Policy Programmes to Promote Entrepreneurship and Innovation:  
A Study of the State of the Art, Design and Impact Issues

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In the Europe–2020 strategy European Union puts forward three mutually reinforcing priorities smart, sustainable and inclusive growth. The focus of this paper is to investigate what we know about implementing innovation and entrepreneurship policy programmes. How could they be conducted to enhance growth and innovation in a long-term perspective? We address a particular interest to design and impact issues of such programmes. The empirical part of the research project is based on theoretically derived knowledge and illustrative case studies of management of innovation programmes. Secondary data emanating from research reporting, ex post programme evaluation and interviews of programme managers.

INTRODUCTION

Billions of Euros are spent on innovation programmes by European Union (EU) but also by national governments and member states as well as regions and local authorities. Amazingly enough, this huge spending is done with minor knowledge about the impact on innovation by large programmes. There are even those who maintain that huge investments by programmes have no significance whatsoever, but rather have a negative impact on the creation of “entrepreneurial regions”, innovations, clusters etc. (Storey, 2000).

Alasdair Reid (2010), Director of the Technopolis, Belgium, examines the prerequisites for evaluating measures taken for increasing innovation by way of organizing and managing large publicly supported programmes. Reid maintains that irrespective of which estimate is used, initiatives for increased focus on innovation e.g. the Structural fund programming period 2007–2013 have meant a major increase of investments in Research and Development and Innovation in comparison with earlier programming periods. The idea is that by way of innovation programmes the EU shall reach the competitive edge and become a fast growing economy. Thereby the high-road towards both growth and better, more challenging jobs will be taken.

Reid's view is that it is absolutely essential to improve evaluation of regional innovation policies to
shape knowledge about what is really achieved by these huge investments. There is, however, no “magic bullet” that can be fired to ensure good evaluation and proper knowledge formation. Innovation is complex and a highly risky venture. Innovation processes are hard to control and full of surprises. There is no guarantee that public funds invested in a project will generate innovations. Innovation can only be assessed in the long-term. At the same time policy makers ask for follow up and evaluations that report on short-term results. However, innovation is not and cannot be developed linearly. Successful innovations in their turn lead to complex and multifaceted effects which cannot be identified in a simple way. In other words, a linear analysis of consequences is almost impossible (Brulin & Svensson, 2012; Bjurulf & Vedung, 2010).

The programming period 2007–2013 the European Regional Development Fund investment in clusters and R&D&I represents six-fold increase compared to previous period, 86 billion Euros. Mid-term evaluations for the 2000–2006 period provided hardly any real insights to what contributed to improved management of clusters and R&D&I interventions. Proper programme-management will increasingly be required to appraise performance of innovation measures and widen the understanding of implementation of programmes. The time dimension is crucial when assessing the consequences of innovation programmes. The problem is that the indicators used often have not been developed to catch the system improvements and change of preconditions which are crucial for increasing innovative capacity. Simplified models that try to identify direct causal relationships – i.e. as returns on investments in R&D and innovation – are nearly always misleading. An innovation hardly ever occurs in isolation, but almost always in the context of structured relationships, networks or in a broader social and economic context. Nonetheless most R&D and innovation evaluations often use a simplified input-output result model (Brulin & Svensson, 2012).

LOOK INSIDE THE BOX!

A common denominator for many evaluations is that they are unable to describe the programmes accurately (Greene & Storey, 2007, p. 214). Among evaluators there is sometimes even a perception that you ought not to go into the “black box” that the programme constitutes but simply register the effects (Greene & Storey, 2007, p. 215). The evaluators should avoid showing how the evaluated programmes have contributed to the effects claimed. This means, that measured effects are assigned to the programme even if these could depend on a number of intermediate variables or contextual factors. Furthermore, conducting overall econometric evaluations is difficult and demands resources, which is why many content themselves with simple effect measurements. Even simple effect measurements can be difficult because they presuppose that comparisons are made with a situation in which no programme work has been undertaken, so-called counterfactual studies. “A final difficulty with ‘black box’ evaluations is that they are normally ex-post rationalizations of the average treatment effects of particular programmes. This neglects ex-ante design issues or, if evaluators come too late to this stage, the in vivo processes adopted by programmes. This may be judged important because there are a number of implementation choices that programmes can make …” (Greene & Storey, 2007, p. 216). In other words, what is requested is to look inside the box and that is what analysis of programme management is all about.

Innovation is unpredictable. Knowledge about which particular intervention will work is not profound. Firms rarely innovate in isolation, rather there is a system of networks and cooperation with customers and users; open innovation, user-led innovation etc. We have to accept that it seems difficult to accomplish an innovative economy through innovation programmes, especially if you want these to lead to long-term effects. Yet, it is absolutely essential to improve the understanding of innovation policy actions. There is no “magic bullet” that can be fired to ensure good evaluation and proper knowledge formation. There is no single method that will give us answers to the most important questions. We don’t have a proper theory for how to conduct innovation programmes. However, we argue that it is possible to improve innovation programmes by analyzing how they are implemented and managed. Our understanding of programme management will always be tentative. Nonetheless, our understanding can always be improved. To sum up, what is needed is a continuous improvement of our understanding of
management of innovation, entrepreneurship and competence development programmes. We mean that the focus shouldn’t be evaluation per se, but the improved understanding of how large innovation and entrepreneurship policy programmes could be driven to enhance growth and sustainable development.

Programme-Driving Analysis to Tackle the Problem

Analysis of programme-driving provides an alternative way of tackling the problem of attribution to the traditional positivist approach of evaluating causality via a counterfactual approach. It is not an attempt to prove or disprove the merits of an innovation programme. It is an approach that enhances the understanding – contextually, practically and theoretically – of under which circumstances different programmes work and contribute to innovation via their results, effects and long-term impact.

It is hardly possible to uncover the impact of innovation programmes by means of counterfactual methods, cost-benefit analysis or simple outcome measurement/indicators. Nor is it possible to uncover the impact through simple cause-effect logic analysis, put forward by proponents of contribution analysis. Contribution analysis attempts to explore the performance a programme is making in respect of observed results. By developing a ‘theory of change’ that shows the links between activities, outcomes and contexts of the policy and collecting evidence from various sources to test this theory, the aim is to build a credible “performance story” or “impact story”. Thereby contribution analysis tries to argumentatively show the cause-effect logic (Mayne, 2008).

In contrast to less advanced programme-theory analysis we are attempting to view innovation programmes in respect of the theoretical state of the art and the practical problems management of programmes is arising. Programme-driving analysis is about understanding under which circumstances it is worth and possible to carry through an innovation programme. Which prerequisites, theoretically derived and contextually proven, secure impact and last but not least, could the logic, organization and content of innovation programme be communicated. The possibility to communicate the merits of a programme or a project starts to trigger of multiplier effects that are absolutely essential if the venture taken shall be worth its spending.

In other words, we can hardly evaluate innovation programmes deductively in respect of their outcomes nor inductively uncover the cause-effect contribution of them. We have to accept that there is no magic bullet to fire of or programme-theory to analyze. What we can do is to sharpen our knowledge of how to conduct programmes. Iterative learning, i.e. double loop-learning, about programme-driving is our path forward when the knowledge cannot be but imperfect and fragmentary. Programme-driving analysis has to be based on:

- scientific and theoretical state of the art regarding innovation programme-driving;
- contextual and practical prerequisites for programme-driving;
- and last but not least the possibility to create multipliers out of the experiences and knowledge generated.

We argue that the grand challenge is to sharpen and widen the understanding of how management of programmes leads to innovation, growth and sustainable development. The basis for programme-driving analysis is to evaluate if the project puzzle that the programme is designed of makes a strategic whole. Will the implementation of a programme enable project results to be continued, integrated with other operations, and disseminated to other areas and lead to strategic impact? In the analysis, the following three mechanisms (see Figure 1) have been identified as of pivotal significance for successful projects and programs (Brulin & Svensson, 2012):

- Active ownership within the framework of an efficient and transparent organization.
- Collaboration between important stakeholders building on joint knowledge formation blended with action.
- Developmental learning that leads to multiplier effects.
The key element underpinning these mechanisms is ongoing feedback from experience and knowledge formation. The first mechanism – active ownership – is analyzed by using a theory of project organization as an analogy to theories about work organization. In the analysis of the second mechanism – collaboration in order to generate joint knowledge formation – theories relating to innovation systems, networks and cluster formation are covered. The third mechanism, developmental learning, is included to create multiplier effects in large projects, and when analyzing this mechanism theories of learning are combined with theories of implementation, dissemination and strategic impact. Development work leading to sustainable change can be studied as an interaction between these three mechanisms.

Successful driving of an innovation programme is not just about linking to the theoretical and scientific edge and adjusting the programme to the context where it is conducted. Successful programme-driving is also about having a bunch of projects which are characterized by the three mechanisms mentioned above. Too often active ownership has been missing. Collaboration has been limited and learning adaptive. There has seldom been developmental learning that possibly could lead to multiplier effects. Feedback from experience and development of knowledge has not taken place. The first mechanism is the organization of the supportive environment – an active ownership, a professional steering and competent leadership. The second mechanism is the co-operation of the right and strong partners in an action-oriented way in which practical experiments are combined with a joint learning approach. The third mechanism is an open approach to learning in which a critical and on-going evaluation is central. These concepts and mechanisms are not in opposition to each other but must be analyzed in a framework of paradoxes, contradictions and dilemmas (Brulin & Svensson, 2012).

METHODOLOGY

A Study of Program Driving

In spring 2011 the Swedish Agency for Economic and Regional Growth (SAERG) commissioned Malmö University, in collaboration with Ape R&D centre, to elaborate a meta-analysis of European Regional Development Programmes funded projects (ERDF) in Sweden and the EU. The aims of the study were to highlight and communicate the important results and lessons learned from the projects and to show whether the projects would actually lead to long-term effects with regard to innovation, entrepreneurship and regional growth (SAERG Report 0122, 2012). The task also included elaborating on the ways in which ongoing evaluation has been used and has been instrumental in improving the prerequisites for long-term effects.

In this study a systematic review of 40 final evaluation reports was conducted and the researchers...
were also in contact with or read reports from an additional 20 projects in Sweden. In all, the empirical base of the study includes 60 ongoing evaluations, which is equivalent to half of the ongoing project evaluations procured in ERDF projects in Sweden during this programming period. The additional 20 projects were mainly projects in which the final evaluation report had not yet been compiled but could nevertheless widen our understanding. The study was carried out between June and December 2011.

The 40 Swedish final evaluation reports were all subjected to a systematic analysis (based on a qualitatively-oriented internal questionnaire) from which we collected relevant information. The questions concerned e.g. what kind of actor performed the evaluation, the nature of the evaluation, the main results and the identified effects of the project. Here it is important to note that the systematic review of reports does not tell the whole story about the projects. Important results and effects might in fact stem from the projects that are not included in the reports. Also, in many cases the evaluators are not very outspoken about what significance they consider the ongoing evaluation has had for the project. The additional 20 evaluations that we scrutinized less thoroughly have obviously also contributed to the knowledge underlying the analysis and conclusions in the report.

The ambition with the systematic review of evaluation reports was to acquire a good overall picture of the projects, their short-term results and long-term effects and the importance of the ongoing evaluations – how they were conducted and what impact they had on the projects. As a complement to this, further seven illustrative case studies were conducted in order to obtain a deeper understanding of the projects, their ability to achieve long-term effects and the role of the ongoing evaluations. The selection of cases was made on the basis of the review and the analytical framework presented in the next chapter. The case studies are largely based on document studies, although in several cases interviews with evaluators and/or and project managers were also conducted.

**FINDINGS**

**Mechanisms for Programme Driving**

The case studies and the results of our review point to the importance of three mechanisms for sustainable change: active ownership, partnership collaboration and critical learning through ongoing evaluation (see Figure 1).

Organizing active ownership in a large project is difficult, especially when a lot of a region’s stakeholders are involved. An effective and transparent organization will not come about by itself. The lack of active ownership is something that could in fact jeopardize the sustainability of the interesting initiatives and changes that have occurred as a result of the project. One project showed very positive outcomes but initially suffered from a dysfunctional steering group and a lack of active ownership. But the projects changed over time and the steering groups and owners became more active, largely thanks to the ongoing evaluations. This also had an influence on the strategy for the implementation of results and illustrates how learning evaluation can be useful in correcting weaknesses in a project organization. In another project the ongoing evaluation contributed to the strengthening of the steering group and the establishment of implementation logic. This clearly helped to ensure the integrity of the project and increased the likelihood of achieving the overall objectives.

In projects where the steering group has been rather weak, the ongoing evaluation seems to have strengthened the relationship between the evaluator and the project manager. Several evaluation reports describe a close interaction between evaluators and management. When there is no active owner or steering group to engage in dialogue with, the discussion takes place between evaluators and project management. This in a way makes the project management the “contracting actor” and means that the interest and focus of the project management may guide the evaluation too much. This could explain why so many evaluation reports are descriptive and are more interested in reporting outcomes and short-term results than long-term effects and sustainability.

Collaboration has been found to be another important mechanism for sustainable change which was obvious in many of the case studies. Organizing dynamic, effective and innovative collaboration between important stakeholders is a difficult task. In one case study we can see how an effective collaboration has
been organized between the university, the region and leading industrial partners; something that has in turn resulted in new business opportunities, assistance with product development and enhanced competitiveness. As the evaluators point out in their report, the present challenge is how to establish the collaboration in a long-term perspective.

Another case study can be used as an illustration of the difficulties involved in creating an effective collaboration in a complex regional innovation environment without clear political strategies and clear operational roles for the relevant players in the environment. Here a more holistic, strategic approach to the regional innovation environment is required in order for the Triple Helix constellation to become the player it potentially could become. In both these cases the ongoing evaluation has stressed the importance of strengthening collaboration.

In most cases, the collaborations in the innovation projects seem to be formalized and binding i.e. the different players are “stakeholders” and contribute to the collaboration efforts with working time and money. The collaboration usually does not take place within loosely connected networks. In many cases the dominant actors in these Triple Helixes are the public sector and/or the academic stakeholders. But in quite a few cases it is not even relevant to use the concept Triple Helix at all because one of the spheres of the Triple Helix is missing, usually academia or business.

Another example was the mechanism developmental learning “activated” in a project. Here short-term results have been achieved, transparency between the actors has increased and their collaboration has been strengthened. However, the project has not really addressed business development for the participating entrepreneurs. Although this problem was recognized it has been difficult to steer this heavy research project along a more demand-based route. The focus of the university owning the project has been on technology, not the market. This project is not alone in this problem. Several examples were found where the “logic of science” to some extent seems to have taken over the project. In these cases the results were described in terms of number of articles published, number of PhD students employed, number of promoted associated professors or that the results of the project have stayed within academia.

In these two projects the ongoing evaluation was used to identify a number of critical factors. In this way ongoing evaluation can be important in dealing with unrealistic assumptions, unforeseen problems, conflicting objectives or a technical or academic bias in a project.

Developmental learning can be promoted in different ways. Ongoing evaluation in the projects is an essential element in developmental learning. We will now take a closer look at how ongoing evaluation has functioned in the projects in this study.

**Ongoing Evaluation**

In all the case-studies the ongoing evaluations have had an impact on the development of the projects. But not all the ongoing evaluations have had this character or impact. The role of evaluator varies a great deal and ranges from a traditional critically evaluating role to one of an organizational consultant. As indicated above, in the middle of that range we found several good examples of evaluators who have found a balance between closeness and distance, critique and support and also have had impact on the projects and their ability to lead to long-term effects.

In order to have an impact on the sustainability of a project an evaluation has to be theory-based, which makes it possible to critically analyze long-term effects. The analytical model presented in Figure 1 is an example of how a theory can be based on research.

In one case-study the evaluation contributed with theoretical perspectives, based on the relevant literature in the field. This was not at all common in the evaluation reports. The majority of the reports have a descriptive and/or empirical focus to their analyses, which tends to make the results very case-specific and therefore difficult to draw more general conclusions from. DG Regio and the Member States are now (winter of 2011) in the process of discussing the development of evaluation for the forthcoming period (2014–2020). In a “draft guidance document” (EU 2011) stress the need for more theory in the evaluation practice: “Theory-based evaluations can provide a precious and rare commodity, insights into why things work, or don’t and under what circumstances. The main focus is not a counterfactual (“how things would have been without”) rather a theory of change (“did things work as expected to produce the
desired change”)” (EU 2011, p. 6–7).

The analysis carried out by established theories makes it possible to identify which mechanisms are needed to make a project result sustainable. Instead of superficial indicators, a deeper understanding of innovative processes can be reached.

Another aspect concerns the prerequisites for carrying out an ongoing evaluation. For example, what is an evaluator’s mandate and what kind of resources are available? Our study cannot answer these questions, but SAERG found in a previous study (SAERG report 0079, 2011) that the contracting actors in the projects often have inadequate knowledge regarding ongoing evaluation. Our study has shown that the evaluations have been conducted in very different ways. SAERG believes that the role of the evaluator has to be specified early on in the process. If this is not done the evaluator runs the risk of getting too close to the project, serving as an assistant project manager, or becoming more of a control person.

In one project the evaluators were seen as both a positive element and a control function, especially when suggesting major changes to the project organization. The evaluators advocate that a clear definition of the role should be made in the early stages of the process. The organizations being evaluated also affect the possibility of working as intended with an ongoing evaluation. It is easier to carry out an on-going evaluation in an open and transparent organization.

**DISCUSSION**

We have witnessed a growing debate of how to get innovations systems to work. Programme-driving to shape value-creating Regional Innovation Systems is a tricky business. Cooke and Morgan (1998) among others have pointed out the importance of regions as a “nexus of learning processes”. Dynamic regions are often those where public and private actors have found ways to create a web of relationships in an “associational economy”. Increasingly, “governance” is used as a concept to describe the networks that are beginning to replace traditional government as the locus of decision-making (Pierre, 2000). The term “civic capacity” (Briggs, 2008) is used to describe the collaboration between public and private interests to solve common problems such as regional economic development.

When innovation programmes and projects are carried through, they are organized often with a linear planning logic lacking iterative learning loops (Svensson, et.al., 2009). The leverage schedule is short sighted, dependent on, and with a strong focus on short-term activities and measurable quantitative objectives. Recently the founder of the triple helix concept Henry Etzkowitz requests the importance to come up with energizers of how to fuel the innovation system (Etzkowitz, 2008; Etzkowitz & Klofsten, 2005; Svensson, et.al., 2009). Innovation programme-driving has to be carried through in a proper way! Our point is that we have to understand how programmes are run, their logic and their processes, impact and on what can be learned, both on a regional and project level coupled to this. How can the programme conditions and access to finance for research and innovation be designed to ensure that innovative ideas really are turned into products and services that create growth and jobs?

Lundström, et.al., (2008) claim that if innovation programmes were run in tandem with entrepreneurship programmes, the odds of reaching the goals would be much higher. Based on studies of eleven countries they argue that if Europe is to reach the goals set by the Lisbon Strategy appreciably more than a rational approach is needed. We would like to add that not least the mobility of competence, ideas and knowledge seem to be pivotal to shape regional innovation systems (Lundmark, 2010). Bienkowska (2007, p. 178) argues that competence mobility can be considered a cluster advantage for innovative Swedish ICT firms, since firms in a cluster are likely to experience a higher level of mobility of employees: “However, the potential for labour mobility can be seen as more valuable than actual mobility, since the former provides an extra insurance for both individuals and firms in clusters; it is reassuring for employers to know that they are located in a place where there is a lot of specialized and skilled labour.” In other words, we have to continuously look for programme-driving based on interlinking innovation, entrepreneurship and competence-mobility, how it looks and works!

Programme-driving will not come about by itself. It has to be organized and supported in a long term
perspective by competent actors. Helix, which is a Centre of excellence at the University of Linköping is one example of a regional Triple Helix cooperation between industry, public sector, unions and a university (see www.liu.se/helix). The focus is on competence mobility, entrepreneurship, innovation, organizational change and learning in order to promote regional change. Interactive research is used as a way to achieve a joint learning – both to promote theoretical knowledge and practical change. The time perspective is long (ten years) and the involvement of the partners are strong. In this way Helix can function as an intermediate with different functions – it creates a meeting place, functions as a mediator, and also as a driver for change (a motor function). One important role for Helix is to connect the local and regional changes with strategic actors at national and international level. This way of organizing programme driving differs in many ways from the structural funds, where the programs are set up for a limited period of time, as a kind of virtual agency where the decision-makers and the staff – not to mention the co-funders where the projects are carried out - bring many identities to the virtual organization (Ramböll Management Consulting, 2009).

Helix was evaluated after five years by an international research group (see www.liu.se/helix). Their findings are summarized in the following section: “The national funding has provided HELIX with a rare opportunity to innovate, excel in its chosen field and create a sustainable future for itself. HELIX has attracted a very able research team (albeit with a somewhat limited geographical provenance) and its broad approach has the potential both to make local impact and to achieve international excellence...”. The evaluation team was impressed with the number of non-academic partners that are committed to the Centre and by their continued contributions, both cash and in-kind.

CONCLUSIONS AND IMPLICATIONS

Improving the understanding of the factors behind programme-driving is becoming an increasing critical factor in ensuring that policymakers design, organize and implement the most relevant programmes to support innovation. Our understanding of programme-driving will always be tentative but can be improved. Analysis of programme-driving provides an alternative way of tackling the problem. It is not an attempt to prove or disprove the merits of an innovation programme. It is an approach that enhances the understanding – contextually, practically and theoretically.

There are empirical data based on decades of interactive research and analysis of programme-driving that helps us to take the practical and theoretical understanding of programme-driving to a higher level. Experience of dialogue and support to policy makers and practitioners is another source. Step by step, a comprehensive understanding of programme-driving are emanating due to better communication between researchers in the scientific community, programme management and policy-makers. Rather than heading for final, concrete and one-dimensional often quantitative knowledge we should get used to the fact that our understanding always will be fragmentary and imperfect though, we argue, on a higher level!

Innovative change and entrepreneurship in a region cannot be organized in a linear way. There must also be room for experimentation, chance and adaption to new circumstances. In a complex and quickly shifting context, a learning approach to change is a necessity. The learning has to be of a developmental kind – that is innovative and double-loop learning. This means that learning also contributes to reflection and analysis – on and of the means and objectives in a project. Ongoing evaluation is one way of supporting developmental learning in order to make a project more sustainable. One project illustrates how developmental learning can be achieved through ongoing evaluation. In the project the evaluators contributed to a radical new understanding of what an important effect of a project was. The evaluators also showed that it was important to find complementary ways of evaluating the results and impact of the project. This means highlighting issues of efficiency and long-term competitiveness of the small and medium-sized businesses, instead of focusing primarily on indicators in terms of new jobs and new businesses.

Knowledge on innovation programme-driving should improve innovation institutions/practices/ethos in different respects. In the longer-term view, impact analysis of innovation programmes should focus on competitiveness, institutional and structural changes achieved. In the medium-term view, observed
changes in co-operation patterns, modes of innovation and behaviors are decisive for success. In the short
term view, direct results in projects (people trained, new technologies adopted, spin-offs created, etc.)
combined with analysis of how innovation ethos is continuously strengthened should be in focus.

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