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To cite this article: Paul Benneworth, Rómulo Pinheiro & James Karlsen (2017) Strategic agency and institutional change: investigating the role of universities in regional innovation systems (RISs), *Regional Studies*, 51:2, 235-248, DOI: [10.1080/00343404.2016.1215599](https://doi.org/10.1080/00343404.2016.1215599)

To link to this article: <https://doi.org/10.1080/00343404.2016.1215599>



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Published online: 31 Oct 2016.



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# Strategic agency and institutional change: investigating the role of universities in regional innovation systems (RISs)

Paul Benneworth<sup>a</sup> , Rómulo Pinheiro<sup>b</sup> and James Karlsen<sup>c</sup>

## ABSTRACT

Strategic agency and institutional change: investigating the role of universities in regional innovation systems (RISs). *Regional Studies*. Past analyses rooted in the thick description of regions successful in constructing regional innovation systems have given way to analyses more focused on the intentionality in these processes, and how actors in regions with their own wider networks can shape these high-level changes in regional fortunes. As part of this, place-based leadership has emerged as a promising concept to restore both agency and territory to these discussions, but it remains under-theorized in key areas. This paper contributes to these debates by arguing that there remains a reduction of agency to organizations, and that place-based leadership research needs to take into account organizational dynamics and interests in for bettering our understanding of the dynamics of place-based leadership in regional innovation systems.

## KEYWORDS

place-based leadership; institutional change; institutional entrepreneurship; regional innovation systems; university

## 摘要

策略行动者与制度变迁：探讨大学在区域创新系统（RISs）中的角色，区域研究。过往对于成功建立区域创新系统的区域之深描式分析，已让位给更为聚焦这些过程中的意图性，以及拥有更为广阔的网络的区域行动者如何能够形塑区域财富的高度变迁之分析。以地方为基础的领导力，作为上述问题的一部分，已浮现成为同时恢复这些探讨中的行动者与领域的有效概念，但在关键的区域中却仍未充分进行理论化。本文主张行动者仍被简化为组织，且以地方为根据的领导力研究必须将组织动态及利益纳入考量，以促进我们更佳地理解在区域创新系统中以地方为基础的领导力之动态，并以此对上述辩论做出贡献。

## 关键词

根据地方的领导力；制度变迁；制度创业精神；区域创新系统；大学


## RÉSUMÉ

Le partenariat stratégique et le changement institutionnel: un examen du rôle des universités quant aux systèmes régionaux d'innovation. *Regional Studies*. Les analyses précédentes ancrées dans une description dense des régions qui ont réussi à construire des systèmes régionaux d'innovation ont cédé la place aux analyses qui mettent l'accent plutôt sur l'intentionnalité de ces processus, et comment les acteurs dans les régions dotées de leurs propres réseaux plus larges peuvent influencer ces importants changements quant à l'avenir des régions. Dans ce cadre, le leadership territorial a vu le jour comme un concept favorable au rétablissement du partenariat et du territoire dans ces discussions, mais la théorisation ne suffit pas dans certains domaines essentiels. Cet article contribue à ces débats en affirmant que les organisations manquent de partenariat, et que la recherche sur le leadership territorial doit tenir compte des


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dynamiques et des intérêts organisationnels dans le but de mieux comprendre la dynamique du leadership territorial au sein des systèmes régionaux d'innovation.

#### MOTS-CLÉS

leadership territorial; changement institutionnel; esprit d'entreprise institutionnel; systèmes régionaux d'innovation; université

#### ZUSAMMENFASSUNG

Strategische Wirkmächtigkeit und institutionelle Veränderung: eine Untersuchung der Rolle von Hochschulen in regionalen Innovationssystemen. *Regional Studies*. Während in früheren Analysen ausführlich Regionen mit erfolgreich umgesetzten Innovationssystemen beschrieben wurden, konzentrieren sich die heutigen Analysen stärker auf die Intentionalität dieser Prozesse sowie auf die Frage, wie Akteure in Regionen mit eigenen, breiteren Netzwerken diese auf hoher Ebene angesiedelten Veränderungen für ihre regionalen Geschicke nutzen können. In diesem Zusammenhang ist die ortsbasierte Führung als vielversprechendes Konzept zur Wiederherstellung von Wirkmächtigkeit und Gebiet in diesen Diskussionen entstanden, das aber in zentralen Bereichen bisher zu wenig theoretisiert wurde. In diesem Artikel leisten wir einen Beitrag zu diesen Debatten, indem wir argumentieren, dass weiterhin eine Verringerung der Wirkmächtigkeit von Organisationen vorhanden ist und dass in der Forschung über ortsbasierte Führung die organisatorischen Dynamiken und Interessen berücksichtigt werden müssen, um das Verständnis der Dynamik von ortsbasierter Führung in regionalen Innovationssystemen zu verbessern.

#### SCHLÜSSELWÖRTER

ortsbasierte Führung; institutionelle Veränderung; institutionelles Unternehmertum; regionale Innovationssysteme; Hochschule

#### RESUMEN

Capacidad de acción estratégica y cambio institucional: análisis del papel de las universidades en los sistemas de innovación regional. *Regional Studies*. Mientras que en los análisis anteriores se hacía una descripción exhaustiva del éxito de las regiones a la hora de construir sistemas de innovación regional, ahora se analizan más a fondo la intencionalidad de estos procesos y la cuestión de cómo los actores en las regiones con sus propias redes más amplias pueden dar forma a estos cambios de alto nivel en su fortuna regional. En este contexto, el liderazgo basado en el lugar ha surgido como un concepto prometedor para restablecer tanto la capacidad de acción como el territorio en estos debates, aunque se sigue teorizando insuficientemente en áreas clave. En este artículo contribuimos a estos debates al argumentar que todavía existe una reducción de la capacidad de acción para las organizaciones, y que en el estudio del liderazgo basado en el lugar se deberían tener en cuenta las dinámicas y los intereses de las organizaciones para comprender mejor las dinámicas del liderazgo basado en el lugar en los sistemas de innovación regional.

#### PALABRAS CLAVES

liderazgo basado en el lugar; cambio institucional; empresariado institucional; sistemas de innovación regionales; universidad

JEL R59

HISTORY Received 13 February 2015; in revised form 5 July 2016

## INTRODUCTION

A key challenge within regional studies is explaining large-scale shifts in regional economic development trajectories based upon micro-scale activities (Lagendijk, 2007). Place-based leadership (PBL) has recently emerged as a promising concept to help explain how actors seek to rebuild territories by constructing new collective territorial innovation assets, networks and social capital (Beer & Clower, 2014). Yet, PBL remains under-theorized, studies often using retrospective analyses proposing causal links that see improved innovation performance caused by 'good' leadership practices (Benneworth, 2004), giving simplistic 'happy family stories' of leadership interventions (Oinas & Lagendijk, 2005). Such simplifications reduce PBL to narratives of heroic leaders and elite coalitions 'dynamizing' organizations and regions, overlooking how

other individuals construct networks strengthening regional innovation systems (RISs).

This paper explores how wider circle of regional individuals may contribute to changing economic development trajectories, given not all regional actors prioritize engagement (Watson & Hall, 2015). PBL analyses may overlook the constraints that institutional structures place on individuals' autonomy to act (Vorley & Nelles, 2012). Following Pearce & Conger (2003), this paper conceptualizes PBL as shared leadership where many different independent actors exercise mutual influence to agree and deliver collective goals. It is argued that PBL concepts should better account for individual actors' freedom to use organizations' assets to deliver collective regional ends, and conceptualize this using an organizational sociology literature, institutional entrepreneurship (Garud, Hardy, & Maguire, 2007).

The focus is on one organizational type where these issues are imminent, namely universities. Despite recent attempts to centralize university decision-making, universities remain loosely coupled institutions where individual staff have much operational freedom. Much recent research on universities regional leadership stylized universities' leadership contributions as 'heroic' individual leadership (Goddard & Vallance, 2013), overemphasizing managerial decision-making, neglecting how many university staff's activities deliver new regional innovation capacity (Pineiro, Benneworth, & Jones, 2012a). This paper proposes considering university internal structures via four elements: 'leaders', 'support agents', 'knowledge agents' and 'interaction assemblies'. It explores how university structures facilitate/constrain institutional entrepreneurs activities in solving regionally specific innovation problems by asking:

How do universities' internal institutional contexts affect individuals' capacity to contribute to place-based leadership processes?

The paper concludes by arguing that the PBL literature should consider more systematically endogenous institutional entrepreneurship.

## INSTITUTIONAL ENTREPRENEURSHIP IN RISs

The approach here reflects a growing recognition of relationships between leadership and place (Collinge, Gibney, & Mabey, 2010; Hunter, 2012). The paper starts from systematic regional innovation approaches distinguishing knowledge exploration and exploitation subsystems (Cooke, 2005) embedded within wider socio-political structures (Lundvall, 2007). Rodríguez-Pose (2013) highlight deficiencies constraining RIS performance:

- Missing collectively held new cultural-cognitive understandings of regional actors roles' in globally oriented knowledge economies.
- Missing structural RIS governance elements underpinning collective search efforts (smart specialization/constructed regional advantage).
- Misunderstanding of opportunities for exploiting regional knowledge to drive innovative regional economic development.
- Local actor failures to collaborate collectively to develop high-end positions in emerging high-technology niches.
- Failing to mobilize collective resources to underpin innovative economic development (after Rodríguez-Pose, 2013).

Rodríguez-Pose (2013, pp. 1041, 1043) links how these structural problems cause negative economic externalities, including insider-outsider problems, principal-agent problems, rent-seeking, free-riding, clientelism and 'lock-in'.

The present paper conceptualizes regional interventions via an 'institutional entrepreneurship' framework cognate with PBL (Garud et al., 2007, following Sotarauta &

Pulkkinen, 2011). Institutional entrepreneurship emerged around sociological 'new institutionalism' discussions (Greenwood, Sahlin-Andersson, Suddaby, & Oliver, 2012; Powell & DiMaggio, 1991) conceptually justifying how 'small' actors shape larger 'systems' around them. Early RIS literatures simplified this to local actors creating new intermediary organizations (Morgan, 1997), an approach later critiqued for overlooking context-specific tensions/conflicts (Benneworth, 2007; Oinas & Lagendijk, 2005). More recent theories attempted to foreground agency's role via constructed regional advantage and smart specialization (Asheim, Boschma, & Cooke, 2011; McCann & Ortega-Argilés, 2013).

Institutions within institutional entrepreneurship are habits, norms, regulations and laws that influence organizational behaviour and relationships (Edquist, 2005). Institutional entrepreneurs mobilize resources and actionable knowledge to create/transform 'institutions' (Karlsen, Larrea, Aranguren, & Wilson, 2012; Livi, Crevosier, & Jeanrerrat, 2014; Sotarauta, 2011) to address RIS inefficiencies. Institutional entrepreneurship therefore represents one potential explanation of why some places are more able than others to improve their regional innovation environments (Normann, 2013). In PBL, *shared leadership* (Pearce & Conger, 2003) sees many different independent actors exercise mutual influence to agree and deliver collective goals. It is (1) shared: no single actor can compel others; (2) collective: requiring collaboration between interdependent actors; (3) steering: influencing other organizations towards change; and (4) creating long-term leadership (Karlsen & Larrea, 2012; Sotarauta, 2005). Institutional entrepreneurship within PBL explains how actors address specific RIS problems happening between *organizations* (cf. Aldrich, 2012). Individuals' ability to contribute to institutional entrepreneurship (and hence to exert place-specific leadership) is influenced by two factors:

- Individuals' scope to build inter-organizational relationships constituting new institutions.
- Individuals' within-organization scope for autonomy.

PBL analyses tend to focus on the former (building new institutions) downplaying how institutional settings affect emergent leaders' opportunities to contribute to collective processes. The research question is refined as:

How do universities organizational contexts empower or constrain their constituent institutional entrepreneurs in ways that may affect their involvement in collective efforts to address RIS failures?

## HOW UNIVERSITY ORGANIZATIONAL DYNAMICS AFFECT THEIR REGIONAL CONTRIBUTIONS

Universities and other regional partners working together systematically around innovation can change commonly held structures, meanings and relationships (exogenous institutional entrepreneurship (Asheim et al., 2011). This may potentially improve long-term regional innovation

outcomes by building connectivity to external agents in global knowledge and production chains (Cooke, 2005; Rodríguez-Pose, 2013), and making regions more 'the place-to-be' (Gertler, 2003). Earlier studies highlighted universities contributions via creating strategic institutional mechanisms to support regional development (inter alia McCann & Ortega-Argilés, 2013; Organisation for Economic Co-operation and Development (OECD), 2007).

But as universities becoming increasingly 'overloaded' with new missions (Enders & Boer, 2009), universities' regional roles become more complex than some strategic narratives suggest (Powell & Dayson, 2011). These new missions also cover internationalization (Tadaki & Tremewan, 2013), competition in quasi-markets (Marginson, 2004), improving efficiency/quality (Gornitzka, Stensaker, Smeby, & De Boer, 2004), and internal governance reforms (Pinheiro & Stensaker, 2014). University leadership contributions may be most *visible* where they make explicit engagement commitments (Pinheiro, Benneworth, & Jones, 2012b), but simply declaring engagement as a strategic mission does not create more engaged universities (Watson & Hall, 2015). Delivering engagement in practice also requires permitting range of institutional entrepreneurs within the university (endogenous institutional entrepreneurship) internal autonomy to help create new external institutions (that solve RIS problems), simultaneously creating new opportunities and problems (Table 1).

Universities are organized to balance very different kinds of activities as quintessentially 'loosely coupled institutions' (Musselin, 2007). Admittedly, universities have recently become *more hierarchical*, authority centralized around formal leaders at institutional/faculty level or within faculties (Meek, Goedegebuure, Santiago, & Carvalho, 2010). This has led to *discourses* of completely centralized university decision-making, but the reality is that universities remain loosely coupled institutions reliant on internal actors and networks to coordinate diffuse knowledge resources (cf. Pinheiro & Stensaker, 2014). To operationalize the research question, university 'organizational contexts' are operationalized, distinguishing four elements potentially empowering or constraining institutional entrepreneurs' latitude: 'formal leaders', 'support agents', 'knowledge agents' and 'interaction arrangements' (after Clark, 1998; Nedeva, 2007):

- Senior leaders: central administrators actively supporting/resisting individuals using university resources to create (semi-)collective assets facilitating regional development.
- Support agents: administrative staff coordinating internally, ensuring strategic leaders' directives are institutionalized.
- Knowledge agents: regionally engaged teachers/researchers embedded within wider academic peer networks and communities.
- Interaction arrangements formal university coordination mechanisms (e.g., departmental teaching committee deciding on involving external partners in teaching, then a accreditation committee judging whether that teaching meets university standards).

The decisions, behaviours, norms and structures in each element collectively define institutional entrepreneurs' freedom to contribute to regional collective mobilizations (Battilana, 2006; Battilana, Leca, & Boxenbaum, 2009; Powell & Colyvas, 2008).

Senior leaders often actively promote university RIS contributions, and may propose regional engagement strategies (Powell & Dayson, 2011), or might resist activities leading to their institutions to being profiled as 'locally facing' given the symbolic importance of world class global research excellence (Hazelkorn, 2015). University intermediaries may support universities' regional contributions (Pinheiro et al., 2012a) or may stymie engagement as excessively risky. Knowledge agents contribute via engaging regional partners in teaching and research, but may resist engagement where academic and regional interests mismatch. Finally, interaction arrangements may emphasize engagement's enrichment effects upon core university activities, or delegitimize engagement, preventing engagement activities influencing university norms and behaviours.

## METHODS

The aim is to understand how these four elements facilitate and constrain universities' institutional entrepreneurs antecedent to those institutional entrepreneurs wider RIS contributions. The authors consider exclusively how individuals' institutional settings (Table 2) affected autonomy to be institutionally entrepreneurial, not eventual institutional entrepreneurship and its associated later RIS improvement. The independent variable is universities' organizational contexts (following Table 2) and the dependent variable is individuals' autonomy for regional engagement (linked to PBL processes). The study is exploratory, considering how tensions in university organizational elements could shape institutional entrepreneurship around regional engagement. The paper uses a multiple case study analysis (Stake, 2006) rooted in critical realist perspectives (Sayer, 2000), with thick description (Geertz, 1994) exploring whether Table 2's theoretically articulated processes functioned as expected.

The focus was on three regions where 'crisis' perceptions drove partners – including universities – to deliberately address regional institutional gaps, where partners strongly pressurized their universities to engage, with university senior managers publically committing to improving regional engagement. Three regions were chosen where the authors had already separately undertaken multi-annual case study research of university–regional engagement: Twente (the Netherlands), Tromsø (Norway) and Oulu (Finland). Interviews with key actors, documentary analysis of university policies/strategies, earlier peer-reviewed articles and official statistics/reports were recombined into case studies providing thick description structured according to the framework. These stylized descriptions were then recombined to compare each case's underlying structure to answer the research question. It was explicitly chosen to reuse and repurpose data retrospectively to generate a depth of insights into the institutional conditions antecedent to regional change via longitudinal analysis, making the findings more suggestive than conclusive.

**Table 1.** Transformative leadership processes for innovation.

Regional innovation system (RIS) problems (after Rodríguez-Pose, 2013)	Institutional entrepreneurship intervention in RIS	University contributions	Private tensions (coalition partners)
A lack of collectively held new cultural–cognitive understandings of the role that regional actors can play in a globally oriented knowledge economy	Expanding regional partners' needs, aspirations and capabilities for innovation (Gunasekara, 2006)	Creating courses for regional employers, undertaking regional research programmes, reorienting core university activities to support the region staff going out part-time or on sabbatical to work in regional activities (Arbo & Benneworth, 2007)	These courses are seen as being something done by peripheral staff rather than as a way of leveraging world-class research in the university, so become cost-driven rather than a genuine valorization activity (Pinheiro, 2012)
Missing structural elements in the RIS governance system allowing collective smart specialization/constructed regional advantage activities	Building a collective institutional structure to oversee progress (Cooke, 2011)	Universities participate in transversal innovation platforms direct/manage innovation activities which produce benefits (Lester & Sotorauta, 2007)	Academic collaboration is very time consuming, forcing researchers to prioritize other goals and making it in practice less important to engage: academic drift (Arbo & Eskelinen, 2003)
Lack of understanding of potential opportunities for better exploiting regional knowledge to drive innovation-based regional economic development	Developing a robust regional knowledge base to exploit new global–local opportunities (Asheim et al., 2011)	University works with regional firms in pre-competitive research projects/programmes in potential new combination areas creating novel knowledge pool (Isaksen & Karlsen, 2010)	University structures reward publication and research grant-winning activities rather than engagement, and so academics undertake less regional activity (Feldman & Desrochers, 2003)
A failure of local actors to collaborate collectively to position themselves in emerging high-technology niches with economic development potential	Identifying common goals for novel global–local combinations (McCann & Ortega-Argilés, 2013)	University provides a global context and new application areas for local clusters with high-value, place-specific knowledges (Cai & Liu, 2015)	Once the university has secured the strategy and associated investments it withdraws from the regional coalition to pursue world-class excellence goals, (Benneworth, 2012)
A failure to mobilize collective/share resources and co-investments to underpin innovation-based economic development	Mobilizing collective resources to deliver needs (Bergek et al., 2008). From bridging to co-generation of knowledge involves two types of institutional entrepreneurship (Karlsen, Larrea, Aranguren, & Wilson, 2012)	Universities fund shared pools, pump-priming persuades others (local/national/international) to contribute their own funds and invest in mixed public/private research programmes for collective benefit (Goddard & Vallance, 2013)	University spends a lot of effort launching pilot projects but these fail to acquire internal legitimacy within the university so they are not mainstreamed or extended (Cloete et al., 2011)

## CASE STUDIES

Each case study explores tensions arising in universities (loosely coupled knowledge-producing communities) seeking centrally to steer engagement. Each university

*corporately* stated a desire to deliver *more* regional engagement: one might expect these three universities to offer optimal conditions for institutional entrepreneurs to engage regionally, but in each case various structural elements restricted institutional entrepreneurs' autonomy.

**Table 2.** Spaces for and resistance to university institutional entrepreneurs supporting RIS development.

	Potential regional innovation system (RIS) contribution	Role of institutional entrepreneurs	Potential resistance to institutional entrepreneurs
Leaders	Interacting with regional actors in regional engagement platform or collective activity offering university contributions to regional collective innovation assets	Advocating the idea of strategic regional engagement thereby legitimizing the process from an organizational perspective	Unwilling to allow the university to profile itself as a relevant/regional university rather than excellent/rigorous, world-class university
Support agents	Providing assets and infrastructure that facilitate new knowledge combinations and support new regional knowledge opportunities	Developing a university strategy, deepening and formalizing routings associated with regional engagement activities	Unwilling to allow the university or unit to bear the risk of uncertain activities to generate financial risk/loss or reputational damage
Knowledge agents	Active scanning of the regional environment by enthusiastic academics to create new opportunities (path creation/path switching)	Identification by individual academics or groups with the institutional regional engagement goals and hence being willing to engage and promote regional engagement ethos	Unwilling to legitimate and recognize engaged teaching or research behaviour as valid; unwilling to allow own knowledge to be used in regional engagement activities
Interaction assemblies	Formal mechanisms for bridging structures and activities across the academic core to the outside world (strategic regional partners and place-based initiatives)	Embedding particular practical examples of regional partners enriching core university activities into university's working norms, practices and policies	Unwilling to equate and acknowledge engaged behaviour with other kinds of desirable activity, rejecting it becoming part of the mainstream

Each case study firstly develops a narrative for universities attempts to facilitate institutional entrepreneurs, and then sets out the tensions that constrained individual institutional entrepreneurs' autonomy in regional engagement.

### Twente

The University of Twente's (UT) PBL emerged within attempts to secure finances to completely rebuild the campus following a fire. The university was created in 1961 to reinvigorate the region's declining textiles industry, then to support emerging technology sectors. From 2001, a perceived regional economic crisis mobilized local municipalities, the region, the regional development agency and the science park to create a common regional innovation agenda to attract additional national and European subsidies. The university was allocated several important roles in this agenda: creating high-technology spinoff firms, providing skilled technical graduates, solving firms' innovation problems, investing in new businesses and providing key infrastructures (nanotechnology and virtual reality laboratories). The university mobilized several core teaching, research and engagement constituencies (academics, students and firms) to achieve these aspirations.

By the mid-2000s the universities' Spearpoint Research Institutes (established in the 1990s) were key university management organizations with their scientific directors part of the university senior management group. Their commercial directors formalized UT's regional engagement routines, and developed institute-specific infrastructures and support systems to encourage entrepreneurial, engaged behaviour by their staff. They also sought to coordinate

their research and entrepreneurship, most notably by organizing knowledge production activities (research) more systematically to appeal better to external research funders and firms. The university also directly acknowledged regionally active staff, with successful entrepreneurial professors publicly praised by senior managers at key university events such as the opening of the academic year, the university's anniversary or laureates' day.

The university developed a strategic covenant with the municipality and province with a bureau comprising university, city and regional government secondees. This organization (*Kennispark*/knowledge park) supported activities Spearpoint Research Institute activities to increase their regional impact. The university also actively enrolled the Dutch government (notably, Ministry of Economic Affairs) to validate and legitimate externally UT's regional engagement activities (Eckardt, 2017) as 'best practice' innovative technological entrepreneurship, involving a regular series of high-profile ministerial/royal visits, funding announcements and prize awards (e.g., the Van den Kroonenberg prize in 2007).

Several tensions emerged in this reorganization of regional engagement. Firstly, senior managers were primarily concerned with increasing research grant income and resources for campus redevelopment. The Spearpoint Institutes were closely aligned with external research funders' agendas (Dutch industry, the research council and European framework programmes) with little funding coming via regional sources. University academics had little practical flexibility to create common research agendas in new technological areas aligned with regional needs that

deviated substantively from those external research agendas. Certainly, there was a limited scope to 'bend' university research activities to meet regional needs where that conflicted with potential excellence: much effort went into conditioning regional partners to support activities which increased research institutes' capabilities to attract fundamental research grants.

Secondly in devolving regional engagement to research institutes, university leaders lost strategic oversight of the full diversity of staff engagement, effectively creating two-tier engagement. University leaders were acutely aware of activities involving university financial commitment, including large infrastructure investments, seed-funding in spin-offs and industry-financed research programmes. University strategy therefore focused on creating a policy to facilitate these large research infrastructures and deal with their attendant risks. This brought two effects, firstly, reducing regional engagement to a simplistic set of 'generative investments' favouring experienced, innovative firms capable of delivering co-finance. Secondly, it ignored regional contributions of staff working with the public sector and civil society or indeed with firms through non-contractual arrangements.

Thirdly, senior managers' focus on investment projects saw a substantial surcharge placed upon all departments and research groups to upgrade the research infrastructure. Only some groups (those requiring those large research infrastructures) benefited from this upgrading, such as the creation of the nanotechnology laboratory MESA+ or the Virtual Reality laboratory. Although some groups within the university saw clear financial research benefits from these investments, other groups faced the perverse incentive that their regional engagement work was heavily surcharged via overheads to fund other groups' core (non-region specific) research activities, making it much less attractive.

Fourthly, a senior administrator's proposed extremely top-down model for all engagement channelled through his office triggered a deep-seated crisis of legitimacy in the university technology transfer office in 2005. Academic leader resistance to this led to his departure: Kennispark was recreated as an integrated set of technology transfer activities separate from the university. This created a clear split between Kennispark's real-estate goals and the operational technology transfer goals. Whilst Kennispark's real estate development goals stayed largely unchanged, its technology transfer development aspects became increasingly related to pursuing subsidies to support new business creation. This created an internal boundary within the Kennispark arrangement that hindered developing university-wide spaces of institutional entrepreneurship.

Finally, the university's internal legitimization structures for regional engagement performed emergent legitimization upon particular individuals perceived as successful in winning regional funding supporting strategic infrastructure investments. University senior leaders directed their strategic efforts more towards developing big infrastructures above supporting other regionally engaged individuals. A neat illustration of the tension came around local attempts

to redevelop a local military airbase as an airport. Local politicians were clear that funds for a proposed regional innovation plan were dependent on a parallel airport subsidy. Some academics called into question the airport's viability, the university's strategic need to access that regional innovation funding necessitated strategic institutional university support for the (ultimately doomed) airport plan.

### Tromsø

In 2006, the Norwegian government launched a comprehensive knowledge strategy for the 'High North' (a transnational area spanning the Arctic and Barents seas). In parallel, the Ministry of Education and Research asked an independent commission to develop future recommendations for a fundamental restructuring of Norwegian higher education to respond better to future socio-economic, demographic and macro-economic developments.

The University of Tromsø's (UiT) central leadership structures responded to these opportunities offered in two ways. Firstly, they assembled key public and private regional partners from university, industry and local government to agree a common strategic platform ('a knowledge-based High North region') with defined roles and responsibilities. This represented a significant break from previous practices of regional actors reacting individually to external events rather than seeking collectively to shape the way those shocks unfolded. The university agreed to developing localized knowledge (physical, technological and human) infrastructures to support Tromsø's bid to become the High North's knowledge hub. Secondly, anticipating the Ministerial Commission's strategic recommendations, UiT agreed to intensify earlier discussions with several regional university colleges towards merging to increase UiT's size to reposition it as the dominant High North 'knowledge centre'.

UiT's central leadership, particularly its long-serving rector, became increasingly active in attempting to drive change. This partly involved raising regional actors' local awareness of the potential opportunities offered by the changing policy environment and higher education reforms. By articulating regional interest in national media discussions, UiT's leadership became Northern Norway's *de facto* public face. The rector used privileged access to governmental decision-making structures from his *ex officio* roles as chair of both the High North Strategy advisory council alongside the Norwegian Association of Higher Education Institutions (UHR).

In 2009, the university adopted a new five-year strategic and operational platform, stating the vision of becoming a national and international engine for High North knowledge growth and innovation. UiT also renewed central efforts to communicate, internally and externally, its core functions and missions given external events, stakeholder demands, internal capabilities, traditions and strategic aspirations. The university emphasized several new regional-relevant research units, including rural medicine, High North operations and marine resource management. Similarly, UiT established several undergraduate and graduate programmes (spanning disaster management,



Arctic aviation and entrepreneurship) to improve its regional contribution. Finally, it adopted new administrative procedures to improve university systems and accountability in engaging with regional actors (public and private).

These central changes also highlighted a new set of tensions. Firstly, increasing university dependence upon external stakeholders' resources increased university dependence upon external stakeholders' interests. Some university units, most notably natural sciences, capped the amount of external research funding to prevent a drift away from academic missions. These rules legitimated external funding for research by guaranteeing all researchers, including externally funded scientists, a minimum level of academic autonomy, recognizing tensions around knowledge as a private good for regional partners versus knowledge as a public good.

Secondly, centralized decision-making stimulated dissent against both mergers and strategic planning. Several leading academic researchers felt increasingly uncomfortable of key strategic priorities (including regional engagement goals) set centrally with insufficient consultation of their interests. These internal actors perceived clear risks from pressures to respond opportunistically, and feared losing academic direction and coherence in the emergent 'Matthew effect' of resources flowing to powerful/rich fields. Some also felt that the 'bureaucratization of regional engagement' raised barriers to meaningful social relations with regional actors. Those relationships were often initiated and maintained informally reflecting regional actors' histories and interests rather than simply the university's.

Thirdly efforts to balance legitimately between core missions (teaching and research) and peripheral tasks including regional engagement highlighted difficulties individuals faced. Interviewees reported conflicts between the university's duty to 'serve the region' whilst also meeting students' needs and government/funding agency demands for efficiency and 'world-class' status. The university addressed this by creating continuing education pathways involving junior and senior academics, on the one hand, and by putting explicit regional dimensions and activities as an integral component of degree programmes and research activities, on the other.

Fourthly, tensions emerged between global excellence and local relevance when a number of highly regionally engaged academics faced trenchant criticism from external peers in research reviews for failing to make fundamental disciplinary knowledge contributions. This reflected structural problems in UiT acknowledging local knowledge's legitimacy, but also that many academics found it too difficult to negotiate the structural challenges of unifying teaching, research and engagement. The central administration (2014) integrated previously independent regionally focused research centres (including Sami Studies and the Barents Institute) into faculty structures. The creation of a number of Research Council-funded centres of research excellence with a clear orientation towards basic (non-regional) research further placed pressure on the regional dimension. Interviewees claimed these new structures

paid lip service to regional engagement favouring publications in prestigious journals, and recruiting international talent from overseas, mostly uninterested in active engagement with regional actors.

Finally, several mediating structures (central level-structures responsible for technology transfers into the region) acting as 'interaction assemblies' failed to reach out to the level of the units, thus becoming increasingly decoupled from both teaching and research activities, as well as academic institutional entrepreneurs' ad hoc, uncoordinated actions.

## Oulu

The Oulu regional coalition involving the university, local government and industry first emerged in the late 1980s and it sought to develop network-based collaborative structures based upon open communications, trust and a shared sense of local identity. Finnish government higher education reforms in the 1990s introduced several market-based elements. The University of Oulu (UO) responded by becoming a more 'regional' research-intensive university, creating new research centres focusing on knowledge creation and transfer with value for regional public and private stakeholders. It also created of supporting administrative infrastructures for research and innovation efforts (commercialization and technology transfers included). External actors were key supporters, providing direct financial support to UO's research and innovation office and business studies department respectively.

More recently, the Oulu coalition became a more explicit element of the local policy landscape in response to an emerging regional crisis in parallel with central higher education reforms prioritizing Finnish university global excellence. UO's central leaders played important roles in several newly formed networks and groups addressing regional crisis. A series of new strategic research partnerships were launched involving regional actors (including the Centre for Internet Excellence and the Oulu Innovation Cluster). The university also reorganized internally attempting to improve its responsiveness to competitive domestic and global environments:

- interdisciplinary graduate schools, focusing on the nurturing of future scientific talents;
- interdisciplinary research centres, where collaboration with other knowledge producers is to occur; and
- applied innovation centres, geared towards the joint creation of knowledge together with industry and technology transfers to the outside world.

UO faced tensions arising from pressures it faced to be both a central regional coalition partner as well as a 'world class university'. Firstly, management desires and commitment to promote regional development issues could not change internal promotion and incentive systems to academically legitimate engagement or 'third-mission' activities. In late 2009, the university had attempted to launch new internal evaluations of the degree and nature of academics' engagement, yet internal awareness of these measures

remained rather low. Some local academics indicated that traditional performance measures (scientific publications) remained the key criteria for professional promotion and peer status, relegating regional engagement to the level of 'nice to have'. Such criteria became more urgent more recently with new governmental reforms to promote world-class excellence more intensively.

Secondly, first-hand accounts from the faculty of engineering highlighted how efforts to revise curriculum structures in the light of local industry needs were not beneficial for graduates. As local industries' needs continued changing, UO graduates from these programmes became locked into specializations unsuitable for the regional and national labour markets. In one extreme case, a large research and development (R&D)-intensive industrial partner for a course changed strategic priorities then closed down, leaving graduates over-specialized towards a set of jobs that were no longer regionally available, generating substantial academic scepticism towards further engagement.

Thirdly, there was a growing feeling reported by academic interviewees that regional engagement was primarily the territory of several senior administrators and academics, and top-down strategizing quickly lost sight of real regional engagement. Some expressed their (personal) disagreement with the fact that decision-making procedures (e.g., around key strategic areas of regional relevance) were undertaken with minimal consultation across the academic heartland. Likewise, access to regional coalitions was criticized as being restricted to a small group of influential individuals (often with a long history of engagement and/or with high visibility within university leadership structures) both within and without the university. UO devised a series of rather sophisticated internal rules and procedures for knowledge transmission and ownership (intellectual property (IP) rights), and the rules' complexity was perceived by academic interviewees as removing incentives for tighter collaborations with regional actors like industry, as well as restricting the room of manoeuvre by academic entrepreneurs.

Fourthly, tensions emerged around the longer-term effects that academic engagement was having on UO's overall scientific performance. A 2007 internal research assessment exercise revealed that those academic groups traditionally highly engaged with regional industry were often failing to use these engagements to enhance their research group's scientific profile and competencies. Many within UO, including the central administration, found themselves critically questioning strategic regional engagement's long-term impacts in the absence of support mechanisms for leveraging locally relevant activities to create wider research excellence. This tension was further embedded by successive university announcements of its ambition to become 'world class' (rather ambiguously defined) around a number of key scientific areas not all necessarily immediately relevant to regional industry.

Finally, the Ministry of Education decision to force for financial reasons UO to close a number of research stations spread throughout northern Finland and was perceived by

many internal actors as a threat to UO's regional engagement strategy, including members of the central administration. This substantially restricted UO's geographic reach (access to regional constituencies) and local visibility (e.g., the recruitment of local students).

## ANALYSIS

This paper is concerned with how internal university structures affect institutional entrepreneurs' latitude to participate in exogenous institutional entrepreneurship activities (antecedent to PBL addressing specific RIS problems, out-with the present paper's scope). The cases suggest two important contextual features of the empirically observed institutional entrepreneurship: firstly, it was time specific and intrinsically dependent on the distinct characteristics of the RISs in Twente, Tromsø and Oulu. The emergence of institutional entrepreneurship was also linked with historical trajectories of both the universities and the regions in question (cf. Krücken, 2003). The observed processes were also connected to previous historical development processes in the RIS (e.g., decisions in the 1980s around the location of Nokia's mobile phone division and the VTT in Oulu, Finland's national applied technical research centre) and the absence or presence of vestiges of earlier engagement initiatives serving to stimulate institutional entrepreneurs to attempt to engage within the universities. The authors do not downplay this place specificity and note that university structural influence on institutional entrepreneurship is clearly affected by place uniqueness (cf., *inter alia*, Storper, 2009).

Nevertheless, one can identify some common dynamics and tensions arising in these three case studies allowing a more nuanced reflection on how university structures constrain their regionally focused institutional entrepreneurship. Universities engage with RISs when institutional entrepreneurs perceive that there are advantages for core knowledge activities in partnering with newly constructed regional networks (cf. Battilana et al., 2009). The positions held by academics, rectors and senior staff – within both the university and regional coalitions – were important to the ways they were able to create high-level narratives of how regional activities could be aligned with different kinds of university goals (Battilana, 2006). It is necessary here to problematize a simple notion of 'singular university goals' – each university hosted communities with different and even divergent interests and goals. The overall topology of divergent goals within a university was a key source of three forms of tension influencing institutional entrepreneurs' freedom for regional engagement (cf. Table 3).

The first tension was in balancing between excellence and relevance. In Twente, tensions emerged between the university's strategic goals in regional engagement to secure its own survival, and academic decision-making seeking to construct 'excellent' research agendas and research projects. Tromsø as a university had organizational problems offering opportunities to actors who had a very strong regional relevance but also lacked strong global scientific relevance. In Oulu, this excellence-relevance tension was evident

**Table 3.** Key tensions identified across cases.

Tension (institutional dimension)	Twente	Tromsø	Oulu
Between local relevance and global excellence	Limited scope to 'bend' core research activities to address regional needs (a case of regional support for core functions instead)	Engaged units – political scientists – failed to develop scientific excellence Limited local impact of centres of research excellence	Engaged units – engineers – failed to develop scientific excellence Scope of regional research stations (resource allocations)
Between strategic ambitions for the future and current engagement patterns	Emergence of two tiers of engagement activity, with the strategy focused on a very narrow version, overlooking most of the other kinds of engagement	Centralization of strategic decisions (heartland bypassed) but interpreted in ways that engagement was 'nice to have' rather than essential	Centralization of strategic decisions, including major structural changes (managerialism prevails over professionalism)
Between those that benefit and those that are penalized by regional engagement being legitimate	Pure engagement work heavily taxed to subsidized core research activities; real beneficiaries those doing pure research with strong applications	Some fields (natural sciences) capped external funding whereas others (humanities) struggle to find external sponsors	Strong fields like technology/medicine expected to cross-subsidized struggling fields like humanities Entrepreneurial ethos clashes with egalitarian traditions
Between engagement integrated in core tasks and engagement delegated to peripheries and projects	Technology transfer function dependent on the availability of subsidies ('projectization')	Leading academic actors set informal precedent that engagement should not be done at the expense of core (T + R) activities	Changes in curriculum structures aligned with industry needs had negative effects on graduate employability

around legitimacy, articulated in discussions over the desirable length of research projects, between short-term knowledge exploitation for regional needs and the longer-term exploratory knowledge processes in more fundamental research.

A second issue concerned *who* were considered to be legitimate regional partners and *what* happened when regional demands changed. In all three regions, this occurred at different levels, both at the level of what regional 'users' (such as firms) were demanding from universities, but also as a consequence of changing political and policy environments, regionally and nationally. Institutional entrepreneurs in all three universities saw sudden reductions in their freedom to act from wider political changes. But this had knock-on effect in raising doubt, particularly amongst support agents and interaction arrangements, of the benefit claims made by institutional entrepreneurs to justify their external engagement.

A third tension for institutional entrepreneurs was the issue of 'emergent principle-making'; decisions taken for primarily pragmatic reasons very quickly became regarded as matters of principle, forgetting the underlying contingency. All three universities defined their regional engagement 'principles' in terms of previously successful institutional entrepreneurs, often in terms of securing funding aligned with core institutional goals. This fits with analyses describing universities as sites of what Sotarauta (2014) has described as 'emergent' leadership strategy-making (cf. Mintzberg & Rose, 2003), based on learning

processes (Mintzberg & Waters, 1985). However, this emergent principle-making also had a counter-effect of implicitly framing other kinds of institutional entrepreneurship (e.g., around non-transactional informal engagement) as at best irrelevant and at worst incompatible with the core university 'mission' (Benneworth, 2012). In practice these 'alternative' institutional entrepreneurs (perceived as not 'fitting') faced additional inflexibility in their freedom to engage even where their actual engagement activities directly addressed real RIS needs and gaps.

Each tension affected university institutional entrepreneurs opportunities to create 'nodes' within their institutions that could meaningfully contribute to solving RIS problems via exogenous institutional entrepreneurship. The analysis highlights the problems faced by university strategic leaders faced in leading their institutions towards engagement. Because engagement had to be justified in terms of success, successful activities acquired a legitimacy that in turn acquired an institutionalized permanence within the universities: what one Twente interviewee called 'engagement heroes' quickly became seen as enacting best-practice behaviours rather than as opportunistic (and sometimes lucky) entrepreneurs who found one possible pathways to achieve desirable changes.

The cases suggest that institutional change – even when instigated by rather influential groups of RIS actors (such as regional coalitions) – takes a considerable amount of time. This illustrates the persistence and resilience of universities' institutionalized arrangements (Olsen, 2007), and the need

to approach such strategic ambitions (e.g., by policy-makers and university managers alike) for regional-level institutional change from a long-term perspective in terms of the practical endogenous institutional changes within organizations.

This connects one back to the research question about the relationship between institutional structure and PBL. Particular successful behaviours became institutionalized as engagement repertoires within these institutions, shaping future action but also representing potential future lock-ins. In other words, universities' contributions to PBL was influenced by individuals' capacity for institutional entrepreneurship to remake universities' institutional structures (cf. Pinheiro & Stensaker, 2014) to better facilitate regional engagement. It can be inferred that RIS-level changes were not just about producing collective behaviours amongst regional leaders, but about changing the scope that regional organizations provided for their regional institutional entrepreneurs to engage regionally. Within universities, this structural change involved formal change via structures, committees and offices for engagement, but also informally in continually validating and legitimating engagement within the range of knowledge producing and circulating communities. And it is by identifying this circuit of informal structural change that we can answer our research question.

## CONCLUSIONS

The aim in this paper has been to connect the three analyses of institutional entrepreneurship to a broader theoretical discussion to inform PBL debates with an alternative literature to address the PBL agency lacuna. The paper specifically asked whether institutional organizational context affects individuals' capacity to exercise institutional change exogenous to their organizations, and drawing on Table 3, it offered a number of tentative conclusions. Firstly, universities' external engagement in PBL activities appears to be bound up within institutional change processes. At the same time, these processes are themselves subject to external drivers: some originate within the region (e.g., regional actors' expectations, student recruitment), and some without (e.g., international competition for talent and funds). Universities' institutional structures reflect ongoing attempts to address these tensions, but at the same time those structures can create contradictory pressures for engagement restricting on institutional entrepreneurs' autonomy. This provides this paper's contribution to the PBL literature – these contradictory pressures emerging from institutional structure have important consequences for PBL processes (cf. Sotarauta, 2014). In particular, it makes clear how one organizational type's (universities') contributions to regional collective leadership processes are clearly embedded within a wider set of stakeholder networks; these wider stakeholder networks also drive institutionalization processes, in turn shaping institutional entrepreneurs' latitude to engage.

Secondly, the cases show that universities' motivations to engage in place-based initiatives are manifold and

complex, reflecting qualitatively different kinds of actors interests (that are stylized here as 'leaders', 'support agents' and 'knowledge agents'). Actors are not exclusively motivated by the desire to create a formal engagement mission within universities, but also to generate external funding, to maximize their spans of academic freedom and to create 'modern' university administrative structures. There is also a clear epistemic cleavage between academics engaged in regional development processes versus non-engaged academics (a class includes those both unwilling or unable to engage, as well as those willing but not currently engaged). This cleavage emerges via knowledge creation as well as institutional legitimation processes, and its dynamic represents an important influence on institutional entrepreneurs' engagement freedom. That effective exercise of PBL by universities appears to depend upon involve facilitating engagement by linking key internal actors (Beer & Clower, 2014) that simultaneously fits with stakeholders' needs and expectations.

Thirdly, reflecting the paper's earlier stated desire to move beyond the 'happy family stories', the cases suggest that active regional engagement can resolve existing internal tensions both within the university (e.g., scarcity of funding and the quest for external legitimacy or support) and without (e.g., regional needs to diversify/smart specialization). Yet, these engagements simultaneously create new activities and behaviours that function as entanglements, thus further complicating universities' already complex organizational context (Krücken, Kosmützky, & Torke, 2007). This creates new internal tensions and rigidities that may work against universities' formal-strategic place PBL initiatives. The finding that today's successful regional mobilizations forms the basis for tomorrow's negative institutional lock-in affects not just universities and clearly deserves further reflection in the PBL literature.

The analysis identified that universities' specific organizational contexts as both structures and institutions (formal and informal rules) shape how university actors can exercise institutional entrepreneurship to improve their contribution to collective activities seeking to facilitate regional development and innovation. The paper highlights a number of elements with an apparent more general salience for PBL research. Firstly, professional organizations like universities (but also hospitals, schools, etc.) create institutional barriers to traditional top-down decision-making associated with classic conceptions of organizational leadership (cf. Selznick, 1984). Secondly, in contrast to firms and bureaucratic organizational forms (such as government agencies) hierarchical relations are less pronounced within universities, but other hierarchies (such as hierarchies of legitimacy between different disciplines) do have a material impact on universities' capacities to contribute to PBL processes. Thirdly, concepts of shared leadership (Pearce & Conger, 2003) are particularly relevant in a university context, in particular capacities that exogenous regional actors have to legitimate university institutional entrepreneurs within their own institutions, thereby allowing institutional entrepreneurs more freedom to engage regionally.

This suggests that understanding how regional co-mobilizations create institutional change within regional organizations is critical to articulate properly how PBL functions across a range of institutions: not only universities, but also firms, local government and societal organizations. This demands better understanding – theoretically and empirically – about how regional actors’ needs, perceptions and legitimacy fit together not only locally but also within regional actors’ wider stakeholder networks. Given the importance of the emergent nature of PBL theories (Sotarauta, 2014), there is a risk that analyses focus overly on *process* at the expense of the *content* and *dynamics* of activities (how the interplay of tensions changes organizational internal structures and creates new regional collective institutions). Therefore, it is contended that more concern for and analysis of these key dimensions are critical for understanding and delivering outcomes to contribute better to regional institutional thickness, social capital and, ultimately, improved economic development trajectories.

## ACKNOWLEDGEMENTS

The authors would like to acknowledge the support of the special issue editors, most notably Markku Sotarauta, and the work of three anonymous referees for their comments on multiple earlier drafts of this paper. They also thank the respondents for the antecedent pieces of research that fed into this study. Any errors or omissions remain the author’s responsibility.

## DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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