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Panel 3

Introduction

ECONOMY AND CIVIL SOCIETY: HOW INNOVATION DRIVES CHANGE

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Introduction

The panel assembled here will discuss how innovation drives change, and which role innovation has in a social dimension. To be more precise, we will talk about ‘social innovation’ and ‘social entrepreneurship’. Doing so, we will walk somewhat off the beaten path along which the role of research and development, of knowledge externalities, and the impact of institutions like universities and public research organizations are discussed as major drivers of innovation and thus of change.

The time is too limited to give a detailed academic introduction to the topic. Let me focus instead on two aspects. First, I will try to challenge some notions of innovation that are used widely, especially in policy circles. Second, I will try to give a brief characterization of innovation activities in Germany in order to describe the context within which ‘new’ approaches now emerge. And finally, I will comment on the emergence of social innovation and social entrepreneurship itself.

Innovation defined

‘Innovation’ is probably one of the most abused terms in today’s political language. The term is typically em-

ployed to describe something genuinely positive and desirable, and many politicians are delighted to bask in the glow of this connotation. If one goes back to reasonable definitions of innovation, one quickly finds out that they are tricky. Innovations are something novel – be it technical, organizational or social – that is actually being applied. Hence, the beautiful thought, *der ‘schöne Gedanke’* (Thomas Mann), alone is not enough. But new to whom? Suppose we consider a new process for producing some artefact. Clearly, its first-ever introduction in any production environment on this planet deserves to be called an innovation. Later attempts to bring the same new concept to other firms may be called ‘imitations’. However, to a mid-sized company that pursues such imitation the pains of introducing the novel approach may be the same as in the first-ever introduction. Taking a strict view on novelty is only appropriate when we seek to identify the very small group of ‘first-ever’ approaches. If diffusion of novel concepts is being studied, ‘new to the adopter’ would be the appropriate definition to work with. In between these polar cases are many more that may be of practical or theoretical interest.

Innovation ambivalence

Some of the business press and some not-so-thoughtful executives (*‘Innovation ist, wenn der Markt Hurra schreit!’*) use the term innovation naively to describe purely positive outcomes. That is deceiving for two reasons. First, innovation is ambivalent. Second, it is highly risky. Let me discuss these aspects in turn.

Innovation outcomes are strikingly ambivalent. Even some of the most admired innovations have had some consequences that were dubious, to say the least. Let us take the well-known example of movable type printing, developed by Gutenberg in the mid-15th century. First of all, we need to apologize to our Chinese and Korean guests today, since Gutenberg was not the first to discover such a system. The world’s first-ever (known) movable type system with ceramic types probably emerged in China around 1040, and around 1380, almost 100 years prior to Gutenberg’s work, Korean inventors developed a system with me-

tallic types. Gutenberg was not aware of these pioneering attempts, nor were they nearly as successful as his concept which relied on type made from an alloy of lead, tin and antimony (which became the standard for centuries to come). One of the contemporaries of Michelangelo and Leonardo Da Vinci, Pietro Aretino, was a well-known, but somewhat dubious character of the age. He employed the new technology to print news – he is actually called the ‘first journalist’ by some historians – and many other texts which had hitherto been ‘manuscripts’. But mostly, he copied material we would consider nowadays *pornographic*. Thus, our solemn notion that Gutenberg’s innovation enabled Western civilization to print holy texts may be correct, but many more texts – not so holy – were printed as well. In modern start-up lingo, one would even say: the latter use was the killer application of the day. The innovation by itself was not uniformly, but some uses of it were highly beneficial. Nonetheless, even this celebrated innovation was ambivalent.

Innovation-related risk

Innovation is also highly risky, and if we exclude all failed innovation attempts from the definition, risk in innovation can no longer be discussed. The innovation research literature shows that a large share of innovation projects undertaken in established corporations (and thus likely to be incremental) will fail either for technical or market reasons. Even among the successful outcomes, there is tremendous heterogeneity. A number of years ago, Mike Scherer and I started a research project to study the value distribution of patented inventions. We found that in a typical patent portfolio of, say, one hundred patents, ten percent of these patents represented ninety percent of the value of the portfolio. Similar distributions are found in the portfolios of venture capitalists, in sales at the box office, and in many other areas of creative activity. Hence, innovation generates highly skewed outcomes, even if we consider only the successful cases. Based on this insight we praised Chairman Mao Tse Dong for his policy rule ‘Let many flowers bloom’. In other words, if you want innovation, you may need many experiments in order to generate a sufficiently large group of highly valued innovations.

Research and innovation in Germany

The production of knowledge is at the core of research and development (R&D). But there are impor-

tant forms of market failure that lead to an undersupply of knowledge in market systems. All industrialized countries and most threshold and developing countries are, therefore, embarking on government support for science, research and innovation. Most countries have – over time – developed specific national innovation systems which consist of a number of complementary elements and institutions. A simplified and very pragmatic view which takes five dimensions into account has been developed by the OECD: public sector science and R&D, private sector innovation, technology transfer, entrepreneurial innovation and governance of the overall system. In brief, the current German innovation system can be characterized as follows along these dimensions:

1. Public sector science and R&D. Germany’s universities saw a long time period after World War II and in particular after the 1968 student revolts in which they were beset with bureaucracy and a complete lack of competition. An important impetus was brought into the system by the German Universities Excellence Initiative of 2005/06. A competitive funding mechanism has distributed a total of 2.7 billion euros (1.9 billion for 2007–2012), based on a meritocratic assessment of universities’ performance in research and strategic outlook. The Excellence Initiative yielded a striking result – the distribution of funding was highly concentrated among a few locations. If anything, the results have demonstrated the tremendous heterogeneity among German universities. The impact of the initiative is largely seen as positive – many German universities were able to raise their international visibility.
2. Private sector innovation in Germany is strong, but highly specialized. The three most successful export sectors – chemicals, automobiles, and machinery – are also the main contributors to research and development. Information and communication technologies (for which a strong scientific base existed) have slowly lost importance and public support. Still, R&D expenditures in Germany rose from about 2.5 percent of GDP to almost 3 percent in the time span from 2007 to 2012. Given that almost two thirds of the bill is shouldered by industry, this indicator carries a lot of weight and points to renewed strengths in the classical sectors of German industry.
3. Technology transfer has been strong in some sectors of the German economy, such as chemicals and mechanical engineering. The Fraunhofer Soci-

ety with its institutes focusing on applied R&D has been a highly successful promotor of innovation in some areas. In other fields, especially the new science-based sectors such as the life science, digital technologies and nanotechnology, there has been less success, partly because there is no strong established sector in Germany that could pick up research results and turn them into commercial value creation.

4. At the same time, the German innovation system has had – for decades – a lamentable Achilles heel: its lack of support for growth-oriented start-ups. In the 19th century, Germany had been a hotspot for entrepreneurial activity. After World War II, there was another burst of entrepreneurship. But Germany did not develop a venture capital industry of much importance in the 1970s and 1980s, and it has lagged other countries (among them Scandinavian and other continental European countries) in start-up finance and entrepreneurial culture. The German tax code still heavily favours large corporates with tangible capital over fast-growing small firms with nothing else to show for their efforts than intangible assets and accumulated losses. Restrictions on the use of loss carry-forwards by later-round investors persist, and venture capitalists do not find very conducive conditions for setting up their funds in Germany. Given that VC financing is mostly done in the (geographic) backyards of the funds, this translates into a lack of equity capital which has become a major stumbling block for the new digital sector as well as for start-ups in the life sciences. This has partly been covered up by an admirable development in Berlin which is now Germany's premier location for digital start-ups (despite discontent in Munich). But even Berlin start-ups find it hard to obtain the larger amounts needed for a B-series financing round. Seed-stage financing support provided by the government is in ample supply. But incentives for private financiers to step in and bring scientific results and early-stage start-ups to the next level are dampened by these impediments.
5. Governance. In Germany, the Federal Ministry of Education and Research is in charge of federal programs to support science, and to some degree innovation. The Federal Ministry for Economic Affairs and Energy runs support programs and other measures that seek to bolster innovation in the private sector, as well as technology transfer and entrepreneurship. Other ministries have domain-specific agendas and initiatives pertaining to

innovation. There is an obvious need for coordination among these players. But the situation is complicated further by the federalist structure of Germany where the states have their own, significant initiatives for supporting innovation. And finally, the various programs of the European Commission – currently in its 8th framework program, called Horizon 2020 – add to the complexity of the overall setup. In 2006, the German federal government decided to embark on a new attempt of coordination at the federal level. It tried to develop a comprehensive research and innovation strategy ('Hightech Strategy') which has been continued by two other coalition governments since then. The start of the Hightech Strategy was accompanied by the creation of a governance body (*Forschungsunion*) which brought representatives from industry, academia and government together to plan and watch over the budget increases and new initiatives started in 2006/07. Contrary to expectations (including those of this author), the *Forschungsunion* (and its successor councils) appears to have had the desired effect at least in parts. The council was able to reduce duplication of activities among the various public sector players supporting innovation. Moreover, it led to a new form of dialogue between the various players in the German innovation system and included for the first time new types of players, among them individuals from non-government organizations and the venture capital sector.

It is probably fair to say that the new form of governance has played a positive role during the time period since 2007 which saw an increase in R&D activity in Germany, and an improvement in the international visibility of its universities and research institutions fuelled by the Excellence Initiative and other programs. While the majority of activities, e.g. in the *Forschungsunion*, followed a traditional model of academia generating new knowledge which is then turned into innovation by private players, a shift became visible in 2009 when the German government began to emphasize 'mission orientation' and started to organize its innovation policies as a response to major societal challenges (such as health, mobility, security, etc.). A number of other countries had undertaken this step earlier. The 2013 coalition government added a notion of citizen participation in innovation to its policies. This brings us now to consider some gaps in the classical view of innovation, and to the main topic of our panel, social innovation.

Sources of innovation reconsidered

One of the most prevalent, though often only implicitly stated notions in economics is that innovation is typically pursued by some private-sector manufacturer or service provider who – by means of innovation – improves about the own product or service. We can run through the usual modelling exercises and find optimal research and development investments. Empirically, these models have found some support, but there is also opposition from researchers who have in-depth knowledge of real-world innovation processes.

We also know from a large number of studies that innovation in equipment and processes will often be undertaken by the firms employing the respective machinery and production processes. Eric von Hippel has shown that this form of innovation is not limited to firms, but that individual users are a frequent source of innovation in a range of fields. What makes a user's innovation, at least in many contexts, superior to innovation by manufacturers? The view that emerged in a series of studies in the user innovation literature is that users have better insights into the context in which the innovation will be used. Information on the user's needs and the context of use are hard to replicate, since the respective information is 'sticky', i.e. difficult to transfer. Solution-based information or solution capabilities may be easier to muster than the sticky information describing the context of use. While early studies had focused on industrial processes and equipment, subsequent research also demonstrated that consumer products were not exempt from the user innovation phenomenon. If anyone is in search for examples to see the impressive breadth of the phenomenon, consider the examples of medical innovation at *patient-innovation.com*. It is important to note that to some degree, innovation activities are undertaken not at the work place, but at home. Some of these activities are now considered under terms like 'household innovation' or 'citizen innovation'. For Britain, a 2009 household survey found that 6.1 percent of UK consumers had undertaken consumer product innovation during the prior three years. Consumers engage in projects that are complementary to the innovation efforts of producers. These innovations are rarely protected by intellectual property rights, but in some cases, commercial actors actively search for these contributions and include them in their product portfolios. While these innovations – coming from private individuals, mostly not seeking to maximize their

profits – are not the same as social innovations, they have similar features. In particular, these phenomena demonstrate that innovation is not confined to industrial laboratories.

The promise(s) of social innovation and social entrepreneurship

The panel assembled here will discuss various forms of social innovation and deliberate over its role and impact. I do not have the hope that we can find a generally accepted definition of social innovation. If innovation is difficult to define, social innovation creates real headaches for researchers trying to do so. Attempts may range from a limited application of the classical definition – something new that is being applied, in this case to social matters – to far-ranging classifications that call anything social innovation that is deemed beneficial to society and not seen before.

All innovation has social implications. The removable type printing machine mentioned before changed the distribution of knowledge and made all sorts of texts more accessible to the population at large. It created important incentives for education, prepared the ground for the emergence of school systems, and had a number of other – ambivalent – implications as well. The social implications of technical innovation have often been a mere consequence, an afterthought to the process of creating a technological breakthrough or improvement. The new quality of social innovation as it emerges now is that it aims to tackle social aspects directly, such as lack of access to education or to medical treatments. There is a wide range of related phenomena, starting from philanthropy, and ranging over various forms of corporate social responsibility to social entrepreneurship that are relevant in this context.

The organizers have demonstrated great timing to have the panellists discuss this topic. To start the discussion, let me distinguish two aspects in the current discussion. One focuses on social innovation coming from the state. Some may argue that the process of coming up with novel social policies is as much impacted by externalities as is the process of generating technical breakthroughs. I would argue that the argument may be justified, but care should be taken not to generate a justification where any government action becomes a social innovation. I do not view this as a major force in the current debate.

The other, more relevant view focuses on social innovation coming from private citizens or corporations who seek to bring about social change. Economists are usually sceptical when such claims are made, but there may be good reasons for them to listen and watch the developments carefully. The usual objection – that such activities may crowd out markets – does not apply when the projects only receive initial funding, but are sustainable in the long run.

Just to make this tangible – consider two examples. A particularly positive one is *Ashoka*, a global platform which has supported to date about 3,000 entrepreneurs in a wide range of projects. Let me also point your attention to a Munich-based example which was initiated by four universities: the Social Entrepreneurship Academy (SEA), a consortium of the entrepreneurship centers of the four Munich universities (LMU, TUM, the University of Applied Sciences, a polytechnic, and the *Bundeswehrhochschule*). The SEA seeks to support students in pursuing social innovation projects. These are just two examples from a space that is getting crowded quickly.

Summary

To summarize, there is good reason to believe that the classical view of innovation is in need of extensions. The world is greatly enriched by concepts of social innovation and social entrepreneurship. Some of the examples – e.g. developed at *Ashoka* or at some of the entrepreneurship centers of the universities – are truly impressive and deserve to be praised for their vision, courage, and – in many cases – positive impact. But to pour some water into the wine, the economic importance of this movement is probably still limited at this point. And innovation, even if pursued for worthy social objectives, will remain risky and ambivalent. Social innovation projects are no more immune against these dangers than the conventional innovation projects pursued for monetary gain. Nonetheless, it is hard to object to a model of social innovation and entrepreneurship where talented citizens start new, self-financed and sustainable initiatives that make the world a better place.

PANEL

“Innovation for what? Why are we doing all this?”
“Can we harness this change to improve our planet?”

This is how **Katinka Barysch**, Director of Political Relations, Allianz SE, Munich, introduced this panel.

Followed by the introduction made by Dietmar Harhoff, Ms. Barysch asked **Bill McDermott**, CEO of SAP, to comment on his focus when he took charge of SAP five years ago. When he started, he replied, they made an honest assessment of their strengths and weaknesses. SAP was very good at application and analytic software, but they needed to adapt to the immense growth in data and their software had to be ‘made beautiful’. They also needed to help companies collaborate in line with the development of social networks. His first two weeks were devoted to their vision: “to help the world run better and improve people’s lives”. The ‘run better’ part involved the technology; the ‘improve people’s lives’ part meant that the consumer would be the ultimate decider. An example of improving people’s lives is the health care industry. Here information technology must be used to access and analyse the vast amount of research to find personalised solutions for individual needs in real time. In terms of Industry 4.0, companies are rethinking the whole value chain using modern technology – their value added comes more from making the machines reliable than from the machines themselves. Their vision drove their entire R&D cycle and the way management had to think. “Had we not spent the two weeks working on our vision, we would definitely not be the company we are today”.

Hedda Pahlson-Moller, founder and CEO of Omnibus International, is a proponent of the unorthodox sources of innovation, working from the bottom up. As an entrepreneur and investor, she uses the services that some of the panel members provide. For her, social innovation means ‘using an entrepreneurial mindset to tackle societal problems’. Civil society is beginning to have a stronger voice since entrepreneurs are often unable to scale their solutions to tackle the real problems. Consumers are also becoming more discerning, preferring brands that project a more sustainable living vision. They want socially responsible companies that provide products that are environmentally viable and that treat their employees fairly. “There is now a convergence of the unorthodox innovators coming together with standard companies and creating fantastic solutions”. The ‘social revolution’ is coming and connecting these two worlds.

Charles-Edouard Bouée, CEO of Roland Berger Strategy Consultants, agreed that “the power lies at

the base". The smartphone is not only 'the remote control of your life' but also a link between corporate innovation and social change, between the top and the bottom. Social change also goes beyond technology – "it is how we want to shape the world of tomorrow". When we look at the future, in a world of exponential technologies that affects every area of our lives, we must actively shape this development and assure, for example, that the new technologies do not destroy jobs because "otherwise we will have a world in which none of us want to live".

Arko van Brakel, CEO of deBaak training institute and a 'serial entrepreneur' feels that once again "he is on a wave that may change the world". The effect of the exponential growth of digital technology is that information also grows at the same rate, which leads to new business models and a new leadership style. Anyone who uses Google as a search engine contributes to making the product better and is 'a co-developer of Google'. The same applies to Facebook: "if you are not paying for the product, you are the product". Solar energy is also a technology that is exponential and that will make energy affordable for large groups of people. This will enable us to make fresh water from salt water at low costs, creating agriculture in new places. This will lead to an unprecedented innovation and wealth boost to the world. Unfortunately, old thinking still stands in the way. Hence, the key questions: "how can you adapt your leadership style to freely embrace the full opportunity of the world of abundance?"

In the discussion among the panel members, Dietmar Harhoff pointed to the difference between start-up and established companies. When a company encounters its first difficulties, innovative management practices are often the first to go. Arko van Brakel responded that companies follow an S-curve, value-driven at the slower beginning phase followed by periods of rapid growth and then stagnation. To start a new S-curve, companies need to return to their original values. Bill McDermott agreed with the S-curve analogy and added that leaders need the courage to change in order to 're-invent the S'. You also have to keep the company 'full of youthful exuberance' but to learn from the 'seasoned veterans' as well. Acquiring young companies also helps to energise a larger enterprise.

In the discussion, **Peter-Alexander Wacker** of Wacker Chemie asked how can we promote fresh thinking and prevent creative young people from becoming frus-

trated when they enter the workforce. Mr van Brakel replied that frustration arises when talents are not used optimally. **John Kornblum** himself was frustrated with some of the weaknesses in the panellists' own Websites. Mr van Brakel partly agreed, but for his company their social media presence is more appealing and more important. **Ulrike Reisach** of Neu-Ulm University of Applied Sciences referred to the need for a comprehensive approach to integrate the wave of asylum seekers in Europe and to utilise this new talent potential. Hedda Pahlson-Moller added that there are two ideas that are driving social innovations: sharing is the new owning and poverty or exclusion is a waste of human capital, the last point applying especially to the new migrants.

Clare Pearson of DLA Piper UK LLP, a law firm based in Shanghai, asked what skills are necessary for leaders to create an 'eternal spring' in their multinational companies. Bill McDermott replied that young people want leaders who are innovators, intellectually curious and open to new ways of thinking. "And you cannot just hire young people, you have to train them". Mr Bouée added that "innovation is not sheer luck" but comes from passion and hard work. **Horst Krumbach**, founder of a social entrepreneurship, was glad that corporate social responsibility (CSR) was being discussed and suggested that governments, companies and foundations work together in a joint venture to help social entrepreneurs become self-sufficient. Mr Harhoff agreed that we can do a lot more to help finance these endeavours, by means of social impact bonds, for example. "We need to enable young people to be either social or commercial entrepreneurs – that decision is theirs – and universities should help them".