

# **“Controlling” as a Unit of Production Planning and Control. Romanian Case Studies**

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**Valentina Oargă**

*The paper presents a new managerial tool applied in Romania after 1990: controlling. Controlling is understood to be a unit of planning and control like in German speaking world. Even though this is a typical German approach, our conclusions will show that the same view of controlling exists in post-1990 Romania.*

*This paper’s objective is to argument the acceptance of controlling as a management tool—referring to a company’s planning and control unit—by presenting a concrete planning and control situation at an international company in Romania Alexander&Son Timișoara.*

**Key words:** *controlling, planning, control, production*

**JEL classification:** *M19*

## **BASIC ARGUMENT**

In the current context of European integration, management in Romania must face a number of challenges by taking note of opportunities and threats, directing the organisation towards success and making effective decisions.

Is the organisation on the right track? This is the question that management must answer, and in doing so it requires support in the form of *controlling*. Controlling as a management function first appeared in the USA at the beginning of the twentieth century, rapidly reaching

widespread adoption in Europe—first in France, then the UK and later on in the German-speaking world as well as Hungary (Eschenbach, 1996).

In Hungary, controlling is perceived as being a management subsystem. In our opinion, the most complex development of the concept is to be found in the German-speaking world, where three interpretations are given: controlling is the comparison between Planned and Achieved tasks; or it is a means of influencing organisational behaviour according to the general direction provided by management; or, finally, it is a unit of planning and control.

It is this latter approach that we will be focusing on in this paper. Even though this is a typical German approach, our conclusions will show that the same view of controlling exists in post-1990 Romania.

Currently, controlling is practised in over 90% of German organisations, in more than 70% of Austrian ones and in over a third of Hungarian ones. Accurate data are not available for Romania, but it is likely that less than 10% of organisations use this management tool in their activity.

Our research (Oargă, 2003) shows that controlling is applied in companies in the light industries such as textiles (SC Dunarea Textile SRL), paper, cellulose and cardboard manufacturing (SC DunaPack Rambox SRL), textile, fur and leather materials manufacturers (SC Ebyl Textile-Automotive-Texttrade SRL).

We are aware of applications in other areas as well: the chemical industry (rubber and plastics manufacturing) – Continental Automotive Products SRL etc. Other organisations that practise the use of controlling are PriceWaterhouseCoopers, Alexander & Son, Electrolux, Siemens, Richard Halm, Novar, Mondial, Delphi Packard, Zoppas Industries, Dräxlmaier.

All of the above are local branches of international companies. Thus, one of the reasons why controlling has taken a foothold in Romania is

foreign companies' investments in Romania and their implicit need to implement existing management tools as they are in place at the group level.

Another possible reason is the wish of Romanian entrepreneurs to better control and manage activities in the firm. Some Romanian companies versed in the use of controlling do exist, but according to our current data they are very few.

In terms of territorial distribution, (Oargă, 2006) controlling is well represented in the Western part of the country and particularly in Timis county, but also in other large cities. It is unlikely that there exist any number of international companies who do not practise controlling. Controlling data are not transmitted outside of the company, however, which leads to difficulties in estimating the degree to which controlling is carried out in Romania.

Little academic interest exists in Romania in the field of controlling, despite an increasing number of practitioners—controllers who work in companies where the practise exists. In companies one will often find one controller position, though sometimes a controlling department is in place, depending on the volume of activity.

This paper's objective is to argue the acceptance of controlling as a management tool—referring to a company's planning and control unit—by presenting a concrete planning and control situation at an international company in Romania, Alexander&Son Timisoara.

**The research method** used was the in-depth interviewing of Alexander&Son Timișoara's controller, based on a questionnaire which makes up the practical core of the paper. The approach leads to the possibility of drawing pertinent conclusions regarding the practise of controlling. **The interview** was carried out with a controller who works in the company we are presenting. The interview took place in June 2009 over the course of five meetings, each meeting lasting an average of 2-3 hours. An open-ended questionnaire was applied (Appendix 1), which allowed the respondent to provide answers in his

own words, enabling a better understanding of the way he carries out his activity. We put this forward as an advantage of our research method, since the responses are significant, complete and complex. There have been several shortcomings and limits to our research, as follows: due to the lack of specialist Romanian language literature and given the lack of theoretical knowledge in the field, the interviews were difficult to carry out, the greatest difficulty being the linking of theory and the controller's actual work. We have also been confronted with the controller's tendency to withhold confidential information, naturally explicable since controlling data are confidential. Due to this element, the material presented was acquired within the limits imposed by the volume, structure and quality of the information provided by the controller. Despite this, we emphasise the fact that the only way to find out certain data regarding the controller profession is through interviews, since this is a very new line of work in the Romanian economy and the controller is therefore the only person who can provide information on his or her activity. Please note that the name of the company is not real, in order to comply with the confidentiality requirements of the controller.

Controlling at Alexander&Son Timișoara, Romania

### **1. Brief presentation**

Alexander&Son Timisoara is a local branch of the US-headquartered BAR group, which also has branches in Germany, Belgium, Sweden, The Netherlands, Great Britain, Turkey, Iceland, Hungary, China and Mexico. Founded in 1996, Alexander&Son Timisoara is the group's only Romanian location.

Area of activity: manufacturing services in three separate project-based business units: mobile telephony, automotive and medical industry.

Raw materials are shipped from Asia and consist of circuit boards, components, cases, accessories and packaging.

The manufacturing process consists of: populating (filling) circuit boards, checking and implementing software, preparation of finished product, quality control, packaging and export.

The Timisoara branch has a number of suppliers it works with: Golden Circuit for stratified electronic circuit boards, Philips and Sony for components, various EU companies for cases, Volex (Asia) for accessories and Nefab for packaging. A number of local suppliers are also used.

Manufacturing capacity relies on 15 complete production lines, average monthly output consisting of 45 000 mobile telephones, 150 000 automotive units (steering wheel-mounted audio, navigation and safety system control cards), 5 000 medical device cards. The company employs 4 000 people working in three consecutive shifts.

Alexander & Son's performance is controlled by means of the ISO 9001 manufacturing quality standard and the ISO 14001 environmental protection standard.

The Research and Development unit employs engineers who, at clients' request, design new products. Alexander & Son Timisoara does not have a consumer-oriented marketing department, this type of activity being carried out at the global corporate level. The company's clients are generally responsible for the final sale of the finished goods. Marketing at Alexander & Son Timisoara is oriented towards large corporate clients.

Customer relationships are managed using a general service contract as well as specific project-based contracts where the client can set quality standards (including standards regarding raw materials and the use of certain suppliers).

## 2. The CFT team, production process and information flows

### 2.1. The CFT Team

Eight weeks in advance (this being the minimum amount of time required for the purchase of certain raw materials), the client sends in a list of orders which reaches the project manager. The project manager, in turn, forwards that list to all team members so that each department can plan its activity. The project manager gathers a team of department representatives. This team is called the Customer Focus Team (CFT) and represents the direct link between the client and the Timisoara branch.

The project manager is the project's coordinator, hosting daily meetings with the CFT team. At the time of project start-up, he or she takes on the task of transferring and launching the project. Transfer in this case means bringing the database, equipment, specialists etc. at Alexander&Son's location. The project manager is also responsible for developing the business relationship, suggesting new business opportunities and interfacing with the client.

The Materials Department files orders with the order management system for the following eight weeks. The system will place the orders with suppliers according to the export date scheduled and delivery times.

The Manufacturing Department ensures it has available capacity (equipment and personnel) required in the manufacturing process.

The Engineering Department ensures that the process and manufacturing flow are stable. For instance, all manufacturing equipment revisions are updated. The client may require various changes to the product (input cabling, components etc.), thus the engineer must check that the process is stable, according to existing and new requirements.

The Quality Department ensures SICs (Station Instruction Cards, holding instructions for each work post) are correct and complete and that inputs and outputs are compliant to quality standards.

The Testing Department ensures functional testing is carried out using the appropriate programmes according to the type of product being tested (there are three to four types of tests for each product).

The MPS (Master Production Schedule) carries out the scheduling of shared equipment in the plant (e.g. when a new project comes in and the equipment must be adapted), for use according to manufacturing capacity availability and using criteria such as volume, type of project, priorities and other scheduling needs.

The Sales-Manufacturing Department is responsible for the sale and delivery of finished products.

The Logistics Department receives export-related information from Controlling (products, volume, quantity, country of destination etc.). It is also responsible for ordering transportation (analyses regarding export urgency and pricing) and manages documentation pertaining to orders and customs.

The Sales Department processes the sale all the way to the final customer (e.g. Nokia from Finland orders mobile telephones for their customer in Germany and Alexander&Son Timisoara manufactures and then exports them directly to Germany, but payments are cleared with Nokia Finland).

The Controlling Department is made up of three controllers subordinated to a head controller, who works directly under the general manager.

## **2.2. The manufacturing process**

The manufacturing process takes place as follows:

The CFT Manager receives the order containing the following information: name of product, quantity, unit price, delivery terms, contractual conditions, payment conditions, delivery address.

The CFT Manager forwards the order to the CFT team (controller). The controller forwards the order to the manufacturing manager, both

electronically and on paper. The manufacturing manager sets up the manufacturing team, which brings in materials from the warehouse facility according to the order (controller) and schedules the equipment (controller).

The finished product is then manufactured which is subsequently transported to the finished goods warehouse and later to the export warehouse. Finally, the goods are forwarded to the end client, with whom the company has no direct relationship.

### **2.3. Information flow**

An information flow co-exists with the flow of physical materials and goods. Initially, the manager initialises order into the resource management system. The system makes possible the visualisation of stocks and material requirements for the order and places orders with suppliers for materials where stocks are insufficient. Orders are placed according to the time required by the supplier to manufacture and deliver the materials. “Just-in-time” principles are used for deliveries. Once materials have entered the plant, they are received and introduced into the resource management system.

The resource management system is a software application where all financial and accounting information is stored. Its purpose is to handle manufacturing orders (by receiving information on materials used for each product, by deducting the amounts consumed from stocks), to keep track of material stocks and finished goods, to launch orders to suppliers for stocks that are about to be depleted and to keep track of sales.

All material and financial flows are reflected in the system such that physical production can be visualised at any time. Periodically, physical production is compared to what the system shows in order to discover possible discrepancies such that at the time the export takes place all quantities are certain to be available.



### **3. Controlling activity**

The Head Controller is responsible for the following activities: coordinating the controlling department's activity, taking part in meetings called by the general manager, reporting to headquarters.

The three controllers have similar responsibilities but each is responsible for slightly different tasks according to the projects involved. Controllers who are responsible for projects are called manufacturing controllers, and carry out the following activities: production planning, production ordering, comparison of production orders and client orders, planning manufacturing equipment maintenance, coordinating exports according to contracts, coordinating returned product re-processing scheduling, interfacing between the CFT and manufacturing, monitoring the accuracy of current production and materials stocks, coordinating raw materials and finished goods inventory and informing the manufacturing team about changes requested by the client.

All these activities will be detailed in the following sections.

#### **A. Production planning**

The Production Planning report is written up at the beginning of the week for all product types, detailed for each 12-hour and 24-hour shift (fig. 1).

Figure 1: Production Planning

		Report		Weekly Production Planning																				
		Customer	Nokia																					
		Area	Packaging																					
Product	Revision		Week 27										Total production per week											
			Monday			Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			
			4-Jul-08			5-Jul-08			6-Jul-08			7-Jul-08			8-Jul-08			9-Jul-08			10-Jul-08			
			1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift	
Nokia 6100	R4B	planned	100															Non-working days						100
		achieved	98																Non-working days					
Nokia 7210	R4B	planned	54	154	154	154	154	154	154	154	154							Non-working days						1440
		achieved	54	150	160														Non-working days					
		total planned/day	462			462			462			154			0			0					1540	
		total achieved/day	462			0			0			0			0			0					462	
		efficiency	100%			0%			0%			0%			#DIV/0!			#DIV/0!					0,3	
		Area	Export																					
Nokia 6100	R4B	planned				362												Non-working days						362
		achieved				362												Non-working days						362
Nokia 7210	R4B	planned				100						1078						Non-working days						1178
		achieved				100						1078						Non-working days						100
		total planned/day	0			462			0			0			1078			0					1540	
		total achieved/day	0			462			0			0			0			0					462	
		efficiency	#DIV/0!			100%			#DIV/0!			#DIV/0!			0%			#DIV/0!					0,3	

The table contains days of the week information under the headings planned, achieved and differences. These are cumulated at the end of the week. Based on the client's order, the controller plans out for each production shift the number of products that are to be manufactured. The second day, based on the production report written by the production supervisor, the controller fills in the quantity manufactured under the heading "achieved" and reschedules any differences. The heading "differences" is automatically filled in. The causes that have lead to differences between planned and achieved production are analysed in daily meetings and solutions are sought so that they be minimised in the future.

Planning a product over production shifts is carried out using an engineering model (fig. 2). Bottlenecks are thus identified in the production process and subsequently minimised. The client submits a weekly order book for the following period (week/month/trimester), which requires a great deal of manufacturing flexibility.

Figure 2: Engineering model

AREA		STATION	No. of stations	No. of people	Samples	Maximum no. of boards/ hour	Technical efficiency	Target production / hour	Inefficiency	Target per hour	Target per shift	Duration of the shift (in hours)
		Customer	NOKIA									
		Product	Nokia 6100									
		PN	NOK6100R4B									
TESTS & PACKAGING	Step 1	X-Ray	1	1	100%	200	90%	180	10,00%	162	1215	0,0
	Step 2	Functional test	1	1	100%	190	90%	171	10,00%	154	1154	0,5
	Step 3	Quality	1	1	100%	210	90%	189	10,00%	170	1276	0,0
	Step 4	Packaging	1	1	100%	240	90%	216	10,00%	194	1458	0,0

## **B. Production operations**

The production order is labelled with a number allocated chronologically over a lot of products to be exported, launched into production following a client order. The order contains the following elements: number/label, product, quantity, production launch date, production end date. The role of the order is to generate a corresponding reduction in the amount of raw materials stocks and to create a stock of finished products. Orders are used to reflect, virtually, material consumption and to create finished product stocks. For materials consumed, the system will place orders with suppliers automatically, depending on the time required for the manufacturing of raw materials plus delivery time, minus time to use in the manufacturing process.

The volume of sales will be deducted from the finished product stocks present in the system. To carry out this operation, the “Production orders” report is used, which helps the controller with overseeing production orders and can be transmitted to the manager at his explicit request. The report is carried out on a daily basis and helps also with checking physical production against what is contained in the software system. Should discrepancies show up, an analysis is carried out to find out the cause of the differences and ways to remedy the problem. The conclusions are presented by the controller during the daily CFT meetings. Each CFT member expresses their point of view, with the final decision belonging to the project manager who is also the moderator of all such meetings. (This task would have been allocated to the controller in the past.)

## **C. Checking production order conformity against the client order**

The client transmits to the project manager the task book which includes all client orders, products ordered, quantities, delivery terms and destination. The project manager together with the materials team confirms (or not) the information therein. Some situations may occur when orders are rejected for objective reasons to do with the availability of supplies or delivery terms. When a particular supplier is required by the client, the supplier might not abide by the terms of the contract and then the client is called in to resolve any problems. Once the or-

der is accepted by the CFT and the capacities are available (equipment, materials and workforce), the order is forwarded to the controller who turns it in to the production department.

#### **D. Maintenance scheduling**

The equipment used in production has a well-defined maintenance schedule. Each repair and cleaning process must be scheduled such that it interferes to the least extent possible with production. The controller, who knows the structure of production in detail as well as the time required for equipment repair and/or cleaning is the one who decides upon the timing of maintenance operations (fig .3).

**Figure 3: Weekly maintenance schedule**

		Area	Nokia tests																						
Work station		Week 27																							
		Monday			Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday					
		4-Jul-08			5-Jul-08			6-Jul-08			7-Jul-08			8-Jul-08			9-Jul-08			10-Jul-08					
		1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift	1st shift	2nd shift	3rd shift			
Functional test	plan																								
	accomplished																								
Cutting machine	plan																								
	accomplished																								
		Operating period			Duration of periodic maintenance																				
Functional test maintenance		169	hours	4	hours																				
Cutting machine maintenance		144	hours	6	hours																				

Non-working days

### **E. Coordinating exports according to the client's task book**

The client's task book dictates the pace of production. Once the book is received from the client, the team assumes the responsibility to deliver the finished products according to the availability of materials, people and equipment. Based on this responsibility, the controller sets a list of priorities, the detailed production schedule and the export plan.

Once production has been finished, the export operation is prepared (fig. 4). The controller carries out a number of tasks: checking the export quantity, processing volume/weight data, filling in export forms to be transmitted to the logistics office, to the transporter and finally to the client, processes the export order in the system by receiving it from the accounting department, confirming and sending it on to the expedition team simultaneously with the physical transfer of the merchandise from the finished goods warehouse to the export warehouse, and finally the controller sends the export order for confirmation to the expedition team. This team receives a loading order from Logistics and the export order from the controller. The two must coincide. After receiving confirmation of the export from the expedition team, the financial-accounting department transforms the export order into an invoice. The controller can also carry out the operations outlined above and, depending on the size and nature of the company, can even be the one who ensures that the export is loaded and invoiced to the client.

**Figure 4: Export Order**

<b>EXPORT ORDER</b>				
<b>No.</b>	<b>Date</b>	<b>Order</b>	<b>Product</b>	<b>Quantity</b>
1	25.05.08	EXPORT 12536	NOKIA 6100	560



**F. Conception and oversight of products returned from the client**

In some cases, products may be returned from the client. This usually happens in one of two situations: when products are returned due to a fault of the client's, and when products are returned due to a problem with the manufacturer's processes. In the former case, products are given a registration number (date of entry, quantity and model) following which they are received, their quality status is analysed and a quote is given as to the cost of repair. The client receives this quote and agrees to it or not. Subsequently, the controller receives a time limit until the finished goods must be delivered. The controller then issues work orders and oversees the whole process, letting the client know when it is complete. In this case, the client is financially responsible for the whole process. When the returns are due to a failure on the part of the manufacturer, the process is similar except for the costs of transport and repair which are covered by the manufacturer.

**G. The interface between the CFT and manufacturing**

The controller is the direct connection between the CFT and manufacturing. During the daily meetings, achievements are discussed and new tasks are planned out. Any decision regarding production—which might influence volume, quality or terms of delivery—is communicated to the controller, who will in turn communicate it to the production team and will thus integrate it into the production schedule.

**H. Monitoring material quality and products during production**

The controller is responsible for both sides of production: the physical and the virtual. Physical production is the actual physical construction of finished goods, while the virtual dimension refers to the same process reflected virtually in the planning system. The controller must know the status of production by being able to report on the volume of production completed and launched into production. Good materials and product control leads to fluid and flexible production. Precise measurement of materials used in the production line leads to avoid-

ance of losses and minimising the amounts of material locked into the production process.

### **I. Coordinating raw material, finished goods and product in manufacturing inventories**

The controller is responsible for production and implicitly for finished goods, goods still being manufactured and raw materials entered in production line storage. For this reason, the controller can periodically request material and product inventories. These inventories are carried out by the materials operator and are compared to stocks recorded in the system to identify possible discrepancies. Should such differences appear, there is a risk that the production line could run out of raw materials, leading to delays in final delivery.

Discrepancies are analysed as to their causes (production losses not deducted from stock, theft or storage in areas other than designated spaces) and are adjusted. Materials are stored in a number of warehouses, depending on a number of factors. Thus, there exists a reception warehouse where all materials are received (identified, labelled, categorised and moved into the appropriate storage facility). Second, we have a raw materials warehouse, and subsequently a consumables (indirect) storage facility, storage for returned products, finished products storage, export warehouse and line storage where materials required in the next stages of the production process are held. A materials operator is responsible for the latter storage facility, subordinated to the controller. This operator is also responsible with supplying the line storage facility with materials required for production.

### **J. Informing the production department regarding changes**

The client selects market information, and according to demand plans out their production, which puts flexibility constraints on the manufacturer. The client can request production increases or reductions at any time, while of course assuming the costs implied by such a decision. It is the controller's responsibility to inform the production department regarding changes and their implications. Orders existing in

the system are modified and the production and export plan is re-scheduled.

### **Conclusions**

In Romania, controlling takes place in various companies, particularly in international manufacturing companies and less so in trading firms. It is the case of: S.C. DunaPack Rambox S.R.L. from Sfântu Gheorghe, county of Covasna, S.C. Eyble Textile–Automotive–Trade S.R.L. from Deta, Timiș county, Draexlmeier from Timișoara, Continental Automotive Products from Timișoara, Mondial from Lugoj, Timiș county, Novar from Lugoj, Timiș county (Oargă, 2006).

The number of controllers in these companies has nothing to do with the number of employees, their activity focusing primarily on taking part in planning and carrying out controlling reporting.

The number of controlling reports per controller depends on specific conditions in each organisation: for example, a single controller at S.C. Eybl Textile-Automotive-Texttrade S.R.L. writes nine reports, while in other organisations a controller might write six or three reports (Oargă, 2003). At the same time, a five-person department writes 11 controlling reports at S.C. DunaPack Rambox S.R.L. (Oargă, 2001). At Alexander & Son, the production controller has a special status and carries out distinctive, extremely complex tasks, being the interface between CFT (the Customer Focus Team) and manufacturing.

To conclude: controlling activity at each location takes place in order to satisfy the requirements for which controlling was implemented and to help management in carrying out its tasks.

Controlling is a unit of planning and control: it is responsible with planning, coordination, operation, information and control. If what has been planned is not controlled, then planning makes no sense. The control carried out after planning is what helps show whether what has been planned has also been achieved. The conclusion is that

control complements planning. Controlling includes both planning and control.

Controlling is not just planning and then control, but also includes participation in decision-making by offering information, coordinating organisational subdivisions and leading to success. It includes remedies for delays so that plans are achieved.

By helping achieve the organisation's objectives, controlling improves the organisation's economic performance. This is pointed out by the numerous advantages its use brings to the organisation where it is applied. Such advantages include supporting management with formulating organisational objectives, achieving such objectives, ensuring sound economic foundation for management decisions via its information task, indicating possible unwanted developments in a timely manner, helping identify and understand significant discrepancies between planning and achievement, real-time reporting, coordination between the organisation's departments and the creation of a new attitude towards work, of involvement in achieving objectives.

Given what can be achieved through controlling, we believe that controlling will be a useful management tool in Romania in the future.

(Appendix 1)

## QUESTIONNAIRE

Hello. Please introduce yourself.

1. Please provide some general information on your company.
2. Is controlling being practiced in your company? Since what year?
3. What is the information flow?
4. Please introduce the CFT team.
5. How does the production process take place?
6. Are you the only controller or is there a controlling department?
7. What are the concrete activities that you carry out?
8. How do you work together with the management? How about the chief controller?
9. Do you have any decision-making power?
10. Are you accepted in the company?
11. What are the departments you work with?
12. What is your role as part of the CFT?
13. Do you enjoy your work?

Thank you!

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**Valentina OARGĂ**, Associate Professor, Controlling & Human Resources Management, Faculty of Economics and Business Administration, West University of Timișoara.

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