note that the fields of human resource management and strategy research have been running along on separate research tracks for more than 60 years (Scullion & Pauwwe 2004; Minbaeva et al., 28 July 2009).

## **Social interpretive influences**

A representative quote for the social interpretive influences would be that: "The recurrent problem in sociology is to conceive of corporate organization, and to study it, in ways that do not anthropomorphize it and reduce it to the behavior of individuals or of human aggregates" (Swansson 1976). In summary, social interpretive organizational theories acknowledge the human being as visible and interactive in a social organizational context.

The human being is the self-creator of her world (including organizations and innovations) in processes of creating meaning. In these theories a great emphasis is placed upon the socio-emotional aspects and interactive dimensions of human interaction and organizational life. The importance of values and intrinsic motivational aspects of the human individual re-enters theorizing. The cognitive faculties of the human being are highlighted mainly by new theories of competitive advantage through knowledge and innovation. The physical and motor aspects of the human individual and organizational life are less apparent.

## **Post-modern and contemporary influences**

This group of organizational literature is a “mixed bag” of theorizing and research. None of them takes an integral approach to the human being or even acknowledges her humanness, and on the other hand strongly emphasizes her socio-emotional and embodied capacities in organizational life. Great attention is paid to the “non-transcendent” claims of human beings in many of the post-modernistic theories.

### *Human Beings, Innovation Dynamics & Organizations*

Let us now also revisit the key theories and findings, and their views of the human being, where she/he is at least to some extent or dimension visible and acknowledged. In summary, Sen provides a macroeconomic theory emphasizing human capability expansion as the goal of societal development. The scholars of the Chicago School provide theories of the subset of economically viable human capital in economic expansion, further extended in Schumpeterian endogenous growth models. At the meso-level, evolutionary Penrosian, knowledge- and capability-based views of the firm are found. At the micro-level of analysis, historically we find commodities and prices. Later on, explanatory constructs are sometimes defined as individuals or agents. These models assume homogeneity on the investigative level of humans, or only depict some specific humanly detached skills of “making a pin” or some other precise and well-defined activity as economically viable. Interestingly, “Taylorism” with its many reductionist and dehumanizing values of human beings provides us with a modern view and the perception of the contemporary firm and organization, conducted by management activities and processes entailing organization, coordination, planning, and control (Gergen & Thatchenkery 1996, p. 358).



Reviewing the latest contribution by Teece (2009) on the topic of dynamic capabilities, innovation & strategic management, we can conclude that the foundations of Taylor's view of the modern firm still remain valid. In outlining the micro-foundations of competitive advantage, Teece (2009) depicts the key human abilities of action and capability to be (a) sensing and shaping opportunities and threats, (b) seizing opportunities and (c) managing threats and reconfiguration. Moving one step further, if we put the individual human being increasingly at the core of generating strategic advantage and sustained corporate growth, we have to study and better understand the micro-level origins and determinants of human development and how human skill and capability come into play in creational dynamics in further detail. Turning again to the research fields of "Human Action" we can conclude from one of their examples and statements that there is plenty of interdisciplinary research to be undertaken, before we can reach more than indicative and highly preliminary answers to these questions:

A few minutes at a local café allows one to appreciate the wide array of actions that humans are capable of expressing – reading the newspaper, waiting for a friend, shaking hands, grabbing the waiter's attention with a 'Cappuccino, please.' Some actions at the café may be reflexive, automatic, voluntary, social, communicative, or reflect a hidden resource called 'will power'. As ordinary as they are, they remain exceedingly difficult to understand from a scientific point of view" (Morsella 2009, p.1). Further: "Many fields now "start from scratch," reinterpreting what human action actually is. The everyday actions witnessed at a café remain mystery [...] and it is clear that in order to understand human action, one must 'open the hood' and examine the hardware at hand (e.g. neural circuits) while taking into account the functional role of enigmatic physical states as consciousness [and spirituality]" (Morsella 2009, pp. 20-22).

What, then, can be learned from the undertaken review and analysis, returning to the four coordinated key dynamics and conditions impacting on human action, skill and capability development defined by Keating (1999 p. 338)?

- a. The developmental health of populations is central in Sen's theories of "Human Capability" and "Freedom as Development" (Sen 1989, 1997, 1999). This topic is addressed in traditional theories of economics

and particularly in human capital and endogenous growth theories, but is likely to benefit by becoming more detailed and fine-tuned in integrating emergent interdisciplinary research findings in ECD and its defining impact on the individual's lifetime trajectories. In reviewed organizational theories and evolutionary economics, the issue is not explicitly stated or addressed. However, it seems to be an underlying and often unarticulated argument in many of the theories, going all the way back to Adam Smith and his view of the human being's potential for development and, therefore, impact on wealth creation.

- b. The importance of the bio-ecological embedding of early human experience is not addressed in the reviewed theories and schools of thought, except the research by Cuhna & Heckman (2007), Fogel (1997), Heckman (2007) and Howitt (2005), and a brief discussion by Felin and Hesterly (2007). The importance of humans' "bio-ecological embedding" in general and experiences of the organizational context is addressed by Taylor and Weber with a negative and seemingly counterproductive theoretical stance. Theories reviewed addressing the issue of the human being's bio-ecological embedding are first and foremost Nelson & Nelson (2002b) in an unusual interdisciplinary article, in relation to theories of evolutionary economics and contemporary cognitive research. Further, there are those of gender, feminism, emotionality and strategic management (Roos et al. 2006). The scholars of the "Decision School", Simon, March and Cyert, address the topic, mainly by recognizing human beings' cognitive capabilities. Berger and Luckmann's theory (1966) is bio-ecologically "open" but not yet theoretically or empirically "connected" to human bio-ecological foundations. The importance of the individual's bio-ecological embedding, however, seems to be an underlying and unarticulated understanding in social-constructivist organizational theories.
- c. and (d) the third and fourth issues, address the nature of human social organizational structures and the ways in which support of developmental health is maintained, renewed, and distributed, followed by specific issues within the processes of community, family, and other societal networks [firms and organizations] that shape the contexts in which human development actually transpires [institutional settings]. These issues are not explicitly articulated in the theories discussed, except by Nelson & Nelson (2002b) and a

recent string of research on innovations in the health care sector (see Christensen et al. 2009; Gatti & Boggio 2009). The road seems open for this consideration and extension in several theories reviewed, but not yet theoretically and empirically “connected” to the existing research of various fields in Developmental Health and ECD.

*Ontology of Association, Community, Individuality & Personhood:  
a brief presentation of Stein's view<sup>xix</sup>*

A philosophical foundation and theory suitable for addressing the prodigy of human learning, knowledge generation, innovation and motivational acts in organizations (in the language of Stein, associations and communities), with an integrated view of the human being and her mental faculties is found in Stein's “Philosophy of Psychology and the Humanities”<sup>xx</sup> ([1922] 2000), an extension and development of her research initiated in her doctoral thesis “On the Problem of Empathy”<sup>xxi</sup> ([1917]1989). Stein writes from the philosopher's point of view, but her work is surprisingly consistent with contemporary research on ECD and “Mental Well-being”. These early theories of Stein's have not yet, to my knowledge, been introduced or used in organizational, strategy or innovation research. They seem to fit our quest for an integrative and synthesizing view of various separate research strings about the human being, and serve well as the philosophical foundation for the research and theorizing about “Innovation Health – the micro-foundation of strategic advantage”. Stein's main contribution from my research perspective is her hermeneutic<sup>xxii</sup> “theory of empathy” as the constituting sense of human beings, “a theory of the human individual” and a consistent “ontology of association and community”. Stein argues that the human body is a complex permeable interface between the material world and an equally real world of personal values. She also states that there is no such thing as an atomistic or solitary human being. Stein's ontology of association and community shows how the human being is open towards other individuals, forming “associations and communities” of existence of various kinds, such as families, school classes, soccer teams, corporations, villages and research teams. Communities and associations are perceived as reservoirs of value and meaning-making, foundational for everyday life-activities as well as “once-in-a-lifetime” achievements. In her theory of human learning, knowledge, creativity and actions, Stein further explores the relationship and interchange between motivated, deliberate and causally constrained human choices and actions (Sawicki 2000).

This is still a research topic of fundamental importance in contemporary research on human action (Strack et al. 2009).

*The foundational human constitution of "Empathy"*  
(German word: "Einfühlung")

A key question to be asked is whether human beings constitute reality individually or jointly. In her doctoral thesis, Stein defines the foundational human constitution of "empathy"; the German word is "Einfühlung". The word originally meant to be in feeling, as the double meaning of feeling-into and at the same time feeling within oneself<sup>xxiii</sup>. Without this constituting capability of "empathy", human beings are able to perceive neither themselves nor other human beings in the world (nor other constructs or life-events). It can also be argued that this capability is fundamental for human learning, knowledge and creativity. It is fascinating and remarkable how well Stein's definition and theory about human empathy corresponds to current findings and research investigations on "mirror neurons" and explanations of how our minds share actions and emotions, commenced by Rizzolatti and his research team at the University of Parma in the beginning of the 1990s (Rizzolatti & Sinigaglia 2006)<sup>xxiv</sup>.

In commenting on the discovery of mirror neurons, the great theatre actor Brook remarked that neuroscience finally had started to understand what has long been common knowledge in the theatre:

The actor's efforts would be in vain if he were not able to surmount all cultural and linguistic barriers and share his bodily sounds and movements with the spectators, who thus actively contribute to the event and become one with the players on stage. This sharing is the basis on which the theatre evolves and revolves, and mirror neurons, which become active both when an individual executes an act and when he observes it being executed by others, now provide this sharing with a biological explanation (ibid. 2006:viii).

In the following quote about the process of learning, Weick and Westely (1999, p. 196) express a "tacit" understanding of the foundational constitution of human empathy as defined by Edith Stein: [Like the sharing of world-views,]

Learning is embedded in relationships or relating. By this we mean that learning is not an inherent property of an individual or of an organization, but rather resides in the quality and nature of relationships between levels of consciousness within the individual, and between the organization and the environment.” Thus, learning at the individual level (interpersonal) and the organizational level (interpersonal or inter-organizational) evolves through a continuous process of mutual adjustment. If the capability of “empathy” is impaired, severe mental, social and development difficulties will arise for the human being (Sommerville & Decety 2003 and 2006, pp. 268-269).

This problem is further explored and discussed in an article by Adler, Glassér & af Klinteberg (2005).

*The human being: skills, capabilities and personhood*

The individual human being is the topic of investigation in the first treatise of *Philosophy of Psychology and the Humanities*. First, for Stein a human being is a permeable and multiply stratified way of being, and “person” denotes only one of its layers. Hence, “person” is not synonymous with “human individual.” In defining the main activities within any human individual, Stein started with Scheler’s schema and made her own distinctions and definitions (Table 2) below:

<b>Dimensions framing human abilities, skills and action</b>	<b>Phenomenal realms, mutually permeable within an individual</b>	<b>Layers of human being</b>	<b>Permeability of each realm for transfer of influences beyond the individual</b>
Mechanical causality	The physical/ motor	Matter, physical, motor components and capacities of the body	Causally connected to the physical world, but not to other sentient beings as such
Sentient causality	The sensory or sensate	Sentience, the living responsive body	Open to causal influences among intelligent individuals
Rational motivation	The mental or intellectual	Unindividuated mind, intelligence, spirit	Open to motivational influences among intelligent individuals
Personal motivation	The personal or individual	Individual person, unique personality	Motivationally connected to the world of values, but not other beings as such

**Table 2. Schematic layers of the human being (Stein [1922] 2000) adapted from Stein ([1922] 2000) and Sawicki (in Stein [1922] 2000).**

In order to clarify Stein’s modelling of the human being, the following text in the foreword of the 2000 edition of the book by Sawicki can be helpful: “Thus for Stein, individual persons as such remain mysteries to one another. Personality, at its depths, is just as opaque to knowledge as mere physical matter is. Yet personality actively ties into a network of cultural and spiritual values, contributing to it and deriving influence from it, in much the same way that human bodies are part of the network of physical matter and are subject to physical laws in their ongoing give-and-take with the natural world.” The unique permeability of the living human body enables (1) mental [individuality and personhood] and (2) physical realities to come into contact. The interchange within the human being is feasible through the two “mediating” (3) sentient (socio-emotional) and (4) cognitive and intellectual realms, which are also open to communication among individuals. This modelling of the human being and her embodied faculties of mind is schematically described in Figure 1 and table 2 above. Further, “when Stein insists upon both the distinction between causation and motivation, and their dynamic interplay, she is making a point that is quite often overlooked in psychology as thought and practiced today. Stein

would reject any psychology that proposes causal explanations for human actions solely in terms of environmental influences (as behaviourism does) or personal history (as psychoanalysis does) or genetic programming (as developmental and essentialist gender-based theories do) or chemical balances (as the pharmacological management mood does). Such causal psychologies discount in advance the very element that so fascinates Stein, the element that she wants to account for: How does it happen that we sometimes accomplish unpredictable and surprising things, feats that have absolutely no causal explanation? Where are those reservoirs from which we draw the power and inspiration for unexpected changes in direction of life? What is it that charges up the human heart? (Ibid., pp. XVII-XVIII)". Using the words of Winter (2005 p. 533) in a discussion about "missing links" in evolutionary and knowledge-based views and theory of the firm: [We] "seem to be missing something quite important about human behaviour – that it can indeed be *awesome*, but is rarely so in the supercomputer style."

*Being & Becoming: Ontology of Association, Community and the Joining of Experience in the Current*

In the second treatise of *Philosophy of Psychology and the Humanities*, Stein explores the life and interrelatedness of communities and their members, human individuals. She points to the fact that "*genuine super/individual sensate realities [...] can deploy only out of mental individuals and only on the strength of mental functioning*" (Stein [1922] 2000, p. 189) and continues: "*The relationship of communal experience to the private individual experience is constitution, not summation*" (ibid., p. 144). Now it is appropriate and important to introduce Stein's definition and distinctions of association and community. The distinction of "*community & association*" was initially addressed by Tönnies and further developed by, among others, Scheler. "Under 'community' is understood the natural organic union of individuals: under 'association' is understood a union that is rational and mechanistic. [...] We can perhaps render our best distinction in the following manner. Where one person approaches another as subject to object, examines her, 'deals with' her methodologically on the basis of knowledge obtained, and coaxes the intended reactions out of her, they are living together in an association. Conversely where a subject accepts the other as a subject and does not confront him but rather lives with him and is determined by the stirrings of his life, they are forming a community with one another. In the association, everyone is absolutely alone, a 'windowless

monad<sup>xxv</sup>. In the community, solidarity prevails. It's easy to see that factual personal alliances are mostly mixed forms of these basic types, but that in principle, an association that would be only an association and not to a certain extent also a community, would be inconceivable" (ibid., p. 130). Through these definitions our organizational concept, firms and corporations will be categorized as associations, and at the same time and to varying degree also as communities, in the language and theorizing of Stein.

It is clear that different organizational scholars are found along a moving spectrum of views in acknowledging associations as at the same time being communities. At one extreme position, the view of organizations and firms as "pure" associations is represented by, for example, Taylor and Weber. At the other end of the spectrum, scholars such as Kogut and Zander, Napaphiet and Goshal are found, arguing for the condition of associations as equal to community in successful innovation-dependent firms. The same dimensions of analysis, like constituted experiences in the first treatise on the human being, are explored again on the level of association [organizational] and community: (a) association, (b) motivation, (c) causality and (d) efficacy of the will. Stein's ontology of individual, association and community is defined through the following conclusions: (a) communities do not have their own associations; (b) causality, (c) motivation and (d) efficacy of the will operate on the individual level as well as on the constituted association and community level. However, Stein makes an important distinction regarding the responsibility of decision-making: it is only the individual that is capable of "Fiat!" and is ultimately responsible for any decision in a community. Hence, in her view the individual carries the full responsibility for any organizational, association or community actions which are undertaken in its name.<sup>xxvi</sup> Further, "We know that any community unites a plurality of subjects within itself and is itself a carrier of one life that realizes itself by means of those subjects. [...] A sense bound world unfolds for the community within its experiencing. Again, it's the individuals whose mental doing is constitutive for the world of community; but then again not everything that belongs to their individual world gets into the community's world as well." (Ibid., p. 197.) "We find [associations and] communities out there in life. But we find them 'within us' as well, for we live as their members. [...] Epistemological investigation will probably make it clear that for knowledge of individual personality 'outer' and 'inner' observation is interwoven" (Ibid., p. 196; see also discussion by Clark in footnote below).



*Human Being, Association & Community – the distinction in principle by Stein<sup>xxvii</sup>*

Let us summarize with a statement by Stein, even though a bit lengthy in direct quotation, on the core claims of her theories. I believe the statement below to define my best understanding of what a human individual is, and how the latter depends on and interacts within various “associations and communities” in existence and endeavours in life. In the following statement I also find the correct definition of what has been named the “*nested heterogeneity*” (Felin & Hesterly 2007) of human knowledge and creativeness in the field of strategic management research:

Only in the realm of mind is there a qualitative peculiarity that can't be grasped as an intersection of common lawfulness, but is rounded in the inner uniqueness of the individual. [...] The object of interest here is the individual in his irreplaceable and inscrutable uniqueness. Every mental person – so we found – has her quality, which lends to each of her acts an individual note, notwithstanding their common structuration, and distinguishes them from acts of any other person. Likewise, each of her personal qualities and the entire course of her life are marked as her own. And then within that life course, everything singular has its particular significance for the progress of the whole and, through its placement within the whole, determines it and is determined. Nor in principle is there any repetition in the framework of the individual personality and the shape it takes. This qualitatively irreducible individuality is found in all mental realities, even in ‘objective’ ones (but mediately in the ‘non-self-supporting’ ones that refer back to others). The works of a person (or even a community) have this individuality in a twofold sense. For one thing, they carry the stamp of the creative mind to whose sphere they belong. And apart from that, each of the works is itself an individual, to the extent that it's a genuine work and not an imitation, witting or unwitting, and to the extent it has an inner unity and necessity of structure that we became acquainted with as a characteristic of the individual idea. Then the work has a specific note proper only to it, which may be reduced neither to its form nor to its content: something that “addresses” us out of the work, something that we can make our very own. And even the mental patterns that don't bear the stamp of a creative personality have just such an individual quail [quality], for example a “landscape”

if it is seen as such, that is, not as a piece of nature but as a unity of specific “character”, complete in itself. This individuality, which accrues to mental reality and only to it, is grounds for why the humanities can’t content themselves with exposing the common mental structurations and laws of coherence whose exemplar the individual is, but why beyond that they’ve got to make the individual in his individuality into the object of research. In what manner it’s possible to apprehend individuality, and with what means it can be rendered, are problems that must be left to the specific epistemological and methodological investigations of the discrete humanities. All we wanted to do here was to define mind-science [Geisteswissenschaft] preliminary and very generally, in its peculiarity, which is grounded in the essence of mind ([1922] 2000, pp. 306-307).

*Organizations, innovations and human beings: what more can be said?*

In summary, it can be concluded that the full importance of the bio-ecological embedding of early human experience and the life-trajectory effects it causes is not addressed or systematically accounted for in social-science organizational theories, nor in the traditional economic or growth theories reviewed. Moreover, none of the reviewed theories take a coordinated approach to the key dynamics and conditions of human mental and developmental well-being, outlined by Keating (ibid., p.338) and also found in The Foresight Project (2008) and WHO’s TEAM-ECD model (2007a,b). It was stated that if human “*skills, capability and actions*” contribute to corporate strategic advantage and sustained development through innovation, then these skills and capabilities can only be derived from the human being’s constitutional and embodied faculties of (a) physiology and motor capacity, (b) cognition and language, (c) sociality and emotion, and (d) individual motivation and personhood. Further, interdependent human and firm institutional settings and formational environmental dynamics on the micro-, meso- and macro-levels have to be taken into consideration. A treatment of the importance and impact of the institutional setting is beyond the scope of this article (for discussions see Berger & Luckman 1966; DiMaggio & Powell 1983; Metcalf 2006a and 2006b; Meyer & Rowan 1977; North 1999 and 2005; Ostrom 1993<sup>xxviii</sup>, 2005; Selznick 1957; Stein 2007; Williamson 1985). In this article we have also introduced *Philosophy of Psychology & the Humanities* by Stein as the fundamental

philosophical theory in this research project. Stein's consistent ontology of human beings, association and community provides a model with consistent discussion of the relations and interdependence of the human being and the various organizations, associations and communities that one finds oneself in and participates in throughout life. Stein's theories have a clearly stated anthropocentric foundation. It defines the human being's existence as physically embodied and environmentally embedded. Heterogeneity is well defined as existing in all life- and world-events. The importance of human motivation and voluntary, responsible individual acts is emphasized. Stein's theory of "mind-science", as outlined in her earlier works, has an "*emergentis perspective*", to apply the contemporary terminology of Clark (1998 p. 84<sup>xxix</sup>). Recalling the diagram by Burell and Morgan (1988), we can state that a new ontological paradigm has to emerge in their landscape, considering the implications of Stein's definition of human empathy and Clark's *emergentis* ontology. We can also conclude that the constituting capacity of human empathy must exist *ex ante* in all the paradigms mapped by Burell & Morgan, as it is essential to the possibility of subjective as well as objective world-views and experiences. This is the main conclusion of Stein's doctoral thesis (1989).

We have suggested Stein's four-layer model as a good "prototype" of our current best understanding of the human being. Her philosophical theories of the embodied, environmentally embedded and evolutionary human mind and being still seem to be valid. Further, they express appealing similarities with contemporary research developments in technology and science, particularly cognitive science (Nelson & Nelson, 2002a,b; Nelson 2007). At the core of the model is the human constituting capacity of "*Empathy*" as defined by Stein and discussed by Sawicki (2000)<sup>xxx</sup>. The interface between inner personal and external environmental existence, experience and functioning is defined by that "Empathy". Hence, the interface of "Empathy" also defines the ontology of human endeavours in firms (associations) and communities (non-profit organizations and larger societal bodies). Without the capability of "Empathy", human beings cannot perceive themselves or other human beings, nor other constructs or life-events. It is also argued that this capability is fundamental for human learning, knowledge, creativity and innovation. Let us sum up by giving an example linking the similarities of Stein's theory of empathy and mind-science to contemporary research in "neuroscience", hopefully stimulating further interdisciplinary integrative efforts and an improved version of our outlined "model of a human being" for use in research on innovation,

strategy and organizations. In the words of Rizzolatti & Sinigaglia (2006):

It would seem therefore that the mirror neuron system is indispensable to sharing of experience which is at the root of our capacity to act as individuals but also as members of society. Forms of imitation, both simple and complex, of learning, of verbal and gestural communication, presuppose the activation of specific mirror circuits. Moreover, our capacity to appreciate the emotional reactions of others is correlated to a particular group of areas that are characterized by mirror properties. Emotions, like actions, are immediately shared; the perception of pain and grief, or of disgust experienced by others, activates the same areas of the cerebral cortex that are involved when we experience these emotions ourselves. This shows how strong and deeply rooted is the bond that ties us to others, or in other words, how bizarre it would be to conceive of an *I* without an *Us* (Rizzolatti & Sinigaglia 2006, pp. xii-xiii).

In closing, I would like to suggest that the idea of human beings “*competing with*” or being replaced by innovations and investments in physical capital such as tools, machines or computers is a misconception. These artefacts are an outcome of cumulative human learning, creativity and innovations in certain institutional settings, leveraging the human being’s knowledge, skills and capabilities. It has been proposed that all created assets, tools, machines, computers and software of society and corporations should be considered as evolutionary externalizations of the physically embodied, creative and innovative human minds in “*association*” and “*community*” with other human fellows (Clark & Chalmers 2002)<sup>xxxi</sup>. This line of argumentation has been addressed by Morsella in what he calls “the challenge of reverse engineering” (2009, pp. 2-3), worth considering in the contemporary ‘knowledge & innovation movements’. Expressed in the words of the philosopher Clark:

Where we human beings really score is in our amazing capacities to create and maintain a variety of special external structures (symbolic and socio-institutional). These external structures function so as to complement our individual cognitive profiles and to diffuse human reason across wider and wider social and physical networks whose collective computation exhibits their

own special dynamics and properties. [...] We use intelligence to structure our environment so that we can succeed with *less* intelligence. Our brains make the world smart so we can be dumb in peace! Or, to look at it another way, it is the human brain *plus* these chunks of external scaffolding that finally constitutes the smart, rational inference engine we call mind. Looked at it that way, we are smart after all – but our boundaries extend further into the world [and over space and time] than we might have initially supposed (Clark 1998, pp. 179-180; see also Clark 2008; Donald 1991; Nelson 2007; North 2005<sup>xxxii</sup>).

The intention of the current study has been to contribute to a better future understanding of how corporate advantage is attained, sustained or lost through innovation and enterprising, by applying an appropriate view and model of the human being based on contemporary research into early childhood development and its impact on lifetime-spanning developmental trajectories and mental wellbeing, supported by a consistent philosophical underpinning. It is an intriguing thought that potentially the answers to firms' quest for talent, skills and capabilities in rapidly developing regions, such as India, China and Brazil, as well as in Western Economies, could be the employees' "learnability" or "nascent potential" derived from early childhood development rather than academic credentials (Sirkin et al. 2008 p. 92-95). A further purpose has been to contribute to the interdisciplinary research and theoretical integration of "knowledge and innovation movements" in economics and organizational science. The definition of "Innovation Health" (Glasser 2010) and introduction of Stein's theories ([1917] 1989, [1922] 2000) in this article aims at capturing critical human skills and capability developmental conditions: the human mind and being are evolutionary in nature. New understanding is rapidly being added to our contemporary views of human development, knowledge, innovation and action. Moreover, the definition of "Innovation Health" stipulates that if knowledge generation, innovation and creative enterprising are key attributes of human activities and endeavours, then they must be co-evolutionary with the human being and her embodied, interdependent faculties of mind. These interlinked developments reflect the institutional setting and environment and need further investigation. It has been argued by anonymous reviewers, that Stein's theories (ibid.) and models have to be more specifically applied to organizational theory and also the benefits of applying them should be more rigorously discussed.

More specifically, it has been asked what new constructs, relations and processes Stein's theories and ontology may contribute. The reviewers ask: "Could it be that personhood is developmental and associational, similar to open systems and that inter-subjectivity is still "mysterious" (Bruner 2004; Cohen 2007, Mischel 2004, Weick & Roberts 1993). In answering these questions and adhering to the proposals suggested, I have applied Stein's ([1917] 1989,[1922] 2000) contributions as discussed in this study in the conceptualization of Innovation Health and System of Innovation Approach (Glassér 2010 forthcoming). Further, an effort has been made in prototyping "A Knowing and Innovating Theory of the Firm", based on Stein's theories and ontology (Treatise 4, Study VI). I argue in line with Morsella (2009 p. 21), that there is nothing "mysterious" about human action and interaction, but we are still far from a final understanding of what it means to be a "fully human being" in association and community with other following travellers in organizational context in "Globality" (Sirkin et al. 2008). Finally, I hope this "chunk of external scaffolding" has fulfilled its objectives of fitting one or two additional pieces of the puzzle in the correct positions as we go forward.

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## Endnotes

- i This article has been reviewed by Organizational Science and Academy of Management 2010 Conference.
- ii A classical discussion of “The Principle of Methodological Individualism” is found in Ludwig von Mises’ “Human Action, A Treatise on Economics” (1998 pp. 41-44).
- iii For an overview see Feline & Hesterly (2007). The author of this article does not necessarily agree with the classifications of contemporary research in the article, but it serves well as an overview of important contributions in the ongoing debate.
- iv The memorial book in honour of Simon (Augier & Marsh 2004) has been a source of inspiration in further developing a “model of the human being” in organizational research.
- v An unique effort of discussing the human being’s different capacities, skills and capabilities brought to an organizational setting is presented by Styhre 2008.
- vi For assumptions and theoretical foundations of the TEAM- ECD model see WHO 2007a, b report.
- vii In this article the various detailed research strings, grouped under each category (a) – (d), will not be discussed. Detailed studies and presentations can be found in the summary reports of WHO (2007a,b).
- viii [www.foresight.gov.uk](http://www.foresight.gov.uk), March 25, 2008. “Mental Capital and Well-being: Making the most of ourselves in the 21st century”, Foresight, Government Office for Science, UK.
- ix Kincaid & Ross (2009) covers interesting readings on the topic and is supportive of the key arguments in this review article. Particularly the need of reintroducing “the human being” in the analytical frameworks of economics, and correction of the defining assumptions of her humanness, based on contemporary interdisciplinary research.
- x For overviews see Abell, Felin & Foss 2008; Felin & Hesterly 2007 & Scherer 2003.
- xi Traditional firm-theory research in organizational economics is reviewed in Putterman & Krozner (1996); see Ch. 26 by Hart. More recent contributions are Roberts (2004).
- xii It is somewhat surprising that Sen’s award winning theories of human skill and capability development (Sen 1989; 1997; 1999) are not discussed or referred to in the research of Cuhna and Heckman. Sen’s theories are central underpinnings in the theorizing of “Innovation Health”.

- xiii The selection and review of organizational theory in this study was limited in the following manner: The book *Organization Theory* by Mary Jo Hatch (2006) was initially reviewed and complemented with views reviewed and delineated in: *Social Paradigms & Organizational Analysis* (Burrell & Morgan, 1979); *Managing & Organizations* (Clegg, Kornberger & Pitsis, 2005); *Organisation och Organisera* (Eriksson-Zetterquist, Kalling & Styhre 2005); *Organizations – Rational, Natural, & Open Systems* (Scott, 2003); *Organization Theory – Meta-Theoretical Perspectives* (Tsoukas & Knudsen, 2005), and some separate articles when extensions of the book presentations were needed on a number of topics and authors.
- xiv A good overview is found in McKinley 1965.
- xv For an interesting recent contribution on this topic see Sheehan & Foss 2009.
- xvi For an extensive overview of the Dynamic Capability perspective and research see Teece, 2009.
- xvii Gender differences are not discussed in this study. Research indicates that there might be important gender differences in influential environmental factors and organizational conditions see Whittenberg-Cox & Maitland 2008, Ch. 2; The World Bank 2005 p. 34.
- xviii An important contribution has recently been added by Pennings & Wezel (2007).
- xix Edith Stein was fellow Ph D student with Martin Heidegger and associated with Europe's leading scholars in the rapidly developing field of phenomenology in the beginning to the middle of the twentieth century: Husserl, Scheler and Pfender. Dr. Edith Stein became the research assistant and secretary of Professor Husserl. She had an academic medical training before entering into the research field of philosophy and she drew on medical theories, inspired by a quest into the research fields – at that time not yet existing – of neurology, psychiatry and psychology. Unfortunately, her academic career did not progress to full completion, as she was of Jewish family origin and became a victim of the pogroms of Nazi Germany during the Second World War. Her research and theories have been published in English in the beginning of this millennium, and open up many interesting possibilities of further investigation. It is beyond the scope of this paper to address and discuss her theories extensively.
- xx The original work was published in German as “Beiträge zur philosophischen Begründung der Psychologie und der Geisteswissenschaften”, *Jahrbuch für Philosophie und phänomenologische Forschung* 5 (1922: 1-283).
- xxi The title of the doctoral dissertation, defended in 1916 and published in 1917, was “Das Einfühlungsproblem in seiner historischen Entwicklung und in phänomenologischer Betrachtung” [The Empathy Problem as it Developed Historically and as Considered Phenomenologically].
- xxii For a detailed and more technical discussion see Sawicki (2001) on the early academic contributions of Stein.

- xxiii Contemporary research, usage and meanings of the construct of “empathy” are discussed in Decety & Ickes (2009). Related discussion on “Other Minds” is found in Avramides (2009). With time it is not unlikely that the construct of “empathy” will be defined and analyzed in more detailed stings of concepts. Looking in Oxford Handbook on Philosophy of Mind (2009), there are several “candidates” participating in possible future improved and extended definitions and understandings of the “empathy” construct.
- xxiv I owe psychologist, psychoanalyst and psychotherapist Marianne Camitz-Notini a great appreciation for making me attentive to the important topic of “mirror neuron” research in relation to the concept of empathy.
- xxv “A monad is a simple substance containing within itself all that it will ever be or know. It cannot trade influences with other monads, for as a simple substance it has no parts, hence “no windows” through which it could receive or send messages.” The theory was developed by Gottfried Wilhelm Leibniz in 1714.
- xxvi In-depth and contemporary discussions of this topic are found in Kane (2002).
- xxvii Ferdinand Tönnis (1855-1936) published *Gemeinschaft und Gesellschaft: Grundbegriffe der reiner Soziologie* in 1887. The term *Gesellschaft*, “association”, can also be translated as “society”. See “Community & Society= Gemeinschaft und Gesellschaft, trans. Charles P. Lomax (New York: Harper & Row, 1963).
- xxviii The importance of the family as institutional an institutional arrangement in society, is discussed by Ostrom et al. (1993 pp. 63-70) and Maddison (2007 p. 314).
- xxix See similar discussion in Nonaka et al. (2008).
- xxx For a contemporary discussion see Clark, A. (1997). Ch. 4 is valuable in relation to Stein’s (2000) definition of the human beings constituting capacity of “Empathy”. Clark articulates our current challenges in the following way: “To thus take body and world seriously is to invite an emergentis perspective on many key phenomena – to see an adaptive success as inhering as much in the complex interactions among body, world, and brain as in the inner processes bounded by skin and skull. The challenges for such an approach, however, are many and deep. These worries include: Finding the right vocabulary to describe and analyze processes that criss-cross the agent/ environment boundary, isolating appropriate large scale systems into interacting component parts and processes and understanding familiar terms [...]fit the new picture (or else rejecting such terms entirely), (ibid: 81-84)”. The concept of “Other minds” has recently been addressed by Avramides (2009) in an analysis, from a layman philosophers perspective, seemingly consistent with the theorizing on “empathy” by Stein (2000).

xxxi The interested reader is suggested to contemplate Chalmers (2002) (Eds.), section 3.

xxxii For a deeper analysis of the topic of human scaffoldings and institutional change, see North 2005, Ch. 5, pp.48-64.



The Dance

TREATISE 4, STUDY VI

PROTOTYPING

**The Knowing & Innovating  
Theory of the Firm<sup>1</sup>**

Charlotte Glassér  
Spring 2010

- 1 Acknowledgement: This Study was made in dialog and collaboration with Professor Udo Zander at The Stockholm School of Economics. It was a pure joy to draft an extended version of the ‘KBV’ of the firm with one of its first pioneers. I greatly appreciate Udo’s sharing of his deep understanding and dedication to the theorizing of the firm and its competitive advantages. It was also interesting to collaborate with Udo’s academic experience of firm theorizing, in relation to my own understanding and experience of analyzing and valuing firms in financial markets and corporate finance. I look forward to the next version of the “Knowing and Innovating Theory of the Firm” in collaboration with Professor Zander. The Stockholm School of Economics and Glassér Corporate Advisors and associates are gratefully acknowledged for financing this study.

## Introduction

In the following study, the aim of gaining a better understanding of how front-line research on Early Childhood Development (ECD) and its impact on human life-spanning developmental trajectories can be related to existing knowledge-based views of the firm (henceforth 'KBV'), more specifically the most referred model developed by Kogut & Zander (1992, 1993 1996), Zander & Kogut (1995) as initiated by Zander (1991) and extended by Zander & Zander (2005), is addressed. The notation of Innovation Health (Treatise I, Glassér 2010) acknowledging contemporary understanding of Early Childhood Developmental (ECD) research (WHO 2007 a, b) and incorporating Stein's ([1917] 1998, [1922] 2000) ontology and philosophy of the human being, associations and community are central theoretical underpinnings in prototyping the "Knowing and Innovating Theory of the Firm". In ECD and human mental wellbeing research (Foresight 2008; LeDoux 2002; LeDoux et al. 2003) as well as in, for example, Sen's (1985, 1989, 1997, 1999) and Cunha and Heckman's (2007) and Heckman's (2007) research and theories, dynamic and developing human skills and capabilities are positioned at the core of analysis and investigation. These human skills, abilities and capacities are understood to be derived from the human being's four general, interdependent and jointly developed human capacity categories: (a) physical/motor skills, (b) socio-emotional skills, (c) language/cognitive skills and (d) executive functioning, motivation, personhood & individuality, as outlined and discussed in the Thesis summary and Treatise III, Study V by Glassér (2010). Unfortunately, in the two examples of theories above, as is most commonly found in economic research, the firm entity is hidden in the analytical and research framework. I use the words of Teece (2000:124) in arguing for consistency in the application of a "system of innovation health" approach: "If firms are indeed the instruments of development, the study of economic development cannot take place separate from the study of the theory of the growth of the firm." However, there are not yet any clear links and theories based on the evidence of ECD research found in knowledge- and innovation-based views and theories of the firm, as concluded in Treatise III, Study V of this thesis or the traditional resource-based theory (Penrose 1959; Wernfelt 1984; Rumelt 1984; Barney 1986 a, b; Barney 1991; Barney & Clark 2007; Nonaka et al. 2008) and dynamic capability (Teece et al.1997; Teece & Pisano 1994; Hefat et al. 2007, Teece 2009) views of the firm. Further, a case study on Innovation Health and Firm Strategy "Corporate Nation" is found in Appendix 1of this study.

It is our understanding that a theory of the firm and the associated comprehension of the entities' ability to create sustainable strategic and competitive advantage must be consistent. In outlining a "Strategic theory of the Firm", the following four issues should be addressed and internally comprehensive based on contributions by Rumel (1984) and; Grant (1996) and summarized by Foss (2005, pp. 24-25):

1. *The existence of the Firm* – that is: Why do firms exist as distinct mechanisms for resource allocation in a market economy?
2. *The boundaries of the firm* – that is: What explains why certain transactions are governed in-house while others are governed through market relations?
3. *Internal organization* – that is: Why do we find different types of (formal and informal) organizational structure and accompanying phenomena, such as internal labor markets, job ladders, profit centers, etc.?
4. *Competitive Advantage* – that is: Which factors account for superior rent earning capability? Ultimately the issue concerns why firms are heterogeneous.

I have chosen to elaborate on possible extensions of the 'KBV' of the firm as initiated by Zander (1991), delineated by Kogut and Zander (1992, 1993, 1996), Zander & Kogut (1995) and extended by Zander & Zander (2005), as I understand their version of the 'KBV' of the firm is easy to adjust, adapt and extend to the emerging interdisciplinary understanding of ECD and developmental conditions of human beings as conceptualized and defined in the notation of Innovation Health, supported by Stein's ontology. Further, following the argument of North (2005), I have to find a suitable theory of the firm adapted to contemporary understandings of human and institutional developmental conditions: "Economists hang on to a body of theory to deal with advanced economies of nineteenth-century vintage in which the problems were those of resource allocation. That theory, which economists persists in trying to adapt to fundamental problems of development [...] is simply inappropriate to deal with the issues of this study" (North 2005, pp. 168-169). It is the understanding that the KBV of the firm has the developmental flexibility in meeting the contemporary and future challenges that North addresses. In the effort of outlining an embryonic beginning of a theory of the "Knowing and Innovating Firm", apt for the challenges of the twenty-first century, I have to integrate the understandings of Innovation Health, as well as considering the critique



raised against the KBV, the resource-based theory, dynamic capability perspectives and traditional neo-classical economics-based transaction-cost and pure profit-maximizing theories of the firm. An exhaustive list of arguments opposing or promoting these views and theories of the firm will not be provided, neither will an exhaustive discussion be presented consistently addressing all issues required by Foss (2005) above, but I will highlight and discuss some of the key arguments advanced against the KBV of the firm and how the critique is met by the findings and arguments of the research project of Innovation Health (Glassér 2010). The aim is only to initiate the next step of research and to suggest future developmental opportunities, rather than providing a fully fledged new strategic theory of the firm.

Before entering into the debate in relation to the arguments listed below, let us recapitulate the key content of the KBV. In a string of research in the 1990s, building on the contributions of Nelson & Winter (1982), Polanyi (1962), Rogers (1995), Winter (1987), Kogut and Zander (1992, 1993, and 1996) and; Zander & Kogut (1995), put forward what has become the dominant approach of the knowledge-based view of the firm<sup>1</sup>. This was grounded in the assumption of the firm as a social community, in which firms obtain and sustain competitive advantages through their capacity to recombine existing knowledge, because *“new ways of cooperating cannot be easily acquired, growth occurs by building on social relationships that currently exist in the firm”* (Kogut & Zander 1992, p.383). They propose that *“a firm must be understood as a social community specializing in speed and efficiency in the creation and transfer of knowledge”* (Kogut & Zander 1996, p. 503). Furthermore, they argue that *“what firms do better than markets is the sharing and transfer of knowledge of individuals and groups of individuals within an organization”* (Kogut & Zander 1992, p. 383), stemming from the strategic and competitive edge of accumulated tacit knowledge of the firm. This more dynamic knowledge-based theory of the firm and its capabilities to build growth through knowledge and scientific research-based innovations stands out in stark contrast to the well-established more static transaction-cost theory (e.g. Williamson 1975), grounded in assumptions regarding human opportunism and the resulting conditions of market failure (Nahapiet & Ghoshal 1998; Ghoshal 2005; Sison 2008), and modern organizational theories of the firm’s strategic competitive advantage. Knowledge-based firm theorizing clearly builds on the assumption that the *“firm’s unique knowledge base”* exists and is different from the mere sum of the individuals’ aggregated

knowledge and competence contribution. This version of the KBV of the firm was initiated by Zander (1991) and has been extended by Zander & Zander (2005), based on the seminal work on the growth of the firm by Penrose (1959) and her case study of Hercules Powder Company and the formulation of the “inside track” concept and formulation of the notation of “systemic combinative capabilities” (Zander & Zander 2005, p. 1534) of the firm.

The key arguments to address in further developing the KBV of the firm are found to be:

- First, Felin & Foss (2005) and Foss (2009), as initially discussed, raises a critique against the lack of so-called “micro-foundations of the firm”, based on the understanding of human beings and their interaction.
- Second, I have argued that not only “micro-foundations” of firm theory need to be empirically anchored and better understood, but also a philosophical underpinning and ontology needs to be established that allows for a consistent analysis and discussion of determinants and interdependences between institutional settings on the macro-level, with industry and firms’ existence and operations on the meso-level as well as human beings’ on the micro-level (Treatise 1, Glassér 2010).
- Third, the KBV of the firm is claimed not yet to be firmly anchored in the research traditions of sociology, psycho-sociology and cognitive research.
- Fourth, the inconsistent conceptualization and measurement of knowledge are alleged to cause confusion according to Eisenhardt & Santos (2002, pp. 159-161). Further, time dependencies are claimed not to be fully considered.
- Fifth, the KBV of the firm is claimed to be nothing more than a sub-version of the resource-based theory of the firm and the dynamic capability perspective of the firm (Eisenhardt & Santos 2002, pp. 159-161).

## The Micro-foundations & relationships to research traditions

The critique of lacking micro-foundations and a low ambition of integrating contemporary interdisciplinary understandings of the human being in the 'KBV' is pursued with the introduction of contemporary research on ECD (WHO 2007 a, b) and its life-spanning impact and, further, the mental well-being (Foresight 2008, LeDoux 2002; LeDoux et al. 2003) of the human being. Together with the introduction of Stein's ([1922] 2000) theory, ontology and nomenclature of the human being's (a) physical/ motor skills, (b) sensory or sensate skills, (c) cognitive and language skills, and (d) personhood, individuality, executive functioning and motivation. I argue that we have established the core components of what can be considered as the micro-foundations of the knowing and innovating firm through the conceptualization of Innovation Health of the human being.

In this research project, Stein's ([1917]1989, [1922] 2000) philosophical and ontological principles of human beings, associations and communities are introduced, explored and deployed with the aspiration of providing a consistent ontology of how to understand the interrelatedness of the human being and the life and functioning of various forms of organizational entities and communities. The goal is to end the persistent conflict of the two strands of debate arguing on the one hand that human beings can only be perceived as single individuals on the micro-level of analysis, and on the other hand that they should be aggregated in lumps on the meso-level and firm level of analysis. Stein clearly demonstrates that human beings are interrelated and interconnected through the "empathy" capacity as discussed in Treatise 4 and Study V of this thesis (Glassér 2010). Stein points to the fact that "genuine super/individual sensate realities [...] can deploy only out of mental individuals and only on the strength of mental functioning" (Stein [1922] 2000, p. 189) and continues: "The relationship of communal experience to the private individual experience is constitution, not summation" (ibid., p. 144, see also Clark 1997<sup>ii</sup>).

By introducing Stein's ontology and the new "model of the human being", Treatise 4, Study V, I have also generated a prototype of "the human being" open for integration of further interdisciplinary understandings of human developmental conditions as they emerge, which has relevance for the understanding of processes of economic change and firm theory, as well as extant research in organizational science. In Sison (2008) I find a

contemporary discussion surprisingly consistent with Stein's view of the constitution and goals of the firm, association, communities and leadership styles and qualities (Stein [1922] 2000). Both authors take their departure in Aristotle's scholarship and theories, delineating the firm/association and its citizenship. Using Simon's and Goshals' rhetoric (as quoted in Treatise 4, Study V and by Sison 2008, p. 29): "Nothing is more fundamental in setting out a research agenda and informing our research methods than our view of the nature of the human beings" (Simon 1985: 293). Further, a warning issued by Goshal (2005, p. 77) seems appropriate in relation to how Stein's ontology and theory should be interpreted and applied, as he argues that "the academic discipline governing business and management has been reduced to some kind of physics wherein people's actions are determined by economic, social and psychological laws and causes". Stein clearly demonstrates that the intelligible human being is solely responsible for her decisions and actions.

## **The taxonomy of knowing, innovation & being**

There is limited space to investigate the broad and partly slippery issue of knowledge and knowing. Traditionally, the notation of knowledge in innovation, management and strategy research is grounded in Western epistemology and understood as "justified true beliefs", theorizing on the explicit nature of knowledge (Eisenhardt & Santos 2002:140; Nonaka & Takeuchi 1995). Another conceptualization of knowledge is brought forward by Polanyi (1962), making a distinction between "explicit" and "tacit" knowledge, the latter type of knowledge being linked to the individual and complex, if not unfeasible, to articulate and define. The distinction of tacit and explicit knowledge has become imperative in the Knowledge Based View's theorizing of the firm. However, it seems reasonable to assume that firms that have a strategic advantage in transferring tacit knowledge also have an advantage in using and transferring articulated knowledge and information. There seems to be a clear distinction line between human beings, associations and communities able to produce, use and regenerate externalized symbolic knowledge (Donald 1991, Ch 8) and those that rely solely on person-to-person transfer of information and knowledge. In the age of mass communication and electronic cabling of our living space, the difference is increasing rapidly between those that can access and use databases, the Internet and telecommunication systems and those that cannot regardless of the existence of the needed infrastructure. The juxtaposition of the human being's

representational architecture with the developing global micro-processor, fiber-optic-based electronic highways and environments is displayed in Fig. 6 and Fig. 7 in Treatise 1 (Glassér 2010, see also Donald 1991, p. 259). The important distinction of “codified knowledge” in the “knowledge movement” is possibly better understood and expanded in the “mind-culture-symbiosis” path-dependence notation and explanation articulated by Donald (1991). Modern metaphors of interactive human encounters are displayed in Fig. 9 in Treatises I (Glassér 2010), based on Nelson (2007) and Treatise 4, Study V in this volume. Further, Eisenhart & Santos (2002:141) acknowledge the emerging string of research in management literature depicting knowing as an ongoing process phenomenon of creation, reality construction (Von Krogh et al., 1994) and meaning-making, as fundamental social and cognitive human capacities (Weick & Roberts, 1993; Cook & Brown; 1999). With this latter epistemological underpinning of knowledge it can be concluded, by reference to Tell (1997): “Thus, truth should be considered more as a goal of the knowledge creation process rather than an absolute characteristic of knowledge.”

**The following taxonomy outlined by Styhre (2003, 2008) is suggested in order to proceed:**

<b>Level</b>	<b>Definition</b>	<b>Learning Process</b>	<b>Outcome</b>
<b>Data</b>	Raw facts	Accumulating truths	Memorization (databank)
<b>Information</b>	Meaningful, useful data	Giving them form and functionality	Comprehension (information bank)
<b>Knowledge</b>	Clear understanding of information	Analysis and Synthesis	Understanding
<b>Wisdom</b>	Using knowledge To establish and achieve goals	Discovering judgments and taking appropriate action	Truth, common good, better living, success

(Adapted from, Styhre, 2003, 2008; Bierly, Kessler & Christensson, 2000:598)

In the “prototype” of our “Knowing & Innovation Theory of the Firm” below, three components of “Knowing” have been introduced: (a) the know-what, (b) the know-how (Ryle 1949, 1971) and the not so often used (c) know-why (Pfeffer 2008) distinctions. The “know-why” distinction, as suggested

by Pfeffer, is close to the understanding of Styhre's definition of "wisdom". They relate to Stein's discussion of "Knowledge, Truth and Being" (Stein [1922] 2000b, pp. 65-73) which is compatible with Styhre's taxonomy above, but also clarifying the relation between the knowing, being and becoming constructs. The "knowing why" issues of the firm answer the questions of the firm's purpose, values and philosophical underpinnings of choices in relation to the firm's existence and undertakings. I have introduced and applied Stein's ([1917] 1989, [1922] 2000) philosophical underpinnings and ontology in this research project and in the conceptualization of 'Innovation Health'. Accordingly, I will consistently also adhere to her understanding of our key terminology of knowledge, knowing, being and becoming in the following:

*Knowledge [Knowing<sup>iii</sup>] & Being:* The knowing person is a be-ing. The act of knowledge is a be-ing; what is known is also a be-ing. When the knowing person knows himself, the knower and what is known are the same being (Stein [1922] 2000 a). [...] A be-ing's know ability and its being known have meaning only in reference to a knowing mind that does not possess knowledge but gains it step by step<sup>iv</sup>.

*Knowledge:* Knowledge is the mental [geistige] grasping [Erfassen] of an object. In a strictly literal sense, it means grasping something that has not been grasped before. In an extended sense, it includes an original [ursprünglich] possessing without beginning and a having-in-possession that goes back to a grasping. All knowledge is an act of a person. [...] In all knowledge the object is given as a be-ing [Seiendes] (ibid. p. 66).

*Being:* Being cannot be defined; it is presupposed by any definition, since it is contained in every word and in every meaning of a word. It is grasped along with anything that is grasped and is contained in the grasping itself. I can only state the difference between being and be-ings (ibid. p. 66).

*Becoming:* The original current of [human] consciousness is a pure becoming. Because the phases of ['being'] flow into one another, no series of disjointed phases emerges, but just a single steadily expanding current (Stein [1922] 2000, p. 9). The way to connect in the current is through association, motivation, causality and efficacy of the will (Stein [1922] 2000, p. 167). The experiential

current of the community or association [firm] is constituted by its members' experiences and cannot be assumed to be a continued and uninterrupted process. This is a long discussion in the ontology of individual and community/association by Stein, and it cannot be extended in this thesis beyond the discussion in Treatise 4, Study IV<sup>v</sup>.

Stein's taxonomy of knowledge, knowing, being & becoming, when applied, alleviates the critique raised against the 'KBV' of the firm, in lacking and not properly providing for an analytical and research dimension considering the temporal effects of firm development and operation. The understanding, definitions and outline of the research in the interdisciplinary field of innovation in this thesis comprise the "Interactive process" delineated by Styhre (2008), largely corresponding to the presentations found in Dodgson et al. (2005) and the Oxford Handbook on Innovation, Fagerberg et al., (2006).

**The following taxonomy of Innovation outlined by Styhre (2003, 2008) is suggested in order to proceed:**

	<b>Individualism</b>	<b>Structuralism</b>	<b>Interactive process</b>
<b>Basic assumptions</b>	Individuals / entrepreneurs causes innovation	Innovation determined by structural characteristics	Innovation produced by the interaction of structural influences and actions of individuals
<b>Conceptualization of an innovation</b>	Static and objectively defined objects or practices	Static and objectively defined objects or practices	Innovations are subject to reinventions and reconfigurations. Innovations are perceived
<b>Conceptualization of the innovative process</b>	Simple linear, with focus on the adoption stage	Simple linear, with focus on the adoption stage	Complex process
<b>Core concepts</b>	Champions, Leaders, Entrepreneurs	Environment, size, complexity, differentiation, context, formalization, centralization, strategic type	Transformative shocks, proliferation, innovative capability

(Adapted from Styhre, 2008:41, and Slappendel, 1996:109)

## **Firm theories and views related to the KBV perspective**

In addressing the argument that the 'KBV' of the firm is only an extension of the Resource-Based theory as outlined by Wernfelt (1984), Rumelt (1984), Barney (1986 a, b; 1991) and Barney & Clark (2007), or the Dynamic Capability perspective of the firm as summarized by Teece (2009), we first have to prototype an extended view and possible emergent "Knowing & Innovating Theory of the Firm" as initiated below. It seems reasonable that these theories have to be discussed, evaluated and related to a new framework, given our increasing understanding of human developmental health and particularly Early Childhood development as accounted for in the notation of "Innovation Health". Moreover, it is important to stress that human beings come into the world apt for developing knowing, innovation and organizing skills and capabilities if given sufficiently good developmental conditions particularly in the ECD stage of life. Human beings are knowing, innovating, organizing and judgmentally apt as a species, if nurtured and not stunted of their possibilities of developing the potential of full personhood and humanness (see Barrera 2004; Cavalli-Sforza 2009; Sen 1999; Sison 2008). In firm theorizing it is our contention that we should account for these human conditions. In the embryonic beginning of a "Knowing & Innovation Theory of the Firm", it is understood that the resource-based theory of the firm is a subordinated extension of the delineated framework, as all resources of the firm are scaffoldings (Clark 1997; North 2005, Solow 1959; Zander 1991, pp. 121-122) of previous periods of "Knowing and Innovation" by human beings in association and firms. Even natural resources have to be manipulated by human knowing and innovation before they can be extracted and used.

The Dynamic Capability perspective of the firm (Teece et al., 1997; Teece & Pisano 1994; Hefat et al. 2007, Teece 2009)<sup>vi</sup> is understood as stressing the same capacities possessed by the firm as those denoted "combinatory capabilities" of the firm by Kogut & Zander (1992) and "systemic combinatory capabilities" by (Zander & Zander 2005). The relation of these two different research approaches has to be reassessed and reorganized in our new emerging framework of the firm. Teece (2009) has categorized the dynamic capabilities of the firm as "a) sensing, b) seizing and c) adapting to change" (Teece 2009). I would prefer to use the categories a) sensing, b) seizing and c) coping with firm development, in discussing these firm capacities constituted by human skills and capabilities as defined in the Innovation Health concept.



Perhaps I should also address Porter's influential neo-classical economics-based view of firm competitiveness (1985) and his "diamond of national advantage" and firm competitiveness (1996/1998). Porter (1996/1998, pp. 166-167) defines four broad attributes of firm and national competitiveness determining the environment "in which companies are born and learn how to compete" (ibid. p. 166): 1) factor conditions 2) demand conditions, 3) related and supporting industries and 4) firm strategy, structure and rivalry. Porter certainly addresses key attributes of firm, regional and national competitiveness and sustainability. However, he creates a major flaw in his reasoning and theorizing as the human being is absent therein, besides her/his existence in the factor endowment of "skilled labour" and as the strategist of the firm. In this thesis, Porter's "diamond" is replaced by the "System of Innovation Health", in which not only firms but foremost human beings are born and learn how to develop and cope with existence. This line of critique has also been shared by Sheehan, N. T. & Foss, N. J. (2009). In realizing the advantages of the firm's "inside track" as discussed below, the human being and her "Innovation Health" have to be considered in the understanding of firm value-chain positioning and value creation.

Finally, before entering into the "prototyping" phase of a new firm view and potentially emerging theory, I should briefly address Coase (1937) and Williamson's (1975) Nobel Prize-awarded transaction-cost theory of the firm (TCT). In analyzing the firm's "Knowing and Innovation Space" or "Insider Track" as the demarcation line of the firm and its ability, or lack of ability, to create sustained competitiveness, I would suggest that we are rather looking for the "human action and 'mind-cultural' interrelatedness (Donald 1991; Nelson 1997) benefit theory of the firm". This theory would be based on innovation health, idiosyncratic knowledge advantages, heterogeneity, innovation options and abilities of the firm, rather than the "cost of transacting" in the market and the sole legal set-up, as the defining line between the market, industry and the firm entity. The assumptions of the human being's rationally bounded and opportunistic behavior underlying TCT (Williamson 1975) also have to be altered in the new firm theory. It seems a contradiction that the human species, which has created legal frameworks to support the enactment of the underlying values in the Greek and Judeo-Christian societal cultural tradition in Western civilization and its offspring (Woods 2005) for more than 3,000 years in order to organize human interaction and coexistence, would not be able to enact these agreed covenants among themselves also in corporate settings in the future. I would argue with Kant and Stein that the human being, if

not stunted in her development, is capable of judging 'right' from 'wrong' and that a normal ability of human beings is to organize legal support structures, in order to facilitate living together in communities and provide goods and services in association. In Williamson's (1975) seminal and Nobel Prize-awarded work, he opened up his argument by stating that "in the beginning there were markets". I am of the understanding that in the beginning there were "knowing" and "innovation", then firms needing markets to complement the "inside track" and facilitate pricing and distribution of products and services as industries evolved and expanded. With time, business ethics and practices needed formal and standardized support structures and hence contract, trade law and commercial rights developed. Without human beings, firms, commodities, goods and services, what would the market do and consist of?

## **Components of the Knowing & Innovating Firm**

In stating a revised view or theory of the firm, we need to understand what actually constitutes a firm. In addition to the frame work synthesized by Foss (2005) above, this topic has been elaborated by among others Stein ([1922] 2000) and in a similar fashion by Sison (2008). I subscribed to what Sison terms the European and Aristotelian conception of the firm "as contingent intermediate associations, located between families and the state, for the purpose of producing economic goods and services" (ibid. p. 71).

Stein's understanding of the firm and its human beings is the following in summary:

In contrast with the mass, the association is a specifically mental personal union. The characteristic of the association is that the individuals are joined together within it for the attainment of a purpose. Associations have their origin in optional acts of solitary persons, through which they are 'instituted' (a foundation of a club, the beginning of a contracting firm, and so forth). The existence begins at the moment of institution. The number of their members isn't restricted to the institutors; new ones can join and old ones can leave. The association need not cease to be if temporarily no members are present. It reaches a natural end if the purpose for which it was founded is attained. But on the other hand, an association requires an optional act in order to be 'dissolved'.

Such an act can be executed even before the natural end, and its existence can be suspended before attaining the purpose. Between the inception and end lies the 'life' or the 'development' of the association. These are quite separate from the life and development of the individuals belonging to it, although coherence exists between them. [...] If individuals are to found an association, and join together toward the achievement of purpose, then they've got to have already found themselves together ingenuously as 'fellow travelers having the same desirable purpose in common view'" ([1922] 2000 pp. 255-261).

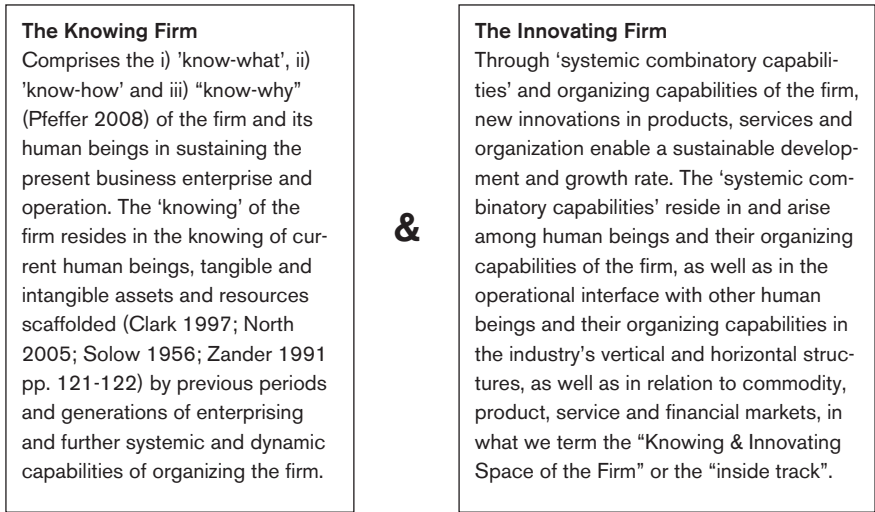
In outlining a prototype of the knowing and innovating view of the firm, the following alteration to Kogut & Zander's (1992) model as described in Kogut (2008, p. 49, Fig. 2.1) is suggested, as most pieces in the puzzle are identified but need some rephrasing and clarifications when the Innovation Health concept is deployed and acknowledged.

A first new term, 'Knowing', is introduced and understood as an ongoing process of the firm in being and becoming in relation to its current business operations and enterprising. 'Knowing' encompasses the 'know-what', the 'know-how' and the "know-why" in firm operations, organization and business ventures sustaining the current business enterprise.

A second new term of, 'Innovation', is introduced and understood as the 'systemic combinative capabilities' (Zander & Zander 2005) of the firm enabling sustainable development and growth of the firm entity through provisioning of new products, services and organizational capabilities. If the firm only sustains its equilibrium rate of innovation, i.e. only replaces obsolete products, services and organizational capabilities, the growth rate of the firm will remain flat. In order to expand the growth of the firm, the innovation rate must exceed the industry's equilibrium rate of innovation. A lower innovation rate than the industry equilibrium innovation rate will imply a firm in temporary or permanent decline, and an industry equilibrium innovation rate below the global equilibrium innovation rate indicates an industry in stagnation or decline. This logic is common and consistent with contemporary Schumpeterian endogenous growth models (Howitt 2005). This alteration is an extension of the notations of the "inside track" (Penrose 1959) and the notation of "systemic combinative capabilities" (Zander & Zander 2005, p. 1534) of the firm, not only yielding the opportunities and advantages of innovation through "systemic

combinatory capabilities”, arising inside the firm or in the firm’s client relationships (Penrose 1995; Zander & Zander 2005), but rather through the leverage and optimization of the firm’s entire horizontal and vertical value-chain integration or disintegration.

The distinction in the understanding and conceptualization of the firm’s endeavours in a “Knowing” and “Innovating” activity visualizes the Schumpeterian dynamics at work. First, the “knowing firm” and the “going business” based on established products, services, markets and routines of the firm. Second, the firm’s option of “creative destruction” of its own or competing firms and industries offerings, in strategy efforts moved by innovation and establishment of new products, services and market



opportunities. This latter activity of identifying, assessing and perusing innovation options, often cannibalizing old product lines of one’s own firm, has been labelled “Creative Search and Strategic Sense-making” by Pandza & Thorpe (2009) in a recent Special Issue of the British Journal of Management (Vol. 20, 2009) addressing “The Practice of Dynamic Capabilities”, and is claimed to be a “missing dimension” in the concept of dynamic capabilities of the firm. I would also like to highlight the implications of a so-called sustainable firm development, based on the Schumpeterian notation of ‘creative destruction’. Going forward, it is clear that human beings have good prospects of continuing to generate new products and services in many part of the world. However, the challenges

faced by the firm will increasingly be to decide which services and products to actually create, produce and distribute, when the firm will have to take more responsibility for costs and effects related to the creative destruction of its products and service offerings.

Further, the understanding of how Stein's ([1917] 1989) 'empathy' construct is applied and her ontology of individual, association and community ([1922] 2000), giving rise to the notation of the "Knowing & Innovating Space of the Firm", can also be named the "inside track". Stein gives a good understanding of what the so-called "tacit knowing" of the firm can contain and how it emerges, particularly in a research- and innovation-based firm and industry, by her discussion of "human motivational coherence" made possible through human "empathy" as delineated by Stein ([1922] 1989) and her definitions of "Knowledge, Truth & Being" Stein ([1993] 2000b, pp. 65-73).

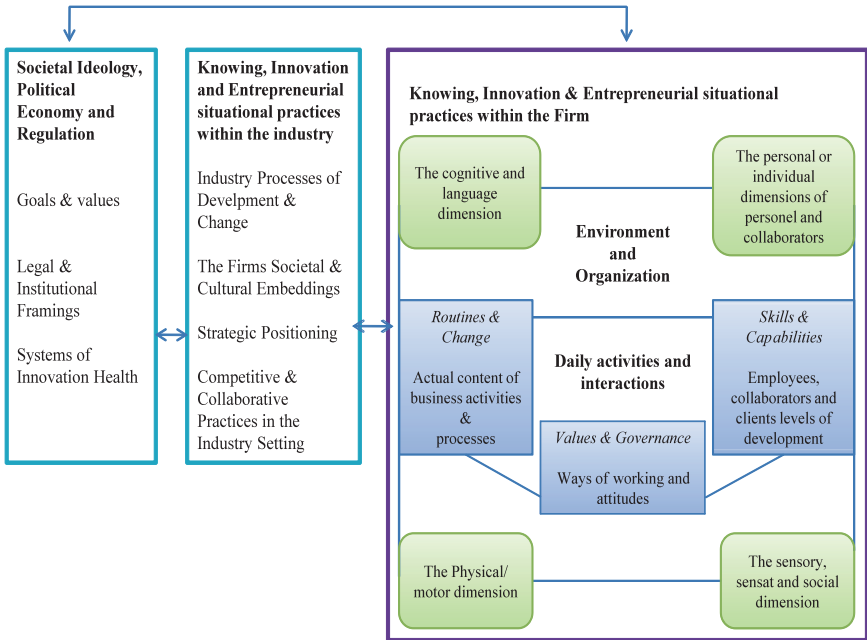
The experience of one and that of other merely must stand in the relationship of realization and re-realization. When the other is 'imparting' his thoughts to me, the sense originally constituted in his thinking is drawn upon me step by step in understanding. And when I am experiencing that sense, it is moving me to 'further thinking' that no longer is a re-realization but rather an original realization, and in which new portions of the total sense-coherence disclose themselves to me. So in the 'exchange of thoughts' a thinking-together arises that no longer is experienced as an experience of one or the other, but as our common thinking. All scientific activity is executed in this form. That which I contribute to it 'on my own', achievements of original thinking, arises on the basis of the already accumulated repertoire [of thought] that I take over; and for its part; it becomes the basis upon which others build further.<sup>vii</sup> And this mental doing of mine, I find myself inserted into a greater network of motivation, the knowledge-process of humanity. The intellectual coherences, however, are only one example of super-individual motivations. Analogous relations are to be found in all fields of mental life (Stein [1922] 2000, p. 170).

It becomes quite evident, in this understanding of what can be called the "tacit knowing" of the firm, that it arises and is further developed in and through interactive encounters of "innovation-healthy" human beings. Stein claims that "the association is a specifically mental personal union". This

label seems to fit well with the understanding and discussion of “collective mind” in contemporary organizational performance addressed by Weick and Roberts (1993). These authors argue, consistently with Donald (1991) and Stein ([1922] 2000 a, [1993] 2000 b) that: “To connect is to mind. [...] The development of mind is cofounded with the development of group” (Weick & Roberts 1993, p. 374). When a group or a firm has developed this “collective mind” it can be either “heedful”, i.e. well-functioning or action-apt, or “heedless”, i.e. chaotic and dysfunctional. A deeper comparison and discussion of the topic is beyond the limits of this paper, but in next-step research it is highly desirable to continue and pursue. I should only briefly rest on an additional statement on the constitution of the “collective mind” made by Weick and Roberts, as it is surprisingly consistent and neatly fits with our analysis of different institutional settings in Innovation Health Systems in Treatise 1 (Glassér 2010). Weick and Roberts depict a two-by-two matrix of combinations “in which a group can be developed or undeveloped and a collective mind can be developed or undeveloped”, giving rise to different levels of organizational efficiency and effectiveness. Potentially, powerful differences in the capability for developing and maintaining a “collective mind” exist, which may be what we in future research can call the more or less “knowing and innovation-apt” firm. Further, it will be important to evaluate the impact of the factors established in Treatise 4, Study IV of this thesis on the development of well-functioning individual and “collective minds” as discussed by Stein and Weick & Roberts.

Both the KVB view and the resource-based theory of the firm claim that sustainable strategic advantage is based on idiosyncratic knowledge and innovation benefits of the firm: “what firms do better than markets is the sharing and transfer of knowledge of individuals and groups of individuals within an organization” (Kogut & Zander 1992, p. 383). I would like to claim that these idiosyncratic knowing and innovation advantages exist in the entire value chain of an industry. In fact, it is idiosyncratic knowledge and innovation advantages that constitute and distinguish one industry from another: some industries know how to make cars, others pharmaceuticals. In a cluster, I find a particularly high level of idiosyncratic knowing and innovation benefits in the value chain of an industry or parts of the same, in one specific geographic location. The firm’s demarcation line is its specific “knowing & innovation space” as outlined in the “knowing & innovating” firm theory boxes above. This space and the strategic positioning of the firm can be analyzed in four dimensions, analogous to Stein’s categories of the human being’s skills and capabilities, displayed in Fig. 1 below: (a) physical

and motor dimension, (b) cognitive and language dimension, (c) sensory and sensate dimension, and (d) person and individuality dimension of personnel and collaborators.



**Fig. 1. Innovation Health & the Theory of the Firm, Strategic dimensions, dynamics and processes of development in the innovation space.**

The interdependence of the cognitive or knowing and the social/sensate dimensions of the firm is acknowledged by Kogut & Zander. However, their interdependence is not clearly articulated. Rather, the social structuring of individuals' behaviour in the firm seems to be overriding the cognitive and language dimension. The firm is articulated to be “a social community specializing in speed and efficiency in the creation and transfer of knowledge” (Kogut & Zander 1996, p. 503). This is a weak but very important articulation of the understanding of the “European, republican and communitarian” firm’s civic responsibilities, in stark contrast to the “liberal-minimalistic” view of corporate citizenship common in the firm-theories based on neo-classical economic theories (Sison 2008, p. 94). Sison argues: “The civic republican and communitarian model of citizenship [...] perceives the corporation as corporate polity whose

flourishing is reciprocally dependent on the flourishing of its various stakeholder-constituents. In this regard, every stakeholder-constituent is admonished to take part actively in the deliberation and execution of the corporate common good.” This clarification and understanding brings forth the important normative and moral dimension of the KBV of the firm, which unfortunately has been sparsely discussed over the past twenty years. The term “social entrepreneurship” is more often encountered in emerging research strings (Bornstein 2007; Elkington & Hartigan 2008). In Bornstein (2007, pp. 244-245) the distinction between a traditional Schumpeterian entrepreneur and a “social entrepreneur” is discussed. The key statement is that the “social entrepreneur” is one with “strong ethical impetus” when answering the “why?” of the firm’s endeavors. In my opinion, there is no need for a new theory of the firm solely to include the ethical aspects and normative foundation of a firm’s existence and activities; they should be a key constituting part of any definition or theory of a firm.

The physical and motor dimension of human beings in the KBV firm is not analyzed or discussed at all in Kogut & Zander’s initial KBV framework, and needs to be introduced and articulated in the Knowing and Innovating theory of the firm. In a more recent volume by Kogut (2008) published by Oxford University Press, the need of assessing the emergent interdisciplinary research of ‘social neuroscience’ is addressed. Kogut (2008) makes an assemblage of his own historical research with different parties and attaches a literature summary suggesting ways to integrate his research strings with ‘social neuroscience’. The monographic volume appears surprisingly shortly after the finished field research work and formulation of key contributions of this thesis in 2005-2007. I have taken a different approach than Kogut (2008) in integrating contemporary and interdisciplinary understandings of the human being in firm and innovation research, by starting with ECD and life-spanning understanding of the constituents of human development. Further, the research effort and delineated theory has been made in research collaboration and guided by researchers at Karolinska Institute and CHESS, a leading-edge international participant in medical and social science research. The conclusion of this research project is that it is vital to start the remodeling of our economic and business management fields’ understanding of the human being in interdisciplinary (and admittedly messy) research collaborations. Recently, Prahalad & Krishnan (2008) have outlined what they call the “New [firm] House of Innovation” (ibid. pp. 236-238). They emphasize the importance of enhancing and supporting the firm’s social and technical [cognitive] architecture in strengthening the



firm's sustained competitive advantage. A clearer distinction of the firm's sentient/social and cognitive language dimensions is made then in the KBV of the firm, but the normative and individuality dimension and the physical and motor aspects of the firm's competitiveness are forgotten. It is the understanding that all four dimensions of the firm's knowing and innovation space need to be considered and analyzed in firm and strategy research when going forward, also linking micro-, meso- and macro-level analysis and discussion.

We would like to alert the reader to a theoretical development effort, similar to this proposal, put forward by Nonaka et al. (2008) in "A Process Theory of the Knowledge-Based Firm". Nonaka et al. refers to Penrose's theory of the firm (1959) and the off-springs related to the resource-based theory of the firm, Polanyi's understanding of "tacit knowing and human being" (1961) and Aristotle's conceptualization and understanding of "Phronesis" as their theoretical foundations (Nonaka et al. 2008, pp. 7-15). The human being and her/ his knowing capacity is visibly, positioned at the center of firm analysis and theorizing. The process perspective of the firm, applied by Nonaka et al. (2008) is consistent with the outline of this proposal, based on Stein ([1922] 2000). What is missing in Nonaka et al. (2008), compared to this proposal of a new emerging firm theory is a clear articulation of an underlying ontology of the human being, associations and communities, as provided in Stein ([1922] 2000) and also the emerging understanding of ECD (WHO 2007 a, b; Foresight 2008) and its life spanning effects in the development of knowing, innovating and organizing human beings, applied in this prototype of the "Knowing and Innovating Theory of the Firm". Further, the understanding of "tacit knowing", as delineated by Polanyi ([1961, 1964, 1962, 1967] 1969) is a core concept in the theorizing of both Nonaka with research partners as well as in the KBV of the firm delineated by Kogut & Zander. Polanyi's theory of "tacit knowing", is firmly anchored in the understanding and definition of Stein's ([1917] 1989) "empathy" construct (Polanyi [1964] 1969, pp. 155-160) and her philosophy of psychology and the humanities ([1922] 2000), as presented and discussed in Study V, Treatise 4. Unfortunately, Polanyi does not refer to Stein's doctoral thesis on the topic of "empathy", but rather misleadingly to her professor Husserl and Merleau-Ponty in stating that: "The theory of tacit knowing establishes a continuous transition from the natural sciences to the study of the humanities. It bridges the gap between the 'I-It' and the 'I-Thou', by rooting them both in the subject's 'I - Me' awareness of his own body, which represents the highest degree of indwelling" i.e. tacit knowing

by the human being. This is the central thesis in Stein's definition of the human beings constituting capacity of "empathy". Accordingly, it seems to be a fruitful convergence, that both Nonaka and his research partners and Kogut & Zander's understanding of the KBV of the firm, based on the concept of Polanyi's "tacit knowing", can be further elaborated through explicit and consistent application of Stein's ontology and philosophy and WHO's understanding of ECD as suggested in this Study.

In closing this discussion, I hope the erected scaffolding<sup>viii</sup> of a number of components in a "prototype" of an extended KBV of the firm and possibly "A Knowing and Innovation Theory of the Firm" has been intriguing enough to inspire further research endeavors. Finally I will present a case below, inviting an invigorating debate and research agenda of firm strategies based on the conceived notation and emerging understanding of "Innovation Health".

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# Appendix 1

## Will our firm Corporate Nation prosper?

### Introduction

**Introduction:** The proposition is advanced that current and future strategic advantages of corporations depend on their ability to: (a) attract and organize the most qualified workers, specialists, managers, directors, executives, board members and owners; (b) integrate the firm in competitive and complementary networks of vertical and horizontal industry cooperation (outsourcing, suppliers, distributors, etc.); (c) innovate, develop, adapt and position the services and products of the firm in existing leading customer markets as well as in the development of new emerging markets (Prahalad 2004/ 2009; Prahalad & Krishnan 2008; Sirkin et al., June 2008; Teece, D. 2009). A key condition for firm strategic advantage and sustainable long-term development is claimed in this thesis to be the "Innovation Health" of human beings and entire populations, enabling human knowledge creation, adaptation, creativity, innovation and entrepreneurial actions developed on the foundations of pioneering works by Keating & Hertzman (1999), Nelson & Winter (1982) and Kogut & Zander (1992, 1993, 1996); Zander (1995). Given this understanding, will our firm "Corporate Nation" below be sustainable as a long-term successful enterprise in a global economy driven by knowledge- and innovation-based competition, arbitraging off-shored Innovation Health?



## Our firm “Corporate Nation”:

*Imagine this case borrowed from UN Human Development Report 1999 (Ch 3, Fukuda-Parr & Nancy Folbre)<sup>ix</sup>.*

Take a multinational corporation, tired of the frustrations of negotiating taxation and regulation with host governments, which buys a small land, writes a constitution and announces a new country – Corporate Nation. A citizen automatically receives a highly paid job. Sounds good, but some restrictions apply. Individuals must have advanced educational credentials, be physically and emotionally healthy, have no children and be under the age of 60. They do not have to emigrate but can work from their country over Internet. And they immediately lose their new citizenship if they require retraining, become seriously ill, acquire children or reach the age of 60. Corporate Nation can free-ride on human capabilities of its citizen workers without paying for their production or maintenance when ill or old. It can offer high wages to attract the best workers from around the world without threatening profitability. Footloose capital of the globalized economy weakens the connections between corporations and communities, and the obligations to citizenship. Why then would multinational firms remain in countries that tax them to support the production of human capabilities when they can go elsewhere and free-ride? They will remain for a while, out of habit and loyalty. But the ones that jump first to take advantage of new opportunities will win the race if the finish line is defined by maximizing the short term value of market output (Fukuda-Parr-Shiva Kumar 2003, pp.365-366).

The question that can be raised concerning our firm “Corporate Nation’s” ability to generate long-term sustainable development and growth in its firm endeavours, given our understanding of “Innovation Health” and its undertaken strategy, will not be answered in this thesis explicitly. Rather it is suggested that the line of analysis should be pursued following Sison (2008, pp. 69-97). The understanding of the firm and its “corporate citizenship” has, according to Sison (ibid. pp. 94-95), two alternative readings: it is either (i) a “Corporate Citizen” among other inhabitants in the state where it operates, or (ii) a “Corporate Citizen” in its own right consisting in taking different stakeholders as potential citizens of the firm,

alleged to be akin to the national state. Further, the line of arguing and analysis should be based on the distinctions of the (a) Anglo-American, liberal-minimalistic corporate social responsibility (CSR) understanding and governance of the firm, anchored in the tradition of neo-classical firm theory extended by mainly in transaction-cost economic theory (Coase 1937; Williamson 1975), agency theory (Jensen & Meckling 1976) and shareholder theory (Friedman 1970); and the (b) European, civic republican or communitarian view of CRS anchored in the tradition of the knowledge-based view of the firm as delineated by Kogut & Zander (1992, 1993, 1996), Zander & Kogut (1995), and extended in Zander & Zander (2005) and the key concepts of this thesis.

This gives us the understanding and analytical frame of a matrix, consisting of four different alternatives to understand the “Corporate Citizenship” of our firm: (1) The “liberal-minimalistic, corporate citizenship I”, in which the firm is mainly concerned with protecting its rights to protect and support shareholders’ rights, not involving the operation in social and political issues in a broader sense of society. (2) The “liberal-minimalistic, corporate citizenship II”, understanding the firm as similar to a nation-state, perceiving the firm as a “civic association” constituted by a “nexus of ‘contracts’ among different agents forming their rights, each of these agents having its own individual goal with respect to which the corporation is just a means” (Sison, *ibid.*, p. 95). (3) The “republican-civic communitarian view I” of the firm as a citizen, which allows the corporation to engage in broader socio-political actions, as its mission includes and considers its entire stakeholder groups, as well as a broader responsibility of their Innovation Health. (4) The understanding of the firm as its “own” nation, judged from the “republican-communitarian view II”, “perceives the corporation as a ‘corporate polity’ whose flourishing is reciprocally dependent on the flourishing of its stakeholder-constituents”, i.e. their Innovation Health. From the latter perspective, I am brought to the understanding that all stakeholders of the firm are urged to actively participate in the achievement of the firms and their ‘common good’ and long-term sustainable development through stakeholders’ joint Innovation Health.

The past few years, Bill Gates has committed himself to what might seem as charity work in the least developed regions of the world:



**Bill Gates**  
**– savior of the world?**

Bill Gates, chairman of Microsoft, recently committed himself to donating \$750 million to the Global Alliance for Vaccines and Immunization charity.

A lot has been written about the generosity of Bill Gates and his foundation. Generally Gates is presented as the greatest benefactor on earth. The *Times* wrote: "Today's donation pushes Bill Gates into an even more exalted position as the world's biggest philanthropist.

The Gates foundation, which is worth \$30 billion, (£17 billion), is now the largest charity to have been created by a single benefactor or private company by a factor of three, following a previous \$3 billion gift from its founder last July. Mr. Gates has stated that he intends to give away 90 per cent of his fortune, which is currently valued at about \$50 billion.

The causes to which he has channeled his wealth – global health inequalities, education programs, public libraries and projects around his home town of Seattle – have changed dramatically because of his contributions." (January 31, 2005)

Fig. 2. Bill Gates, a 'savior' of the world or a contemporary leader following in the footsteps of St Benedict, the founding father of Western Society, in preserving literary and numeracy skills in rapidly changing global demographic conditions (see Woods 2005)?

Given our improved understanding of 'Innovation Health' and the demographic developments expected the years ahead, as discussed in sections one and two of this Treatise 1 (Glassér 2010), we may ask if Gates is not to be understood as a contemporary Schumpeterian entrepreneur realizing that, Microsoft's potential future clients and hence the prospects of the firm, depends on the 'Innovation Health' of the so-called global 'youth bulge' of 1,5 billion young people in 2035? 1.3 billion of these global citizens, between ages 12 and 24 in 2035, will be born and raised in what we today know as the least developed parts of the world, while old traditional clients in Western societies are retired or gone.

## Long term corporate strategy



In a speech at Davos 2008 World Economic Forum , Bill Gates called for a more inclusive capitalism that "would have a twin mission: making profits and also improving lives for those who don't fully benefit from market forces." That is a major milestone in the evolving thinking of perhaps the most influential philanthropist of our time. January, 24, 2008.

**For \$150, Third-World Laptop Stirs Big Debate For \$150, Third-World Laptop Stirs Big Debate**



Fig 3. Dear to Care – passion and compassion<sup>x</sup> in corporate leadership, management and investments.

Gates' approach seems to fit well, with the understanding that "doing good and doing well" is not to be understood contradictory or opposing strategies of the firm, in fostering sustainable development if the underlying processes and dynamics of 'Innovation Health' are understood and acknowledged.

## Endnotes

- i A dominant and parallel developmental-track of the KBV of the firm was, established by Nonaka & Takeuchi (1995) and Nonaka & Toyama (2005), and has recently been extended in Nonaka et al. (2008). Both these developmental trajectories of the `KBV` of the firm originates from the academic “milieu”, at the Institute of International Business at the Stockholm School of Economics, Created and stimulated by its heading Professor Gunnar Hedlund and his team in the early 1990’s. The starting point of my own research endeavors with Eva Redhe, on the topic of human action, the firm, financial innovations and international business presented in “Options and Futures in Institutional Capital Management – USA and Sweden” (Glassér & Redhe 1987), and given an award for the best MBA thesis in Finance at the Stockholm School of Economics, 1987, was the Department of Finance and the Institute of International Business at the Stockholm School of Economics. The research project was advised by Assistant Professor Per Hiller and Sven Nyman, Investor. See also Glassér & Redhe (1987a), “Financial Innovations - about a market in transformation” in Berg & Näslund (Eds.).
- ii For a contemporary discussion see Clark, A. (1997). Ch. 4 is valuable in relation to Stein’s (1917) definition of the human beings constituting capacity of “empathy”. Clark articulates our current challenges in the following way: “To thus take body and world seriously is to invite an *emergentis* perspective on many key phenomena – to see an adaptive success as inhering as much in the complex *interactions* among body, world, and brain as in the inner processes bounded by skin and skull. The challenges for such an approach, however, are many and deep. These worries include: Finding the right vocabulary to describe and analyze processes that criss-cross the agent/ environment boundary, isolating appropriate large scale systems into interacting component parts and processes and understanding familiar terms [...]fit the new picture (or else rejecting such terms entirely), (ibid: 81-84). The concept of “Other minds” has recently been addressed by Avramides (2009) in an analysis, from a layman philosopher’s perspective, seemingly consistent with the theorizing on “empathy” by Stein (1917).
- iii I prefer to use the term “knowing” rather than Stein’s original phrasing of “knowledge” in this specific context of outlining a theory of the knowing and innovating firm.
- iv See Nelson’s (2007) contemporary discussion and research on childhood development.
- v See further discussion in Stein 2000, pp. 9-11; pp. 167-169 and Stein 2000a, p. 81.
- vi See Special Issue of the British Journal of Management Vol. 20, 2009, addressing the research topic of “Dynamic Capabilities”.
- vii This is the keystone of Stein’s philosophy of science. Moreover, since Stein considers philosophy itself to be a science, the paragraph describes her own understanding of her task as a thinker – an intellectual self-portrait in a nutshell. The title which she gave to the present essay was “Contributions Toward a Philosophi-

- cal Grounding of Psychology and the Humanities” (p. 170).
- viii An early discussion on “the scaffoldings” that humans erect, is found in Zander (1991) p. 121, and in footnote 193, referring to Solow (1959).
  - ix Introductory reading: (a) the text above, (b) an alternative firm governance case: “Tasubinsa – an uncommon business” by Sison (2008, pp. 4-16).
  - x “Dare to Care-Passion & Compassion in Management Research”, is the overall theme of AOM 2010 conference theme.

# The Fountainhead of Innovation Health

A CONCEPTUALIZATION & INVESTIGATION

This thesis, addresses the convergence between several strings of current research in the quest for a better understanding of the co-dependency and co-evolution of the human being and her ability to innovate, organize and provide products and services through competitive firms. The introduction and development of the concepts “Innovation Health” and “Systems of Innovation Health” aims at capturing emerging interdisciplinary understanding of early childhood developmental health and human life-spanning developmental conditions, to the extent that they are relevant for economic change, knowledge- and innovation related theory and research.

An overview and analysis of global demographic changes, as they relate to Innovation Health is provided. Further, an extended view or possible emerging Theory of the Knowing and Innovating Firm is proposed and elaborated. Furthermore, Stein’s effort in the early 20th century to create a new philosophy of the humanities and a model of the human being is revisited. Her ontology of association, community and the human being is introduced in the context of organizational economics and knowledge-based theories. Her philosophy and “emergentis” ontology is applied as the theoretical framework of Innovation Health and the entire research effort.



**Charlotte Glassér** has senior management and consultation experience within markets, businesses and organizations characterized by globalization, de-regulation, liberalization and rapid transformative technological change. She has gained her international experience of strategic and operational business development, corporate finance and organizational change within the sectors of communications, electronics, infrastructure, financial institutions and public administration. This has been achieved through her consultancy business Glassér Corporate Advisors, as well as her previous positions within industry and banking, and her current academic research of Innovation Health.

