Letter from the Editors

Why are scientists not managers!?

The Importance of Interdisciplinary Skills in Business and Science

Abstract: Research is the translation from money to knowledge. Innovation is the metamorphosis of knowledge to money. Thus, business management and science are interdependent. That is no big news. But, in an ever faster changing economy, companies need a new type of scientist. Someone who knows not only science, but also business administration and management. Can the educational system satisfy those needs? In our opinion more work needs to be done – especially in the minds of scientists and managers alike!

Until the end of the last century the world seemed to be simple. There were those who discovered – SCIENTISTS – and those who ensured that money was made– MANAGERS. Let's have a look at two caricatured extremes:

Scientists lived in their ivory tower – far away from reality. Specialists in their field of science, they lacked the sense for real world situations. Publications and papers were the revenues and profits of the scientist. The scientist was working on the edge of the world – the only remaining frontier. Be it physics or biochemistry, the scientist was discovering things no one had seen or known before. What compares to the thrill of publicising something new to the world?

For the manager money was not the only thing that mattered – but was definitely the one topic on his mind from morning to evening. Patents were more to his liking than publications. The manager had to see the product or process out of the research project. Not the knowledge creation, but the product sales were in his interest. He needed to coordinate and organize different aspects besides research and development. What is more thrilling then successfully bringing something new to the market?

Firms need both types of people if they want to survive in today's fast-paced economy. And as the business environment is changing, companies are searching for new managing concepts. Many firms,

ISSN 1613-9615

for example, seek to streamline their development of new products – or innovations. "Innovation is one of the most often used words in business communications nowadays – and even in some scientific proposals. Only through new products, processes or applications can a company be successful over the long run" says Member of the Board Alfred Oberholz (Degussa AG).

But that is where the problem starts! The term "innovation", for example, is not at all well defined. Most scientists would probably assume the production of oocytes from stem cells described by Schöler, et al [1] as an innovation – as it is a completely new way of acquiring oocytes. The "newness" defines the word innovation. The management definition would consider only products that are successfully implemented into the market as innovation, even if they do not include new techniques but are new to the customer's needs [2].

Why is it so difficult for the scientist to understand the manager – and vice versa?

First of all, their motivations are different. Independence of science and knowledge creation is more important for the scientist than revenue-margins (that is true at least for university research). Second, many scientists see the manager as an "only money matters" person. And most scientists probably agree that money should be spent for research, although no immediate profit can be seen. And third, there is an arrogance on both sides, that each one thinks he understands the other one completely. This is maybe the most crucial point. The manager as well as the scientist would have to study at least parts of the other's field to understand not only the words, but also the other's motivations, thoughts and impact on value creation.

Therefore, firms need someone that can mediate between sciences and management – a manager who has profound knowledge of science, can motivate colleagues ("coaching") and handle financial responsibilities. "Especially now, as product life-cycles become ever shorter and resources for R&D have to meet higher expectations for profitability, we need multi-skilled entrepreneurs. Employees who have experience in both science and management," says Eggert Voscherau, President of CEFIC (the European Chemical Industry Council) from 2002 - 2004. That is, firms need a person who can cross the "Valley of Death" – the gap between existing research knowledge and commercialization [3].

All over the world, from the UK to Australia, new undergraduate studies that focus on science and business were established during recent years to bridge the communication deficit. There are also new graduate programs, e.g. the Cambridge-MIT Institute, the Stockholm School of Entrepreneurship or the International Graduate School of Chemistry in Muenster. In our opinion, even more work needs to be done.

In the scientific community, the need for multidisciplinarity, including business and ethics, is still not very present. On the contrary, many people in basic research might think that it is important to focus, at least for some years, on science alone. The latter is also shown by the fact that most scientists do not gain additional qualifications. Even worse, while business-people can gain masters degrees during their time in the industry and have certified courses, most scientific knowledge is not visible in a single curriculum. Compared to most managers, scientists also have a PhD or masters, but lack every additional feature.

These two facts--that most scientists lack management knowledge and that scientific qualifications are not transparent--lead to disadvantages in a scientist's management career.

Therefore, we propose two measures. First, we need a consistent advancement of university degrees and courses. This should be done in cooperation with companies, as they best know what the industry needs. Second, we must establish a system of certified scientific qualifications. Why should there only be "rhetoric training" but not an expert in "nano-technology" or "biotechnological production of amino acids"? Of course, this might also be accessible for managers who work in those fields. In any case, it would increase the transparency of scientific knowledge.

Both measures will help to fill the gap between the sciences and management. They will create a better understanding of R&D and management and hence help optimize processes within companies.

Thus, some scientists might become managers.

ISSN 1613-9615

[1] K. Hübner, H. Schöler et al, Derivation of Oocytes from Mouse Embryonic Stem Cells, *Science*, 2003, 300(5623), pp1251-1256

[2] E. Danneel, E.J. Kleinschmidt, *Journal of Product Innovation Management*, 2001, 18, pp 357-373

[3] Stephen K. Markham, Moving Technologies from Lab to Market, *Research-Technology Management*, Nov-Dec 2002, pp 31-42

Now enjoy reading the first Issue of the *Journal of Business Chemistry* in 2005. If you have any comments or suggestions, please send us an e-mail to contact@businesschemistry.org.

Stefan Picker
Dr. Carsten Vehring
Lars Hahn
Madeleine Vala, PhD
Prof. Dr. Jens Leker

ISSN 1613-9615