

Getting Innovation in China Right

Overcoming Obstacles to Innovation in the Chinese Chemical Industry

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Innovation - a key to success in Chemicals

Western chemical companies have long been aware that innovations are a key success factor in the chemical industry. Industry leaders such as BASF, Bayer or Evonik all emphasize the importance of new, innovative products as a source of competitive edge, increased profit margins, enhanced customer relationships and high reputation within the industry.

In China, up to now the picture has been somewhat more mixed. Western companies competing with locals in the Chinese mar-

ket have always relied on innovation as they have usually not been able to compete on price, and their initial edge on quality is gradually eroding as the Chinese competitors improve. However, more recently we see that the more established Chinese companies also start to appreciate innovation as a source of competitive advantage and differentiation from pure low-cost competitors.

An important distinction: Research versus Development

In order not to be misunderstood later in this article, it is necessary to make a clear distinction between development on the one hand side and research on the other. While

research relates to activities aiming to create truly new chemicals, development describes the modification of existing chemicals, for example the modification of chemicals so that they match the needs of a specific customer. These activities are much more short-term, much less risky and at the same time also potentially much less profitable. The differences between both activities - as defined for this paper - are shown in Fig. 1.

Chinese chemical companies and their difficulties with basic research

There are many areas of the Chinese chemical industry in which local companies have an edge to global companies. For example, the market leader in providing surfactants to agrochemical companies is Taihua, with a much bigger market share than the most successful global company Rhodia. However, Taihua's success is exclusively due to good technical service and customized product development, not due to major product innovations.

In other words - and this is very much in line with our general observation - Chinese companies are quite often very good at development, but only in a few areas they are also a substantial force in actual research. These tend to be government-sponsored areas such as coal chemistry.

In the long run, the weakness of Chinese chemicals in being truly innovative seems problematic. While in the local market Chinese companies may always achieve a decent share of the market by just developing localized products, in export markets the focus on development instead of research will always limit Chinese companies to the lower end of the market. Furthermore, Chinese chemical companies will get more and more strongly exposed from competition from other emerging markets unless they fail to create their own innovation.

It therefore seems worthwhile to look for the causes of Chinese chemical companies' relative weakness in innovation. The most likely reason is that the companies are run

Development	Research
Fittingly adaptation of existing knowledge and existing products to slightly changed circumstances	Created of substantially new knowledge, new technology and new products
Oriented at specific problems of present customers	Not necessarily oriented at specific problems at present problems
Defined target market	Unknown target market
Relative short timeframe	Long timeframe
High likelihood of success	Low to medium likelihood of success
Limited investment of resources	Potentially high investment of resources
Only big advances in knowledge required	May require big knowledge advances
No substantial new IP created	Potential to create substantial new IP

Fig. 1: Basic differences between development and research in chemicals

Operations	Innovation
◆ Short-term results	◆ Ambitious long-term results
◆ Cost controlling	◆ Investment with unclear results
◆ Strict utilization of controlling systems	◆ Acceptance of ambiguity
◆ Emphasis on stability and planning	◆ Emphasis on flexibility and change
◆ Monitoring of results	◆ Acceptance and tolerance of failure
◆ Adherence to guidelines and rules	◆ Creativity: breaking free of rules
◆ Performance and efficiency	◆ Growth and innovation

Fig. 2: Key focus in operations- and innovation-driven environments

by operations people with a limited understanding of the way innovation works, and the requirements innovation needs (Fig. 2).

As a consequence, whole companies - including those functions responsible for innovation - are run based on the principles of operations-driven businesses. Thus the mindset is short-term, risks are avoided and failure is not allowed. While pure development work (such as the customization of a product to the needs of the requirements of a specific customer) may still be possible, truly groundbreaking innovation cannot happen. For this would require investing a larger amount in a longer project with an uncertain result.

The different phases of the innovation process

If a Chinese company wants to chance this situation and thus embrace the opportunities that truly innovative chemical products bring it is well advised to look at the individual steps of the innovation process - as they are sensible for a chemical company in a commercial environment - in detail (Fig. 3).

In the first step, a company needs to identify the areas in which it is to look for innovation. These should be those areas which are in line with company strategy, and in which innovation is considered to be the most likely to be successful and the most profitable.

In the next step, ideas need to be developed that can be pursued. Here, it is advisable to look for input not only from internal but also from outside sources to avoid limiting oneself to a small pool of innovative ideas. It is best to start with a large number of ideas - even though some of them may sound very unlikely - and to reduce them later in a systematic evaluation step.

Innovation management is the key to the third step. Once projects have been selected, it is necessary to provide the required resources, set realistic timeframes and readjust project goals.

Finally, once a project gets close to a product ready for market entry, the transition to the market has to be well prepared in order to maximize the potential of the new product. This often involves removing barriers between

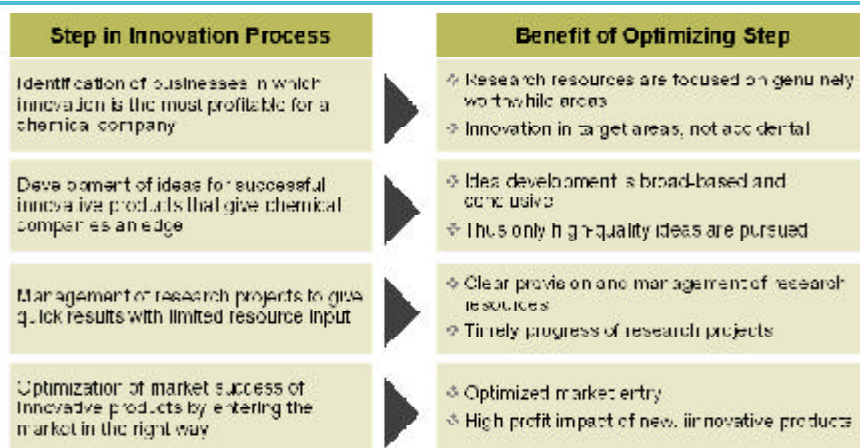


Fig. 3: Different steps in the innovation process

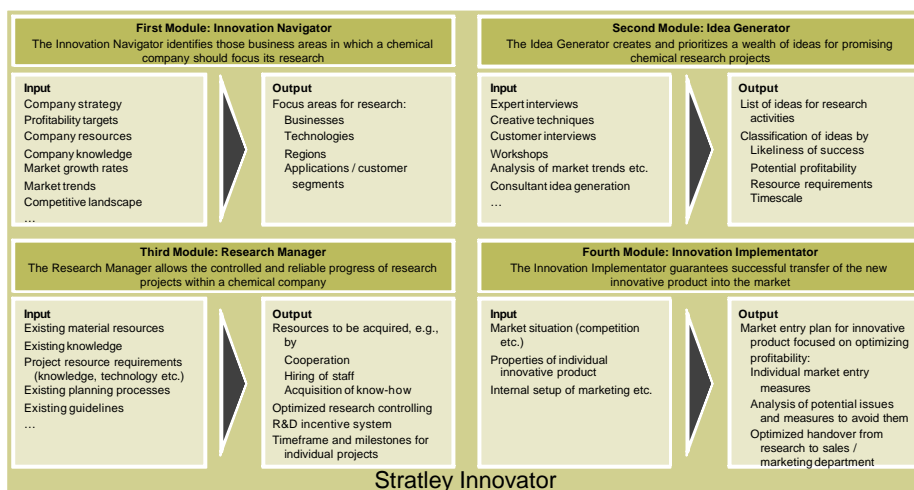


Fig. 4: The Stratley Innovator optimizes innovation of chemical companies

marketing and research staff.

A tool to promote innovation

In order to help chemical companies optimize the innovation process within their companies, our consulting company Stratley has created a tool, the Stratley Innovator, that gives detailed advice on how to handle each step of the process (Fig. 4).

Depending on the specific situation of a company, and the detailed input derived from this situation, the Stratley Innovator tells chemical companies all information relevant to innovation, from focus areas of research over lists and prioritization of ideas and resource requirements to market entry plans and measures.

Conclusion

In summary, there are strong indications

that Chinese chemical companies will need to become better at basic research to stay competitive. While it is worthwhile to spend money on development, the current focus on this type of spending is too strong, and in the long run, more investment in risky, long-term research is required. Otherwise, Chinese companies run the risk of their local markets getting more and more attacked by global companies who will get stronger and stronger at localizing their products. At the same time, without innovation Chinese chemical companies will always have to compete at the lower end of the global market without innovative products.

It is therefore strongly advisable for Chinese chemical companies to acquire the necessary skills and resources to basic research, as well as the willingness to take the risk of such projects. ■