Capital Project

Faster production rates that yield better quality—that alone is no longer sufficient to convince some company leaders of the benefits of lean management. They want to know exactly how optimizing processes can affect financial indices such as profits and liquidity. An unusual simulation demonstrates the financial effectiveness of lean processes—in a playful manner.

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In the "Lean Counts" simulation the processes are first slimmed down in a playful manner; the effects on financial indices are then demonstrated

Inventory levels are reduced, and throughput times are shortened. What happens with return on capital employed? What sounds like the question on an exam for future business administrators causes the eyes of 60 established professionals to light up. The engineers and lean project managers from Lufthansa Technik—the service provider that maintains, repairs, and overhauls aircrafts—come from production and have already carried out lean projects themselves. They are now standing together with their colleagues from the controlling department in five groups, each of which has a game board with Lego figures.

Each group stands around a miniature model of an aircraft production plant—with a materials warehouse, airplanes, machinery, and forklift trucks. The participants in this simulation want to work together to solve the tasks—but not with paper or spreadsheets: in order to try out the effects of lean processes, they cheerfully push machines back and forth, redesign the production facility, and take crates of material from the board. "I finally have the chance to see what is possible," one of them says.

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"Lean Counts" is what Porsche Consulting calls this extraordinary simulation. With the consultants' help, the Lufthansa Technik employees determine for themselves the potential savings that can be derived from lean management. With support from the controllers, they successively calculate the reduction in working capital during the simulation. Finally, they determine how the balance sheet or profit-and-loss statement has changed as a result: what have the effects been on total capital turnover, liquidity, and return on capital employed (see "Invisible lever" above on the next page).

Before the economic crisis, different expectations were placed on lean management. Thanks to leaner processes, companies with bursting order books could produce faster and with higher levels of quality. "Everything that raised the output was welcome, because capacities were rather limited," reports Olaf Langanke, Principal at Porsche Consulting who is responsible for the "Lean Counts" simulation. "But the crisis has changed all that. Companies were rather not being fully utilized." And since then, controlling departments have been demanding precise evidence of the economic benefits of lean management, explains Nicolas Franzwa, a project manager on Langanke's team.

The problem lies in the fact that "Lean" experts, production specialists, and finance

Invisible lever

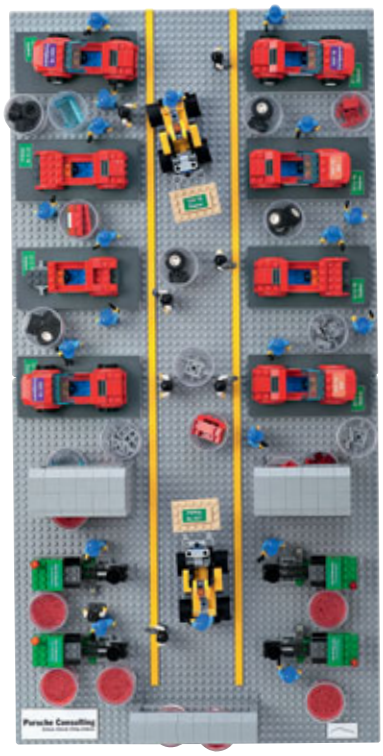
Companies that make their processes leaner also improve their balance sheets and profit-and-loss statement. The Lego simulation shows how lean management affects important financial indices (example).

LEAN MANAGEMENT INDICES

Inventory:	**– 30%**
Throughput time:	**– 20%**
Productivity:	**+ 10%**

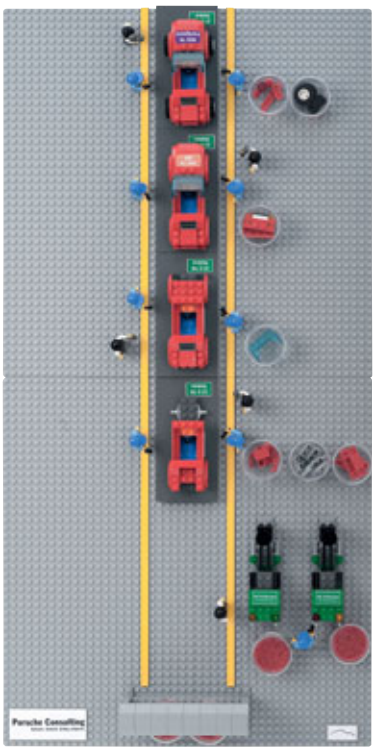
FINANCIAL INDICES

Return on capital employed:	**+ 50%**
Total capital turnover:	**+ 30%**
Liquidity:	**+ 80%**



Before

The game board is full: A large amount of capital is tied up; the return on capital employed is poor



After

The game board has lightened up: Lean processes have freed up a considerable amount of capital

specialists do not speak the same language. The bright idea of bringing these two worlds together occurred to Langanke and Franzwa on a drive to a bank—a Porsche Consulting customer who naturally posed very precise questions about finances. "We said to ourselves that we needed a model: something that you could literally grasp," recalls Franzwa, "and then we hit on the solution." The very next day they obtained model cars for an automotive plant, converted a construction kit for a locomotive into an injection molding machine, purchased miniature replicas of plant workers, and made shelves from building materials. All the models received stickers of different colors: violet for "finished products," green for "fixed assets," red for "work in progress"—and were marked with an equivalent value in euros.

In early 2010, Langanke and Franzwa opened the lid of their silver hard-top suitcase to reveal their miniature factory for the first time at an internal workshop for the experts at Porsche Consulting. For an entire day the "lean management" specialists moved the "numbers in material form" back and forth, combined work situations into flow lines and reduced the warehouse inventory. "For the first time the immediate financial effects of optimization were very clear to everyone," says Franzwa.

To convey the financial consequences, Franzwa and his colleagues start workshops by explaining the principles of lean management. Then, as in the case of the Lufthansa Technik group, controlling experts can provide an introduction to financial indices. Following that, the group finally sets to work. Each table with its mixed team of production and financial experts receives a model factory, and also a task, such as "Reduce your inventory levels. The days on hand are currently at 220. Experts believe that half of that would be sufficient."

The participants place all the excess inventory on a letter-size sheet of paper of the same color, which is called the "potential savings pot." After a few rounds the game boards are thinned out, and have become "lean." The "potential savings pots" are filled with machinery, personnel, and goods.

Then it's the financial experts' turn. They look at the extracted working capital and start thinking, what should we do with this much potential? "With a simple Excel tool we can show the positive influence on indices of a typical balance sheet," says Franzwa. "And precisely that is the learning effect." ←