

DASHBOARD - A MANAGERIAL INSTRUMENT IN SUBSTANTIATION OF DECISIONS

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Abstract: Dashboard can be approached from the several points of view, firstly, it is an important management technique with a direct impact on the effectiveness of managers' work, and it is an important way of rationalizing of the microeconomic information subsystem that decisively contributing to the fulfilment by it of the functions incumbent upon it.

Through this, it is ensured a full, rapid and operative leadership, which can be appreciated as support for taking of high quality and effective decisions, being indispensable in the all public, private and individuals companies.

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Introduction: The Dashboard¹ is a *set of current information* presented in a synoptic, *predefined* form referring to the main outcomes of the company's or some of its activities and the main factors which determine their effectiveness and efficiency performance.

It consists of a set of indicators presented in a synthetic manner with a correlated periodicity that should allow the person to act quickly in the event of problems.

Performance indicators show whether the result targets have been reached. But these indicators do not explain why performance is achieved or not and what the responsible person needs to do to remedy possible deviations.

The indicator system must link the causes (pilot elements) and the consequences (performance factors).

Pilot indicators are related to the activities and resources associated to the product. These are found in the dashboard and have to respond to two essential features:

- are determined to achieve the expected performance level at the request date,
- Are controlled by a responsible person and can act on them.

Pilot indicators are the elements or a set of information elements, representative in relation to a particular objective resulted from the tangible measurement or observation of a state, phenomenon, or achievement. Indicators are those reports that allow comparison of the achievement with objectives or other references. Control requires the definition of the performance indicators and pilot indicators. The performance indicator measures the level of performance achieved. The pilot indicator evaluates the progress of the action plan. There is a permanent link between performance and piloting. In this sense, the dashboard is considered to be a particularly useful tool. There are four cases presented in tabular form in Table 1.1:

Table 1.1 Performance and pilot indicators in the dashboard

¹ Nicolescu O, Verboncu I., *Management*, Economică Publishing House, Bucharest, 1999, pp 379

	Pilot	Performance
1.	Implemented	Achieved
2.	Not accomplished	Not accomplished
3.	Implemented	Not accomplished
4.	Not accomplished	Achieved

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The first two cases bring greater intellectual satisfaction. The action plan has been achieved and the performance obtained at (1); on the contrary, at (2) there was no effort or performance².

The other two cases are, however, sources of experience. The action plan was implemented without performance. Several reasons can be mentioned: the defined action plan underestimated the effort required to achieve performance, was poorly achieved or the expected performance was too high for the means used. The latter two cases should lead us to improve the future forecasts, to better set the level of the objectives and the action plans needed to achieve them. The following table shows a correlation between performance indicators and pilot indicators:

Table 1.2 Correlation between performance indicators and pilot indicators

Define the key points	Performance indicators	Pilot indicators
Quality assurance	Number of correct reception	Number of audits carried out / Number of scheduled audits

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The *goal of the dashboard* is not the setting of a document showing the level reached for each defined indicator. The goal of a manager must be to achieve goals and not to fix and analyze the deviations. The finality of the dashboard is the *achievement of defined objectives* (whose numerical expressions are the indicators); consequently, it must be directed to the action.

The *frequency of drawing up the dashboard* refers to both the timing of the dashboard as well as their diffusion speed. The later the results are obtained, the more measures are taken later. The frequency of the dashboard depends on the life cycle of decision and the action of the followed centre. As we go up in the hierarchy, the dashboard frequency is lower. So, at the bottom, we can produce daily or weekly dashboards.

Among the advantages of using the dashboard are: increasing the degree of substantiation of the decisions adopted by providing the decision maker with relevant information, rationalizing the use of the working time of managers and management bodies, and increasing the managers' responsibility for their work. Other advantages of using the method are: approaching information in a systemic view, ensuring a high quality and efficiency of the relationships between different bodies, and using appropriate criteria for assessing the contribution of each team to achieving the desired results.

There are, in turn, a number of disadvantages: repetitive recording of information, high workload to complete the required statement by the dashboard and relatively high cost of using the method.

The dashboard represents a support in sustain the decision-making process for all types of

² Braga V., *Tabloul de bord, instrument managerial*, Annals of the University “Constantin Brâncuși”, Târgu Jiu, No. 1/2008.

decisions if it is conceptually and rationally used.

Using the dashboard for making decisions based on the cost in the machine building companies

The enterprise, in general, and the machine building industry, in particular, through the production volume and the complexity of the subassemblies, can calculate several types of costs, depending on their organizational choices, their usefulness and their use. Practically, the calculated cost diversity shows the diversity of decisions made in an organization.

Costs are calculated according to the person who uses them, the purpose for which they are using and the cost item. The object of cost is any element (product, customer, department, activity) for which costs are measured³. A cost is relevant, if it is developed at the right time, for the right decision maker and the accuracy to be satisfactory.

Cost information is important to the managers for at least three reasons:⁴

- On the basis of the cost, it is decided to purchase, manufacture or abandon a product and influence the nature of customer relationships;
- Costs can be a basis to substantiate the offer prices;
- Cost analysis identifies needs for product improvement, design, or production process.

The role of costing in the managerial process can be synthesized as follows: it allows the substantiation of current and strategic decisions helps to determine the analytical results and facilitates the process of predicting and analyzing deviations. Among the management decisions taken on the basis of activity information include: product price review, product and customer cost analysis, replacing or removing products, investment in technology.⁵

Table 1.3 Decision making and actions based on costs

	Decisions and actions
Cost calculation on: - functions - products, works and services - sectors of activity	- current decisions - formation of a traditional basis of decisions - strategic decisions
Analyze results on: - functions - products, works and services - sectors of activity	- decisions about setting priorities - establishing responsibilities
Establishing forecasts on: - functions - products, works and services - sectors of activity	- evaluation of the objectives
Calculation of deviations from: - on costs - on turnover - per volume - on performance	- decisions to take corrective action

³ Tofan C. A., *Dashboard - a managerial instrument in substantiation of decisions*, "The Annual International Conference in Economics, Informatics and Communications Field", Câmpulung, 2013;

⁴ Braga V., *Tabloul de bord, instrument managerial*, Annals of the University "C. Brâncuși", Târgu Jiu, No. 1/2008

⁵ Tofan C. A., *Dashboard - a managerial instrument in substantiation of decisions*, "The Annual International Conference in Economics, Informatics and Communications Field", Câmpulung, 2013

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The decision areas for which the cost calculation must provide relevant information are: setting the offer prices; production schedule in relation to the results; alternative production processes; the option between own production and the purchase of the products or services from the third parties. The following example is for choosing between the options between own production and the third-party procurement of the products, services (example Table E1).

Table E1. The option between own production and third-party procurement of the products

Elements	Production	Purchase	Difference (Production-Purchase)
Raw materials (20 pcs * 500 lei)	10,000	0	10,000
Direct labour (20 pcs * 400 lei)	8,000	0	8,000
Other variable expenses (20 pcs * 250 lei)	5,000		5,000
Purchase price (20 pcs * 1,500 lei)		30,000	-30,000
Total	27,000	30,000	-3,000

This analysis shows that the cost of production is lower than the purchase price, so the company will choose to produce the goods.

This decision is one that also depends on the firm's strategy of integration and specialization, there are many firms outsourcing certain activities, focusing on core activities⁶. Making the outsourcing decision is based on both a cost analysis and other factors that are more or less quantifiable: dependence on suppliers, quality of service, use of production capacities, and interest in earning profit in the short or long term. Based on costs, a manager can make decisions about removing a product line from production (example Table E2).

Table E2. Decisions regarding the withdrawal from production of a manufacturing line of a product, based on costs

	Lines of manufacture			Total
	A	B	C	
Sales	125,000	75,000	50,000	250,000
Variable costs	50,000	25,000	30,000	105,000
Margin (gross contribution)	75,000	50,000	20,000	145,000
Fixed Costs / Expenses	59,000	38,000	28,000	125,000
- wages	29,500	12,500	8,000	50,000
- advertisement	1,000	7,500	6,500	15,000
- utilities	500	500	1,000	2,000
- depreciation	1,000	2,000	2,000	5,000
- rent	10,000	6,000	4,000	20,000
- insurance	2,000	5,000	500	3,000
- general administration	15,000	9,000	6,000	30,000
Result	16,000	12,000	-8,000	20,000

As it can be seen, the line C is experiencing a loss of 8,000 lei; the question arises whether the removal of line C would *increase performance*? In making the decision, the manager must take

⁶ Tofan C. A., *Dashboard - a managerial instrument in substantiation of decisions*, "The Annual International Conference in Economics, Informatics and Communications Field", Câmpulung, 2013

into account the following: if line C is closed, then the enterprise will lose the gross margin, which is no longer available to cover fixed costs; by eliminating the line, it is definitely eliminated its fixed costs. If the line C closes more fixed costs than the cover contribution, then it is a very good decision, if not, then the line is maintained.

In order to *make the short-term decision*, the manager has to identify *the differential costs*. In this situation, the question is "what costs can be eliminated for counterbalancing loss of income or coverage if it is stopped the line?" And so a solution can be reached. Not all costs are eliminable, avoidable. Some of the costs associated with the product line are hidden, inevitable, attached, others may be assigned to the common costs, which do not differ in their totality, whether the line is stopped or maintained.

From the analysis of each category of costs, it follows:

1. Wages are paid to workers who work directly in each A, B, C production line. Workers of the line C product can become available if the line is closed.
 2. The advertisement is of each product, being an avoidable cost if the line is stopped.
 3. Utilities are allocated to each line according to the occupied space; it is a cost to the enterprise.
 4. Depreciation is a cost of using the different product lines.
 5. The rent is an expense for the buildings of the enterprise and it is allocated on each line according to the size of the sales. Long-term is a fixed cost.
 6. Insurance is a cost of each line.
 7. The costs of the general administration relate to the costs of accounting, supply, general management, and there are allocated to manufacturing of products line according to the sales.

Total management costs will not change if line C is removed from production. On the basis of this information, the decider can identify which costs are avoidable, eliminable, and which are not, if a product line is decommissioned (example Table E3):

Table E3. Information to identify avoidable / eliminable costs

	Total costs	Eliminable	Not eliminated
- wages	8,000	8,000	
- advertisement	6,500	6,500	
- utilities	1,000		1,000
- depreciation	2,000		2,000
- rent	4,000		4,000
- insurance	500	500	
- general administration	6,000		6,000
Total	28,000	15,000	13,000

The decommissioning of the line influences the company's profit. This results in comparing the coverage contribution with the total costs that can be eliminated if the line is stopped:

- contribution of the lost coverage in the case of stopping the line C (20,000)
- less fixed costs to be eliminated 15,000
- diminishing the company's profit (5,000)

In this case, the fixed costs that are reduced as a result of stopping line C are lower than the gross contribution that lost by this stop.

In order to make a decision, a comparative situation is drawn up of the effects of maintaining or eliminating the production line (example Table E4):

Table E4. Comparative situation of the effects of maintaining or eliminating the production line

	Maintaining line C	Eliminating line C	Differences
Sales	50,000		(50,00)
- minus: variable costs	30,000		30,000
Coverage contribution	20,000		(20,000)
- minus: fixed costs	28,000	13,000	15,000
- wages	8,000		8,000
- advertisement	6,500		6,500
- utilities	1,000	1,000	
- depreciation	2,000	2,000	
- rent	4,000	4,000	
- insurance	500		500
- general administration	6,000	6,000	
Result	(8,000)	(13,000)	(5,000)

Loss increased from 8,000 to 13,000 lei in the case of abandoning line C due to the existence of fixed costs that cannot be eliminated with the line.

Removing a technology line generates a cost conflict. The line to be eliminated has incurred part of the fixed costs which, by removing the line, these are transferred to the other manufacturing lines. These are common fixed costs (not line items) that are allocated to the lines and products.

Through the allocation process, a line can become more profitable than in reality.

If the fixed costs are treated in another way and the fixed costs are disallowed on each line, the following situation is reached (example Table E5).

Table E5. Comparative situation of the effects of abandoning fixed costs on each line

	Lines of manufacture			Total
	A	B	C	
Sales	125,000	75,000	50,000	250,000
Variable costs	50,000	25,000	30,000	105,000
Margin (gross contribution)	75,000	50,000	20,000	145,000
Fixed direct costs (specific identifiable)	33,500	22,500	17,000	73,000
- wages	29,500	12,500	8,000	50,000
- advertisement	1,000	7,500	6,500	15,000
- depreciation	1,000	2,000	2,000	5,000
- insurance	2,000	5000	500	3,000
Coverage contribution of the technology line	41,500	27,500	3,000	72,000
Common costs				52,000
- utilities				2,000
- rent				20,000
- general administration				30,000
Result				20,000

If the line C is closed, the gross contribution of 3,000 lei will also be lost, the depreciation

expenses, the unavoidable expenses will no longer be covered, so the loss is 5,000 lei, which will reduce the total profit of 20,000 lei.

Common fixed costs will be allocated according to the coverage of each line (example Table E6).

Table E6. Comparative situation of the effects of the common fixed cost allocation according to the coverage of each line

	Total	A	B	C
Sales	250,000	125,000	75,000	50,000
Minus variable costs	105,000	50,000	25,000	30,000
Gross contribution	145,000	75,000	50,000	20,000
Direct fixed costs	73,000	33,500	22,500	17,000
Line contribution	72,000	41,500	27,500	3,000
Common costs allocated	52,000	29,972	19,861	2,166
Result	20,000	11,527	7,638	834

The decision to replace or stop of some installations, equipment, technologies depends on the decision on the allocation of the fixed costs. Dashboards allow the quick action, involving a short deadline and fast consultation (the dashboard should be consulted at a glance). So the dashboard contains only the information strictly necessary. It contains little information, that is, only those selected, relevant and important for decisions. The decision areas for which operational situations will provide information are different. Next, a classification will be attempted in relation to the departments where an enterprise can be segmented (Table 1.4.).

Table 1.4 Decision making areas that generate the operative decisions

Field / Situations	Operative decisions
<p>1. In the field of supply</p> <ul style="list-style-type: none"> - the stock situation in the warehouse - the state of non-available stocks - list of suppliers and products offered - internal order situation - the need for raw materials - quality defects situation 	<ul style="list-style-type: none"> - the purchase or sale of stocks - continuing to work with existing suppliers, terminating contracts, looking for new suppliers - Improving the control
<p>2. In the financial field</p> <ul style="list-style-type: none"> - the balance of cash in the accounts or cashier - the situation of loans (maturities, arrears, interest) - the situation of claims (value, due date) - the situation of debts to suppliers (value, due date) - the situation of other debts (wages, tax, associates or shareholders) 	<ul style="list-style-type: none"> - making daily payments - contracting new credits - recovery of claims (contact, summons, court action)
<p>3. In the field of sales</p> <ul style="list-style-type: none"> - Stocks of finished products, goods, packaging, etc. - the situation of the work orders (stage); - the situation of customer requests - the situation of participation in fairs and domestic and international exhibitions 	<ul style="list-style-type: none"> - the purchase of goods - reorient production towards products required by customers - loyalty to old customers and attracting new customers - after-sales service offer

<p>4. In the field of production</p> <ul style="list-style-type: none"> - the state of overrun or savings in consumption of the factors of production - the state of the machinery and technological equipment (age, maintenance, wear); - the state of the machinery; - the state of the scrap; - the state of innovation research expenditure; - the state of orders stage - the status of certificates required by internal or external audit 	<ul style="list-style-type: none"> - diversification of the promotion policy - changing the consumption standards - improving the control activity - discontinuing the operation of the machinery and performing maintenance and repairs, - implementing the standards
<p>5. In the field of human resources</p> <ul style="list-style-type: none"> - daily timesheet; - medical leave; - the situation of absenteeism - plans for qualification and retraining of the staff - compliance accountability analysis - vocational training - job postings 	<ul style="list-style-type: none"> - sanctioning or stimulating - organizing courses - termination of employment contracts - payroll

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Conclusion: Based on costs, a variety of decisions can be made, but in their analysis, it must take into account the separation of the relevant costs from the irrelevant (their use together creates confusion) and the separation of costs in their fixed and variable components, the relevant costs analysis combined with contribution analysis.

The used presentation methods help to quickly check the dashboard. Physical indicators (included in the scoreboards) are closer to action, because they are based on physical variables rather than on financial results. Physical indicators anticipate future financial results through the actions and directions to follow. The calculation of financial results should not be expected, when corrective actions can be taken from the moment the skew of the quantitative factors.

The quality of information is given by its impact on future decisions of the company.

Quality information obtained at the appropriate time is a resource for the company, provided they are properly integrated into the decision making process and the dashboard provides this information.

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