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Postprint

This is the accepted version of a paper published in *European Planning Studies*. This paper has been peer-reviewed but does not include the final publisher proof-corrections or journal pagination.

Citation for the original published paper (version of record):

Kautonen, M., Pugh, R., Raunio, M. (2017)

Transformation of regional innovation policies: from 'traditional' to 'next generation' models of incubation

European Planning Studies, 25(4): 620-637

<https://doi.org/10.1080/09654313.2017.1281228>

Access to the published version may require subscription.

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Permanent link to this version:

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Transformation of regional innovation policies: from “traditional” to “next generation” models of incubation

Mika Kautonen^{1,*}, Rhiannon Pugh² & Mika Raunio¹

¹ Research Centre for Knowledge, Science, Technology and Innovation Studies [TaSTI],
School of Social Sciences and Humanities, University of Tampere, Finland

² Department of Social and Economic Geography, Uppsala University, Sweden

* Corresponding author: mika.kautonen@uta.fi

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Abstract. This paper explores a widely-employed instrument of regional innovation policy: the innovation incubator. It proposes that incubation approaches are moving away from a “traditional” approach strongly premised of physical infrastructure and high-technology, to a more interactive, participatory, and social mode of innovation, in line with broader developments in innovation policy and theory. To practically illustrate this shift, we take two cases: a “traditional” style of incubation in Wales, UK, and a “next generation” incubation programme in Finland. This paper reflects on incubators as a mode of regional innovation policy, both past developments and future trends, to ensure that new policies and programmes learn from best (and indeed, worst) practice and build on, rather than replicate, past approaches.

1. Introduction¹

Current trends in regional innovation policy include the move towards “smart specialisation” as the guiding rationale for all European regions (European Commission, 2013; McCann and Ortega-Argilés, 2014) and the research and innovation agenda being structured around a series of grand societal challenges. Theory and practice are orienting towards social, inclusive, green, and responsible modes of innovation. This new value base has important implications for policy measures. We focus on one particular type of regional innovation policy that has been widely implemented across Europe- the innovation incubator, considering what the implications of these evolving policy trends are on this particular intervention.

Incubators remain an important element of the suite of regional innovation policy deployed by governments across Europe. However, the history of incubation approaches displays varying levels of success. Past incubation efforts have been focused on a narrow elite of innovators, and a science- and technology-based understanding of what innovation is and how it occurs. This has resulted in the proliferation of “cathedrals in the desert”, underused by local populations, and an extremely costly way of providing innovation support, especially in so-called “less favoured regions” (cf. Bennewroth and Charles, 2005). Instead, a more interactive and community-based approach to incubation is suggested that is more focused on individuals as

¹ We wish to express our gratitude for the two anonymous reviewers. The usual disclaimer applies.

innovators, and is responsive to local needs and capabilities. This is more in line with developments at the European level towards a more social, interactive, and sustainable mode of innovation policy.

Two examples of incubation are presented here, which will illustrate the argument for a shift in the approach away from the “traditional” to a “next generation” of incubators. As such, the overall aim of this paper is to provide some insights and lessons for best practice to appeal to both academics and policy-makers, and to set the scene for further investigation of these emerging policy trends. The first case study presented is the large and ambitious, yet not particularly successful Technium program from Wales, which highlights many of the problems encountered with the traditional top-down approach to incubation as innovation policy. The “New Factory” platforms of Finland show some evidence of successful implementation of a new perspective. In theoretical terms, this paper supports a move away from a very science-centred approach towards a more systemic and community-focused premise of innovation support. It calls for innovation policy which is carefully embedded in local context and community, and builds this into its design rather than taking a context-blind “one-size-fits-all” approach. The emerging policy tool of an innovation platform, as a space for co-production processes enabling a wider community participation into innovation processes, is recommended as a way forward.

This paper is structured as follows. Firstly, we situate our discussion within the literature on innovation policy, regional economic development, and the presence of incubators therein, and what we envisage as the new perspectives currently taking form. This is followed by an introduction to the two illustrative case studies around which our discussion is centred, and a discussion of the methodology employed to access these. The cases are drawn together to produce some key insights and to assist us in theorizing the shift from traditional to next generation incubation. A policy-oriented discussion follows, highlighting the perceived benefits for regional economic development of the new mode of incubation, but warns of some of the pitfalls of replicating past approaches. Finally, the examination of innovation incubator programmes is linked back to the wider trends in European innovation policy. If we can understand what leads to more effective innovation policy, regional governments could better channel their efforts and resources, and situate themselves at the vanguard of contemporary innovation policy approaches that work for the residents of all regions, beyond a narrow innovation elite.

2. Theoretical Foundations: “Cathedrals” to “communities”

Policy-makers worldwide have come to realize that regional policies for research and innovation are “absolutely necessary in the current international economic scenario” (Piccaluga, 2006, p. 273). A great deal of those policies have been created in a top-down fashion, imitating good practices from the outside without carefully considering the context at hand (c.f. Melançon and Doloreux, 2013), taking a “one-size-fits-all” approach (Martin and Sunley, 2003; Tödtling and Trippl, 2005). Often they fail to sufficiently consider the local contexts and capabilities that would make those policies functional. In contrast, the next generation of innovation policies will involve the various stakeholders and institutions of the region (such as government, universities, entrepreneurs, students, community groups) in the design, governance, and use of innovation supports. We conceptualise this move theoretically as being from a STI (science–technology–innovation) to a DUI (doing–using–interacting) mode of innovation in line with Jensen et al. (2007), and feeding into the identified “grand challenges” at the European level (European Commission, 2010).

2.1. *Existing Theories*

There has been a strong interest in the role of scientific research, and in particular universities, in driving innovation in the knowledge economy, and as such a number of policies and programmes have been implemented to maximize this (Audretsch et al., 2013; Godin and Gingras, 2000; Feldman and Desrochers, 2003; Huggins et al., 2008). For example, there has been a strong push worldwide to create incubators and science parks to capture the benefits of spin-outs and technology transfer (Vedovello, 1997; Massey and Wield, 2003; Etzkowitz et al., 2005; Abbey et al., 2008; Totterman and Sten, 2005). This is premised on a knowledge-intensive and high-tech understanding of innovation and is usually based on a small set of exceptional examples such as MIT and Stanford in the US, and Cambridge, Grenoble, Oulu, and Linköping in Europe (Cooke, 2004; c.f. Casper and Karamanos, 2003; Longhi, 1999). However, studies have found a variable success of these strategies. Whereas some science parks and incubators are held up as examples of successful innovation interventions, there are also critical arguments on the proliferation of these approaches across Europe, describing the physical presence of science parks and incubators in weaker regions as “cathedrals in the desert” (e.g. Cooke and Morgan, 1992; Morgan, 1997; Benneworth & Pinheiro, 2015). As Benneworth and Charles (2005) assert, it is unreasonable to assume that university spin offs (and related activities) will bring the benefits to less successful regions that they have in Silicon Valley.

Prominent at both an academic and policy level has been the idea of the “triple helix” (Etzkowitz and Leydesdorff, 2000), with incubators often cited as a tangible example of this in action (Etzkowitz and Ranga, 2010). Also influential has been the innovation systems (IS) school, which explores the interlinkages between various actors partaking in innovation activities, and conceptualizes innovation as a non-linear and context dependent phenomenon (e.g. Lundvall, 1992). Of the different IS variants, the regional innovation systems (RIS) approach is particularly valuable as a conceptual framework for this paper (Asheim and Isaksen, 1997; Morgan and Nauwelaers, 1999; Cooke, 2004).

However, these approaches lack a firm grip on the more micro-level dynamics; they do not convincingly outline how these dynamics begin to work in favour of knowledge-driven regional development. Increasingly more focus has been put on more individual-level dynamics; for example on trans-national entrepreneurship or the mobility of individuals energizing innovative behavior in a certain location. Literature on networks and entrepreneurship have studied individuals’ attitudes and behaviour towards processes of discovering and exploiting new opportunities, and those contexts where these may take place (e.g. Sarasvathy and Venkataraman, 2011). The creative class thesis (Florida, 2002) has put emphasis on individuals but has done so by ignoring micro-level mechanisms that may further enable potential innovators to unleash their creativity.

Drawing on this wide theoretical base, we can suggest that the best approach is one that maximizes the positive impact of universities and science-based knowledge to the regional economy, but which also looks beyond this fairly narrow base to include the wider regional system of innovation, including virtually all residents of the region. Those studies that do consider the people in the region tend to be “elite-focused” looking at scientists, researchers, venture capitalists etc. Thus, there is not much focus on the “normal” residents of a region (especially a weaker and peripheral region) in neither policy nor research, and how they can access and enact innovation. By making innovation policy more inclusive, there is potential to address structural and societal problems (such as unemployment and productivity) facilitating solutions to the perceived “grand challenges” facing Europe at the current time (see e.g. Vienna Declaration 2011).

2.2 *New perspectives*

The theoretical models proposed to explain and study regional innovation, and also proposed as policy blueprints, have generally taken a narrow perspective on innovation, and may not be appropriate looking forwards into a policy sphere that is increasingly widening and trying to deal with the tricky problems facing economies and societies across Europe. Although an emerging field, there exist important contributions that concentrate on, for example, innovation platforms or issues such as incentives and encouraging milieus favourable for innovation, to which the following section turns.

An emerging innovation policy concept currently gaining momentum across Europe is that of the “innovation platform”: combining the more traditional linear and science-driven approach to innovation, which includes incubators and efforts to drive innovation through universities and research, to a more locally contextualized and inclusive outlook that is tied to the locality or region. Our conceptualisation emphasizes a bottom-up perspective, instead of a more policy-led view of, for example, Cooke & de Laurentis (2010), Cooke (2012) and Asheim et al. (2011). Harmaakorpi and colleagues (Harmaakorpi 2006; Uotila et al. 2012), on the other hand, have approached platforms as kind of a method to solve practical problems in innovative ways, with the participation of researchers and other specialists. So far, innovation policies have benefitted from academic research in terms of outlining some of the key elements and institutions and interactions between them necessary for innovations to occur. However, theoretical models and approaches deployed have been of rather top-down fashion, despite all of their merits. Due to these characteristics, not enough attention has been paid to micro- and individual-level drivers and motivations; it has been frequently assumed that presence of the key elements of innovation system (clusters, science parks, technology transfer schemes etc.) is enough to foster the innovation processes.

Only recently, some approaches have paid attention to the question: what motivates people to innovate? Innovation activities are not “business as usual” but require individuals to become inspired (Moulaert et al., 2007). Traditionally, a motivation for an innovator has been mostly viewed as financial; for example, in science parks, techno-entrepreneurs have innovated in order to reap the financial benefits later if their businesses will succeed. However, this is increasingly seen to be too limited an understanding. Von Hippel (1998, 2005), for example, has noted that some users of a certain technology or product have been active in developing those because of other motivations (usability, new functions etc.). Within the open source software movement (Raymond, 1999), a grassroots engagement has taken place with a large number of specialists around the world, often as unpaid, voluntary inputs to generate code. The open innovation concept, popularized by Chesbrough, (2003), was originally about large corporations and their management of innovation; today, the concept has been broadened to include other types of actors and motivations (e.g. Perkman & Walsh, 2007). As such, Prahalad and Ramaswamy (2000) emphasise processes of co-creation in customer engagement and collaboration. For example, crowdsourcing attempts to generate ideas, content or services from a large number of people in online communities (Brabham 2008); crowd-funding introduces an interesting perspective on individuals becoming investors of innovations (Ordanini et al., 2011).

Within economic geography, an interesting body of work is that of the “relational turn”, which sees economic and social factors as fundamentally intertwined and impossible to separate if we are to understand processes of regional and national development. Bathelt and Glückler (2011) provide an overview of this approach, which takes into account the contextual nature of knowledge, views processes of knowledge creation as cumulative and evolutionary, and conceptualises decision-making as a result of networks of social and institutional

relations within which firms and individuals as agents operate. What is particularly interesting to us about this school of thought is the strong focus on micro-level factors (i.e. at the level of local specificities) and also the emphasis on shifting policy from a problem-solving mode to a more pro-active design of regional policy (Bathelt & Glückler, 2011). We see innovation platforms as fitting well into this agenda due to their more pro-active mode of policymaking, focus on micro level local specificities, including pre-existing strengths and needs of the region, and the incorporation of local networks into the design and delivery of the policy.

We consider these perspectives particularly important in certain regional contexts. For example, in cases where former industrialized cities have faced economic downturn, people may become motivated to innovate to secure their livelihoods or to invent new jobs, not primarily to become rich. In considering a more inclusive innovation perspective, we may learn from the literature that deals with “necessity entrepreneurship” (Block & Wagner 2010). However, this has a somewhat negative tone depicting innovators struggling whereas there is also evidence (e.g. *ibid.*) of people fulfilling themselves by innovating new solutions, products and applications. Certainly, there is a small but growing recognition of the broader role of innovation policy in places facing “hard times” (Benner, 2012), or “follower regions” (Almeida et al, 2011) and the like. There have been moves towards incorporating wider views on innovation into regional innovation policy design, such as Guth's (2005) efforts to reorient Porter's competitiveness diamond to account for a more socially inclusive perspective.

Nowadays, innovation activities are usual for a much larger number of people in much more varied contexts than used to be considered (see e.g. Grimm et al., 2013). It seems to be also politically viable to enable people to innovate, to increase their ability to navigate in increasingly insecure labour markets or to facilitate their efforts to generate new forms of services (Needham, 2007). All this means that the rationale of regional innovation policy needs re-thinking. We argue that the innovation platform approach is useful for this as it puts emphasis on the actual micro-level context mostly from the bottom-up perspective, but also by combining a more top-down conceptualization that involves direction and strong governance and the involvement of regional institutions such as universities and government. Nevertheless, it has so far been a somewhat theoretically “fuzzy” concept (c.f. Markusen, 2003) without a strictly defined content and thus insufficient to advise policy-making.

Our attempts to conceptualise a local innovation platform (as a broadly conceived incubator) is that such a phenomenon attempts to contribute to a broad range of innovation activities, often including social innovations, and is inclusive, engaging a wide variety of participants that have not traditionally been involved. It is accessible for individuals and small groups to explore and exploit their new ideas – providing them with the space but also the networking opportunities and the “softer” support to get their ideas off the ground. A local innovation platform is often enhancing its participants' innovation capabilities, thus enriching regional innovation culture. We preliminary define a local innovation platform as a space for facilitation of co-creation processes that enables various third parties, in addition to producers and users, to participate in innovation processes, usually with support of a peer-to-peer community.

3. Methods and Data

The paper will deploy a case study methodology in a form of two cases that illustrate the shift from a “traditional” to “next generation” mode of incubation, towards an innovation platform conceptualisation. This paper is not set up as a comparative case study per se, but as an explo-

ration of “real world” regional innovation phenomena as illustrated by two European case studies. The two programmes selected have similar underpinning rationales and motivations, but have been designed and implemented in quite different manners, and have experienced different trajectories and results. This investigation draws on various sources of qualitative data to build up the stories of the two interventions, in the two regions. Innovation is a geographically and historically determined phenomenon (Storper, 2011; Mackinnon et. al., 2007), and so a methodological approach that takes account of these factors was deemed necessary. The case study approach was chosen because it allows us to draw out some interesting lessons about theory and policy that could be of use to academics and policymakers in different regional settings (Stake, 2000; Yin, 2003; Simons, 2009).

A mix of qualitative methods were deemed the most appropriate to gather the information needed to address the theme of this study. Also, the access to key individuals and organisations meant that an in-depth qualitative approach was indeed possible. Qualitative research is widely seen to be appropriate when answering research questions relating to the “how” and “why”, and also for building theory inductively (Bansal and Corley, 2012; Yin, 1994, 1). In particular, case studies are considered appropriate to “help sharpen existing theory by pointing to gaps and beginning to fill them” (Siggelkow, 2007, p. 21). Meanwhile, we recognise that single cases such as these cannot prove a theory, but can identify violations (Siggelkow, 2007) and begin to “fill in the blanks”. The case study method has met with a number of criticisms such as a lack of statistical validity and generalizability to a larger population (Eisenhardt and Graebner, 2007; Siggelkow, 2007). However, the concern with this study was for understanding rather than testing. Thus the strengths of the case study approach outweighed its weaknesses. For a convincing defence of the case study methodology Eisenhardt and Graebner (2007) is called forward.

Our main sources for data collection were interviews, observations (participatory and non-participatory) and documentary evidence. Interviews (68) were conducted in a semi-structured manner with key actors in both regions from government, industry, academia, and intermediary spheres, with a roughly equal balance from each. Pro-formas were prepared for each different group, along similar lines but with slightly different foci depending on the knowledge and expertise of the person being interviewed. They followed a basic structure of: introductory questions for the “expert” being interviewed and their involvement in policy; what innovation support in the region looks like from their perspective; what has worked well or not and why; future directions for innovation policy. As such, personal experiences of innovation policy were accessed and we also gathered a wider range of evaluations of the policies implemented.

Observations were carried out of programme meetings and events by the researchers, and these insights similarly feed into the analysis. Documentary evidence is in the form of policy documents, monitoring documents, and reports associated with the programmes. Raw data was gathered together, reduced and condensed before being sorted into descriptive categories and potential themes, patterns and commonalities, which fitted with the core interests of the research (cf. McKeever et al, 2014). We looked for the links, emerging patterns and connections in the data, and all data was searched for patterns or themes relating to our interests. An identified theme became a distinct category when we were able to define it descriptively in such a way that we could distinguish it clearly. Descriptive categories were then synthesized into analytical categories with the intention of seeking out patterns across our data that when brought together helped to explain things (Bansal and Corley, 2012). We used software (Nvivo) to help us to manage and identify the themes and categories we were working with, and to help us with the practicalities of working with such a large qualitative data set. As such, through the empirical outcomes and theoretical elaboration, we aim to add value to policy

development in the field of regional innovation. The timescales of the two case studies are different, the Technium program in Wales was launched in 2001 and continues to run, but the New Factory in Finland was implemented from 2008 onwards. Before the analysis of the two cases is provided, some background context is useful to situate the study and its insights.

4. Examining two case studies of regional innovation policy through incubation approaches

This paper is not set-up as a comparison of regional performance; the different policy approaches to incubation undertaken in the regions are of particular interest here. However, some background information on the two countries is useful for situating the discussion. Both are fairly peripheral in the European sense, with small populations and a combination of city and rural settings (see Appendix 1). Whilst there is some difference in the relative economic strength of Finland compared to Wales, this can enable interesting discussions about regional innovation policy and economic development in divergent economic contexts. The selection of these two case studies was primarily based on the interesting comparisons that can be made between the two programmes, which have a similar foundation of stimulating innovation through variations of the incubator approach but have somewhat divergent experiences and illustrate the theoretical shifts in innovation policy that have been described in the literature.

4.1 Technium Programme, Wales

Wales is one of the four “home nations” of the UK, alongside Scotland, England, and Northern Ireland. It has a degree of self-governance; innovation and economic development is addressed by the Welsh Government and Assembly. It is important to recognize Wales as a weaker region, which receives the highest level of Structural Funds from Europe, and sitting at the bottom of UK regional competitiveness tables (Huggins and Thompson, 2010). The Welsh approach to innovation policy and programs over the last fifteen years has been studied at length, and there is one particular program that has dominated the innovation agenda: the Technium program.

The Techniums are quite traditional incubators, providing state-of-the-art space for high-tech firms to commercialise research into economic growth; they are especially aimed at university spin-offs and high-tech firms, and the programme began its life as an alliance between the universities and the government. The rationale was that the universities have expertise in intellectual property (IP), and the Welsh Government in physical property and business support; it was designed as a combination of these elements. The Technium programme aimed to address some of the fundamental problems in the Welsh innovation infrastructure. The programme began in 2001 with the initial incubator in Swansea, and was then rolled out across Wales to ten different centres, but this has recently been cut back to four because of perceived failures and high costs of the programme.

There are a number of problems with the programme already identified, which illustrate some of the draw-backs of the traditional mode of incubation. In the roll-out and delivery of the programme nationally, the “softer” elements of innovation, and the links to local universities and communities were lost, reducing the Techniums to straightforward physical incubators (Cooke and Clifton, 2005). Morgan, (2012, p. 16) expresses his surprise that there has been no public inquest into the “failure of an experiment that cost around £111 million”. Cooke et al.

(2003, p. 19) does not see the Techniums as innovative, and are simply properties leasing space. As one economic policy-maker put it: “[Techniums] weren’t proper innovation centres”. Another issue was the over-ambitious nature of the scheme and the fact it was rapidly expanded to ten centres across Wales based on the success of the first Technium. Little rationale has been found for the roll out of the scheme (DTZ, 2010), and stakeholders highlighted the problems with trying to replicate the success of one case:

“We’ve had tendency in Wales if something works well once then it will work ten times better if we have ten times as many, and it appears unfortunately that wasn’t the case” (Innovation Policy-maker).

The scheme was overambitious because it assumed that over 400 incubator spaces could be filled, which turned out not to be the case (Cooke and Clifton, 2005). As a result, occupancy rates were very low, only 4% in the Pembrokeshire Technium (DTZ, 2010). This resulted in very high costs per job of £190, 000. More general problems such as a lack of specific objectives and rationales, and the lack of evaluation and monitoring of the programme have also been underlined (DTZ, 2010). One of the founders of the programme explained that *“poor leadership and failure by universities to buy into the scheme stymied its chances”*. The following quote summarises the feelings towards the programme:

“I think the Technium network is not one of the greatest examples of what we have to show to the world” (Professor of Enterprise).

In summary, the Welsh Government’s most significant innovation project since its birth in 1999 has been reviewed by researchers and key stakeholders as unsuccessful, and is widely seen to have been a waste of money that can hardly be afforded in a weaker region such as Wales. There were a number of fundamental problems in the delivery and roll-out of the programme which led to it being little more than a traditional property-based incubator approach. However, as one points out, this experience is far from specific to the Wales case study: *“Wales is not alone in this. If you go around Europe there are many of these examples of effectively white elephants” (Professor of Economic Geography).*

4.2 New Factory, Finland

Finland, on the other hand, has gained a reputation for its national innovation system and yet, after Nokia’s crisis, the country has seemed somewhat vulnerable to global economic restructuring (see e.g. Financial Times, September 7/8, 2013, 5). Whilst the Finnish economy is stronger than that of Wales, it could be facing similar issues that Wales has dealt with in the past as much hope has been attached to a large cohort of small, knowledge-based growth-oriented companies that have emerged in a wake of Nokia. However, it is too early to say how the national economy will cope with its recent challenges.

Similarly to the Technium the New Factory programme is being rolled out in several locations. The Tampere New Factory has started to see positive metrics (e.g. more than 140 start-ups), and has been praised by the European policymaking community for its new and innovative approach. The origins of the programme are thus: the region headed by the City of Tampere has explored and experienced regional innovation policies already from the beginning of 1990s with many policy successes as well as failures (Sotarauta & Kautonen, 2007; Kostiaainen & Sotarauta 2003). After a swathe of dealings with science parks, “traditional” incubators, university–industry technology transfer schemes and cluster programs, some local policy-makers came up with a new model:

“We wanted agile and open processes that would not alienate people but would be inspiring and would target the real problems the companies and other organizations face” (Innovation Policy-maker).

The New Factory (NF) is a key part of a local innovation program, Open Tampere, which was launched first as a pilot in 2010 and then as a large-scale program from 2012 to 2018. This program aims at fostering the new growth of firms and international businesses, and at promoting a continuous innovation-based transformation of the traditional industries. It also involves stakeholders such as students and heterogeneous local communities in different ways. In this sense it is taking a wider and inclusive stance on incubation. NF is located in an old cotton factory building constructed in 1837. Virtually no funding at all is spent on the premises except for the rents (see <http://www.newfactory.fi/> for more detail).

The New Factory takes a network-based structure to incubation by combining several incubators, which have their own functions and target groups (including students, unemployed, private firms, entrepreneurs, and business services) but work towards the same goal of creating new businesses through open innovation processes. Common to each is an attempt to operate on principles characterized as *“customer focused, down-to-earth, agile, cost-efficient and effective”* (Innovation Policy-maker).

Behind the New Factory, there are several actors including the three universities located in the city. The NF is designed to be more open and relevant to the local community than the traditional innovation environments. A fundamental idea behind the early success of NF is that it has attempted to create a ‘community spirit’ among the participants, fuelled by people’s motivations. It has had some early successes, and has been heralded a promising direction for regional innovation policy to be moving in, for example receiving the Assembly of European Regions’ European Innovation Award in 2010 and the Baltic Sea Region Innovation Award in 2012. New Factory is promoted as one of the key national examples of new open innovation paradigm by the national government. Consequently, the Demola network, for instance, has already spread into 10 other cities, in eight other countries, from Tampere.

However, there are some challenges for the New Factory, mostly based on project-funding (of which 60 % from public sources); continuation in the future is to some extent uncertain. Another future issue of NF is, although the numbers of participant firms and people are impressive, how to achieve a wider regional economic impact due to a considerable regional economic structural change taking place which sets a heavy future expectation for the programme. Despite challenges, we suggest that this “new generation” approach, when compared to the more “traditional” one seen in Wales, could hold more promise for regional policy makers especially in challenging regions.

4.3 Cross-Case Comparison

From the analysis, we recognized key differences (and indeed similarities) between the “new” and “traditional” approaches that can elucidate some key learnings for both policy and theory.

Table 1. about here

It is important to emphasise the similarities between the two programmes; the principles of incubation remain. Both are underpinned by the same rationale of providing the space and

support for innovation activities to take place. Both are premised on the assumption that encouraging indigenous innovation, as opposed to importing or transplanting innovation from elsewhere along the lines of inward investment, can help drive regional economic growth. Another similarity is the focus on universities as sources of ideas and human capital. However, key variations in the two programmes are identified, allowing us to draw out the differences between the traditional and new approaches to incubation.

A clear difference is the top-down nature of the Technium programme, compared to the more bottom-up approach taken by the New Factory, which is much more community premised. In the Technium programme, the Welsh Government attempted to emulate the successes of the original centre by transplanting the approach in a top-down fashion. The links between local needs and supply of infrastructure and services became disconnected, and the rationale for the programme was lost. The New Factory, in contrast, takes a more locally-based approach to economic development, concentrating more on the local needs.

The conceptualization of the nature and process of innovation that both programmes take is somewhat different. For New Factory, the key starting point is innovation project work whereas in Techniums, physical spaces were first set up assuming that co-location would stimulate innovation, which is quite typical for the traditional approach. In stimulating innovation activities from the ground-up, the New Factory avoided the problem of a lack of business demand for innovation services in the area. Having already pump-primed innovators in the local area, it ensured a lively and fruitful environment within which to situate an incubator; the “local buzz” was already created. The New Factory programme has shown a greater appreciation of innovation as a participatory and interactive process that can come from anywhere, whereas the Technium was quite linearly focused on spin-outs and high-tech innovation.

The traditional incubator approach is premised on providing the space for innovative high-growth companies to set up, usually in association with a university or research institution of some sort. A major problem with this is that the softer elements of innovation support can be ignored; in Wales the centres descended into purely physical manifestations. In contrast, the New Factory has successfully established a supportive network-based environment where the people are more important than the physical property. There are many measures taken to ensure the programme retains its status as a more-than-incubator including networking events, training, showcases *et cetera*. These other activities also existed at the outset of the Technium programme, providing a lesson as to how priorities can change and elements of a programme can get eventually lost.

5. Policy Recommendations

Through studying both policy successes and failures, this paper argues, we can increase both the theoretical insights and policy recommendations. In essence, we can learn as much from mistakes as we can from successes. The Technium case provides us with some lessons about the problems of traditional modes of incubation, especially in weaker region contexts whereas the Finnish case is illustrative of the combination of incubation strategies with local capabilities relevant to the local context; the combination of borrowing good ideas from elsewhere whilst also taking a “bottom-up” approach to policymaking is recognized as the ideal.

We suggest that the “next generation” style of incubation could provide a more promising approach for regional innovation policy-makers, especially for those in the non-exceptional

regional context with less resources. The people-centred elements of the new approach could lead to a more inclusive and transformative programme. The approach to innovation increasingly advocated in Europe is more participatory, democratic and community-focused, going beyond the linear understanding of innovation to one that is interactive and evolutionary. This people-focused approach is much more in line with current thinking around “Grand Challenges” and the transformative potential of innovation. Especially in regions that are suffering from unemployment and slow growth we suggest that this mode could be especially useful. A mode of innovation policy that is more entrepreneurial and bottom-up in focus can allow regional policymakers to work with what they already have, empowering local populations to innovate and take control of their economic futures. We suggest the new incubation model, more akin to an innovation platform, as a means of instilling this approach at the regional level, as part of a broader innovation and economic development strategy. The lesson of the Technium serves to remind us of the importance of retaining the “people” and “community” elements because when these became lost, the programme failed.

An important lesson that the New Factory teaches us is the benefit of a regeneration-based approach to incubators, rather than a construction-based approach. Of course this insight is very much context dependent, and assumes that there is available and appropriate ex-industrial building stock to be developed, but the wider benefits of this approach, beyond that of saving money, are clearly visible to residents and visitors (whilst recognising that regeneration is hardly an a-political or uncontested process). As well as providing the economic benefits to the companies, entrepreneurs, and researchers involved, the programme is providing a wider service to the city and its residents by re-generating and injecting “local buzz” into the area. There is a wider benefit that well designed approaches can bring to the region rather than creating “Cathedrals in the Desert” which suck in huge amounts of money and provide little benefit to and are rarely used by local populations. In Wales, whilst many of the buildings look impressive, they are not contributing to improving the local urban environment or providing any services or access to local people. This contrast shows how important generating an innovation community is, and that developing hard infrastructure is not sufficient to generate that buzz. It must be complemented by activities and efforts to build a strong innovation ecosystem.

The difference in resources could be an important factor behind the progression of the programmes: due to the Convergence funding in Wales, there was a large financial resource available to develop the programme. This is in contrast to the New Factory, which was necessarily much more constrained and perhaps, paradoxically, this may have led to it being a more bottom-up and community-focused intervention, engaging a small local network of representatives from business and regional development agencies and universities. This differs greatly from the abundantly funded programme in Wales, which was delivered by the central funding agency on a much larger scale with relatively little local engagement. It is important that the New Factory programme retains this local connection, and that its successes at the local level do not lead to a locality-blind replication as was the case with the Technium. There are concerns that the mistakes of the Technium experience may be repeated in the case of New Factory as it expands into new countries and regions.

6. Conclusion: Theorising the transition from “traditional” to “next generation” innovation policy

We now turn to the main characteristics that can be seen to illustrate the transition from a “traditional” to “next generation” style of innovation policy currently taking shape across Europe. There must be some caution exercised when drawing these conclusions due to the somewhat limited and heterogeneous nature of the two regional case studies. The situation is not so simple to be able to say that one approach is successful and another is not, and the two programmes are functioning in different geographical, political, and historical contexts, with their own institutional regimes.

We have drawn out some of the key transitions in the move from a “traditional” to “new” model of incubation, and extend these to illustrate the key developments noticed in approaches to regional innovation policy:

- 1) The top-down mode of policy implementation gives way to a more bottom-up conceptualisation.
- 2) The understanding of innovation shifts from a science and technology-based one to one premised on social and interactive innovation as well.
- 3) The focus shifts from physical space for innovation to people as innovators.

These key points have allowed us to theorise the traditional and next generation innovation policy, producing a table of key aspects (Table 2) that illustrate the difference between the two.

Table 2. about here

Through the prism of one particular type of policy intervention much employed across Europe – the innovation incubator – this paper attempts to conceptualise the shifts taking place in regional innovation policy more generally. Through examining the transition from “traditional” to “modern” modes of incubation, we suggest that the next generation model of regional innovation policy is more in line with contemporary thinking about innovation processes, moving away from purely science and technology to a doing-using-interacting mode following Jensen et al. (2007). Participation in innovation activities is expanding, and innovation policy is increasingly expected to be able to deal with social as well as economic problems. Instead of overinvestments in heavy innovation infrastructure, economic growth and well-being in mature knowledge economies might be successfully generated by many non-financial incentives for individuals to use their creativity and skills. Consequently, we also have to reframe and broaden the policy approach, as well as the research agenda of innovation studies.

In an increasingly nuanced, sophisticated, and individual-based understanding of innovation processes, policies that aim to replicate best practice and create a similar model right across Europe, as the old incubators used to do, look increasingly inappropriate. Instead, we need a model that is flexible and open to local circumstances, allowing policy-makers to build on what they have already got and create solutions well-tailored to their local approaches, conceptualized in the literature as “cherry picking” and getting the “policy mix” (Flanagan et al., 2011; Laranja et al., 2008). Further, the focus of policies, at the level of individuals rather

than of macro-structures and groups of institutions, should be more carefully designed. This requires more understanding of the local needs, as well as capabilities to apply policy tools in specific contexts. The role of national (and supranational) policy has to give room for the more regionalised and local approaches. For instance, the next generation incubator is a much more flexible, local, and less prescriptive approach than the traditional one. We underline the innovation incubator here, recognizing that it is only one possible element within the suite of regional innovation policy tools; similar investigation into the emerging models of other types of interventions is an important further step for this research agenda.

The local innovation platform approach is suggested as a more-than-incubator approach to regional economic development and is certainly looking to be a promising and positive style of innovation programme. However, we are not suggesting that it be transplanted wholesale in a one-size-fits-all manner to other regional locations. Indeed, the positive aspects of the approach – its bottom-up nature and community-focus – are unique and context dependent. We advocate a continued concentration on the local context and capabilities and needs as these “new” more interactive and community-based forms of incubation are rolled out, and that they do not fall into the old trap of replicating past successes in a place-blind manner. In a similar vein, we suggest that new innovation policy approaches including incubation as a key action should retain the positive elements from the past approaches, such as the potential to harness the potential of universities and innovation actors, and the possibility of regenerating and revitalizing lagging regions. A more nuanced approach which is focused both on the physical and social elements of innovation policy is required, which involves as many of the residents and communities of a region as possible, in order to broaden the sphere of innovation and affect as wider socio-economic development as possible.

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Appendix 1.