HIGH ROAD TO WORK ORGANISATION

CASE STUDY

Ducati Motor Holding

(Bologna, ITALY)

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Abstract

Ducati is a world leader in the production of high-powered sport motorcycles. Since 1996, following acquisition by the Texas Pacific Group, an American investment fund, the company has undergone an intense relaunch process involving several aspects of its organisation. This case aims to describe the change that has occurred in the reorganisation of production and the benefits that the new system has brought to the company.

Hi-Res Case Study: Ducati Motor holding

Sector

Nace Code , high powered sport motorcycles.

Key Words

Interaction with suppliers; Outsourcing; leaning organisation.

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1. Background Information

The history of Ducati began in 1926 when the Ducati family and other investors in Bologna founded the 'Società Scientifica Radio Brevetti Ducati'. The company initially produced industrial components for the growing field of radio transmissions, based on Adriano Ducati's patents. Prior to the Second World War, Ducati's activities mainly focused on the manufacturing of components for wireless apparatuses, such as condensers and aluminium alloys.

Ducati started producing motorbikes only after the Second World War, in 1947, and it began to acquire a reputation for technical innovation, high product performance and success in motoring competitions. Yet, despite its technological innovation capacity and success in competitions, Ducati went through a decline in early 1980s, due to a diversification towards non-motorcycle production, mostly small diesel-powered engines.

In 1985, the Cagiva Group, a private motor-industry group controlled by the Castiglione family, acquired the company and the Ducati brand name. Under the management of Cagiva, Ducati operated its own production facilities and its autonomous research and development division, while product development, financial management, marketing and the sales network where shared with other companies within the Cagiva Group.
The Cagiva Group contributed to the strengthening of the Ducati brand by refocussing the company's activities on its traditional competitive advantage in high performance competition motorcycles and, as a consequence, it was able to consistently increase the annual sales volumes of the firm. Under the control of the Cagiva Group, Ducati motorcycles further increased their reputation both in the competitive and commercial fields.

As mentioned, the financial management of Ducati was shared with the other companies of the Cagiva Group, and, as a result, cash flow problems generated by within the group deprived the company of the necessary liquidity to pay suppliers. Despite product innovation and racing success, Ducati entered into a deep financial crisis as its financial resources were drained by unsuccessful ventures of sister companies within the Castiglioni-controlled Group. As a consequence of these liquidity problems, many suppliers reduced their component flows, causing serious production delays for Ducati.

This situation was reversed in 1996, when Ducati was taken over by the Texas Pacific Group, an American investment fund, that brought in the needed cash and a new group of international managers.

Today Ducati Motor, totally controlled by Ducati Motor Holding SpA, designs, builds and distributes motorcycles and components under the Ducati brandname. Ducati Motor owns

Ducati North America, Ducati France S.A, Ducati Motor Deutschland GmbH, Ducati Japan KK, Ducati Benelux and Ducati U.K., the Ducati Group distributors in each of these countries. Ducati Motor also owns 99% of Ducati Corse S.r.l., known also as *Ducati Corse*, which was constituted in 1998 in order to carry out the organisation and management of the activities of the Ducati racing team.
Ducati represents a well-known historical brand in the motorcycle sector and is known for high-level motoring solutions, high technical quality and innovative design in addition to its success in racing competitions. The combination of these factors has allowed the group to address its products to a high price target group of consumers in the *sport* segment of high-powered motorbikes. The *sport* segment constitutes a niche segment including motorbikes conceived for competitions and afterwards adapted for street circulation.

Ducati's motorcycles are currently sold in more than forty countries world wide, mostly in Europe and North America, where the Group has realised 90% of its motorcycle and accessories turnover in 1998.

2. Drivers for Change

As mentioned, prior to its acquisition by Texas Pacific Group, a deep financial crisis affected Ducati, undermining its production and consequently negatively affecting its market results. Production was less than production capacity and a relaunch of the company was necessary. The strategic plan carried out by Ducati Group after the acquisition focused on the idea of increasing the company's value through a growth in turnover volume and protection of product profit margins. One of the most interesting aspects of the changes embraced by the Group is the restructuring of the production system which began in the mid-1990s in order to maintain the product margin and increase the level of sales and turnover.

3. Characteristics and Process of Change

Ducati's industrial activities focus on production of engine foundations and cylinder heads, two key components that are considered particularly important in the value of the entire motorcycle, and the assembly of the engine and the finished vehicle.

The problems that led to the process of change were linked to the fact that too many components were being assembled within the factory and the numbers of suppliers were too high. Such a situation had led to high manufacturing costs and a significant allocation of resources to control of suppliers, as well as substantial supply-related costs.
In order to achieve a progressive product cost reduction, restructuring was first aimed at introducing a greater level of standardisation by incorporating a higher number of common components in the various models of motorcycles produced, thus realising greater economies of scale and learning. A strategic goal in the area of production has also been to decrease the number of internal assembly operations. This goal has been realised with the introduction of a *platform system*, according to which motorcycles are assembled from a specific number of key components, known as *platforms made up of* sub-components. Under the new system, each supplier is responsible for the platform supplied to Ducati, having assumed the task of coordinating and controlling the sub-components suppliers and the assembly of these sub-components.
The process of simplification has therefore led to a decrease in the number of components directly assembled by Ducati and has shifted the responsibility for the production of platforms to suppliers. This strategy has permitted a significant decrease in the direct and indirect manufacturing-related costs for Ducati: in fact, in 2001 this share has decreased to 8% of total production from 19% in 1998. The remaining 92% of total product cost is therefore the purchase of components from suppliers.

In order to support the co-ordination and planning of the incoming flow of semi-manufactured goods, Ducati has also developed a new software able to monitor information and input flows, providing a continuous and comprehensive overview of the process, and signalling the need for intervention when necessary.
The rationalisation process also has involved a decrease in the number of suppliers from 340 to 175 over four years, with consequent reduction in the resources dedicated to their control and coordination. The selection of suppliers according to brands and product quality has involved an important process of interaction and integration between Ducati and these partners, leading to co-operation concerning research and development, product innovation and quality aspects.
This high level of interaction with other firms is facilitated by the location of Ducati in a highly industrialised area, which is home not only to the company's suppliers, but also to several important motor vehicle companies like Ferrari, Maserati, VM Detroit Diesel, Minarelli Yamaha and Lombardini Motori.
Ducati and these enterprises, which do not represent direct competitors to the firm, have established an *engine technological district*, which involves an agreement to cooperate in various activities, such as research and development, supply procedures, quality control of supply and employee training. The *engine District* is also aimed at reducing supply costs as a result of joint orders and other activities, and a further training with the university of Bologna to the students.

A second improvement undertaken concerns assembly aspects, that is, the organisation of work inside Ducati's plants. The process of re-organisation has consisted of the implementation of a *lean production system* with regards to the process of assembly. The lean production principle is based on the concept that, in order to create value through an increase in the product margins, it is first necessary to avoid any kind of waste related to production processes. Waste can result from overproduction, high stocks of components and final products, use of unnecessary surfaces, unnecessary goods transport or movement of workers due to the structural layout of the assembly area. The need for reduction of waste has brought to the introduction of a new system in which the assembly of the engine is performed through the use of tray and kit, in which each kit is provided with the exact number of components necessary in order to assemble the engine. This new system doubles the control over the engine assembly; in fact, both the worker preparing the kit and the worker assembling the engine provide an element of quality control. As a consequence, an 80% reduction in engine defects has been achieved.
The third element of the reorganisation process concerns the outsourcing of activities not considered strategic core business activities for the company such as, for instance, distribution logistics, in order to permit a reduction of the company infrastructure and fixed costs related to the maintenance and management of such functions. This increase in outsourcing is of primary importance in the effort to concentrate resources on core business activities and achieve the highest standards of quality and production.

4. Obstacles to Change

The reorganisation and production rationalisation process has led to some problems, especially in the process of changing towards a leaner and more efficient organisation.
The problems related to the process of reorganisation are the following in particular:

- Only few people inside the company had a valid understanding of lean production concepts. This lack of knowledge therefore required the consulting services of a company specialised in lean production concepts and it required demanding human resources training and assimilation periods;

- Lack of a long-term vision, since the objective of the reorganisation was only based on the restructuring of the organisation of production towards maintenance of an aggressive product mix;

- Lack of a methodology to enforce the lean production concepts;

- Ducati's workers represent a core element of the new production system, thus this change in organisation also requires a shift in attitudes toward work which are difficult to change.

Despite early misgivings, the problems mentioned above have been resolved, thanks to a bottom-up process of change in which the workers, the real addressees of the change in organisation, were strongly involved and entrusted with the task of providing the right solutions in order to implement the most efficient system.
For these reasons, the process of change required six months to be successfully implemented with tremendous efforts from all elements of the Ducati Group.

5. Risk Analysis

The change that was embraced has been very substantial and has mainly concerned the real engine of the company, that is, the workers involved in the assembly units. The sustainability of the new system of production is guaranteed by the participation of the workers themselves in the process of development of the system. This methodology is based on the concept that workers are the best experts in the areas that are subject to the process of change and that, if the company is able to implement a bottom-up process of change, it' becomes possible to improve the workers' level of motivation. In fact, for the workers it becomes a great opportunity to generate ideas which are afterwards applied and experienced on a daily basis.

Sustainability is also achieved through the continuation of the process, even after the project has been completed, since an improvement of operations can be promoted through an ongoing series of workshops covering various aspects as well as addressing problems concerning the organisation of the production process.

6. Benefits of Change

The benefits of change achieved by the company are tangible, both in terms of work organisation and consequently in terms of a higher production capacity. As concerns the organisation of production, the results of the new system can be described as the following:

- Increase in the use of common components for different motorcycle models, thus better exploiting economies of scale and learning;

- Greater and more equitable sharing of responsibilities;

- Higher responsibility of suppliers, as they no longer provide raw materials, but semi-manufactured goods;

- Higher purchasing power as the number of suppliers has decreased, thus allowing Ducati to obtain more favourable prices from them;

- Thanks to the adoption of the platform system, Ducati has developed a greater presence in the regional industrial area, resulting in a higher number of linkages established with the suppliers of the area. This has resulted in the possibility of designing platform characteristics together with suppliers (co-designing) with important positive implications for the quality of the components assembled. This higher degree of interaction with suppliers has led to stronger knowledge sharing, resulting in the improvement of the technical aspects of production and a cost reduction;

- Downsizing of stocks and related costs;

- The reduction of the company's infrastructure through an outsourcing strategy has meant a greater level of flexibility and a decrease in fixed costs (overheads).

In terms of overall results, the reorganisation has brought about a substantial increase in sales. In fact, the number of units sold has risen from 12.600 units in 1996 to 40.000 units in 2001 and the Group expects to sell 43.000 units in 2002. The turnover has also increased, more than tripling from 105 Million € to 408 Million € in five years.

The process of reorganisation has not led to a decrease in the number of workers employed; in fact, the number of employees in the Borgo Panigale factory has slightly increased over the last four years due to the establishment of Ducati Corse and the subsidiaries. Figures even show a world-wide increase of 250 employees.

In 1999 the company was listed on the Milano *Borsa* and this listing is a concrete manifestation of the positive trends realised by the company and the increase in its market share.

Conclusions

The case has described one of the most important aspects of the evolution that Ducati has undergone since 1996: the reorganisation of the production system. This reorganisation has consisted of the introduction of a platform system and a progressively greater integration with suppliers, the implementation of a lean production system of assembly, and the outsourcing of activities that the company doesn't consider strategic in order to concentrate on core business activities.
The case has shown how a bottom-up process of change, in which the individuals working in the company are directly involved in the process in order to recommend, test and implement the changes themselves, can lead to the achievement of great results.

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