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Lean R&D benefits

Manufacturing processes focused on maximising value while minimising waste are the key to maintaining business competitiveness. Modern Lean Manufacturing focuses on streamlining production processes, reducing waste, time, and labour, and ensuring consistent quality in a repeatable environment. It emphasises standardised workflows, just-in-time production and minimising variability in output.

Alongside manufacturing, meanwhile, companies are also starting to adapt 'Lean' principles to the often more unpredictable, innovative and iterative nature of research & development. The goal here is to make traditional materials-based R&D faster, cheaper and more efficient to accommodate modern demands. Like Lean Manufacturing, Lean R&D also seeks to eliminate waste. In this context, however, waste can include unnecessary features, redundant testing or misaligned project goals.

While exact figures vary depending on the industry and specific projects, labs implementing tools to promote Lean R&D report 70% fewer experiments, resulting in even better products. Studies show that Lean R&D can reduce development times by 30-50% and cut costs by 20-40%. For example, a company spending \$10m/year on R&D could save up to \$4m/year by implementing lean methodologies. These savings can be reinvested in other strategic initiatives, further enhancing the company's competitiveness and innovation capacity.

By eliminating waste and focusing only on activities that add value, organisations can significantly reduce the time and resources needed to develop new products better and quicker. Traditional R&D often involves lengthy processes with multiple stages and layers of approval, leading to delays and increased costs. Lean R&D streamlines these processes, enabling faster decision-making and quicker project completion.

Lean R&D offers other significant advantages, such as developing 'leaner' formulations that are simplified or optimised to use fewer or more efficient ingredients while maintaining or enhancing product quality. These formulations reduce process inefficiencies and production costs while improving profit margins. By developing products faster, Lean R&D allows companies to capture market share by being the first to introduce new products. Reduced R&D costs enable companies to achieve innovation goals with fewer resources and less time, resulting in a more efficient and profitable operation.

By focusing on customer needs and

continuously refining processes, Lean R&D can lead to developing higher-quality products with a better product-market fit. Also, with a more streamlined and efficient R&D process, companies can bring new products to market more quickly, gaining a competitive edge and capitalising on market opportunities sooner. Aiming for Lean R&D requires connecting, ingesting, and enhancing the data scattered in the organisation. New artificial intelligence (AI) tools enable the capture of scattered and unstructured data and generate a unified enriched data source for R&D process acceleration 60 times faster than before.

Another benefit of Lean R&D is increased efficiency and productivity. By using standardised processes, tools, and workflows, teams can work more effectively and with fewer errors. This also accelerates the development process and enhances the quality of the output. The traditional R&D model often struggles with enhanced flexibility and responsiveness, especially when unexpected challenges arise. Lean R&D promotes a more agile approach, allowing teams to pivot quickly in response to new information or changes in the market. It also improves collaboration among cross-functional teams, including researchers, engineers, marketers and other stakeholders. This integrated approach allows for open communication and alignment, ensuring all team members work towards the same goals. It also helps identify potential issues early in the process, reducing the risk of costly errors later.

Kafrit Group, a leading producer of formulations and compounds for the plastics industry, is one company that has successfully embraced Lean R&D. By embracing technology to enable the implementation of lean principles, Kafrit streamlined its R&D processes, reducing the time required for product development and increasing its innovation capacity. Specifically, the company has used the technology to break down the communication barriers of its global subsidiaries. They focused on value-added activities, eliminated waste, and empowered their R&D teams to make faster decisions. As a result, Kafrit is bringing new products to market quicker, responding to customer needs more effectively and improving overall efficiency.

Embracing Lean R&D is incredibly powerful. And the benefits of adopting lean methodologies extend beyond mere cost savings, fostering a culture of innovation and agility that is crucial in today's competitive landscape. For researchers, understanding and implementing Lean R&D will enable more effective contributions to the organisation's success.