Benchmark frame for Threading Competence Center (VAM TCC)

ESSILOR

People met within Essilor:
- Patrick Poncin, Corporate Engineering Director, Chief Purchasing and Quality Officer, Executive Committee Member
- Michel Benguigui, WW Engineering Director for mass-production products
- Christophe Hubert, WW Engineering Director for finished products
- Didier Grand-Clément, WW Engineering projects director / Antoine Capron, successor of D. Grand-Clément

1. Introduction to the business context and Essilor strategy

Essilor is the world leader in ophthalmic optics with a global market share of 28%. Essilor has established a growth strategy based on four main pillars: innovation, conquest of the middle of the range, international growth via acquisitions and stimulation of demand to increase market size.

- Innovation at all levels - products, services and marketing - is the driving force behind the strategy and the basis for the quality of the relationship with customers, whether optical professionals or wearers.
- Essilor is also working to conquer the middle of the range, in developed countries, but especially in high-growth countries where the middle classes’ standard of living is increasing, marking a real change in market scale.
- They are pursuing a policy of acquisitions and partnerships with prescription laboratories and distributors, to increase the market share and strengthen the networks around the world.
- Finally, Essilor also conducts initiatives at a very early stage in the value chain to offer information, check-ups and supply lenses, in regions of the world where access to optical care is difficult.

In 2010, the revenue has reached 3,893 M€ and the company employees 43,000 people in 54 countries.

The presence of Essilor is global as the following map shows:
2. Introduction to the products

A lens is a unique combination of:

- A surface or design, which enables the correction of your sight defect. There is one design for each sight problem.
- A material: the main component of a lens. Its choice will influence on the aesthetics, the weight and the resistance of the finished lens.
- A coating: applied on the sides of the lens, it is an added value for your lens: anti-reflect, anti-smudge, solar protection, etc.

3. Introduction to the production process

The Essilor business process forms a complete chain. From manufacturing of the product to its delivery in-store, the group is involved at every stage. The business process comprises production plants, prescription laboratories, distribution centers and customer stores. Each of these key players enables Essilor to offer the best products to its professional customers and wearers all around the world.
The 14 production plants produce finished and semi-finished lenses. Finished lenses are mass-produced, with both sides prepared in the plant. Additional coatings – e.g. scratch-resistant, anti-reflective, and smudge-resistant or photochromic coatings – may be applied before these lenses are sent to distribution centers. In the case of semi-finished lenses, only the front of the lenses are prepared in the plant. The back and coatings are applied later by prescription laboratories (332 in the word), before the lenses are delivered to stores. Here is the map of the mass-production sites:

The role of prescription laboratories is to deliver lenses to professional customers (opticians, independent optometrists, wholesalers and optical chain stores) as quickly as possible. The Essilor network includes prescription laboratories and numerous independent laboratories, which distribute its lenses.

A total of 332 laboratories around the world enable the group to enhance its local service and ensure optimum safety in relation to product distribution.
4. **Introduction to innovation**

Essilor focuses on innovation in order to offer increasingly effective products and services to optical professionals and wearers. The group attaches the utmost importance to the significant resources it allocates to research and development.

Specialists in optics, physical chemistry and disruptive technologies, the R&D teams work globally on two fundamental areas:

- Anticipating the needs of world markets;
- Developing the lenses of the future using the best expertise.

Three Innovation and Technology Centers in France, the United States and Asia, as well as two centers under the responsibility of the Transitions joint venture in the United States and Nikon-Essilor joint venture in Japan, account for the majority of the group's researchers. The locations of the technology centers are the following:

5. **Organization, missions and roles of Global Engineering (GE)**

R&D is mainly focused on products.
As R&D is mainly focused on products, the Global Engineering (GE) mission is to manage the industrialization and the roll out of new products and related processes, and to support the operational entities. Roughly it is possible to estimate the value contribution of GE as follows:

- Priority n°1: new products developments involving 1/3 of the allocated resources and this part is increasing. GE launches pre-study of feasibility about the machineries, the work processes,…

- Priority n°2: production process improvement and cost reduction as the factories have mostly a short-term vision. New technologies such as the Digital Surfacing will have consequences on the factory organization. One third of the resources are allocated to that second priority but this is declining.

- Priority n°3: sustain production facilities, 1/3 of the allocated resources.

The Engineering has a very close link to R&D and fulfills 2 different categories of needs:

- The triad Marketing / R&D / Engineering works on a successful push mode for launching new concepts.

- Some clients as the retail chains or some segments of populations formalize special needs and therefore the geographical zones stimulate GE to work on those new customized projects.

GE’s organization is structured around 3 main pillars:

- The engineering for mass-production support the 14 plants around the world for development, industrialization, deployment and support. The industrialization platforms are located within the plants in different regions in order to cover the global organization and are structured by process technology. This department includes 160 people located in three equal main zones at the continental level:
  - In France which develops products and production technologies for the mass-production facilities at the worldwide level with a specific know-how on HMC (Hard Multi Coating). They cover technologies in machinery, equipment, work processes, flows and organization.
  - In USA and in Mexico which is focused on the polycarbonate (PC) technologies for USA and polarizing for Mexico.
  - In Asia (Bangkok, China) which covers the same industrial and expertise domains but with a local focus and a specific expertise on casting. They support what France has developed for rolling out the solutions in the Asian region.

The choice of the location of those platforms is based on the local presence of some critical resources such as competences or technologies.

In addition, a small team in charge of cost reduction is in place for proposing significant cost reduction solutions.

The last department is related to the techno plan, which formalizes the technical strategy with a time horizon of 3 years on the different expertise domains:

- Molding and inserts
- Casting
- Coating and multi-coating such as antireflective lens (HMC)
- Finishing (at the mass-production level that means packaging and control)
- Polarizing (specific work processes and products)

The techno plan team plans the transition phases and dimensions the teams.

- The engineering for prescription laboratories (RX) supporting the 332 laboratories. It includes 170 people. It covers the same scope of activities as the
mass-production engineering department except for the support mission, which is done by the geographical zones as the processes and needs can be more local driven. RX has an organization based on domains with a worldwide head for each of the 3 domains: HMC, finishing and casting. The industrialization platforms are much more fragmented, more generalist and closer to the customers. There is not a common model of prescription laboratories with have different sizes: the big labs produce 5 million lenses a year and distribute them to all the markets at the global level whereas the smaller labs produce 100,000 lenses a year for local markets. Some labs are joint-ventured with partners what means Essilor shares its technology with some partners. RX engineering department has developed a competitive intelligence in order to feed and enrich the techno plans (see after).

- The **project management department** for industrialization, which manages the project managers. It entails 125 people out of them 10 are dedicated to complex projects. The main purpose of that department is to ensure people involved in engineering to use the same standards and norms even if this approach is not rigid as the needs require in some cases a customization. 600 people have been trained by this department throughout the world, 400 out of them being outside engineering. A knowledge management process has been developed in order to maintain a continuous chain of information with a formalized reporting.

Within each of those departments, the technical expertise is linked to the key processes: designing, coating, edging, mounting,…Technical skills are structured around the processes and for each type of expertise it is possible to link a product family. Compared to the product, this is the production process, which leads as the coatings generate the most probable rate of problems.

GE has developed complementary approaches to leverage its performance:

- A **quality system** has been implemented in order to measure and to develop standardization

- All Essilor group plants are ISO 9001, ISO 14001 and OHSAS 18001 certified. GE is as well **ISO** certified what enables to develop a common language and to drive the engineers toward the customers

- A **techno plan** has the purpose:
  - To anticipate the development by defining the priorities after the collection of the needs. The projects are ranked by objectives categories:
    - Optimizing sales
    - Reducing capex
    - Saving costs
    - EHS
    - Optimizing working capital
    - Respecting regulation or norms
    - Mitigating risks
  - To get a consensus (before the teams could be disturbed by the top management inputs)
  - To properly scope the projects
This techno plan is done for mass-production and RX and then inside each of them by process.
There is a needs collection process from the factories in order to feed the mid-long term techno plan. At that stage, between 200 and 300 projects are identified. Therefore a sort and assessment process is applied in order to pre-select 100 projects, then to select the projects by geographical zone and eventually to “short-list” the top 20. This selection process is done once a year and is regularly updated. But the projects which have been not selected in the top 20 list are not lost as the techno plan includes:

- The new products (priority number 1)
- The top 20
- The other projects which will be run or not according to the resource constraints.

When a project is opened by the techno plan, which is validated by the clients (i.e. the technical part of the commercial department).
A key topic is to anticipate the required competences at both local and central levels.
Another key issue is the pro-active anticipation of the new jobs in a factory in the 10 coming years.

- A project portfolio management process has been implemented in order to scan, to assess, and to select the numerous projects GE gets all the time.

Strategic context for GE:
- A fundamental dimension of Essilor is to grow especially through M&A. A key question is to enable the partners to integrate Essilor processes and to work with them without transferring Essilor knowledge.
- Essilor had a premium positioning and is currently competing against the low cost producers.
- Essilor allocates big efforts on the growing developing countries?

Regarding the interface between the central teams and the local production facilities, for the new product introduction, the factories have no choice and have to follow the allocation of products but for the technological choices, they get advices from GE but at the end of the day, they are the final decision-maker. Each factory has its own engineering, maintenance services.

It seems making sense to focus the benchmark between Essilor and Vallourec on the following topics:
- Organization and relationships between central and local factories and mostly on the 15 mass-production facilities of Essilor;
- Pros & cons of centralization versus decentralization;
- Techno plan;
- Evolution of the technical jobs and the jobs in the factory.