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"Universities and Business Organisations in the ERA"

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Firstly I should like to thank you for the kind invitation from the Commissioner to contribute to a lively and controversial debate of the Policy Brief prepared by Paul David and Stan Metcalfe.

In any debate there are three potential roles for the discussants: They can either agree with the panellists, disagree with the panellists, or ignore them altogether and give their own lecture.

I largely agree with our panellists – most notably with the following:

I fully share Paul David's and Stan Metcalfe's understanding that the term "universities" covers an enormously wide range of institutions with considerable differences in both size and balance, between research and teaching, international status and many other parameters. Indeed, there are many different species of animals in the "European higher education ecology", each occupying its own niche and contributing to the variety of the jungle.

Similarly, I could not agree more with the statement that *research and invention do not equal successful innovation* - that it takes a lot more than just technology or money to introduce new successful products and services to the market.

Paul David and Stan Metcalfe are also right on target when they point to the fact that perhaps the *most important contribution* higher education can make to innovation are the *trained graduates* that embody "knowledge transfer" by joining the manufacturing and services industries.

And they are also correct when they underline that the creation of intellectual property and of successful "spin-offs", albeit valuable, cannot be the main contribution universities make to the "innovation system". Indeed there are costs as well as benefits from the immediate attempt to commercialise knowledge and research results. When driven to extremes, these efforts can even act as powerful brakes on innovation.

Allow me to add one additional point:

The *University-Business link* is unfortunately still perceived and conceived as an asymmetric relationship, where the University produces and Business consumes knowledge. There are several problems involved with this view:

1. "*Erkenntnisinteresse*" vs. "*Verwertungsinteresse*" (cognitive interest vs. profit interest)

There are strong systematic conflicts between cognitive interests and economic profit/exploitation interests. This is not an issue of "business-bashing" but simply a warning to understand fundamental tensions that cannot be resolved but need to be managed. Put in its simplest form, in order to gain knowledge, there is often an advantage in sharing knowledge; in order to be able to profit from your knowledge, you often have to keep it to yourself.

2. "Curiosity vs. Money"

This refers to the fact that scientists are often more strongly motivated by curiosity than by money. Other, non-materialistic motives such as the honour of having published an interesting paper, their reputation among peers, or invitations to conferences etc. also play an important role.

3. "Targeted vs. unspecific, peer-driven research"

Finally, there is the problem that science and knowledge production is an inherently risky activity whose successful final outcome cannot be fully predicted and steered. I only mention as a sub-problem the ongoing discussion about the comparative merits of targeted versus unspecified, but peer-driven research.

4. Being an academic economist myself by trade, I am more than *sceptical* of any effort to subjugate universities to a dominant market logic. In this context let me remind us of a number of sadly neglected, but rather fundamental truths:

The principle of *path dependency* strongly applies to university-business relations. This means that not every university has anywhere near equal opportunities of attracting funding from large multinational corporations. But every university can find private sector support in its regional environment if it goes for the right specialisation. Incidentally, here is a further argument in favour of diversity.

In this context, another fundamental truth is that *mutual confidence* is of the essence in the academia-industry relationship.

It would seem to be obvious that *not every professor is an entrepreneur* or vice versa. Yet, this is too often forgotten in the frantic quest for spin-offs.

On a more fundamental level still, we need to constantly remind ourselves that *creativity, not linearity drives innovation*. In particular, the most radical and so-called disruptive innovations often occur by imaginative use of hitherto marginal technologies. You will all recall that the first transistors were rejected by all mainstream electronic companies because they looked so inferior in performance compared to the - in those days - highly advanced vacuum tubes. Therefore, transistors were initially relegated to the production of cheap radios and only from there they conquered the electronic world, while vacuum tubes find their place in museums for historical electronic devices.

This example shows us that *paradigm shifts are more important than mere quantitative accumulation of knowledge*, which is sometimes ironically referred to as "square meter knowledge".

Impatience is the enemy of knowledge creation. Patience is the enemy of business success under competitive pressure. It is in the field of business - not research - that we encounter a lacking sense of urgency in Europe. To give an example - the technology that makes the Galileo satellite system a world leader has been developed in Europe on time and on cost. It is when it comes to its implementation that people suddenly start dragging their feet.

So where does this leave us: We know where the shoe pinches – so why don't we take it off??

Let us briefly backtrack: the Philosophy of Science and the Sociology of Knowledge (Popper, Kuhn, Feyerabend, Lakatos et al.) have taught us conclusively that knowledge creation is a socially, economically and politically *conditioned (not determined)* process. What we do not exactly know, however, is how knowledge is created or activated. In a nutshell, it remains unclear, whether we ***discover, invent, produce, derive or construct*** knowledge.

Universities are part and parcel of this process – in all their varieties (Humboldt's Studium Generale AND specialisation) – they are expression and reflection of social realities.

In order to ensure a flourishing higher education "biotope" - an intellectual environment with "fertile" universities - I would like to consider an alternative to repeating the usual common gospel about the need for closer involvement of industry in the university sector.

My alternative solution would be based on the famous quote popularised in his time by Mao Tse-Dong: **"Let one thousand flowers bloom and one thousand schools of thought shall contend"**.

[But please note that I am no advocate of Mao's practical follow-up of cutting off the heads of all thousand flowers!]

The University-Business link should then be constructed on the basis of mutual information, communication, co-ordination and co-operation – to be achieved by a kind of innovative mobility of researchers and businessmen, which would lead to a fruitful exposure to each others' culture.

What is indispensable is to strike an appropriate balance between cognitive interests and legitimate exploitation interests.

This is easier said than done. On a note of self-criticism, the difficulties often have a lot to do with the variety of interests and actors, their veto power, mixed interests, hidden agendas and other entertaining ingredients in the political decision-making process.

To give you a recent illustration, it cost the Portuguese Presidency considerable time and effort to negotiate a rather harmless Council

Resolution on "modernising universities for Europe's competitiveness in the global knowledge society". The main reason for this was that the process needed to involve both the "education" and "research" communities.

In order to conclude, Commissioner POTOČNIK certainly deserves our full support when trying to finally get the handbrake released that has been holding back the European Research Area for quite a number of years.
