

A change of R&D focus

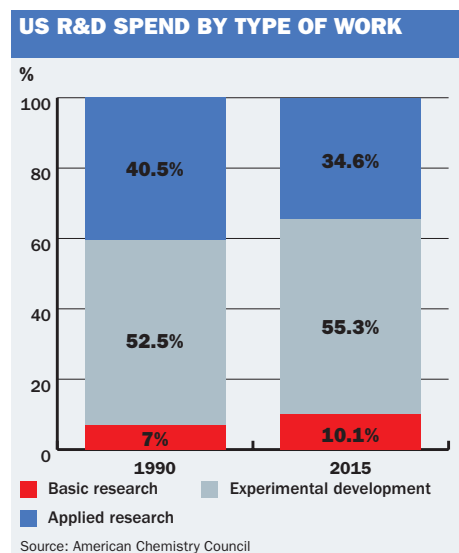
Innovation remains a key priority for chemical producers but attention is now being turned to new areas of development

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Recent research suggests R&D trends in the chemical industry are changing. Indeed, according to Paul Bjacek, principal director and global resources research lead at global consultancy Accenture, there is a noticeable push towards multi-discipline inventions, and a greater willingness to expand and offer new systems and services to customers.

Statistics from the American Chemistry Council show that R&D spend in the US on both basic research and so-called “experimental developments” – the targeting of new materials, products and processes, or the significant improvement of existing products – climbed by around three percentage points from 1990 to 2015. Conversely, there was almost a six percentage point decline in applied research.

Bjacek notes that a soon-to-be published Accenture survey shows that of the 120 firms questioned (36 specialty and 84 commodity companies), some 97% of the performance leaders – those with the highest revenues and profit growth – indicated they would increase investment in innovation areas outside their core business over the next three years.



PAUL BJACEK

Principal director and global resources research lead, Accenture

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The report also found that more than half (56%) of these performance leaders prioritise investment in products that use new technologies so they can meet their customers’ changing requirements. “We’re seeing that more companies are using technologies to reach customers further downstream,” notes Bjacek.

COMPETITIVE ENGAGEMENT

Interestingly, those questioned also say they view mineral companies as rising new competitors in the next five years. Bjacek suggests they were ranked highly largely because of recent advances in 3D printing, which is gaining popularity and prevalence. There is a certain degree of crossover with this new technology, he says, noting the print heads used in industrial printing employ materials such as metals, plastics, cement and graphene.

“These are areas where I think we’re going to see a convergence – companies selling a variety of materials for use in the same products or by the same processes. We call this technology fusion – using a broader range of technologies rather than just chemistry,” he says. “It won’t happen overnight but we may start seeing some competition with mineral companies.”

A separate analysis of patents has also shown that chemical companies referenced more non-chemical areas over the past decade, adds Bjacek. In fact, an analysis of the patents of 82 global chemical companies in the 10 years to 2016 showed a share increase of seven percentage points in non-chemical disciplines.

Some companies are beginning to use technologies to sell services, instead of products such as chemicals. For instance, applying the

use of consumer interface apps to help visualise the results of paints or cosmetics. Or the use of electronic sensors in food packaging to monitor temperature, moisture and other environmental histories of the package.

“These are perfect examples of how digital and chemical technologies are now working together,” says Bjacek. “We’ve particularly noticed that chemical companies are seeking more patents in the electricity and transportation sectors, for applications such as battery technology and solar cells.” Accenture observed that from 2007 to 2016, the share of patents for electricity and transportation grew far more than for other segments, climbing to 23% (up 5%) and 28% (up 4%), respectively.

LOCALISATION A PRIORITY

In the mentioned survey, when asked to rank various categories on a scale of 1-5, performance leaders rated “localisation” as their main focus with a 4.6 score. This is where companies develop their products to suit the needs of a specific local market, he says.

“Large industrial customers may move to a geographic area because of new technologies enabling them to customise their products to the local market,” says Bjacek. “As technologies in robotics, automation, 3D printing, lasers and sensors continue to evolve and be assimilated into manufacturing processes, so customisation/localisation trends will increasingly be seen in downstream manufacturing.

Bjacek adds, “a good example is the adidas Speedfactory. There is one in Ansbach, Germany, and one in Atlanta, US. They are producing athletic shoes with the aim to provide custom footwear with a short turnaround.”

The survey also highlighted that respondents see the circular economy as increasingly relevant to their plans. Establishing alternative, more efficient production methods to serve customers ranked among the top two most favoured innovation areas for the next three years by commodity chemical executives – with 86% of those questioned selecting it.

“The circular economy is no longer a back-room issue,” he says. “It’s now a top priority for chemical companies, thanks to increased consumer awareness and the recent voluntary and regulatory recycling measures that have happened in the past year.”

Bjacek notes that circularity was a common theme among the submissions for this year’s ICIS Innovation Awards. “There really were some quality entries this year and it was amazing how much is being done to try to significantly reduce the environmental footprint.

“This is definitely something leading companies are working towards: producing valuable new products and processes that at the same time reduce energy consumption, use environmentally sustainable products and lean towards applications that are more circular.” ■