

'Organizational forgetting' erodes quality gains in supply chains

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The depreciation of organizational knowledge can mute the effects of a company's quality performance initiatives, says research co-authored by Anupam Agrawal, a professor of business administration at Illinois. Credit: L. Brian Stauffer

Just like physical assets, a company's organizational knowledge can depreciate over time. According to a paper co-authored by a University of Illinois expert in supply chain management, "organizational depreciation" can mute the effects of a company's quality performance initiatives, suggesting that mitigating those effects is essential to sustaining and enhancing quality performance in supply chains.

Workers come and go, new technology arrives, or raw material quality may take a nosedive - all of which can work against businesses striving to enhance the quality of their product, says Anupam Agrawal, a professor of business administration at Illinois.

"The issue is one that we have seen many times, in that firms try to implement improvements with suppliers, and then that initial improvement begins to slowly degrade again," he said. "It turns out there is a systematic reason for it, and it's the depreciation of organizational knowledge."

The study, conducted with Suresh Muthulingam of Penn State University, investigates how the depreciation of organizational knowledge - also known as "organizational forgetting" - affects the quality of an organization's performance.

The researchers analyzed more than 2,700 quality improvement initiatives implemented at 295 vendors of a car manufacturer. They found that organizational forgetting affected 16 percent of quality gains obtained from "autonomous learning" - that is, learning-by-doing on the job through sheer repetition - and 13 percent of quality gains from targeted quality improvement efforts.

"We find that quality competence gained through production experience is degraded over time by organizational forgetting," Agrawal said. "In addition, we find that even when buyers work with suppliers to improve suppliers' quality, such 'induced learning' also is subject to depreciation. Overall, our findings suggest that when firms employ process improvement initiatives to address critical quality issues, they must revisit them to periodically ensure that the improvement is sustained."

The results highlight the universal nature of organizational forgetting, Agrawal said.

"The development and depreciation of knowledge within organizations are processes that occur concurrently in all firms, in just about all industries," he said. "It's not something that's just concentrated in a few firms. It's something that is general and likely to happen in most scenarios that involve supply chains or a complex industrial environment."

The main issue is that the improvements brought about through targeted initiatives are not consistent over time, Agrawal said.

"When you teach someone something, or if this person is learning on the job, the arrow does not continually point up," he said. "It's going to come down, so you have to correct course every so often, because as you are learning, you also are slowly forgetting. And that's what you have to be careful about. Fixing the problem is important, but occasionally revisiting the fix is equally as important."

The reasons why quality initiatives derail are myriad, Agrawal said.

"If different products are being produced or the ways in which they're being produced have been changed, then it's time to revisit the process because the initial improvements are no longer valid," he said.

In other words, quality initiatives are not push-button fixes where you "set it and forget it," Agrawal said.

"You work to arrest the problem, and you do what is the right thing to do at the time, but it doesn't solve the problem in the long-run," he said. "So just because it's right on day one doesn't mean you don't need to go back on day 50 and revisit it. Because by day 100, it will inevitably grow worse, even if in the middle everything looks rosy. It's a dual-track, continuous process. You have to continually improve but then also realize that there's a slight erosion of your knowledge going on as well."

The assumption that quality improvements are retained indefinitely is not correct.

"Firms need to be vigilant, even if they don't see the need for it."

The paper will appear in the journal *Manufacturing and Services Operations Management*.

More information: "Does Organizational Forgetting Affect Vendor Quality Performance? An Empirical Investigation," is available online: www.researchgate.net/publication/270277552

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