

## Knowledge Triangle

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How Universities Can Take on Increasing Societal Demands – and Remain Powerhouses of Intellectual Freedom

Distinguished colleagues and friends!

It is a great honour for me to address you this morning. We have had very productive days so far and there is a clear sense of commitment to the task that we have ahead of us. As an avid eurofile, in a country which was not the most eurofile to begin with, I am very pleased to see people from diverse European backgrounds working together, seeking solutions for the benefit of all.

Being a university man, and an old friend of the university as an institution and as an ideal, I am equally excited to hear so many ideas of how to move this fantastic institution further and to, in fact, take a leading position in shaping tomorrow's societies. This requires change in universities, and we hear in many talks in this meeting that although universities have changed a lot in the recent past, they will have to change even more to become entrepreneurial.

Being also a citizen I must say I am very satisfied to hear that these communities of educators, researchers, policy makers, and entrepreneurs are coming together and discussing how to improve society. Because that is what we are essentially doing. It increases my confidence in this sector and makes me more willing to accept to pay my tax payer's check.

But being a researcher of higher education and of research and innovation policies – **I also know that things are easier said than done in this area.** I know that modes of thought are passing phenomena. I know that behind the sweet talk of conferences there are always certain tensions that we need to deal with if we are to succeed in our ambitions.

I will talk a little bit of those tensions and I do so not just because I suppose the program committee expects me to do just that, but because we have had sometimes too much of benevolent utopian thought in European cooperation, and too little of the anchoring into firm realities. I fully endorse the view taken by Dr Schurmann of the EIT yesterday that action is needed and that it is needed now. And leaving this meeting we would all like to know: what action, and with what guiding light?

### **Innovation systems – triple helix**

There has been a lot of research on innovation systems over the last two decades. We can safely say by now that we know at least a few things about what can give success and perhaps even more of what we should certainly avoid.

The perhaps most central finding of this research is that **history matters** – what has been called **path dependency**. History in this case is not all that encouraging. If it was just a case of implementing the best recent policy formula and that would guarantee success we would not have been sitting here.

And although the European Universities Association, an organization I respect highly, claim that the funding of universities should be both “**sustained**” and “**sufficient**” and guaranteed by public sources – an idea which is attractive but somewhat exotic, and potentially very costly, in combination with the autonomy of universities to decide their ambitions themselves – I maintain that **money** is only **one** prerequisite.

Listen to this. Almost a decade ago at an innovation conference in Rio de Janeiro on Triple Helix – the then new buzz word – President Clinton’s science advisor gave a speech to the assembled community of researchers. This was at the very end of the economic boom of the late 1990’s and the US economy was going all up and up. He said:

“Now people come from the research community and they tell us that if we get all this economic growth from spending 2 percent of GDP on research, why not give us 4 percent and we will get twice as rich?!”

He knew of course that we would laugh, and we did. Interestingly Europe almost at the same instance decided we needed three percent. I think we realize now that we set such goals not

because they can guarantee us anything in terms of economic growth but because they serve as signals of our commitment to a much more complex societal mission.

**We invest in research and education and innovation not because we think we can push annual average growth a fraction of a percent upwards (some years...), but because we want to improve our societies with all means that we can find – and knowledge is one of them.**

The wonderful thing with knowledge is that it is not one thing, but countless things. Knowledge means surprise. First of all, knowledge can be shared – it is among those few things that grow when you share it. The more people who learn what you know, the more you will get back yourself.

When you increase knowledge you increase the chances of improving the human condition. It would be wrong to reduce that noble mission to economic growth alone, and that is also why **I would like to caution us not to reduce the entire world of knowledge to a closed knowledge triangle. It is an important part of our societal knowledge enterprise, but it can not and must not be all of it.**

### **Cultural learning**

During the panel yesterday Günter Stock talked of something he called “cultural learning”. He thought of something intangible but very important that we get from university education, especially if we cross boundaries and as students and scholars live and work in different countries. He related it to “judgment”, the ability to not just perform tasks blindly, but to solve problems responsibly, as Margret Wintermantel argued. I think both of them are perfectly right.

Last week I was in Vilnius and I read once again the memoirs by Czeslaw Milosz, the Polish-Lithuanian author and Nobel laureate, entitled in Swedish translation “My Europe” (*Rodzinna Europa* in Polish, 1958). I also visited the building where he went to a Catholic high school for boys in the 1920s. It was a pilgrimage of sorts.

They certainly had no “clusters” there and no “innovation policy”. But Milosz lived in a town where they spoke a plethora of languages, where national boundaries were moved from one day to the next. He learned Polish and Lithuanian, Jiddish, and Russian and German and French – only later, when he came to the Polish embassy in Washington after the War, he became fluent in English, “this dialect on the margins of the educated world”, as he called it.

He learned only so much from his teachers, often religious fanatics, excentrics or alcoholics. He protested religion and the school priest. He loved Darwin, evolution and chemistry. And rather than just follow the curriculum he read cheap novels, thrived on newspapers, went to the movies, started poetry groups. He went on in much the same way at the university in Vilnius, an old and respected institution, still there today. He needed no interdisciplinarity, his life was interdisciplinary.

He finally became a professor of Slavic languages at Berkeley – on the western fringe of Europe’s westernmost colony, having started from the Eastern outpost of the Papal Church in Europe – next stop was Belarus.

Milosz practiced a cultural learning that was rare and could not be put on any formula. But we should keep it in mind when we try and subsume our ambitions into overarching schemes for universities. The reason we want Bologna and the wonderful set of European policy instruments that we have, the ERA, the ERC, the EIT, etcetera, is that we want to **enhance diversity, not reduce it.**

That is also why I believe it is important to consider carefully the comprehensive reform agenda of Frans van Vught, whom I admire and usually agree with. His analysis yesterday of the need for diversity in European higher education systems is absolutely correct, and I agree with him that we need to develop better evaluation criteria and improve ranking.

But we should make sure that we do not end up with a system which locks higher education institutions into rigid functionary roles. What the Americans did was that they developed several decades ago the Carnegie Classification system where a university is given a position which, by implication, also ascribes to it a mission, but importantly the university or college was always granted the possibility of leaving your category and move to another tier – and another mission. Just like humans universities like to grow, and prosper, to fulfill their noble goals.

That is the reason we need more autonomy in universities. They should be able to change their mission, if and when they have the skills and can find the means to do so.

I am grateful to van Vught that he helped me sharpen my own core message which is related to my title – how can universities take on this constantly growing social and economic agenda and at the same time maintain their roles as bulwarks of freedom and trust – precisely those values which virtually no other institution in society can provide?

I am afraid it does not help much to say – with the convenient and popular phrase – that universities are good at adapting since they have survived for 900 years. Parts of that history are none that we have to be proud of and universities in some places at certain times have behaved shamefully. Universities should adapt only to what is ethically sound. The Harvard faculty was therefore doing the right thing when it ousted Larry Summers as Vice Chancellor. He had violated those values.

Universities are, at the core, value-based institutions, not for profit. They should, and do almost invariably, defend free speech, democracy, tolerance, they fight xenophobia, superstition, and prejudice. They are hearths of values which we cherish as central to the open societies we wish to remain for our children.

### **Institutional pluralism**

This may sound as a Sunday sermon but it is closer to hands-on policy recommendations than you might think.

The tension I referred to in the beginning is precisely between securing these values – and the necessity to also be part of innovation.

I would like to illustrate this tension with this simple image.

### **IMAGE – Linear model and Hybrid forms**

On the top level I have sketched the old “three hump model” of linear innovation: from basic research in universities through to development work in firms, from left to right. In many countries there have been all sorts of intermediaries and brokers in that process, RTOs such as industrial research institutes, consultancies, sometimes even public institutions, technology transfer offices. In the past these institutions occupied a distinct space in between universities and firms, although of course links could also be directly from universities to firms.

This is gradually breaking down. New forms of hybrid structures are appearing and the overlap between the three kinds of institutions is growing rapidly. Universities work downstream, firms work upstream, and research institutes also work upstream. The middle ground is becoming more and more crowded, and functions and missions overlap.

**We see this middle ground in the lower area. I have used the little violet bombshell to mark that there is intense contact activity, an explosion of interaction.**

In actual fact there has always been an overlap between universities and society – it is wrong and unhistorical to claim the opposite – but the overlap is much larger now than in say the 1950s, and it is growing quickly and taking on a variety of new forms.

In asking universities to change I would argue that we must do so with some respect for the multitude and diversity of their mission. Not every student will, or indeed want to, become an entrepreneur. Some of them are Miloszes, and they will just become simple Nobel laureates and professors of Slavic languages and belong in the humanities, which however, is the object of special treatment in the Lund Declaration, adopted by a former EU Presidency conference some weeks ago: “The humanities should be an integral part in the research and innovation landscape...” The fact that it needs to be said is slightly worrying, but just because of that also perhaps reassuring.

So what we need to do is to make sure that universities can cover all their social tasks and missions. Certainly not all of them, in all places at all times, but in different roles – as a university system, or indeed as a set of coupled European university systems. Fortunately, this is what universities are fantastically good at. They can perform a variety of roles, and some of them should indeed move into the middle ground and help create the hybrid organizations that are so necessary for innovation.

So why have I kept the industrially oriented research institutes in the figure? Well, in the first place, they are also very active and very skilled organizations, and they are part of the “ecosystem of innovation”. They also, in performing their roles, help universities to make priorities and lower the risk of too many universities drifting relentlessly downstream, sliding too deeply into the middle ground.

### **Ecosystem Zones and Strategic Innovation Environments**

Diversity is key. The literature that Frans van Vught referred to yesterday on economics of innovation invented the concept systems of innovation. I think it is no coincidence that in this conference I have heard the concept “ecosystem of innovation” much more often than “innovation system”.

Ecosystem is a word that allows for diversity, constant adaptation, flexibility; it implies also the impossibility of heavy handed steering. Both concepts can probably exist in parallel, but I predict that more and more people will feel intuitively attracted by the ecosystem metaphor. It certainly goes down very well with the hybrid image I am arguing.

This is also precisely why most governments of Europe and indeed the US as well, have kept institutional diversity. It would take a fool to reduce it.

No, we need friction, we need pluralism, and we need public sources to allocate core funding to all these relevant actors. In fact, some of the universities and polytechnics might even serve as de facto research institutes putting service to industry as their number one priority.

When they are co-located with firms, with research institutes and with comprehensive research universities – then we have the conditions in place for what the Swedish Vinnova agency calls Strategic Innovation Environments. This is where we find that more and more investments in R&D go these days. Such clusters could be found on the regional and national and indeed European level and in order to let them thrive we need to allow public funds to aggregate and concentrate and follow quality in a flexible manner.

But the way to do this is in my view not by allowing governments the right to put higher education institutions in boxes and tell them what tasks to perform. Rather I would like to see opportunity in the system. I would like to make it possible for all colleges and universities to make a career, to carve out their niches, and to prosper. **Some would even like to be light on industrial innovation and specialize instead in providing the future for the next Nobel laureate or professor of Slavic languages.** Then they should be free to do so, and they should stand a fair chance of being rewarded for it!

That is also why I have kept a sizeable portion of the universities outside the hybrid zone of innovation ecosystems. Universities need also to have their zones of free choice, of opting out from short term services. This does not mean isolation. Any good scholarship, in any discipline, requires contacts and mobility. But it means putting other concerns first, and building and defending other values than commercial values.

Knowledge must seek to cater to the ill, bringing “sustainable well being” as Lucienne Blessing called it – a blessing of a formulation, by the way! It must address poverty, hunger, injustice. And it must make it possible for university professors and students, people like ourselves, to stand up in the public realm and say to a potential partner: no way, we will not be part of this. Do it yourself, or with somebody else. Just like Cambridge University said to Phillip Morris. We don’t want your money.

Knowledge once was *ancilla theologica* – servant of religion. It was not an entirely good idea, although it was a way of adapting and surviving, for a good deal of the 900 years. We must not now allow it to become only “*ancilla innovatoris*”. It should be that, but also much more.

The instrumental role of knowledge, for innovation, is essential, but what I want us to also consider is that knowledge has an emancipatory role, and that it is a human right. I feel even more compelled to say this towards the end of this conference since I believe that with respect to all the bright and wonderful things that have been said from this podium I still have not heard much about the individual, the human being, the European citizen. If knowledge is not relevant to the individual our work will be in vain.

I would like to finish with a few slides that will bring my message closer to policy recommendations in more concrete terms.

The first image shows the public R&D funding in eleven European countries over a quarter century.

## **IMAGE**

My point with this image is to let it become fully visible that we have to take the non-university institutes into account. They make up between thirty and fifty percent of the R&D funding in most countries. Sweden is an outlier, for historical reasons, with almost all public funding put into universities, but even here we now see a growing insight of late that the country must invest in the research institutes as well, to keep the innovation system vital and resilient.

Just imagine a Europe where you took away the Fraunhofer institutes, the TNO of Holland, the fabulous VTT of the Finnish innovation success story, the GTS institutes of Denmark that boosted Danish windpower, and many others. Or just take away the Institutes of Health or the many federal laboratories or the many private R&D firms in the US funded with federal money.

Mary Walshok yesterday reminded us that while UC San Diego is the largest player in the local innovation ecosystem in that region, there are no less than 46(!) other institutes, and laboratories and organizations, within a few miles.

Innovation ecosystems need many species. Universities are often what ecologists call a “cornerstone species”. Just like cornerstone stores in the big shopping malls. But it is much more interesting to go to a shopping mall and find a range of smaller specialists besides the big department store.

Countries like Sweden should probably look at investing more in their institutes. Other countries may have to consider a rebalancing in the other direction. But there is no point in trying to make all countries look the same. The bottom line is: we need diversity and we need it to keep Europe competitive.

Finally, an image showing first the challenges and then the kind of thinking that we need.

IMAGE Challenges

IMAGE What is the strategy of the best?

This is how top institutions these days think strategically about the challenges that are by and large the same everywhere.

The main take home point is to see how carefully these top institutions avoid subsuming their mission to innovation alone. They know that over the long term things will always change. There is a core upstream, of values and excellence in research and teaching, the gold standard of quality. They do not abandon it, they use it to become competitive downstream to earn the money they need – and then they also “laundry” some of that money. Some of it is actually sent to the Divinity school...

## Conclusion

So, my conclusion is that – yes, universities can and should take on increasing societal demands and they should become more deeply involved in innovation.

In doing so they should, however, consider

**first** that innovation is not limited to technological innovation for competitiveness, it is about innovating for the benefit of society at large, local and global.

**second**, what is essential to universities and unique for them which is to be excellent upstream, in the fundamental areas of teaching and research, in order to become relevant and competitive in innovation.

**Governments and the EU** should stimulate this general development, considering that institutional diversity will be essential for success. This means to invest not only in

universities but also in RTOs, institutes and R&D oriented firms, in order to secure the pluralism which is characteristic of the best innovation ecosystems in the world – and to secure choice and chances for both firms and citizens.

Thank you!