

PERFORMANCE MEASUREMENT SYSTEMS DEVELOPMENT IN A TELECOMMUNICATIONS COMPANY

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This case study chronicles the implementation of a performance measurement system (PMS) for SkyTel, a paging company. The company, which is located in Malta, is in its start-up phase. The objective of the exercise was to observe the effects of measurement on the company and identify the advantages and disadvantages. In this article we describe how performance indicators were selected for the operations monitoring process. A departmental market-driven, activity-based approach was used, extracting operational variables from the company's functional units. The measures were to be directly tied to what the market (customer) viewed as important, with a strong emphasis on the processes (activities) adding value to the customer.

PERFORMANCE MEASUREMENT REQUIREMENTS

The following perspectives were taken into account during the design phase of the measurement system process [1, 3, 5-7, 9-12].

- Performance measures should permeate the organization's hierarchy. That is, a link between operational measures and strategic objectives should be made and integrated.
- Measures should link across the organization. To be effective the measurement system would have to recognize the merits of the service profit chain, whereby customer relations, quality of service, and employee satisfaction have a direct effect on profits.
- The monitoring system should oversee the company from a financial performance, customer knowledge, and internal business processes perspective. It would have to balance objective and subjective factors. Both tangible and intangible measures need to be integrated.
- During the design stage companies need to consider the multidimensional nature of the PMS in terms of the balance between external and internal factors, possible conflicts between performance measures,

and the link between what is being measured and corporate strategy.

- Looking at the firm from a mechanistic viewpoint should be avoided. An organization needs to be viewed as a living organism that must be sustained and motivated and provided with the opportunity to learn and improve. This issue points to a measurement system's need for dynamic characteristics.
- The measurement system should act as a tool to encourage people to be creative, to improve their skills, to derive satisfaction, and to produce better results for the company. It should not serve as an instrument to allocate blame, but as a tool to identify problems and to develop solutions.
- The system should (1) monitor the way the company seeks to be the master of a market, for which it seeks customer-satisfying products and services; (2) assess the way a company is retaining and developing its expertise in a certain technology; and (3) monitor the way markets are being effectively sought.
- The reporting system would have to be easy to understand and quick to read, and information would have to be limited to what decision makers really need in order to make operational decisions to optimize market performance.

ORGANIZATIONAL BACKGROUND

In its start-up phase SkyTel required a monitoring tool to assess its progress in its first months of operation and organizational life cycle. The company could assess its competence by benchmarking against international standards in the paging industry. To accomplish this a measurement system that would produce benchmarking metrics and gauge activities of vital operational functions was needed.

In the early stages the company was aware of the strict and volatile competitive environment it faced. The paging service was to be introduced in the region after mobile telephony, a reverse of its introduction in the

United States and other European countries. Managers were concerned with the company's ability to penetrate a difficult telecommunications market. They required a feedback system to highlight progress and to indicate fresh opportunities for gaining market share.

During implementation of the system, questions arose about whether SkyTel's Mediterranean culture would be compatible with that of its U.S. parent company, Mtel. Also in question was how a mechanistic measurement system would fit into a corporate environment that was intrinsically creative and structurally nonrestrictive. Factors producing this uncertainty were the local corporate culture and the fact that the company was in a start-up phase and norms were still being formalized.

Even though many authors have considered the influence that geographical or country-specific culture has on organizational culture, the literature is still relatively unclear from a research perspective [8]. Because SkyTel was a new company and most managers were not set in their ways concerning operations (that is, there were no established managerial paradigms), the people could easily adapt to the introduction of new systems. This type of adaptability is necessary in the Maltese environment as many of the major organizations in Malta are foreign-owned and each has its specific culture. The presence of this variety of cultures seems to have made Maltese workers more adaptable. Because this adaptability and creativity are needed in entrepreneurial efforts, it was difficult to try to impose a tangible, "hard numbers" measurement system. Workers may have felt that a measurement structure would limit their creativity. Additional organizational and implementation issues are described in a later section.

METRIC IDENTIFICATION PROCESS

Activities to be measured were selected according to their organizational role. The PMS was to represent a balance between what managers thought they needed, what they really needed, and economic feasibility. Managers were interviewed to discover what their concerns were regarding operational processes and information needs. Special attention was given to upper management's information desires and concerns. SkyTel's PMS was developed using a systematic approach and framework that secured commitment for the way the company's and the departments' strategies would be turned into operational measures.

Identification of Corporate Objectives

The initial stage was to identify the primary corporate objectives. The company had been set up just a

few months before this point. Its primary goals were identified and rated in the following order of priority:

1. Establish an efficient operational set-up in each department. Tasks included establishing selling strategies and customer policies, installing complex telecommunications equipment, and developing engineering procedures.
2. Ensure that each department is set up effectively to serve future customer requirements. The demand for future support services was based on records of previous company start-ups.
3. Penetrate the market with pager sales at a rate that secures overhead and capital investment.

Departmental Evaluations

The selected company activities can be categorized into four departments: marketing, customer care, dispatch bureau, and operations. A series of workshops was devised with key management decision makers of each department. The objective was to identify performance measures for each department based on the functions and the process flow of activities within each of the departments. Four sessions were held with each group.

Phase 1: Introductory session on performance measurement systems. Management's commitment and trust were secured through a discussion of measurement practices across different industries. Managers began to identify how they could benefit from the system in terms of being able to evaluate resources better and focus more clearly on objectives for which they were held accountable.

Phase 2: Charting activity-based process flows. Lists of activities, flowcharts of work processes, and job descriptions were configured and drawn up to describe what happens within each department. Visualization of the work processes of each department helped managers focus on how the departments were evolving at a time when the company was in its infancy. Managers used the exercise to assess their functional operations and to help them evolve faster.

Phase 3: Linking activities with other departments. The activities charted in the previous session were examined for functions that overlapped between departments. This approach helped managers define accountability for performance more accurately. Furthermore, the departments obtained a clearer picture of how the functions interface with each other, and where co-operation must be strengthened to ensure that performance targets were reached.

Phase 4: Identifying key performance measures. Once the departmental activities were charted, the metrics worth

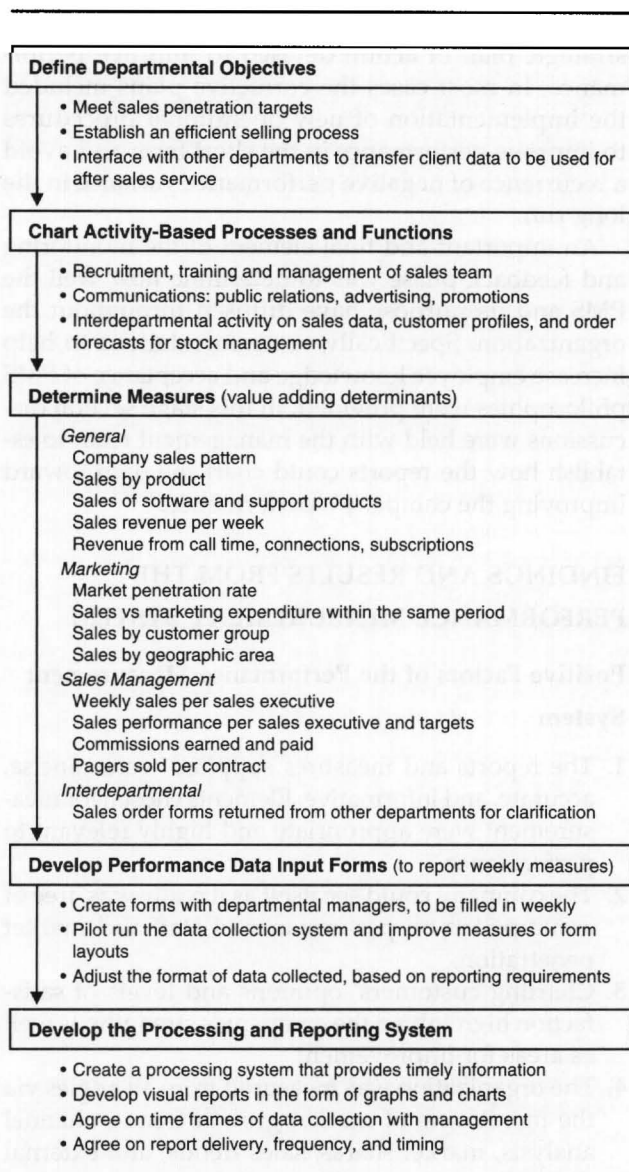


FIGURE 1: Marketing—measurement identification process

measuring were identified. The criteria for selecting the measures were based on the following rationale:

- The measure selected must be for a value-adding activity of relevance to the customer. In this way value-adding activities would be encouraged and rewarded. The desired net effect was for people in the organization to reduce non-value-adding work in order to increase value-adding operations. Examples of such measures are sales patterns, handling of customer queries, and the efficiency of repair services.
- Key activities that were not directly value adding would be included if they were drivers of value-

adding activities. Examples are commissions earned per salesperson and the number of pagers ordered per sales contract. Such measures would motivate performance and efficiency in the sales force.

During the system-building process, comprehensive documentation containing flowcharts of the departments' activities was generated. Figure 1 provides an outline of the contents of this documentation, as well as the overall measurement development process for the marketing department as a sample. A summary of the performance measures adopted within each department is shown in table 1.

Performance Data Collection and Processing

A standard form was constructed with each department manager. The form contained a list of the relevant performance metrics. At the end of each week the department would complete the forms and dispatch them for processing. The data were translated into tables and charts. The graphs issued were found to be effective tools for monitoring variations in performance. The reports were supplied weekly. Given that the company was in its development phase, data needed to be supplied frequently to troubleshoot problems as they arose. The forms were valuable to management, but they required repeated updating. Updating was completed monthly and reflected the changing market environment and the expansion of the company's operation.

MONITORING AND FEEDBACK OF THE PERFORMANCE MEASUREMENT SYSTEM

It is important for a PMS to be dynamic and timely. A critical element of all development processes is the feedback loop to and from developers, managers, and users of the system. To accomplish this phase in the development process, observations are made, followed by the implementation of improvements and alterations.

It is important for a PMS to be closely linked to an organization's actual performance, one of the common-sense, fundamental purposes of a PMS that is typically overlooked [2]. As part of this effort, the monitoring included an evaluation of how top management used the data in strategic decision making. From an operational perspective, the extent to which the reports were understood and how easily they could be translated into actions were also measured.

During the implementation phase of the PMS, managers were given help to understand the data and develop action plans. When a slowdown in performance was detected, an interdepartmental task force

TABLE 1: Summary of Performance Measures per Department

<i>Marketing Department</i>	
General	
	Company sales pattern
	Sales by product
	Sales of software and support products
	Sales revenue per week
	Revenue from call time, connections, subscriptions
Marketing	
	Market penetration rate
	Sales vs marketing expenditure within the same period
	Sales by customer group
	Sales by geographic area
Sales Management	
	Weekly sales per sales executive
	Sales performance per sales executive and targets
	Commissions earned and paid
	Pagers sold per contract
Interdepartmental	
	Sales order forms returned from other departments for clarification
<i>Operations Department</i>	
Network and equipment inspection results	
Network faults	
	Average call time per subscriber
	Messages dispatched by source
	Average number of messages per subscriber
	Average call time per subscriber
	Average message duration
	Message duration by source
	Message revenue by type of pager
	Stock positions, forecast and stockouts
	Pager repairs by type of fault
<i>Customer Care Department</i>	
Reported faults by type and source	
Enquiries from clients to the customer care department	
Visits by clients to customer care center	
Calls to customers with low usage, outcome	
Phone calls made by customer care personnel to clients, issues addressed	
Meetings held between personnel and clients, issues addressed	
Disconnections effected, reasons given	
<i>Dispatch Bureau</i>	
Daily number of messages processed	
Messaging time per week	
Cumulative bureau calls	
Cumulative messaging time	
Bureau and direct messages per subscriber	
Bureau traffic per hour	
No reply and engaged calls	

would be assembled to address the problem and a strategic plan of action devised to improve performance. In most cases the corrective plans included the implementation of new operational procedures to improve performance in the short term and avoid a recurrence of negative performance variance in the long run.

An important and final element of the monitoring and feedback phase was to determine how well the PMS and its purpose have diffused throughout the organization. Specifically, recommendations to help increase employee knowledge and acceptance of PMS philosophies were provided. In this stage several discussions were held with the management team to establish how the reports could chart the path toward improving the company's performance.

FINDINGS AND RESULTS FROM THE PERFORMANCE MEASUREMENT SYSTEM

Positive Factors of the Performance Measurement System

1. The reports and measures supplied were concise, accurate, and informative. Elements chosen for measurement were appropriate and highly relevant to performance.
2. The company could see itself as it really was, free of assumptions on performance of staff and market penetration.
3. Charting customers' opinions and levels of satisfaction highlighted the company's strengths as well as areas for improvement.
4. The organization was measured from all angles via the monitoring of market growth trends, channel analysis, market shares, sales trends, and external demand.
5. All targets were concise and focused.
6. All measures and targets were tied to a given department, its subsections, and its staff members.
7. Staff members were aware of their targets to satisfy market requirements.

Limitations of the Performance Measurement System

Negative results of the PMS were also evident. The following issues were targeted for improving the system. These observations provide insight into what managers should attempt to avoid in a market-driven PMS.

1. There was a conflict of "fit" between the highly structured PMS and the young, rapidly evolving company. From a subjective point of view, the mechanistic characteristics of the reports and per-

formance measures seemed to detract and constrain management's creativity. Creativity may be necessary for effective growth in a difficult and competitive market.

2. Even though the results of the PMS indicated what the weaknesses were, the market and organizational environment did not facilitate the action necessary for improvement. Cultural and organizational constraints limited the effectiveness of the PMS.
3. Employees found it difficult to relate the marketing-oriented targets to what they had to do in their daily routines. Even though there was some effort to diffuse the measures vertically through the organization, this effort was difficult and not completely successful.
4. The corporate culture was starting to focus on operational problems. Thus, the charting of problems on a regular basis could have been demotivating. Sometimes success is viewed as something for which employees are rewarded, whereas failure is penalized.
5. Management and personnel required further training to learn how to handle PMS information. If the reports were used ineffectively, a blame culture could emerge within the organization. Once again, the cultural goal of improvement without placing blame is difficult to achieve when it comes to the actual use of performance measurement outputs.
6. The performance measurement outputs (reports and measures) needed to show more effectively how the work accomplished in the organization affected the customer, or of what value it was to the customer. Customer opinions and feelings were recognized, but how the actions affected the customer was not easily determined.
7. The system lacked the ability to help the organization help itself. It told the company where it was and where it should be, but did not motivate action or create a dynamic environment conducive of change. Clearly, achieving that goal would be difficult for any system. The difficulty involved shows that any strategic project an organization undertakes will require a substantial cultural evolution.

CONCLUSION

The challenges that arose with the PMS implementation concerned the introduction of a relatively rigid measurement process, within a vibrant evolving company. Corporate knowledge, structure, and skills were in the process of being developed. The learning curve involved seemed to require a natural period to reach maturity and could not be accelerated by the perfor-

mance data reports. If the issue is viewed from Arie de Geus's [4] perspective of corporations as "living" companies, the organization needs to evolve in response to its surroundings. The organization's reaction to the performance reports would come at a second stage, when the identity and culture of the company had become established.

In terms of design influence, the PMS was effective for procedures involving customer-oriented operations. The main lesson learned is that the process could neither be forced into the structure nor rushed to completion. The company would have been identified as being in its adolescent phase in terms of "learning and growth" perspectives [7]. A natural progression of the operation would be required before the company could use the full potential of the more complex PMS. One issue that arose is the need to investigate the life-cycle characteristics of an organization and how to model appropriate PMSs for different life-cycle stages.

The case study highlights an area of practice and research in performance measurement that requires additional investigation, namely, how to integrate a performance system, which is mechanistic and numbers oriented, into a corporation, which can be viewed as a living and evolving entity. The results could provide valuable insight into how viable measurement systems can be created and managed.

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