

## Electrolux-Wascator AB: Case story

*“How do you expand in a very mature market like the laundry equipment industry? In our case we aim to be the first choice in any replacement opportunity, as well as entering into various new segments with uniquely suitable solutions. To do that with a case-by-case development process has proven time consuming as well as costly.”*

*“By using a modular approach the opportunities to create these customised solutions exist. The complexity of the potential product variation requires a new approach in both marketing, sales, development and production processes, but the effort has proven its worth! The products are greatly appreciated by the market, and we can provide solutions to almost every textile laundry need as we live up to the Electrolux-Wascator slogan “because every laundry is different™.”*

Bert Nordholm  
President Electrolux Laundry Systems

### Company

The Electrolux Group is one of the world's largest producers of appliances for kitchen, cleaning and outdoor use. Electrolux-Wascator AB was acquired by Electrolux in 1973 and can in 2002 celebrate 100 successful years in the industry. Today Electrolux-Wascator is a company in the Electrolux Laundry Systems product line, where the global brand is Electrolux-Wascator.

Electrolux Laundry Systems has manufacturing units in Denmark, France and Sweden, and distributes its product program via sales companies and independent distributors in more than 100 countries.



### Challenge

Over time, Electrolux-Wascator noticed gaps in their washer extractor product range. Specifically, the sizes and models available were lacking and did not meet customer demands regarding drum capacity.

Customers were also expecting a continuous development in lowered energy, detergent and water consumption. In addition, R&D and production lead-times were too long to develop new product variants. Each new development project increased internal complexity and increased article numbers.

The incoherent product range led to difficulties in handling spare parts and training service personnel since almost every washer had a different design.

To achieve project goals without increasing internal complexity, Electrolux-Wascator decided to implement a modular product architecture.

How Modular Management helped

The project was divided into the following steps:

#### *Management workshop*

The first step was to show the management group what modularisation could do for Electrolux-Wascator.

#### *Seminar, Modular Management unique methodology and DFA training*

One key issue in the project was how to transfer know-how and support for modularisation to the core team. Creating and improving design in manufacturing and assembly were also key considerations.

Modular Management AB held a kick-off seminar to review the advantages of using a modular product architecture. Next, Electrolux-Wascator personnel were trained in the Modular Management unique methodology and a methodology to achieve assembly friendly design, Design For Assembly (DFA). The result was a unit responsible for continuing training and maintaining modular thinking in the company.

#### *Modularisation – the Next Generation*

When implementing a modular product architecture, a company's specific situation, the market and the company's position in the market must be taken into consideration. Other key considerations include the company's history and corporate culture. Modular Management's

concept addresses these aspects through the structured, five-step Modular Management unique process. The unique process allowed Electrolux-Wascator to:

- Analyse market demand,
- Analyse the current product structure,
- Define development areas, and
- Create a modular concept on a high level.

#### *Modular workshop*

To realise the full potential for cost reduction, the production system was adapted to the modular structure. A workshop layout was established on a block level with an analysis of logistic flow and suggestions for a division between pre- and final assembly (Fig. 1).

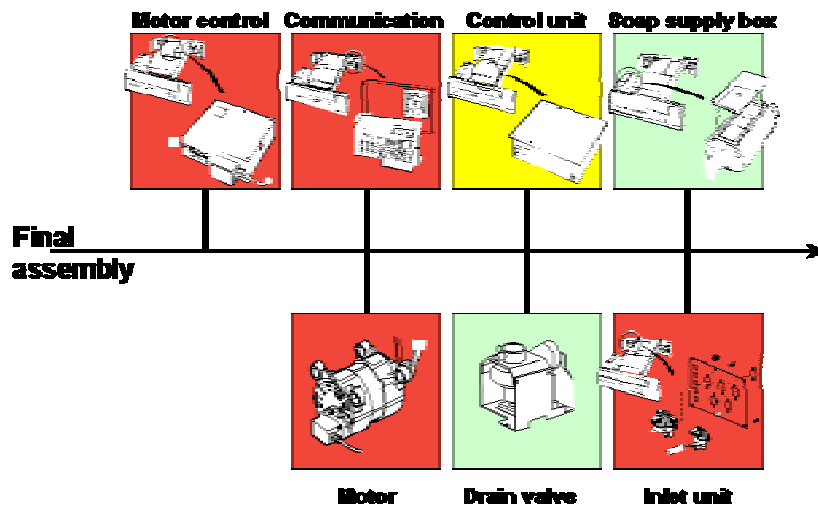


Figure 1. The workshop is divided into module areas where each module is assembled separately. The red background shows modules that exist in several variants, green shows modules that are common to all product families and yellow indicates modules that will be developed in the future.

### *Financial tools*

Modular Management used a unique financial tool together with a product structure analysis to estimate the financial potential of the modular concept. The financial tool shows the financial potential in reducing product complexity in terms of cost.



Electrolux-Wascator also needed a design aid to prevent increases in costs and internal complexity when introducing new designs (or redesign). The design aid was used to communicate the product strategy, delegate decisions regarding design and increase the holistic view of the design.

### Results

The project aimed to lower total costs and reduce the number of parts and article numbers. Some user characteristics such as lowering water and energy consumption were included in the target formulation.

After completing the Next Generation project and the DFA workshop, Electrolux-Wascator achieved a *47% reduction in article numbers, a 17% reduction in in-house manufactured articles and a 3% reduction in purchased articles*. The stock of finished goods was *reduced by MSEK 400-600 and there is potential to reduce work in progress by 20%*.

Another target Electrolux-Wascator set at an early stage was to produce variants simpler and faster. Modularisation *reduced the set-up time from several hours to less than one hour* and electrical system work was *cut by 90%*. Lead-time in production for drums was *reduced from 10-12 days to 2.5 days*, which meant significantly shorter delivery times. The drums were one of the bottlenecks in production.

Lead-times in development were also *cut by 50%*, primarily through improved utilisation of commonality within product platforms. Before modular architecture was introduced, it took just as long to develop one product as *it now takes to develop a completely new platform* (approximately 2.5 years). Developing one prototype for every size is no longer necessary. Now, the largest and smallest sizes are developed and calculation programs help determine the sizes in between (Fig.2).

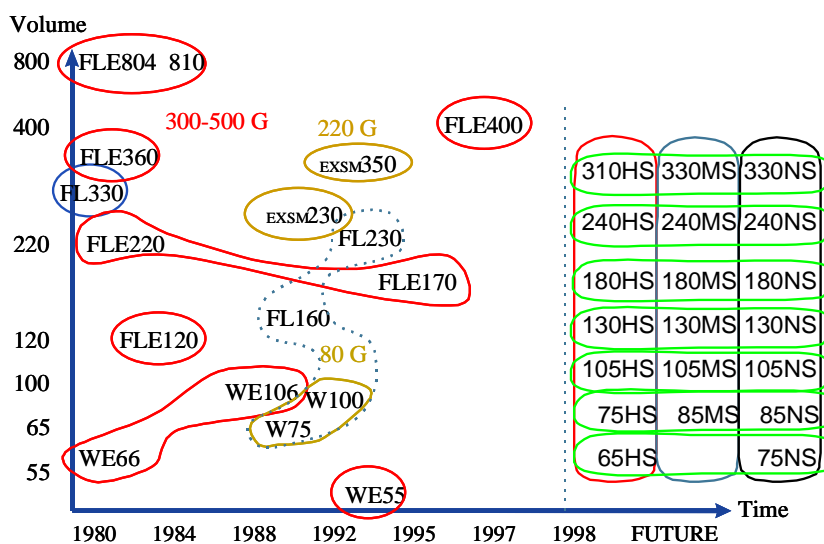


Figure 2. This figure shows the Next Generation product architecture on the right (FUTURE on the time scale) and the architecture before modularisation on the left. With only one platform in the Next Generation, the configuration possibility allows over 40 different end products.

Well-defined interfaces enabled Electrolux-Wascator to optimise in-house production and outsourcing. They also made it possible to identify modules requiring separate testing, which reduces fault detection in the final product. As a result, Electrolux-Wascator can see *a noticeable increase in quality and fewer quality deviations at final assembly.*

In the sales and marketing department, the possibility to configure modules made it easier to offer customers required features. This has contributed to *at least a 5% increase in market share in certain segments.* Overhead costs have been *reduced and fewer people work with customisation due to the higher degree of configuration.*

Training personnel in production and sales is now much more effective and efficient. Fewer product variants and well-defined “module areas” in the workshop have also streamlined production (Fig. 1).



## Keys to success

Changing a company from traditional working methods to a modular approach can be difficult to justify if the financial potential is unknown. Improvements have to be substantiated in monetary terms and technical risks have to be identified and solved.

At an early stage, Electrolux-Wascator identified several risks inherent in the implementation project. One risk was the availability of resources. That the project was the biggest in Electrolux-Wascator's history was a challenge in itself. In addition, there were risks associated with key suppliers concerning costs and delivery times.

The modular system also had to be prepared for the possibility of future legal changes and/or new legal requirements. When developing a product, it is difficult to anticipate future requirements, and there is a risk that it may not fulfil future legal requirements.

According to Electrolux-Wascator, the key to successfully implementing the modular architecture was the extensive pre-study that formed the financial basis for decision-making. The pre-study also resulted in well-defined product requirements and served as the basis for an effective project organisation and development process. With clear project objectives and 100% dedicated personnel, the project was completed successfully.

## About Modular Management AB

Modular Management is a Swedish-based company that helps companies define, create and implement modular platforms.

Modular Management has developed its own complete methodology to define modular product structures, called *Modular Function Deployment*, or MFD™. MFD™ is supported by software for creating and maintaining modularised product platforms and financial tools for calculating complexity costs and estimating modularisation potential.

The company was formed in 1995 and today works with some of the largest companies in Sweden, in industries ranging from manufacturing to services. For more information, please contact us at the address below or visit us at [www.modular.se](http://www.modular.se)



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