Dear Sirs,
For the kind attention of the Board of Directors

SUBJECT: Report on the activities carried out under the professional engagement

Dear Sirs,

We are sending you this report in order to set out what has been done so far and the management issues still to be resolved, comparing the results achieved with the findings of our first visit to the company on 2 March.

Production flow planning

Situation at 2 March
Production flow scheduling and planning must be thoroughly revised and improved, removing the 'bottlenecks' and shortcomings that currently prevent the company from meeting delivery times and completing job orders on schedule; we believe that planning production flows on the simplifying assumption that the machines have 'infinite capacity' cannot enable the company to schedule the use of the available production factors (capital equipment and labour) rationally and efficiently, in a way that ensures punctual fulfilment of its commitments to customers.
The software the company currently uses is limited and rigid in its functions, not least because it does not allow job order progress to be updated or completion times to be rescheduled in the case, unfortunately very frequent, of delays built up on orders entered earlier.
Adopting an appropriate planning model will also allow overtime to be controlled more efficiently, with the aim of reducing the weight of labour costs and with positive effects on the contribution margins of job orders.

Situation to date
Substantial changes have been introduced in the production scheduling process through the use of the order schedule, which shows for each production order the planned processing date and the delivery date to the customer, so as to work according to the deadlines set in the system and not (as used to be the practice) on the basis of what 'visibly' appeared ready at the machines for the next phase: for reasons of convenience, we chose to use the schedule in detail in the initial production phases, since this makes it possible to push orders forward to the subsequent phases according to the correct deadline.
Given that the customer order book averages only 2-3 weeks of work (with short-term visibility) and that average delivery times are around 11-12 days, it is clear that the complexity of the production process leads to extreme variability in the workload of individual machines, which from week to week can swing from 'peak' to 'empty'. To make workload monitoring easier, a schedule has been prepared showing for each machine the saturation percentage over the next 5 days, so that the appropriate corrective actions can be taken well in advance (for example: use of overtime, holidays, transfers from one machine to another).
The management software the company uses, although rigid, allows production data to be extracted at a level of detail sufficient to monitor closely the trend of the main company performance indicators: analysis

of the ‘ready messages’, i.e. the production end times for each operation, processed through appropriate queries extracted from the information system, now makes it possible to check periodically that production is optimised by grouping products by thickness, as well as to verify the times taken by individual operators and ask them to justify any anomalies found.

Moreover, the software is set not to infinite but to finite machine capacity, currently 95%: therefore, the frequent cases of ‘overloading’ (>100%) are due to forcing the delivery dates requested by customers beyond normal production capacity. A careful analysis of ‘urgent’ deliveries (see attachment 1) showed that from June to September, customer requests for early delivery (which cause overloading) stood at 12.9% of total orders which, translated into processed surface area, amounts to 25.1% of total sq m. The phenomenon of urgent orders, certainly not negligible, results in a shorter delivery lead time which, in September alone, was 8.7 days against the standard 11.6 days. The detailed analysis also showed that 20% of urgent orders relate to customers each with annual turnover below €5,000 and, taken together, below €100,000; on the other hand, a further 10% of orders emerged relating to important customers but with delivery times that are perhaps too tight, at 6 days. The outcome of this analysis, already discussed within the company, must translate into greater care at the order entry stage in order to mitigate the problems identified above, concentrating early deliveries on strategic customers and, in any case, with lead times that can genuinely be met and with the option of charging customers urgency fees.

To enable the management system to give a true and fair picture of the machines' workload, and also to monitor the progress of individual job orders more effectively, a continuous analysis of theoretical versus actual production times has been implemented, to correct anomalies in the formulas entered in the system, with particular attention to the correct calibration of set-ups.

Furthermore, in order to schedule production times with certainty, the procedure of sending order confirmations to all customers will shortly be introduced, a practice not currently applied across the board and which causes problems whenever a customer chases a delivery whose date was not previously agreed; in such cases, scheduling cannot determine whether or not there is a delay and, when in doubt, work on that order is accelerated at the expense of others.

As regards the use of overtime, monthly monitoring of hours worked against workable hours has been implemented (see attachment 2), so as to keep track of the trend for each individual employee, also relating turnover achieved (trading excluded) to the hours worked in production, in order to establish an hourly productivity indicator. The analyses carried out show that overtime hours rose in January, February and March (+58.6% compared with the same months of the previous year), whereas from April there was a progressive reduction, leading to an overall decrease in September (-7% compared with the same period of the previous year), thanks to the rationalisation measures taken. This improvement has consequently increased hourly turnover, which rose to €125/h in the first 9 months of the year compared with €107/h in the same period of the previous year, in a context in which total turnover rose by 11%. In short, to achieve higher revenues, proportionally fewer production hours were used in the two periods compared: 54,909 against 54,294.

All that said, the improvements made to production scheduling have had a positive impact on delays: in July, when the order load was at its highest level of the year (1,900 hours against an average of 1,300 hours during the year), delays came to 10% of total orders, against an average of 27% since the start of the year (-60%) and an average of 32% over the whole previous year (-70%).

Naturally, continuous improvement depends on constant monitoring of results and on sharing information with the various managers, through regular meetings held at least weekly; given the complex production

structure and tight delivery times, it has already been shown that, without control for even two to three consecutive weeks, company performance deteriorates rapidly.

Controlling and cost accounting

Situation at 2 March

At present, the company does not have a cost accounting system capable of effectively supporting management's decision-making, through knowledge of production costs and of the contribution margin of individual job orders and of the different product lines.

According to what we were told, the company merely calculates a contribution margin on an actual basis and only at aggregate level, from the general ledger figures, with partial and limited informative value (not least because in general accounting items are classified by nature and not by function).

Also in view of the heavy investment in capital equipment made in recent years and the fact that there has been no positive return in terms of improved margins and operating profitability, we stress the importance of introducing effective and rigorous controlling that can guide pricing and decision-making more consciously (*do I accept or decline the job order? which product range should we focus on? what is the break even turnover?*); cost accounting will, moreover, make it possible to understand how profit is generated and where action is needed to improve it.

In this respect, we consider it appropriate also to introduce the measurement of performance indicators (profitability per operator / job order / cost centre).

Situation to date

Cost analysis has recently begun, in order to establish clearly the margins achieved in the various production phases, by determining hourly production costs, both direct and indirect, to which general overheads are added to arrive at full cost.

The chosen method of analysis aims to determine the hourly cost of each operation and not the individual costs per job order, given the excessive number of the latter and thus the poor return in terms of information useful for decision-making, but also because sales price lists are set on the basis of the planned operations and, therefore, these become the cost and profit centres on which to base the analysis of company profitability. Indeed, since sales price lists are set per square metre or by product thickness, according to the different type requested by the customer, and since the management software makes it possible to extract the same units of measurement for each machine, obtaining the square metres or thicknesses processed with both theoretical and actual production times, it becomes possible to determine the average sales revenue per hour of processing on the different machines, to be compared with the related production cost or full cost, with the aim of understanding how profit is generated and where to act to improve it. To better understand the above, consider for example that: if the price list for an operation is expressed in €/sq m according to product thickness and I extract from the management software the sq m processed for each thickness together with the related hours used and also the theoretical production hours, by multiplying the price list by the sq m processed and dividing the result by the respective hours, we obtain the average hourly sales revenue, which can be analysed both at standard level (for theoretical hours) and at actual level (for hours worked).

In the coming weeks the first data from the cost analysis will be available, allowing initial considerations to be made.

Identification of responsibility centres and staff reorganisation

Situation at 2 March

Identifying organisational units (so-called ‘cost centres’) serves not only an accounting purpose, for the precise calculation of costs, but also an organisational one; each organisational unit will/should be headed and coordinated by managers able to answer for what happens in their area of responsibility, becoming the counterparts of Company Management: this is an essential prerequisite for implementing truly effective controlling.

An important area for action, therefore, is the redefinition of the roles of those who will lead the various responsibility centres and the adoption of methods for controlling and monitoring employee performance (employees who will also need to be suitably motivated towards achieving more precise and verifiable objectives).

In essence, action will be needed on personnel management, regarding the need to reorganise the organisation chart, particularly in the production departments, in order to identify responsible figures able to lead their areas and, at the same time, to provide the company with job descriptions, roles and rules that each person can genuinely comply with in substance, through the use of both incentive and deterrent systems.

Situation to date

To support the production scheduling process efficiently, this being the main issue highlighted by management, an internal logistics manager has been appointed who manages the production schedules, liaising constantly with the various department heads, as well as directly feeding the various machines to ensure job orders progress correctly; this role also acts as the interface with the sales office for delivery issues. To optimise production flows, the various areas beside the machines where products awaiting processing are ‘stored’ have been better identified, so that operators do not leave their workstations in search of work to be done: all this in a context where the production layout in itself generates theoretically ‘unnecessary’ movements of material, as the individual processing phases are not ‘in line’ according to the principles better known as lean production, particularly as applied to lean line production (flow shop), where machines arranged in series are characterised by a one-directional flow of material.

As regards the reorganisation of the organisation chart, in order to provide the company with job descriptions, roles and rules for proper functioning, we considered it necessary to start by reviewing the company's internal procedures, which establish ‘what needs to be done’, with a view to subsequently defining ‘who must do it’, the latter being the pivot of organisation charts and job descriptions. As this review would also have entailed changes to the management software, we decided to act by directly involving the software developers, with whom a document was shared (see attachment 3) on the following procedures requiring action:

- purchasing, where orders are improperly entered in the system once the material has already arrived and where ‘too many’ people are involved in buying;
- warehouse and production progress in the system, in order to manage stocks of raw materials and semi-finished goods correctly, through the use of labels and barcodes allowing every production order to be linked to the specific components used and which, in the event of a customer complaint, will make it possible to trace back to the supplier and the original purchase order, ensuring the traceability of the material.

Once the above procedures have been implemented, it will be possible to view stock levels in the system on an ongoing basis, the lack of which currently makes year-end inventory valuation difficult.

Further critical areas

Although not highlighted at the first visit, further issues emerged during the various interventions, which deserve closer attention.