Interview: Gerard van Harten – Chairman, Top Sector Chemistry, The Netherlands

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Gerard van Harten highlights the key role of the chemical industry in bringing innovation to the pharmaceutical and biotech sectors. He discusses how Top Sector Chemistry has developed the Chemistry of Life roadmap and is promoting inter-sectoral chemical-pharmaceutical collaboration in order to foster innovation that will impact healthcare around the world.

The chemical industry in the Netherlands stands as one of the global leaders in base chemical, coatings, and high-performance materials. What are the key strengths of the Dutch chemical industry today?

One of the key strengths of the chemical industry here in the Netherlands is the value chain. If you look at the chemical industry in north-west Europe, it is one of the leading clusters in the world with a broad and diverse value chain that starts with base chemicals and develops into all sorts of applications. It is based in the consumer market so that is the strength that is has along with, of course, its size. The Netherlands is the third largest chemical country in Europe after Germany and France and, for a relatively small country, that is a remarkable position to have.

We've seen somewhat outdated figures, which vary quite significantly, suggesting that pharmaceutical related products account for between 10 and 20 percent of Dutch chemical sales. Today, in 2015, just how significant is the pharmaceutical sector within

the Dutch chemical industry?

It has to be acknowledged that part of the manufacturing of the pharmaceutical industry has partially disappeared here in the Netherlands. However, I would say that the innovation, the science, and the knowledge elements are still very much active here. As such, as a Top Sector, we are focused on the knowledge and innovation agenda which is where we see the benefit of also looking into the value chain of chemicals into pharmaceuticals from a knowledge and innovation perspective. I would say this is another of the strengths that we have in the Netherlands.

What attracts companies to choose the Netherlands as the source of their APIs and pharmaceutical chemicals as opposed to lower-cost destinations?

I think that this is partly because there is a strong presence of excellent scientific universities and knowledge institutes which also collaborate with the industry. Here we have a very fruitful collaboration model in public-private partnerships (PPPs) which are unique to the Netherlands. These PPPs create a competitive environment, and we work together in consortiums of industry and knowledge institutes on several topics that often benefit more than just one company. In addition, they are based on value chains and improving knowledge and innovation in the early stages of the technology. This concept of working together in the PPPs is somewhat unique to the landscape we have in the Netherlands. This is also stimulated by the government because there is a premium and monetary funding from the government to work in these kinds of consortiums. As such, this is an attractive setting for companies to work in. If you have good knowledge partners, you have a fruitful cooperation in bringing the two together.

You previously stated that “without chemicals there would be no innovation in many other sectors.” Could you elaborate on the impact which innovation in the chemical sector can have on the pharmaceutical industry?

The chemical industry is an industry of industries in the sense that all of the innovation taking place in the chemical sector focuses mainly on molecules and materials, and, consequently, these molecules and materials are being used in several other sectors. As such, these other sectors rely on these innovations to make progress on their own score cards. This is also the case for the pharmaceutical industry because what we call the ‘Chemistry of Life’, the basic knowledge of not only the pharmaceuticals themselves but also what is behind them, is where it all starts. That is where we find the chemical industry together with the pharmaceutical and biotech industries really has a lot to contribute to the discovery and development of new ways of treating people that are ill. I believe that it is in this interface between chemicals and pharmaceuticals that we see a lot of

knowledge in the Netherlands emerge.

In this vein, what initiatives is Top Sector Chemistry engaging in to foster innovation in the Netherlands?

We have quite a broad agenda in this regard as the Chemistry Top Sector looks, of course, to the chemistry industry as a whole, but also to the contribution and the interface with other sectors. For this reason, we have developed four roadmaps to have a general overview. One of these roadmaps is Chemistry of Life in which we have three topics which allow us to look into different aspects of what can be described as Chemistry of Life. In one particular stream, we focus on personalized health, and our aim is to go into a much deeper understanding of what is on the interface and what is at stake to then be able to design molecules that will help. Another stream involves improving food and food security. The last part, which is perhaps more technical, looks at enabling technologies and taking an approach based on a more fundamental understanding of molecular entities and Chemistry of Life. Therefore, it is encouraging more fundamental research in that field and, at all times, this is on the interface of health and chemistry.

What are the priorities of Top Sector Chemistry with regard to the pharmaceutical industry?

The Top Sector system in the Netherlands is structured so that every two years we come up with a plan. Within our most recent plan, finalized this year, we have several research subjects that relate to life sciences and pharmaceutical industry. Examples of such subjects are ‘molecular entities, devices and approaches for understanding and improving personalized health’, microfluidic devices for synthesis and formulations in medicine (and food)’, and ‘human model systems on a chip’.

How do Top Sector Chemistry and Top Sector Life Sciences collaborate?

We defined Chemistry of Life as a major theme within Top Sector Chemistry in order to reach out to the Top Sector Life Science and ensure that we have cross-sectoral projects going on in this direction. In this way, rather than working separately, the independent sectors are reaching out to each other to ensure we all focus on the end result. As such, we have a very good cooperation in Chemistry of Life with Top Sector Life Science and we work towards our mutual interests.

Looking at companies, how would you assess the collaboration between the life sciences and chemical sector?

We are in the process of stimulating and enhancing collaboration. One of the reasons why the Top Sectors have been put together here in the Netherlands is in order to provide platforms to make

collaboration possible. The Top Sectors are creating the structure, and the companies and institutes are participants. Through this structure, these companies and institutes meet, and they combine their thoughts to identify what needs to be done in order to advance. This collaboration is a benefit of the way in which the Top Sectors have been organized.

Looking at the Horizon 2020, how do you see the chemical industry and, more specifically the pharmaceutical component of this industry, in five years?

We have several plans that we would really like to advance in the coming years, and they will provide new insights and business. We have set them up to have an economic impact which starts in innovation. The pharmaceutical industry has always been focused on innovation and new developments. It is here that we will work together and hopefully have some results from the initiatives that we have started which will generate new leads for solutions in the pharmaceutical industry as well.

Do you have a final message on behalf of Top Sector Chemistry?

If you talk about pharmaceuticals, you cannot ignore the chemical industry because you cannot advance in the pharmaceutical industry without including chemical knowledge. As Top Sector Chemistry, we are therefore making innovation and inter-sectoral collaboration our focus area, as the collaboration of these two sectors is crucial if any progress is to be made.

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