Innovation calculations

When it comes to innovation, demonstrating creativity and generating a bold idea is not quite enough. **Dr Gerd Meier zu Koecker** explains how his institute's tailor-made packages can enable policy makers to generate the maximum impact when supporting science, technology and innovation

Can you offer a summary of the Institute for Innovation and Technology (iit)'s background and purpose?

The nature of innovation has changed considerably over time. Today, innovation happens in a completely different way than 20 years ago. The continuous convergence of technologies is shaping new industries. iit's objective is to contribute towards a better understanding of how innovation happens nowadays and how policy makers in charge of supporting science, technologies and innovation (STI) can design and set up appropriate public support measures to better address the societal challenges ahead of us.

To whom is your research disseminated, and how is this being facilitated?

Our target groups are mainly innovation policy makers and practitioners and we focus on three areas:

- Analyses and studies in the STI field to provide policy makers with the right information to set up appropriate public innovation support schemes, prior to funding
- Support to improve the implementation process of public support measures and to stimulate continuous improvements during the programme implementation phase
- Activities in the field of programme evaluations and impact assessments after funding

What does your role at the Institute involve?

My focus lies in innovation policy issues in transition and developing countries, as well as on cluster policies and cluster management. Clusters are a comparably new tool to support innovation among industry and academia. Worldwide, hundreds of clusters have been set up, but not all of them have really succeeded. The challenge for the future is to further improve the use of clusters as an instrument to renew European industry. Cluster management excellence can be a promising tool here, as it helps to increase the leverage effect of the clusters.

Would it be fair to suggest that innovation is a tricky concept to measure? What approaches are you adopting to quantify innovation-related tools?

It's not enough to simply measure innovation. Measuring 'innovability', which is influenced by people, organisations and networks, is more important, since innovation is the outcome of innovability. The iit is very active in this field and we have succeeded in designing a lot of new indicators related to innovation and innovability. For example, our benchmarking approach for measuring cluster management excellence, which also deals with innovation and innovability, is becoming a European standard. By means of these indicators, clusters can compare themselves with one another, and learn how to become even more innovative on the European stage.

Can you offer a glimpse into some of your more interesting or surprising findings to date?

In the past we analysed the impact of a huge number of collaborative R&D projects that have been funded within the Framework Programme in Europe with a view to find out the key success factors when commercialising R&D findings. We were able to show that the structure and constitution of an R&D consortium has a crucial impact. R&D consortia clearly tend to be more successful in terms of commercialisation of the R&D findings when the 'right' exploitation partners are involved. If the key exploitation partners are too small, they are often too weak to turn the R&D findings

Redefining innovation

Researchers at the **Institute for Innovation and Technology** follow the development of ideas from start to finish. Based on a fresh understanding of the nature of innovation today and the use of new analytical approaches, the team highlights the importance of identifying and describing specific conditions that lead to accomplished innovation

into products. Those companies that have a clear exploitation strategy, strong market position and about 1,000-5,000 employees are those that succeed most. Scientific excellence in R&D is important, but is not the main factor when it comes to innovation.

Has your research revealed notable regional differences where performance in innovation is concerned?

Innovability strongly depends on individuals, organisations and regional framework conditions, such as network partners and the availability of talents. Thus, it is no surprise that the innovation performance between regions differs significantly. Clusters can be considered as a regional innovation system. Since we are able to measure the excellence of clusters, our research has revealed notable regional differences of the innovation systems and the innovability of the region. Those areas tend to be strong in terms of innovation, where the key actors have excellent framework conditions and get used to cooperating across borders.

What impact do you expect your findings and ongoing studies to have?

Innovation is a key success factor in Europe and Member States must invest further in it. We believe that our research will contribute to a better understanding of how innovation happens today and how it can be better publicly supported. Due to the financial crises we do need more tailor-made and efficient approaches to how policy makers can support innovation.

WITH BUDGET CUTS leaving their mark throughout Europe, now is certainly not the time for inefficiency. In response to this fact, a research group based in Berlin is interrogating the conditions surrounding innovation, with a view to uncover the most productive environments for this characteristically inventive mode of thinking. Led by socioeconomist Dr Ernst Andreas Hartmann and Dr Gerd Meier zu Koecker – a persuasive advocate of cluster and innovation policies – the Institute for Innovation and Technology (iit) works to promote multidisciplinary development in order to reach conditions that function as true and productive incubators for creativity and innovation.

INSTRUMENTS OF ANALYSIS

To explain how efficient organisational structures can be developed, iit has created – amongst others – the Analysis of National Innovation Systems (ANIS) instrument; an approach that uses structured interviews in a methodological way to the study key determinants of a regional or national innovation system. Unlike existing models, which rely heavily on statistics, ANIS gives a broad, quantitative representation of an innovation system, allowing researchers and policy makers to quickly evaluate a particular case study. The results obtained through this instrument contribute refreshing additions to current understanding of how innovation systems work and where to improve. Most significantly, by turning their attention to non-numerical findings, Meier zu Koecker and Hartmann are able to lead policy makers towards tangible and relevant goals.

This particular instrument also enables the group to deliver tailor-made evaluations, as Meier zu Koecker highlights: "ANIS provides an excellent survey on the status of development according to the needs and capabilities of the target groups". The suitability of this tool is clear: socioeconomic concerns permeate the group's work as the team looks towards the impact of (cultural) factors on innovations. Moreover, this methodological mode of research echoes a larger focus than is evident across Europe, as policy makers investing in science, technology and innovations strive to clearly illustrate and justify their investments and gain the greatest return. Here, the relationship between innovation and the general public is a nuanced one, based on far more than financial factors. Tailoring their work to this, the team has found that public investments do not merely provide funding for innovation systems; they also play their part in initiating mutual learning.

INNOVATIVE BEGINNINGS

With innovation at the very core of EU's growth strategy, the team at iit is responding to a bigger picture that is rooted in the continent's vision for improvement. Meier zu Koecker and Hartmann have articulated two key target areas when it comes to improving innovation in Europe. Stressing how they monitor innovation systems from conception to culmination, the thinkers at the Institute have suggested that improvements need to be made at either side of the innovation process.

The findings of the research group urge us to focus on the moment of invention, where there

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OBJECTIVES

- Contribute to a better understanding of how innovation happens today and how to better measure innovability and innovation in Europe
- Analyse, designing and evaluate STI public support schemes
- Support policy makers in improving their STI support schemes to increase innovation and competitiveness in Europe

KEY COLLABORATORS

Science, Technology and Innovation policy makers

Scientists and practitioners from Innovation and economics

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DR GERD MEIER ZU KOECKER is head of the Institute for Innovation and Technology, Berlin, and holds a PhD in Mechanical Engineering. Currently he is serving on various advisory boards, appointed by different European Member States and the EC. Meier zu Koecker has led many innovation and cluster projects in several parts of the world, has written widely about innovation, cluster and technology transfer issues, and is a frequent speaker on innovation policy and cluster in Europe, North America, Africa and Asia.

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is a need to cultivate the right environment for innovation to flourish. The group has found that, while creativity is a key factor, an innovator needs more than this to truly develop. Amidst such complexities, the group's findings clearly indicate that innovation works best when people move together, as Meier zu Koecker explains: "Innovation often happens at the border of different industries and technologies". In recognition of this, the work at iit encourages individuals from various disciplines to cooperate, and the team members have been striving to foster common understandings upon which long-lasting and mutually beneficial relationships can be built.

A BROAD PERSPECTIVE

As the work of the research group spans the globe, Europe has been an interesting point of comparison for a team optimistic about the power of clusters. By picking up on what makes the European environment unique, and by exploring the influences these idiosyncratic factors have upon the scientific, technical and innovative industries, the team can gauge the importance of collaborative thinking and understand how it can best be applied. The team stresses that it is not enough to rely on one quality or characteristic; just as creativity alone is seen to be insufficient when generating innovation, research in this field has lead the group to reject the view that new technological solutions are the only answer to unrealised innovative potential. Instead, the researchers observe that different groups need to collaborate and bring together different qualities, with Meier zu Koecker stating: "We are convinced that future solutions will depend on a multidisciplinary cooperation of actors from various fields".

A CONTINUING EVALUATION

The findings of iit indicate that once this collaborative environment has been established, an organisation is in a better position to cultivate efficient innovation systems. However, the proposed improvements do not stop here. Rather, the findings of the Institute led by Meier zu Köcker and Hartmann enable us to observe a second core focus point, again related to how efficient communication can enhance the work of thinkers and policy makers within innovation systems.

In this second suggestion, the focus is brought to the end of the innovation chain, where R&D results are shared and commercialised. Against an enriched backdrop of European knowledge, the team pinpoints the specific factors that influence the reception of innovation, leading us to conclude that the majority of the unrealised potential that currently affects the continent is not due to a lack of scientific knowledge or excellence; rather, companies and R&D institutions fail to achieve the optimum impact when they lack the market expertise that can transform their findings into products, technologies and services that bear relevance to the outside world.

SUSTAINABLE FOCUSES

With a focus on efficient, profitable innovation, the work at iit functions in line with major European trends. Because of this, it comes as no surprise to see that as the nature and significance of innovation has developed over time, and the pressing issue of sustainability has also become an increasingly important consideration. Meier zu Koecker acknowledges that, when it comes to decisions made by policy makers, the term 'sustainability' has two key definitions. Crucially, the team has recognised that 'green' sustainability is prioritised on the political agenda to the point that there is no alternative to environmentally-orientated thinking. In response to this, organisations engaged in innovation need to ensure environmental considerations are firmly built into their business plans.

The second definition relates to how a sustainable outlook can be interpreted on an industry level. At the centre of Meier zu Köcker and Hartmann's persuasive thinking is one clear dynamic: sustainable development cannot exist without research and development and innovation. Innovators must not only be influenced by environmental focuses, they must also work to influence how this form of knowledge is shared. The relationship between sustainability and R&D functions in two directions, and sustainability has to be a consideration as policy makers seek out new contacts that can be maintained on a long-term basis, remaining mutually beneficial into the future.

As a result of following the progression of ideas from start to end, iit has developed a set of guidelines that deconstruct innovation. With socioeconomically-relevant observations and applicable, quantitative findings, the work at the Institute aims to articulate the nature of modern, effective European innovation. Using these results, policy makers can develop a stronger idea of their place and role within the industry, and use this knowledge to develop and expand the tools they use to render R&D findings relevant to the outside world. Only then can policy makers work to continue the negotiation between researchers and the public, which is at the heart of accomplished innovation.