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Chemical Specialties Europe: New Product Development in Specialty and Performance Chemicals

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NEW PRODUCT DEVELOPMENT (NPD) is a vital element of a competitive strategy for specialty and performance chemical manufacturers, yet the majority do not develop and launch new products as frequently and as successfully as they could or should.

At first glance, "specialty and performance chemicals" hardly qualifies as a discrete sector, but there are several common features. Specialty products have a fairly high value relative to weight or volume. They are sold primarily on their technical performance. Life-cycles are often fairly short. Opportunities for good margins are heavily concentrated at the front of the cycle. Manufacturing is often relatively simple and of low-capital intensity. Gross margins are quite high, but total sales and technical costs are also high. Specialty and performance chemical companies typically operate in multiple markets.

WHERE DOES NPD STAND?

Although NPD is of high strategic value, technical development in a large company varies from a few radical or "step change" exercises that demand years of R&D input to many minor modifications and customizations that require minimal time.

NPD spending can be significant. A quoted figure of 5 percent of sales spent on R&D is not uncommon although this varies depending on the industry served, the maturity of the chemistry involved and the prevailing management philosophy. However, the true cost of NPD is much greater than R&D spending since R&D spending rarely includes several key costs, such as market research costs prior to commencing technical development, the full cost of field trials and ramp-up production costs or capital expenditures. It also typically does not include market launch preparations, including sales force training, packaging and literature design.

TYPICAL R&D PROBLEMS

Typical problems we have encountered in specialty and performance chemical companies in connec-

tions with NPD include:

- A great new product, but no customers for it;
- An embarrassing product failure and/or withdrawal (probably the result of a premature launch);
- Technical department "log jams;"
- Developments mostly minor modifications—no real "new" products;
- Projects with powerful sponsors progressed fastest;
- "Horse trading" for project support;
- Technical department feels sales department makes unreasonable demands;
- Sales feels technical side is too slow, does not listen and is not customer-responsive;
- Project approval system is criticized as bureaucratic;
- There is a system, but some projects happen outside of the system;
- Sales take-up of a new product is slow;
- International roll-out is slow;
- Some development projects gain a life of their own and become a cash black hole; and
- High frequency of cost and/or time over-runs.

While the individual problems appear very diverse, in reality, they are usually symptoms of the same underlying issue. These problems can happen in even relatively small companies, but larger companies face two additional complications: globalization and mergers and acquisitions.

THE GLOBAL DIMENSION

The complexity of specialty and performance chemicals companies dramatically increases with the expansion of international operations. Large companies can easily have five or six primary R&D locations, often with a string of smaller ones attached to individual manufacturing units. The latter are likely to be quality control laboratories, but they often become involved in customization of standard products to meet local market requirements. An occasional foray into NPD is almost inevitable.

Most chemical companies striving to globalize rec-

ognize that coordination of their overall NPD effort, particularly the R&D function, can lead to significant benefits. But many still have not satisfactorily globalized either NPD or R&D.

For example, one large specialty chemicals company was structured into four geographic regions, each with its own marketing function and R&D resources. Each region very much went its own way and predictably had different market orientations and different product portfolios. There was very limited sharing of knowledge and technology and some duplication of product development effort.

In the early 1990s, this company decided it must become global. One of its first moves was to re-vamp its corporate marketing and technology functions. Its short- to medium-term goal was to integrate and coordinate NPD across the organization, and a longer-term objective was to refocus the whole business onto common market segments.

Naturally, the local marketing and R&D functions were not willing to surrender their autonomy, and the powerful heads of the regional operations were equally resistant. The struggle that ensued was like trench warfare. After several years, the company was no closer to being global. Enormous ill feeling had been generated, and much time and effort wasted on internal squabbling.

Globalization involves re-arranging reporting lines and installing appropriate coordinating mechanisms that leave the optimum levels of autonomy and flexibility with individual operating units. It may involve re-configuring functions both on the corporate "organogram" and physically. Most basically, it means redistributing responsibilities for certain activities such as deciding which NPD projects should proceed and where they should be undertaken.

When "what is good for the company" becomes tangled with "what is good for influential executives," problems ensue. These include:

- Politically motivated changes pushed through in the name of globalization;
- Conversely, logical and sensible changes bogged down in politics;
- Facilities with significant long-term value closed for short-term cost reduction;
- Poorly-conceived restructuring rushed;
- Processes and reporting lines do not fit new structures and no longer function smoothly;
- Uncertainty and insecurity disrupt R&D productivity, and marketing functions lose focus; and
- Good people become demotivated and leave.

An initiative to globalize that is allowed to become a political football often results in a new configuration that is only marginally better than that which previously existed or sometimes there is no improvement at all. It may be several years before the limited success is really apparent. The management team that drove the changes may be reluctant to instigate a second round,

partly as this could be construed as an admission of failure and partly as the memories of the pain of the first round will be strong. In the meantime, the disruption caused will have had a detrimental effect on the flow of new products. Ultimately, globalization is a bigger challenge than many have realized.

THE M&A DIMENSION

The basic rationale behind M&A is that superior organization and coordination leverages a company's resources and makes it more competitive. This makes perfect sense for NPD. However, this occurs only if the merged companies can effectively integrate and coordinate resources. Prior to a merger, many companies are far from getting their own NPD effort working optimally and are not prepared to bolt on another R&D operation with its own set of problems. Also, the mega-mergers of today are likely to be worldwide players grappling with globalization. They typically have entrenched cultures, defined structures and processes and may still have a number of only partly-digested smaller acquisitions.

The starting point in integration is extreme rivalry and suspicion, underpinned by fear that merger will result in significant fallout. The mechanics of integration will be almost insignificant compared to the human and cultural challenges.

A case in point is a company that had a strong technology base, excellent R&D capabilities, a good product pipeline and fair product range. However, it had been rather less effective in commercializing products and had considerable unrealized potential in both market share and margin growth.

When acquired, the new owners sought to benefit from these strengths and acted quickly to integrate R&D. They imposed their own NPD process on the acquired company. Needless to say, this was a mistake. The imposed process fitted neither the structures nor established processes in the acquired company and was resented by that company's staff.

It was eighteen months before it was accepted that things were not working out, during which time the morale and productivity of the NPD machine of the acquired company had suffered, and the quality of products in the pipeline had deteriorated. Unfortunately the acquirers then failed to understand what had gone wrong. It compounded the problem by physically integrating some R&D activities and generally imposing even more targets and constraints and received back inevitable staff fallout, re-organizational costs, general disruption and even more resentment.

UNDERLYING CAUSES OF NPD PROBLEMS

Five to ten years ago, the usual explanation of these types of problems was that companies did not have an adequately flexible, yet comprehensive, mechanism for managing and coordinating the whole sequence in developing

and commercializing new products. They did not have a robust NPD process from idea to post-launch.

Most companies have long recognized the need for a formalized NPD process, and the stage/gate approach and its variations are widely adopted. However, a seemingly logical NPD process can fail, and these reasons can be grouped into three categories:

1. *The process simply gets out of tune.* A common reason for this is that key people leave, are promoted and change jobs. Often a process is built around individuals, particularly at its pivotal points.

For example, one company had a long-serving technical manager who knew everyone and everything that had happened in R&D over 25 years. He was very sensibly appointed “ideas broker” and acted as the focal point and screen for all initial proposals. When he retired, there was no one with the same breadth of knowledge to step into the role, and the early stages of the process had to be revised to fit the expertise of the people available.

The NPD process also gets out of sync because new product requirements change. In the downswing of the cycle, the emphasis is on cost management. Companies are risk-averse, and there is minimal pressure for growth. The requirement is for a process that rigorously screens development proposals and only passes those with guaranteed commercial success.

As confidence returns, and with it internal and external pressure for growth, save and incremental development is no longer adequate. Bigger and more ambitious projects are necessary, involve more risk, and time-to-market becomes more important. However, the process that served well in leaner times is now seen as bureaucratic, overly cautious and inflexible.

Also, although major reorganizations are usually accompanied by a review of processes, the same cannot be said for a succession of small organizational shuffles. As these changes build over time and add up to much the same as a major reorganization, the possibility that the NPD process no longer fits is not considered until several projects have gone wrong.

2. *Strategic changes render the process obsolete.* Any major change—a significant shift of strategy, a major restructuring, integration with an acquired or acquiring company, a drive to globalize, even a major internal initiative, such as a customer focus or a cultural change project, can dislocate internal processes and render the process and processes and render the process completely obsolete.

3. *The process is derailed by internal politics.* Occasionally this takes the form of open, hostile criticism of the process, but more often there is a simple non-compliance. It occurs from a lack of understanding or simply as a “not invented here” reaction.

It may also be a measured response to overturn a process that is perceived as a central corporate initiative to impose control over subsidiaries and operating

units. The best way to derail is not to aggressively challenge but to show the pitfalls of a central function by highlighting any action that shows the center to be and unproductive ivory-tower. The most vulnerable is the NPD process.

HOW TO OVERCOME NPD PROBLEMS

Only very naive companies expect NPD to just happen. Only very small companies can do this without formal mechanisms. Larger businesses must have a formal NPD process. A NPD process is not just a set of procedures, but should define:

- Who will be responsible for each step;
- Who will have overall responsibility for individual projects;
- Who else will be involved or consulted and how this will occur;
- Where main decision points will be;
- Who will make these decisions and on what basis; and
- How will the company manage its overall portfolio of NPD projects.

SOLUTIONS FOR NPD

Too often companies treat these symptoms, without considering the underlying causes. Root causes may broadly be grouped into four categories with appropriate solutions.

1. The company simply does not have an adequate NPD process. *Solution:* Develop and install one.

2. Strategic changes have rendered the existing process obsolete. *Solution:* Develop and install a new process, probably from scratch.

3. The process is “out of tune.” *Solution:* Conduct a review to identify the underlying problems. In many cases, it should be possible to adjust the process to correct these without a complete reworking.

4. Staff have rejected the process. Even though it is perfectly satisfactory on paper, it has failed through internal politics. *Solution:* Start again from scratch. If they have not accepted the need for the process, no amount of adjusting will get them to do so.

Once a NPD process has been rejected by key people around the business, it is doomed. It may take months, even years for the process to be finally overturned and scrapped in which time NPD activity can be severely disrupted. Rejection is less likely to be a function of the quality of the process, but rather how it was introduced and has subsequently been managed. Gaining acceptance and commitment before launching the process is absolutely critical, but is something that is frequently given totally inadequate attention. ♦

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