

## **TUM Talk: More resilience for the supply chains of the future**

*More resilience, more flexibility - much more to do: companies are having to make their supply chains less dependent on all kinds of crises. This mammoth task is not just transforming logistics, it also resonates deep into businesses. New technologies are just as much in demand as old virtues. This is reflected in the exchange between company representatives and scientists from the Technical University of Munich (TUM) at the Heilbronn Education Campus.*

A little training, a healthy diet, a vaccination here and there: anything that is good for the body's own defenses also strengthens the resilience of companies. This is what David Wuttke, Assistant Professor of Supply Chain Management at the TUM Heilbronn Campus, is convinced of: "The immune system is there to also deal with challenges that are unknown to it." When applied to the reality faced by many companies, which are having to deal with supply chain problems more frequently and more spontaneously, the implication is that with the right strategy, with the right preparation, and with the right tools, resilience to crises can be increased. "Resilience is the immune system for companies," says Wuttke.

The strain is enormous. The onset of the Covid-19 pandemic, closed borders and disrupted transport routes knocked many carefully balanced supply chains out of sync. Yet the situation has not abated much to date: More than 60 percent of companies in the manufacturing sector are currently encountering problems in reliably procuring their primary products, according to Professor Clemens Fuest, President of the Ifo Institute: "We are in a situation that we've never experienced before in the economy as a whole. Cutting across countries, industries and companies, failures and delays are causing production plans to be postponed and costs to rise." "We are facing a systemic crisis that is not specific to Germany, but stretches across the globe," said Professor Thomas F. Hofmann, President of the Technical University of Munich (TUM).

### **Search for the right response**

This ensures that the supply chain issue is thrust into the spotlight. It has now moved from being an operational side issue to one of strategic importance. This is because the changes in supply routes impose additional burdens on other parts of the business. "This transformation is by no means just a matter for logistics experts in companies - it impacts the entire organization, perhaps even society as a whole," reiterated Professor Helmut Krömer, Founding Dean (2018-2020) and President's Representative for the TUM Heilbronn Campus. This makes the exchange between business and

science that much more important when it comes to designing more reliable supply chains for the future.

This was the task faced by managers, entrepreneurs and professors from the Technical University of Munich (TUM) during the third edition of the TUM Talk networking format at the Heilbronn Education Campus [mid-October]. The reports from practical experience illustrate how multifaceted the challenges faced by companies are - and how differently they affect everyday working life. For example, at the beginning of the Covid-19 pandemic, aircraft seating specialist Recaro Aircraft Seating initially had to reallocate incoming material because of a drop in orders. "Our global alignment has been instrumental in allowing us to juggle between locations," reported Laura Karbach, who is responsible for supply chain and sustainability in the management team.

### **Digitalization increases transparency along the supply chain**

Demand at the sporting goods retailer Intersport initially picked up for running shoes suitable for solitary jogging sessions - then for soccer boots. The retail group from Heilbronn was boosted by the fact that it has traditionally enjoyed close ties with its 900 dealers. A recently unveiled logistics center also brought relief during the hectic phase: sometimes products were dispatched from the central warehouses, sometimes from the stocks of the regionally distributed outlets. "This gave us the opportunity to breathe," explained Katja Burkert, Chief Information Officer at the Heilbronn-based retail group.

Digital tools for coordinating these complex steps are becoming more and more common. They make it possible, for example, to keep better track of where goods are currently in transit. This increased transparency makes it easier to plan and communicate clearly along the value chain. It would even be conceivable in the future to restructure financing with the help of digital tools. There is otherwise a risk that some participants in the supply chain may encounter liquidity difficulties in the event of delays for which they are not responsible. For example, supply chain specialist Wuttke introduces a blockchain-based solution that triggers automated payments: "The first installment is then transferred when the products arrive at customs," says Wuttke.

### **Individual mix of new technologies and old virtues**

These examples alone, as discussed by the TUM Talk panel, demonstrate: Companies can respond in a variety of ways to enhance their supply chain resilience. The diversity of responses toward sustainable and resilient supply chains, however, is already evident across the German economy, reports Ifo President Fuest: A number of companies are broadening their supplier base, keeping a closer eye on their supply chains or even trying to increase the depth of value creation within their own company. Old virtues may therefore regain significance: "Those who had access to their own building materials

or their own logistics had an enormous advantage," says Josef Geiger, long-time managing director of the Geiger Group of Companies and president of the Bavarian Construction Industry Association.

The challenge: a profound analysis of all weak points is possible - but comes at a cost. This is because in many cases, the specific problems only become apparent in crisis situations. Scientist Wuttke highlights the shortage of cooking oil, for example, which left some supermarkets with empty shelves at the beginning of the pandemic. Substitutes would have been readily available. But companies had amassed cost-efficient supplies of pre-produced packaging - and were therefore unable to make ad hoc ingredient substitutions. "Almost every supply chain features these kinds of hidden bottlenecks," says Wuttke. Insourcing packaging production or even the 3D printing of much-needed components could resolve such problems - but that changes a company's entire costing in many cases.

### **A long-term view of the supply chain pays off**

It is clear that a strategic and fundamental look at the supply chain is sustainably worthwhile for companies. This is because the tasks involved in purchasing and procurement are likely to become even more complex in the future. One reason for this is that, driven by regulatory projects, companies need to maintain an ever better insight and overview of their supply chain and their suppliers. Increasing levels of transparency are required, enabling companies to monitor environmental and social standards in globally distributed production chains, for example. "We're moving into areas that pose insanely big challenges for companies," warns Ev Bangemann, Managing Partner of Markets at the consulting and auditing firm EY. As a result, sustainability is now part of the supply chain's specifications.

There may be a ray of hope for some logistics experts or corporate executives struggling with reshaping the supply chain: what may seem like an unpleasant task to accomplish today, one on top of other transformation projects, can turn into a competitive advantage. This ensures that their company and their employees can go through future crises with a stable and trained immune system.