A few questions on the transfer of accelerator technology

M. Vretenar, EuCARD13 Workshop

I apologize for being sometimes provocative, but we need to launch a real debate…

Effective transfer of scientific technologies to industry and society is one of the Holy Grails of modern research, in particular for technology-oriented disciplines like accelerator science. Although in the world there are more than 27'000 accelerators in use for industry and medicine, only very few are based on technologies developed after the 60's… How is it possible?

➢ Does industry need our accelerators? We like them large, sophisticated and expensive, while they want them small, reliable and cheap… is there a difference of mentality and approach to bridge before being able to address successfully the industrial market? And who should move in the direction of the other? We, them, or someone else? And how can we do it? Should we contribute to create a market for our accelerators, or just optimize our accelerators for the existing market?

➢ The CERN yearly revenues from Technology Transfer are less than those generated by the Shop. Is it because we are not able to make profit from our technologies, or because our goal is not to make profit, or because the commercial part is only a minor fraction of our technology transfer (and of our impact on industry and society)?

➢ Every technological development is characterized by high risks, and who says risks says costs. Who should bear them? Research laboratories, government agencies, small companies, large companies, venture capitalists? What is the most promising cost and risk structure for transferring accelerator technology?

➢ Are our worlds too far? Commercial companies look for immediate profit, while research institutions focus on the long term. But who has to bridge the gap? How can we cross the "valley of death" between developments for research and industrial applications?

➢ What can the European Union do in this context? The new Horizon 2020 programme foresees improved actions for bridging the gap between research and industry. Is this the appropriate tool?