PART 7

Methods: How to analyse the role of the state and enabling policies

Comparative research and interdisciplinary design
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INNOVATION POLICIES DESERVE A SOUND MONITORING SYSTEM

An agenda for policy makers

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Introduction

Innovation is surely a matter of ‘life and death’ in the capitalism of the twenty-first century as it is at the origin of the growing divergence between successful and lagging regions in the EU. There is evidence (Crescenzi and Rodríguez-Pose 2009) that this divergence reflects the differences between innovation-prone regions – where there is a strong policy support for innovative firms and innovation infrastructures – and innovation-averse regions where relevant policy support is much less developed and backward (Rodríguez-Pose 1999).

In addition, in the Europe 2020 Agenda, it is absolutely clear that innovation can help to win the economic challenge to generate more products and firms (not simply to restore growth and jobs lost during the recent recession). Regions, however, need to identify their own ‘smart specialization’, that is to say to identify niche development strategies allowing regions to satisfy local needs and to meet global high-quality demand, in order to grow, rather than fall behind (Petrella 2000; European Commission 2007).

‘Good policies’ make the difference and policy makers should be able to select goals, to measure the innovative outcomes, as well as to communicate final results (LC and Ederer 2006; Manning 2009). But to do their job best, policy makers have the necessity of monitoring the innovation process and this implies an appropriate information system (OECD 2009) as well as suitable composite indicators (Bramanti and Tarantola 2012).

The present chapter addresses this necessity developing the following three core issues: innovation policies and the use of a sound monitoring system (first section); the relationship between indicators and policy models (second section); good (composite) indicators as a support in policy design (third section). With ‘good indicators’ I simply mean indicators: i) enabling the system to be monitored; ii) signalling the targets to be reached; and iii) evaluating the acquired results. A large part of the data needed originate from innovation surveys, and a major task for the near future is exactly the construction of datasets rooted in regional microdata and, possibly, longitudinal (panel) data (fourth section).
Obviously, we can’t measure an ill-defined concept and therefore we still need to define the innovation phenomenon better and select an appropriate metrics; we know perfectly well that this is not first and foremost a ‘technical problem’ but is mainly a shift from expert-dominated to more open, deliberative, shared and involving methods of defining the goals, the objects, and the targets to be evaluated (Henry and Mark 2003; Stiglitz et al. 2008).

**Innovation policies need sound monitoring systems**

Innovation is not a totally independent and market driven process. Due to externalities, spillovers, appropriability regimes, public procurements and public funding of R&D activities (Malerba and Brusoni 2007; Boschma and Martin 2010), innovation policy matters at all the different scales at which competition takes place. Europe – not by chance – has stressed its innovation-driven policies in any strategic plan for competitiveness. But Europe has largely failed to translate world-class science and technology into growth and jobs and the lesson, hardly learned, helped in shifting governments’ attention towards a more ‘open model’ of innovation (Chesbrough et al. 2006), a model that is strongly linked to thick networks and strong absorptive capacities (Zahra and George 2002).

The current Europe 2020 Agenda strongly recognizes that innovation is still to be considered the only economic vehicle that can convey the desired expansion in output, incomes and jobs over the next decade. In this way the EU reassesses its commitment to the goal of a dynamic, sustainable, knowledge-based (‘smarter’) economy (Hofheinz 2009; LC et al. 2011).

Almost all countries within the OECD group have adopted in the last decade some version of the ‘knowledge economy’ pushing down on the accelerator pedal of knowledge creation (DTI 2004), and giving rise to many questions on how to get the maximum return from the money spent. While in the past the term ‘knowledge based-economy’ prioritized the instrumental use of scientific knowledge for competitive economic advantage, at the present time the very big question among practitioners and policy makers has rapidly changed from the old one – ‘how can I foster innovation?’ – towards the new one – ‘how can I get value from knowledge?’ – which is a much more complex and wider task indeed, involving the understanding and organization of the innovation process (invention isn’t enough) (DTI 2004; Bessant and Venables 2008). We deal with the ways to obtain an economic return from scientific and technological research and, indeed, economic and social factors are necessary conditions (even if not sufficient) to explain the capitalization of knowledge (Crescenti and Rodríguez-Pose 2009).

The American lesson is still to be metabolized. In the three-year period 2000–2003, real GDP per hour worked grew in the US by 2.6 per cent. Seven sectors (out of fifty-nine) accounted for 85 per cent of the whole growth and, quite surprisingly, among the top performers just one (computer and electronic products) can be considered conventionally R&D intensive. All the other six are ‘traditional sectors’ – retailing, finance and insurance, wholesaling, administrative and support services, real estate, and professional and scientific services – but have successfully adopted ICT and other organizational innovations within their ‘non-innovating’ firms.

In addition, we have to recognize that the difference in the productivity growth in the US and Europe, in the past decade, should be mostly attributed to the divergence in services productivity (Bryson and Daniels 2007), not certainly in high-tech sectors (Hughes 2008).

In order to better understand how to get value from knowledge creation, policy makers have become (more) aware of the need of a monitoring and evaluation system (Mettler 2009; Giovannini 2011).
Monitoring is an ongoing process of collecting and assessing qualitative and quantitative information on the inputs, processes and outputs of programmes and policies, and the outcomes they aim to address. This is exactly what the OECD calls ‘indicator systems’:

Indicator systems offer regional policy stakeholders a tool for meeting two important challenges, both related to information. The first challenge has a strong vertical dimension. It involves reducing or eliminating information gap between actors at different levels of government in order to achieve specific policy programme objectives. Indicator systems contribute to meeting this challenge by complementing the contractual arrangements between levels of government. The second challenge has a more horizontal dimension. It involves capturing, creating and distributing information throughout a network of actors to improve the formulation of objectives and enhance the effectiveness of the strategies employed. Here indicator systems can bring together and distribute otherwise disparate information and create a common frame of reference for dialogue about regional policy.

(OECD 2009: 11).

And we can now finally ask: ‘what exactly are indicators?’ As shown in Figure 28.1 they are variables representing properties of defined objects that we use to associate a value, so that we can utilize them to judge and assess those objects on the basis of the significance of the observed indicator value (Gudmundsson 2009). According to this definition, indicators differ from both data or statistics (which are to some extent inputs of the process), on the one hand, and information or knowledge (which are interpretable as outputs), on the other hand.

Reliable and functioning indicator systems may contribute to improving the capacity to develop coordination and strategic planning, and enhance the possibility of implementing and fulfilling competitiveness (Manning 2009).

Indicator systems, in fact, may promote learning, where the feed-back process results in being a major help in reaching effectiveness in the management of policies. From this point of view it is much more interesting to use indicators – even if we are conscious of the many faults they closely highlight – than to do without, only relying on humour, moods and contingencies.

Sound policy making, including the setting of targets, requires that the state of innovation will be adequately measured. In this way, feed-back should be used to improve both the policy and the indicator systems themselves. Even if indicators suffer evident shortcomings, they remain

Figure 28.1 The relationships of indicators with other ‘knowledge concepts’.
Source: adapted from Gudmundsson (2009).
a precious tool for assessing progress and performance. Policy should not be based on hearsay or ideology, but rather rest on some more rooted evidence, calling for measurements and comparisons (Lehtonen 2010).

In Table 28.1 – following Godin (2002) – I present the four different possible uses of indicators when applied to an innovation issue and, specifically, to its quantitative analysis. These uses are: i) theoretical; ii) practical; iii) ideological/symbolic and iv) political.

The theoretical one is devoted to the understanding of the phenomenon – we can read behind R&D expenditures statistics, for example, the commitment and de-commitment of public and private sectors; moreover, looking at time series (if available) we can extrapolate future trends. But it is mostly for practical use that data on innovation process and outputs are gathered. The declination of this goal is presented in the second block of Table 28.1, and it is important to remember that a control goal is frequently jointly present, specifically on the total amount of R&D and on the allocation of the public component.

For the private sector the monitoring and evaluating perspective is all the more relevant, as entrepreneurs have to decide where to invest, and to detect and stop unsuccessful works as promptly as possible. The symbolic and potential uses belong to what has been called the ‘discoursive–interpretative’ policy model and it is the object of the next section.

Within this frame composite indicators represent a step further on this line. They should not claim to have exhausted knowledge and monitoring requirements from policy makers and stakeholders, but they could contribute in speaking ‘clearly and aloud’ and stressing a more rigorous policy design.

Generally speaking, composite indicators (innovation scoreboards as well as many others built starting from the first decade of the new millennium) may play three different roles in policy (Arundel and Hollanders 2008):

- they can act as an ‘early warning’ to forerun potential problems;
- they can record changes in strengths and weaknesses (allowing a diachronic analysis of repeated measures); and
- they can spotlight specific questions, attracting the attention of media and policy makers.4

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**Table 28.1 Uses of innovation indicators**

<table>
<thead>
<tr>
<th>Uses and their declinations</th>
<th>1 Theoretical</th>
<th>2 Practical (controlling)</th>
<th>3 Ideological/Symbolic</th>
<th>4 Political</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding and learning about science and technology</td>
<td>Understanding and learning about science and technology</td>
<td>Displaying performance</td>
<td>Objectifying decisions</td>
<td>Justifying choices</td>
</tr>
<tr>
<td>Comparing countries (benchmarking)</td>
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<tr>
<td>Forecasting</td>
<td>Managing (planning and allocating resources, assessing priorities)</td>
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<tr>
<td>Orienting research</td>
<td>Monitoring</td>
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<tr>
<td>Evaluating (accountability)</td>
<td>Evaluating (accountability)</td>
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Source: adapted from Godin (2002).
Relations between information systems and alternative policy models

So, the nexus between information systems, and specifically composite indicators, and policy goals is very important to this point. In the current debate, the use of information systems and composite indicators in framing policies is habitually called ‘evidence based policy’. But this debate is frequently ‘ill fated’ by a monolithic view of policy making as rational, instrumental, linear and very mechanical problem-solving (Saltelli and Pereira 2011).

According to Boulanger (2007), we can distinguish at least three different models for the use of statistics (and indicators) in policy: i) a rational–positivist; ii) a discursive–interpretative; and iii) a strategic model.

The first one adheres to a simplified vision of a linear and mechanical way where decision process proceeds from measurement to indicators, and from indicators to decision. In short, policy making as rational problem solving makes use of statistical indicators for the following three complementary goals: i) quantifying objectives; ii) assessing alternative means to reach them (ex ante); iii) evaluating effects and impacts (ex post).

To some extent we can say that it is a ‘policy without politics’ model. Even if the rational approach seems to be very promising, we should remember that, up to now, there is no one set of indicators being, at the same time, universally accepted, rooted in a compelling theory, backed in rigorous data collection and analysis, and politically influential.

The third model represents, to some extent, a non-normative conception of politics as a pure competition. In the words of Boulanger (2007: 20) ‘there is little room for objective common knowledge and thus for reliable indicators within this model’. The second one – the discursive–interpretative model – seems to be the more interesting and surely complementary to the first one. Where the rational model looks at technical problem solving, the discursive–interpretative model:5 ‘sees it as a struggle over the definition, explanation and interpretation of public problems. The core concepts in interpretative policy analysis are the concepts of frame, discourse, narrative, meaning, story, etc.’ (Boulanger 2007: 18).

In this frame, indicators and monitoring devices may be, and indeed are, conditioned by social, historical, economic and local factors that intervene at every level of their production (Lehtonen 2010). So, to the discursive–interpretative model we devote deeper attention.

The new centrality of the ‘discursive–interpretative’ policy model

The use of indicators cannot be purely mechanical. On the contrary, they require a massive application of judgement, vastly improving the role of discernment in decision making. If the discursive–interpretative model reads policy making as a struggle over the definition, explanation and interpretation of public problems, then the role of statistics and indicators within this model is a conceptual or ‘enlightenment’ role, where knowledge provides the information base for decisions, offers conceptual frameworks and fosters different types of learning in the spirit of Habermas’ ‘communicative rationality’ (1984).

In rational policymaking the setting of indicators comes on stage when objectives have already been defined. Differently, in the discursive–interpretative model, greater emphasis is attached to the way goals are defined, and indicators play a major role in the goal-setting phase of the process.

The subjective word of values, ideas, beliefs, matters and politics has to play its role. Within this approach indicators become important components of policy discourses; they are vehicles of social learning in framing issues, developing new concepts and enhancing legitimacy in the wider political debate (Gudmundsson 2009).
We also have to recognize that while for the researchers technical problems are of the greatest relevance (i.e. the scientific quality of knowledge and, therefore, the accuracy and reliability of data is all that matters), for policy makers, contextual features are of the greatest importance, e.g. communicability, dramatization and resonance of indicators (Henry and Mark 2003).

A first general conclusion is therefore quite obvious: there is no one best composite indicator, partly depending on the goals, partly on the data, and partly on the methodological choices that will be implemented (Bramanti and Tarantola 2012), even if this last one (technical procedures), frankly, is the most workable of the three.

What is much more disputable are the goals that are under the direct responsibility of policy makers. In some cases, when the object of analysis and policy is charged with strong normative assumptions, we meet higher difficulties in the selection of the goals and of the basic indicators. Where the interpretative conceptual models are countless, we have no guidelines for the selection of the relevant information and therefore the offer of a ‘unique number’ is perceived as highly inappropriate.

The fact that the best composite doesn’t exist, can’t imply, anyway, that it is useless to construct and to use them in order to learn the proper use of information, choices regarding incentives, and the establishing of clear objectives for the policies. Moreover, statistics and indicators may exert a great influence on policy making (Henry and Mark 2003), the real source of this influence being the dialogical and argumentative processes taking place in the various ‘discoursive spheres’ in which indicators are produced and used.

Within the policy model we can therefore distinguish six different policy stages ordered from the emergence of the problem to the answering of that problem and the evaluation of the goodness of the solution implemented. Indicators exert different roles depending on the stage of evolution at which they are applied.

Table 28.2 reports this correspondence, recognizing that the three policy models just discussed are more effective at different policy stages. The discursive–interpretative model, for instance, is more useful in interpreting the legitimization and mobilization phases, while the fourth and fifth stages (formation and implementation on an action plan) may be managed, alternatively, or with a rational–positivistic approach – when there is a large consensus among the different stakeholders – or with a political–strategic model – where the issue is still controversial or when the legitimate interests of powerful stakeholders are at stake. In these cases there is room for opportunistic behaviours (bargaining, strategic-games, log-rolling, etc.).

<table>
<thead>
<tr>
<th>Policy stages</th>
<th>Indicators’ role</th>
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<tbody>
<tr>
<td>1 The emergence of the problem</td>
<td>Discursive and rationale – enlightenment</td>
</tr>
<tr>
<td>2 Legitimisation</td>
<td>Conceptual role</td>
</tr>
<tr>
<td>3 Mobilisation of the public for action</td>
<td>Discursive-interpretative</td>
</tr>
<tr>
<td>4 Formation of an official plan of action</td>
<td>Consensus Instrumental Rational-positivistic</td>
</tr>
<tr>
<td>5 Implementation of the plan</td>
<td>Controversy Strategic-political</td>
</tr>
<tr>
<td>6 Monitoring, evaluation, assessment, appraisal</td>
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</tbody>
</table>

Source: adapted from Lehtonen (2010).
Differences between ‘use’ and ‘influence’ of indicators

The first model (the rational–positivist one) when referring to the use of indicators in policy explicitly calls for the concept of ‘utilization’ of indicators. It is an instrumental approach where indicators provide information. But looking at indicators in the light of policy making process it falls short of giving adequate attention to the intrapersonal, interpersonal and societal change processes (Henry and Mark 2003) through which the ‘measurement’ activity may translate into steps towards regional competitiveness improvement.

Kirkhart (2000) argues that the concept of use is too much result oriented. Despite the relevant efforts made to enlarge its meaning, different unsatisfactory aspects are still present. Instead of continuing to rework the concept of use, she suggests a change in focus from ‘use’ to ‘influence’. Saying it differently, it seems more fruitful to think of the role of indicators in terms of the ‘influence’ they can exert on policy makers:

Indicators may not be explicitly ‘used’ by any stakeholders and yet they can exert powerful influence on policy, for instance through the impacts on frameworks of thought during the indicator design process or the dialogue and argumentation following the release of indicators.

(Lehtonen 2010: 3)

The concept of ‘influence’ (instead of ‘use’) allows the field of analysis to be broadened to also include the potential negative effects of indicator systems. The issue of performance evaluation, for example, seems to be among the most sensitive, and a number of shortcomings have been highlighted by practitioners (Lehtonen 2010). The message to be learned is that we must stop the finger pointing, as local Governments cannot accept being ‘named and shamed’ and, as a consequence, Member States frequently do not allow the publication of data considered even potentially controversial or embarrassing.

Differently, the discoursive–interpretative perspective – which better matches with the idea of indicators ‘influence’ – emphasizes the role of indicators as vehicles of social learning, as a tool designed to open up perspectives and illuminate an issue from a variety of views, as opposed to a closing perspective of achieving convergence around a strictly shared definition of the problem (Stirling 2008).

Good indicators as precious support in policy design and implementation

The focus on innovation calls for proper policies, policies that should have a privileged attention to human capital and entrepreneurship. To give strength to this innovative process we also need good indicators to monitor strategies, but these indicators call for a serious (and wider with respect to the past) engagement of stakeholders. Enrico Giovannini, the past–present President of the Italian National Institute of Statistics (ISTAT) – and Ministry of Labour in the Italian Government of past Prime Minister Letta – has suggested that:

Statistical indicators chosen through the involvement of stakeholders and shared by all components of the society can play a crucial role in improving policy making and increasing accountability, especially when they deal with the final outcomes that matter to people. . . . Indicators that do not relate to people’s lives are seen as irrelevant or, even worse, unfaithful descriptions of what is happening.

(Giovannini 2011: 10)
Information systems and indicators have a natural field of application related to benchmarking and its interesting implications. From a methodological point of view it may be very instructive for regional Government to construct and to interpret a composite index on innovation. In fact, there are a number of methodological questions that draw the attention of policy makers towards having a vision on innovation, a clear idea on the undergoing process, and a sound knowledge of the regional innovation system.

In addition, looking at the strengths and weaknesses of the region, help in selecting goals, in identifying the right structure of incentives, in order to have a strategic programming orientation capable of also looking at the medium-long term, not just at the short term political cycle. Regional innovation policy produces outcomes that materialize over an extended period of time (OECD 2009). Obviously in this case data collection may be costly and challenging and we are still searching for the best compromise.

While national statistics still play a role as contextual indicators – and they may be very useful in painting a picture on the international context – the very challenge for the future would be played at the regional level. Here a major shortcoming is always represented by available information. But even to clash with the lack of data (reliable, up-to-date, sound regional data) may create an impulse in the need for a systematic and rigorous statistical effort if we want to take informed decisions.

A guideline for sound indicators

In the light of the previous arguments, the urgency to identify sound indicators is largely understandable: i) indicators that can help in measuring the state of innovative process and its progress both in time and with respect to benchmark territories; and ii) indicators considering targets in relative rather than in absolute terms. It is fundamental to bear in mind that we can’t choose the same standards of success for all regions; the ‘one-size-fits-all’ indicator probably (and hopefully) doesn’t exist.

Many innovation measures have been proposed in the literature but we can’t choose ‘the best’. We can just stress three guiding principles that are worthwhile recalling because they can help in the selection process of the simple indicators.

First of all I’m interested in the regional dimension (NUTS2) of innovation phenomenon. To limit to the country level is not detailed enough for policy purposes, also due to the fact that the overall innovative performance of most countries is determined not by the performance of their leading regions, but by the size of their ‘tail’ of poor performers.

Second, I have in mind an eclectic and evolutive innovation model (Malerba and Brusoni 2007; Bramanti and Fratesi 2009; Boschma and Martin 2010) where ‘hard inputs’ (R&D expenditures) are only a part of the story – not necessarily the most meaningful – and ‘hard outputs’ (patents) are not the ultimate demonstration of innovation success and in any case are very sector/technology specific. The emphasis on increasing R&D spending may not be the most effective way to improve European productivity, and the search for the ‘optimal amount’ (3 per cent of GDP?) allocated to R&D activities is more an art than a science.

Are we ultimately using the right indicators to measure a desired policy outcome, or are we only taking into account what can be easily measured, such as R&D spending, and using it as a simplistic proxy for assessing a complex policy phenomenon, like innovation.

(Mettler 2011: 4)
A major consequence of this idea of innovation is that more soft factors may be equal (and even more) interesting and, specifically, i) entrepreneurship (as the capacity to bear risks) and ii) high-skilled people (as the human capital asset on which firms may trust) are key assets for regional competitiveness.

Third, the targeting of any measurement exercise would be policy oriented: I’m interested in indicator systems that may have influence on the policy making effort. Policy processes need tangible goalposts so that the progress evaluation can be done on comparable analysis instead of subjective, vague evaluations.

In order to fit these goals we need one (composite) or a small number of simple, easy-to-read, communicative indicators. To increase citizens’ awareness, to make performance more transparent, to enlarge the number of stakeholders involved in the process — all these are fundamental ingredients to meeting successful innovation process, or better, to gain the maximum from policies devoted to foster innovation process.

From a policy implications point of view if we look at the data we see that many times the most striking improvements could be obtained by raising the poorest indicators (which frequently have space for manoeuvre) instead of increasing the already best performing assets, which are frequently closer to the ‘carrying capacity’ of the system. A sound policy implication, in the field of human capital, should be, for instance, the attention given to targeted policies in support of groups that are marginalized in the labour market (i.e. integration of immigrants and minorities), as well as fragile components regarding gender and/or age.

**Back to the future: re-starting from the data**

Innovative paths differ even among R&D intensive regions as do the final results. Regions’ performances, in terms of innovation outcomes, are strongly determined by three main factors:

- the accessibility of knowledge, which is the privileged field of all input indicators (R&D expenditures, but also ‘gateway institutions’ — such as universities and research centres and networks, the capacity to attract external assets and innovative firms, etc.);
- the absorptive capacity (Cohen and Levinthal 1990; Zahra and George 2002) (mainly captured by intra-muros research and endowment of high-skilled workers); and
- the capacity to diffuse knowledge and technology (which we are used to measuring with patents, regulatory regimes, clusters and networks of firms, well functioning specialized labour markets).

All the best performing regions share the capacity of mastering these three factors and, specifically, exhibit: i) a high level of skills and effectively functioning professional networks; ii) the presence of knowledge spillovers from nearly technological opportunities; and iii) a strong interdependence among competitors.

‘How can we measure all this?’ In principle, a small number of indicators — we can roughly guess that ten should be enough — can give a reasonably clear picture of what is going on in this field. In practice, the severe lack of data forces the researcher to use sometimes very disappointing proxies. Instead of gathering a so huge number of poor proxies it would be definitively better to collect new micro data.

**The quest for rich and well designed innovation surveys**

Innovation surveys (Mairesse and Mohnen 2010) are the only source of this kind of information. They are almost always very useful, providing qualitative and quantitative data on innovation
activities. Anyway, there is a heavy job to be done in order to improve these surveys, particularly when we are interested in the regional level (NUTS2) of the analysis.

Apart from the essential requests for more rigorous homogeneity among different territories in running an innovation survey, the most challenging questions surely include: i) merging the innovation survey with firm-based data on economic performance and human capital management; and ii) creating longitudinal datasets.

This last suggestion is the most important, not only because checking our own progress in time is fundamental for policy making, but also because the attention devoted to the issue of the ‘persistence of innovation’ (Peters 2006; Raymond et al. 2006) is dramatically rising. This is another key question in the ‘state-of-the-art’ innovation research: ‘do firms tend to innovate conditionally on past innovation?’. The dynamics of the innovation path is certainly a very challenging problem in the agenda of researchers and we need longitudinal surveys on microeconomic data (firm based) in order to grasp the real outcomes in terms of profitability and competitiveness of innovation efforts (Lööf and Heshmati 2002; Percival and Cozzarin 2010).

In addition, there is also a further ‘technical’ element in favour of longitudinal datasets: from a statistical point of view it is very difficult to infer strong conclusions regarding causality using only cross-sectional data. Accounting for individual heterogeneity may in fact reverse the conclusions of some analysis. A proper analysis of causality with innovation survey data would require structural modelling in a dynamic setting, which needs the availability of a panel data (Peters 2006). But standard innovation surveys come in waves of cross-sectional data where the same firms are seldom surveyed wave after wave and therefore, panel data should be duly planned and performed in order to fulfil longitudinal surveys.

Closing the Chapter I feel compelled to recommend improving the CIS survey that is now carried out at two-year intervals. CIS 2008 still represents the most recent available version but Eurostat has not yet released the NUTS 2 data. I should remark that the accessibility and timeliness of the data has to be substantially improved. The urgent need for good and easily accessible indicators has never been so necessary as today.

The persistent very large intra-countries variance – particularly on the innovation issue – discourages limiting comparative studies only at the national level, as it is meaningless for policy purposes. As one of the most important goals of indicator systems is to produce information elements that may improve decision making, enhance resources allocation, and increase accountability, we need the CIS survey to carefully stratify its sample in order to guarantee an adequate and uniform coverage of NUTS2 regions.

As also suggested by practitioners (Mairesse and Mohnen 2010), innovation surveys may have a first shared part that is strictly equivalent in all European Countries – which should probably be run yearly – and a second part that goes in depth into the comprehension of innovation processes and results, which should be run at the regional level, maybe on a voluntary basis, at least every two years. I appreciate particularly non-compulsory exercises because they may have a stronger effect in raising awareness of the importance of monitoring and evaluation; and on this field the political and technical challenges to implement a regional indicator system on innovation surely enhance the regional competences in terms of designing systems, selecting indicators, achieving targets, and using explicit financial incentives.

While we know that innovation policy is increasingly designed and implemented at the regional level, the availability of regional data is still discouragingly low. Waiting for a ‘new age’ of sound, up-to-date, micro-founded regional data, we can work in two complementary directions: i) the first one is a deeper, qualitative scrutiny in ‘peer grouping’ innovation performance; each region knows which group of regions she belongs to, and can therefore benchmark her direct competitors; ii) the second direction to take advantage of the rather scanty
existing data is to raise and improve the most depressed components of the overall innovative performance; any region knows her weaknesses and she can gain time improving these backward aspects. This strategy seems to be a winning one as marginal returns are always greater when starting from low levels, and synergy effects may become widespread when shortening the gap among the different ‘ingredients’ of the innovative process.

The road ahead

At the very end of this chapter I recall the two main points that have emerged. The question on ‘how can we measure innovation results?’ is strictly intertwined with the second one ‘how can these measures help the design and implementation of policies?’.

While answering these questions seems a technical problem they both imply a policy making problem (Hofheinz 2009; Mettler 2009; LC et al. 2011). Different efforts have been devoted to the construction of a composite indicator on innovation activity, and the result may be robust enough, provided the construction process has respected all the methodological requirements of a consolidated technique (OECD–JRC 2008; Bramanti and Tarantola 2012).

But it is still true that any indicator, by definition, can’t be better than the data that it relies on, and this uncontestable consideration is open to the point of the availability of good, reliable, timely regional data. These data, to be frank, are not still available at NUTS2 level for all the twenty-seven Member States. Moreover, due to the vision we have embraced on innovation, the date can’t be exclusively ‘hard data’: we need to collect ‘microdata’, directly gathered at the firm’s level, through sound innovation surveys.

The European response to this need has been the CIS survey, certainly a good starting point on which we have to work hard in at least three directions. The first is the necessity of a territorial stratification of the sample in order to cover NUTS2 European regions; the second is to shorten the time lag9 for the availability of the data; the third direction of improvement is a longitudinal dimension of the analysis, in order to provide panel data.

A final remark addresses directly the policy dimensions. Choosing the ‘wrong’ indicators means wasting valuable political (as well as financial) capital, but once the ‘right’ indicators have been chosen, the selection of targets is still to be done and may also be dangerous: the ‘one-size-fits-all’ approach is totally inappropriate within a European scenario characterized by strong inter- and intra-countries differences. One major point regarding the identification of targets: after an endless debate on the 3 per cent ratio (R&D/GDP), it seems much more feasible to select relative targets (for instance, in terms of rates of growth) instead of absolute ones.

This last point regards the process to be adopted in selecting and implementing the targets. We need to establish dialogic, highly inclusive, strongly participative relationships with all the different stakeholders, and we need to correctly communicate both the process and the final goals, involving local Governments, and reach citizens.

Policy makers know perfectly that regional innovation policy can only be improved by continuously fostering the interface between regional and sectoral innovation systems (i.e. improving the linkages between local and global actors); it is therefore interesting – for the different policy maker levels – to jointly work within a ‘dynamic division of labour’ where European and National levels deal mainly with ‘producing knowledge’ and fostering global networks, while regional and local levels focus especially on ‘exploiting knowledge’ and strengthening internal–external connections.

The new global scenario asks for better informed policy makers (at all levels) but at the regional one we need the full availability of new data (on the innovation phenomenon), thus allowing a contextualized interpretation of the process and avoiding the oversimplification operated by
the media and the likely political appropriation of an imprudent and self-assured use of scoreboards and composite indicators.

Notes
1 I’m deeply indebted to Stefano Tarantola from DG Joint Research Centre for having discussed with me the ‘composite indicators’ issue when I was on sabbatical leave at JRC-IPSC (2010). I’m grateful to CERTe’I, at Bocconi University, which has supported my research programme during the last two years. The usual disclaimer applies.
2 ‘What is needed is a strategy to turn EU into a smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion. This is the Europe 2020 strategy’ (Com 2010, 2020 final).
3 The very question, not yet answered in a convincing way, is that related to R&D: ‘does the R&D goose really lay golden eggs?’.
4 One important achievement of the Lisbon Strategy – largely portrayed as a policy failure – has been the shift – in policy makers and citizens attention – from the issue of unemployment towards the concept of employment: easier to measure and better reflecting the health and dynamism of the labour market.
5 Following Schön and Rein’s (1994) arguments, people facing social problems are engaged in an activity of ‘naming and framing’.
   Policy frames are structures of beliefs, perceptions and appreciations that underlie policy positions. Because real situations are complex, indeterminate and ambiguous, people select certain features and relations they consider the most relevant characteristics of the situation and create with them ‘stories’ that describe and explain the situation.
   (Boulanger 2007: 18)
6 During the last twenty years a large debate developed, broadening the concept of ‘use’ towards a more sophisticated and multi-dimensional construct (Henry and Mark 2003). It is now widely accepted to consider at least four different meanings on the term ‘use’ (Cummings 2002): i) instrumental (a direct action occurred as a result of the use of indicators); ii) conceptual (something newly learned about the policy); iii) strategic (the justification of a pre-existing position); and iv) process (a direct action occurred, or something newly learned, as a result of participation in the construction of the indicator).
7 The term influence (the capacity or power of persons or things to produce effects on others by intangible or indirect means) is broader than ‘use’, creating a framework with which to examine effects that are multidirectional, incremental, unintentional, and instrumental.
   (Kirkhart 2000: 7)
8 An important consequence, in term of policies, is that by developing attention to the followers as to the leaders, government can drive the innovativeness of their entire economy.
9 In June 2013 the CIS 2008 regional data are the last available data! This delay is quite embarrassing: delivering a black and white ‘historical photo’ instead of a fresh, up-to-date picture, ends up being useless for policy making.

References
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Com, 2010: 546 final, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Brussels: Europe 2020 Flagship Initiative Innovation Union.


