Danuta Hübner
Chair of the Committee on Regional Development

"The University-industry tandem in innovation"

Opening remarks at the launch of the Google Digital Economy Lab
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Being here today at the opening of the Google Digital Economy Lab, a state-of-the-art centre promoting the development of innovation and the use of advanced ICT technologies, we find ourselves in very auspicious circumstances to think about the origin of innovation, its drivers and the recipe for its success. We all know that innovation also needs a boost from non-market forces. The role of public policy for instance is vital in this regard.

Recent history has clearly shown that virtuous innovation cycles very often have had the state at heart. One example that comes close to home for Google is the funding provided by the US National Science Foundation for the algorithm which drives its search engine. We also know that all the technologies which make the iPhone the success product it is today were created with government help. They include the internet, the wireless network, the GPS, microelectronics, touchscreen displays, to name only a few.

But public policy is certainly not the only driver of innovation. To be effective, it needs strong partners. And they do not come only from the market. At the heart of innovation lie universities.

A successful innovation strategy ultimately hinges upon a fruitful government-industry-academia collaboration.

Over the coming minutes, I would like to focus on the importance of universities when it comes to innovation generation. After all, these are some of the principles which have been effectively internalised by the promoters of the Digital Economy Lab we are inaugurating today.

Technology development does not have to take place in the capitals only and very frequently it does not. If we look at the most dynamic technology industries, the common factor is not a location in or near capital cities but one close to the most innovative technological universities. This was true in the United States, first with the Boston area and the famous Route 128 and then in Silicon Valley itself - both of these regions house many excellent universities. Many of the technologies which were the basis of entrepreneurial success were spun out of these universities. Gradually major companies developed in these regions but the importance of the university-business interface has remained. And it can only grow in the future.

Europe also has many exciting examples of technology development in the regions. We have all heard of the great success of the University of Cambridge in spinning off new technologies into companies which have then progressed to become international enterprises. Many examples can be found amongst all universities linked together in the Coimbra Group.

It is however certainly true that Europe still lags behind the US and perhaps even some of the more dynamic countries of south-east Asia on the university innovation front.

There are numerous explanations for this difference, including somewhat intangible contrasts in the social approach to risk or different demographics.

A major difference between the two also concerns funding. The major universities in the United States are extremely well funded, although their endowment funds are somewhat smaller now than they were a few years ago. These endowment funds usually dwarf those that even the richest European universities have and in many European countries universities simply do not have endowment funds at all and do not receive significant amounts from their alumni. In America, universities like MIT also receive significant funds from the state, often in the form of research contracts, some of them relevant to the military. They have generous funding through the National Science Foundation and various other agencies.

In Europe, on the other hand, the funding of our universities is predominantly done by the state through the annual budget. The worry is that with the dramatically bad public finance situation, which can only improve slowly over the medium-run, there is a real danger that

governments will find it convenient to cut education and research budgets, and particularly those for higher education, on the assumption that this will not lose them too many votes. I do not have to convince you that this would be an extremely short-sighted way of cutting the deficit, because it would reduce our capacity for technological development and therefore our medium and long-term economic growth potential. This could lead to a lost decade, which Europe cannot afford.

One of the great advantages which American business also has is that it has a domestic market of over 300 million people with an average income per capita higher than that of the EU. In Europe we are very proud of our greatest achievement, the internal market. But it is far from complete. We have 27 countries, which on many accounts and in spite of the development of the EU's internal market, still operate as separate market areas. This is explained by a large number of factors including language, institutions, traditions and history. This makes it somewhat harder for promising start-up companies to rapidly exploit our internal market of around 500 million. This makes also cross-border cooperation and networking more difficult and less efficient.

Certainly European universities face a somewhat trickier environment than their American counterparts. This does not mean however that they should become complacent. With drive, ambition and strategic thinking, they can go a long way. Allow me to say a few words on the role universities can play when it comes to innovation.

What role can and should universities play in enabling innovation?

Today, the role of university goes far beyond its traditional mission. Academic institutions become engaged with local communities, they participate in skills improvement, in raising the quality of education, they generate businesses, and very often are leaders in stimulating innovation and knowledge transfer.

Universities can and must harness local and regional potential:

Times when only capital cities and world class universities would drive progress and innovation are gone. Across Europe, in many small and medium sized towns, universities stimulate start-ups, spin-outs, knowledge transfer, innovation and growth.
Sometimes it is not evident that benefits of education and research can be reaped locally. It can be difficult to capture benefits especially in case of regions where local firms cannot absorb research findings well. That is why we need long-term R&D cooperation between academia, the public sector and industry in order to create the missing bridge between research centres and local companies. Universities must get ready to foster such long term relations "at home", and become better anchored in the local economy and society as a hub of knowledge and talent attraction. Using that as their starting point, universities can then also help local businesses plug into global supply chains and make them globally competitive.

One of the upcoming projects of the Digital Economy Lab will focus on providing a platform for dialogue between academia and local communities. This is an extremely timely and welcome initiative.

This brings me to the role of business and the pivotal role that the university-businesses relation can play:

Universities must certainly actively engage with business when it comes to taking innovations from the research centre and into the market place. They play a key role in technology transfer for instance.

But the university-business connection is not important only once the final innovation has been developed and is ready for the marketplace. The relation is pivotal for the whole lifespan of the innovation, from idea to the market. The most successful university-business relations are strategic and long-term, they are constructed on a shared research vision, lead to the establishment of professional ties, trust and shared benefits. Such a relationship increases the odds of a successful innovation. The partnering between universities and businesses does unfortunately not always come naturally.

This is a pity, as the gains are strong on both sides. From the university perspective, such partnerships offer a longer stream of secure funding, they contribute to the modernisation of

teaching by enabling an exchange of ideas and equipping people with the skills they require in order to cope with changing markets and industries. From the business perspective, firms are given access to human capital, expertise and fresh ideas, which would not be available elsewhere, as well as to cutting edge technologies.

If managed well, such a partnership can over time produce a number of professors and graduates who can bridge the university-industry gap, relate to the key research interests of a company and work together with it in order to define big and common strategic goals. The human talent underpinning this relationship does not only guarantee the success of the project at hand, but can be pivotal for the development of future collaborations. And examples proving this abound. To mention just one, IBM's nanotechnology centre in Zurich comes to mind. The 90 million dollars centre is the outcome of a 10 year strategic partnership in nanoscience between IBM and the Swiss Federal Institute of Technology and is today at the forefront of tomorrow's technologies.

Europe's climate for innovation would significantly benefit from having more strategic industry-university partnerships. Stumbling blocks still exist unfortunately and the divide between academia and industry still runs deep.

All of you here at the Digital Economy Lab are well aware of this and I am extremely pleased to see that one of the projects you plan to undertake involves looking into innovation transfer between academia and industry, and, in particular, looking into why technology transfer centres have not been particularly successful in Poland and in Central and Eastern Europe more generally.

The upside is that the current state of play can be improved. Let me mention a few actions which can be taken in this sense:

We need strong university leadership, faculty who understand business, incentives and structures for academics to bridge that gap. The people involved in these partnerships must be flexible, open-minded and easily cross boundaries. People with more than just a research pedigree should be encouraged and promoted in academia. What universities really need, if

they are to become successful innovators, are multidisciplinary individuals who are mentors and bridge-builders.

Long-term strategic partnerships themselves require also built-in flexibility. They should exploit the university's creativity and talent on enabling future innovations that can make the leap to the market and provide benefits to society within five to 10 years.

Partners should begin with a shared vision and build on this a strategy. They must also be patient. Fruitful partnerships may take time to bear fruit. Being overly concerned about artificial metrics will just impede the progress and should be avoided.

It is also worthwhile to promote multidisciplinary academic programmes and encourage the engagement of industry in such programmes (work together in a range of fields, including technology, design and engineering). Universities can and should also organise informal lectures and seminars which provide academics and researchers with the opportunity to come together and exchange ideas.

This brings me to the current mismatch between what universities provide in terms of human capital and what industry needs. This mismatch ultimately makes the transition of innovation to the market more difficult and should be promptly addressed. Research findings have shown us that employers, education providers and youth, not only in Europe, but also in the US, often inhabit parallel world. Employers frequently believe that graduates are not ready for the world of work, while education providers think otherwise. The disconnect is in most cases the product of lack of communication between the three points in the chain. Most successful academic programmes are certainly those in which employers and education providers work with their students early and intensely. They do not see the transition from education to the world of work as a three staged process (enrolling in post-secondary education-building skills-finding a job). They are more likely to treat the education-to-employment journey as a continuum. A better career match makes it ultimately also easier to transfer innovations from research labs to the marketplace.

(Data on the topic: According to a 2013 McKinsey study, less than 50% of young people and employers believe that new graduates are ready for entry-level positions, while 72% of

education providers on the other hand however believe that their graduates are prepared for the world of work. A third of employers surveyed, admitted to never communicate with education providers, among those who had communicated with them, 50% admitted that the attempt had been fruitless. At the same time, a third of education providers admit that they struggle to estimate job-placement rates for their graduates. Even among those who admit they can, 20 per cent overestimated the rate.)

Does the role of universities stop at innovation and human capital generation?

Certainly not. We must remember that universities also have a bigger mission. They are the drivers of public wisdom, the creators of a certain state of mind, they are arbiters of public discourse. Universities benefit society in general. They do this by creating intelligent graduates and producing valuable discoveries, by fostering values, which are unmarketable, but certainly pivotal for a healthy society. They include social tolerance, personal responsibility, and respect for the rule of law. Universities represent unique gatherings of scholars which mould lives and minds. A successful mould ultimately spills over into the real world and benefits us all. It is because of this that we should do our utmost to value and promote academic institutions.

Google's Digital Economy Lab certainly internalizes many of the previous lessons. Its interdisciplinary nature, its policy oriented focus, as well as the strong links it will preserve with industry, will beyond any doubt lead to its success. I look forward to seeing the fruit of the endeavour blossom, ranging from a comprehensive strengthening of the use of Internet and technology in society, to the promotion of innovative entrepreneurship to the development of skills and educational solutions necessary to perform the jobs of the future.