IBM

A small bakery with a big vision goes digital

Process optimization helps meet
demand for baked goods

by Michelle Cloutier

5-minute read

E ach day, the Elonen Oy bakery in Jämsä, in the Central Region of Finland, produces its delicious baked goods for consumption in its cafés and for customer purchase at retailers across Finland. Elonen employs approximately 200 people in its main facility to bake and package cakes, breads, cookies and other goods for regional and national distribution.

From its first years of expansion after its founding in 1966, to adding fresh local bread in addition to its pastries in 1977, to renovating its production facilities in 2013, Elonen has always grown and

adapted to the times and to customer tastes. When it added daily, national distribution of its baked goods in 2017, demand for its products soared.

As the business continued to grow, Elonen implemented various IT and automation systems to support its bakery processes. This led to

a proliferation of data which, the company admits, no one was really using for decision-making.

"I began thinking about how we could use all that data to bring routines within the scope of automation, thus improving efficiency and competitiveness," says Elonen's Chief Executive Officer (CEO), Jari Elonen.

Jari Elonen approached Pasi Korpela at IBM about his challenges. Korpela began discussing digital transformation and using data more effectively to improve the customer experience. He recommended that Elonen consult with Houston Analytics Oy, a Finnish analytics company with expertise in retail and packaged goods. Houston Analytics came to the bakery to discuss how data and automation might help the company.

Early on, everyone agreed that the cake must be eaten one piece at a time. In practice it meant that instead of one big transformation project, IBM and Houston Analytics would need to identify and solve individual problems one at a time. In this way, Elonen would gain from building on proven benefits.

The first problem Elonen wanted to address concerned the final step in the packaging process, the printing and sorting of product labels before shipping. The process was largely manual and very time-consuming, which led to shipping delays. Product data and customer data resided in separate, outsourced databases, and the bakery had difficulty connecting the two as it packed and shipped orders.

With its existing, outsourced ordering system, Elonen couldn't analyze or

manipulate the data to print the shipping labels based on product or delivery location. They simply came off the printer as each order arrived. Two workers were solely responsible for taking the labels from the printer, tearing them apart and sorting them by product type. Other warehouse workers would then pick up the labels as they accumulated for each item, retrieve the baked goods from the warehouse, label them, sort them and put them on pallets for shipping. Even if a single customer ordered a full pallet of chocolate cakes, each cake received a label.

"The packing station was really the bottleneck in the operations," says Markku Breider, Director of Business Development at Houston Analytics. "So we needed to look at the whole process— from when the order was received until the items went out on the truck."

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Boosted supply chain efficiency by more than

20%

through greater work productivity

Significantly improves packing and labeling process

efficiency

Tapping data to improve business processes

IBM and Houston Analytics joined with Elonen to apply data and analytics to overcome the growing bottleneck in its warehouse activities. "We soon realized that data alone would not change anything; we needed to change the whole packaging process," says Breider. "Once we could get the whole thing drawn and described, we could link the data to the various decision points in the process so the data could support its execution."

The project began with a pre-study activity to evaluate and map the bakery's systems and data sources. Early on, Jari Elonen arranged a meeting

between IBM, Houston Analytics and the various IT outsourcing providers to bring them into the project. Because they controlled the data, their participation was needed to create

a more streamlined packing and labeling process.

By late 2019, Houston Analytics had created a transformation roadmap. It

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Jari Elonen, Chief Executive Officer, Elonen Oy

recommended the IBM® ILOG® CPLEX® Optimization Studio solution to help optimize the process through data analytics. Houston Analytics quickly moved into the primary consulting role, taking over from IBM entirely in early 2020.

As a first step, Houston Analytics created a synchronized data model and implemented a data warehouse so Elonen could connect and tap into the data from its various outsourced systems. This data warehouse can now be used as the basis for forecasting, analytics and predictions to support future digital transformation projects at Elonen.

Using the IBM ILOG CPLEX solution helps Elonen streamline and create efficiencies in the labeling and packing process. The solution analyzes the incoming order data to optimize both

packing and label printing. Elonen can print the labels by customer, delivery route, delivery date or any other parameter.

The IBM ILOG CPLEX solution also provides an optimized plan for packing and palletizing each day's orders. For example, it can calculate which type of pallets should be used for the ordered volumes, how many pallets of each type and how the products are divided between and organized on the pallets. Workers can pull products from the warehouse and arrange them on pallets more quickly because the labels are printed in the correct order for packing.

"Elonen can now choose how they want to print out the labels," says Breider. "That gives them a lot more flexibility in picking up the goods from the warehouse, and a lot more efficiencies at the packing station."

Getting the baked goods out faster

Elonen has made an important start on its journey toward data-driven digital transformation. Immediately after implementing the IBM ILOG CPLEX solution to optimize its order management, printing, labeling and packing processes, the bakery was able to move the two workers whose sole job it was to tear off and sort labels to other, more interesting jobs in the warehouse. That tedious task had been entirely eliminated. What's more, supply chain efficiency increased by more than 20% thanks to higher worker productivity.

Elonen expects to realize other efficiencies from the system. A new dashboard lets warehouse managers track and manage the orders as they come in, including how many pallets will be needed and when. For the first time, the bakery has visibility into future orders a day or even weeks in advance, giving it the option to pre-pack items to improve efficiency. As Jari Elonen states, "One good dashboard is better than 100 reports."

Houston Analytics played a key role in redesigning the warehouse processes to capitalize on Elonen's new visibility into, and ability to analyze and use, customer and order data to improve efficiency. For example, when an order large enough to fill a whole pallet comes in, Elonen can print a single label for the entire pallet, rather than for each item on it, saving significant time and effort.

"The process is much more streamlined now," says Breider. "It's data-driven, so it gives Elonen much more visibility and flexibility in their packing process."

Elonen expects that this improved flexibility and efficiency will ultimately result in better delivery service to its customers. As the company grows, the streamlined packing process will be critical to meeting the increasing demand for its products.

The bakery now has a big data and analytics solution that it can use in other areas of its business. Elonen has already highlighted its key priorities for the future, and Houston Analytics helped create a roadmap of what it can do next with the data warehouse and analytics solutions.

"This also bridges to our future focus," says Jari Elonen. "Market fragmentation drives us to better understand consumer needs so we can improve our assortment and offer what consumers in each trading area want to buy. This will also generate more value to our retail partners."

The company has recently acquired another bakery in Finland, and Houston Analytics has already found areas where the analytics solutions can help increase the synergy between the acquired company and Elonen.

"I would say that this is the biggest benefit for Elonen," says Breider. "Jari [Elonen] has a vision for his company. They are interested, and they trust us. Even though they don't know everything about the technology, they can jump into data analytics."

About Elonen Oy

Raimo Elonen and his wife founded the Elonen (external link) bakery in Jämsä, Finland, in 1966. It now employs almost 250 people across the company, from bakers to maintenance workers. The company opened state-of-the-art production facilities in 2013 and serves customers in its 10 cafés, eight in-bakery shops and through daily distribution of products throughout Finland. It expects to generate USD 47.20 million in sales in 2021.

Solution component

- IBM® ILOG® CPLEX® Optimization Studio

About Houston Analytics Oy

In a world where most "data science" consists of one-off, hand-coded analyses that never go beyond the prototype stage, Houston Analytics' (external lilnk) approach takes predictive analytics and world class optimization to the industrial level. Founded in Helsinki, Finland, in 2013, Houston Analytics embeds analytics seamlessly into customers' business processes, delivering improved outcomes and increased returns one decision point at a time.