A systematic approach to achieve operational excellence in hotel services

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Abstract

Originality/value: The value of this paper is related to the transfer of industrial methods to the service sector. Moreover not only the single methods are transferred but they are also integrated into a global systemic approach to operational excellence in services. This has been deployed in two phases: a "hard" phase to support the design of the service and the construction of tangible and intangible elements of the service, and a "soft" phase to support the management, maintenance and improvement of the service delivery. All this has been applied to the hotel service sector where the interaction between tangible and intangible elements of the service are particularly evident. Only few works in literature have tried to transfer industrial methods for operational excellence to services. But the major originality of this work lies in the proposal of a systemic approach to operational excellence, that integrates several methods in a unique framework.

Purpose: The purpose of the framework here proposed is to introduce an industrial culture within the service organizations. Concepts such as employees empowerment, ownership, continuous improvement, together with the systematic implementation of quantitative methods builds the organizational basis for achieving operational excellence in services, reducing costs and increasing service quality.

Methodology/approach: The framework here proposed uses and integrates several methodologies. Quality Function Deployment is largely used in order to support the "hard" phase of the framework. Kano's model of customer requirements has been integrated in the Quality Function Deployment structure by means of an original method developed by the authors, introducing a so-called Non-Quality Priority Number (similar to the FMEA's Risk Priority Number) that in combination with a so-called Quality Priority Number drives the decisions for improvement towards operational excellence. Moreover the "soft" phase of the framework introduces methods such as Failure Mode and Effect Analysis and Total Productive Maintenance in order to improve the service organization's operational competence and culture, increasing at the same time the sense of ownership and the commitment for improvement of front line workers.

Findings: Through this paper it has been shown that industrial methods for operational excellence can be adapted and transferred to the service sector with a potential for significant improvements in

particular for those services with a high degree of tangible factors. Allowing in this way to achieve outstanding results also without significant investments.

Keywords: Quality Function Deployment, Total Productive Maintenance, FMEA, service operational excellence, commitment and empowerment, operational culture for excellence.

Paper type: Research Paper.

Introduction

According to a recent study (PKF-HR consulting, 2006) from 2001 to 2005 hotel maintenance expenses grew 18.3 percent, almost 33 percent more than the pace of growth for all other hotel operating costs during the same period. This is the consequence of the increased importance of focusing on maintenance for improving customer satisfaction. Guest satisfaction is indeed impacted by the first impression people experience when they enter their guestroom. Immediately, their eyes are drawn to the condition of the furniture, fixtures, and furnishings that are most evident. On the other hand it is also a consequence of low attention from hotel managers on hotel maintenance expenditures no matter they are becoming one of most relevant costs of operation. To implement cost control in the maintenance department is becoming more and more relevant. Balancing operational improvements and cost control in the maintenance department is one of today's struggles for management.

Customer satisfaction vs. need to decrease cost

Many managers are looking for the optimal trade-off between cost control and operational improvements, but maybe the real problem is not about the tradeoff, but about the ability to obtain the first promoting the second. What is needed to achieve this?

The authors believe that there is the need for a systematic approach which enables to implement a continuous improvement culture, service excellence and customer orientation, in one word the implementation of an industrial culture of operational excellence.

There is the need for the ability to see a hotel as a single system, for developing policy, strategies and service itself, and structuring all its processes efficiently and effectively through its operations.

There is the need for a systemic approach for operational excellence, that means to develop a culture and tools which enable to achieve at the same time customer satisfaction and operational efficiency.

The purpose

The purpose of this paper is to structure a systematic approach for the service sector, especially for hotel services sector, in order to enable to achieve operational excellence.

A systematic approach based on two key pillars:

- An industrial culture of operational excellence, which focuses on business processes and on their optimization
- A framework, set up by operative tools used to support the industrial culture.

To pursue the purpose, the authors have borrowed some tools, as QFD, FMEA, TPM from the industrial sector so that they form a single framework which can help to create and to strengthen industrial culture of operational excellence in service sector. In fact there are many similarities between today's service sector and the industrial context under which these tools were first developed, such as increased operative and overhead costs, greater customer expectations, increased workers' competence. In the industrial context QFD, FMEA, TPM guaranteed dramatic improvements, visibly transforming the workplace and raising the level of knowledge and skill in production and maintenance workers. The authors believe that analogous goals can be pursued in the service sector, and this is the reason why the authors have chosen these tools to develop the systematic approach.

Every change needs methods and a vision: TPM, FMEA and QDF linked together in a framework are the method, the industrial culture of operational excellence is the vision.

The hotel sector is an ideal case study for applying conveniently adapted industrial tools, because its service are, for their nature, combinations of tangible and intangible elements, being its tangible elements an integral and fundamental part of hotel service itself. The tangible elements indeed have a great impact on a good service delivery and so they have to be taken under control, in the same way they had been in industrial sector as productive factor or as a product element.

A brief of state of art: QFD, FMEA, TPM

In literature QFD, FMEA, TPM are principally set in the industrial sector, in which they were born. Nevertheless recently there have been various application of these tools in service sector too (Mazur 2003, Dudam Pess 2003) even thought there are still few application in hotel services (application of QFD methods in Ritz- Carlton and Marriott hotel for better understanding crucial customer-supplier relationships, Kirk, Galanty,2004).

QFD, TPM and FMEA are all tools that have been fully analyzed in all their aspects, but normally authors analyze them individually. Indeed there are only few applications which link together two out of three of this tools, QFD and TPM (Pramod et al., 2006; Pramod et al. 2006), or QFD and FMEA (Ginn et al., 1998), but without significant applications in the service sector. But, most importantly, there is a lack of applications linking together all three tools, TPM, FMEA and QFD, building a one all-embracing tool, which faces under different points of view all aspects that impact on customer, from service/product definition and delivery, to the organization supporting the service.

The authors want to link together the three tools QFD, FMEA and TPM, developing a framework that will be the operative tool of the systematic approach for a change in the service sector way of thinking.

The "hard" phase and the "soft" phase

The authors have developed the framework part of the systemic approach in two phases for supporting hotel organizations in their life cycle:

- A "hard" phase, in which there are the structural changes and in which there are bigger investments,
- A "soft" phase, in which the goal is to maintain and improve what has been implemented in hard phase.

The hard phase can involve all the hotel or only a part of it and can be implemented during a reorganization, a restructuring or the planning/design of a new structure.

The hard phase is set up by the definition of 3 Building Blocks (BBs), that are matrixes borrowed from QFD tool.

The soft phase uses the first phase's BBs, which are simplified after management choices, for implementing FMEA and TPM tools to pursue organizational continuous improvement.

The soft phase, is normally subsequent at hard phase, but it could be put in practice as a stand alone.

The systematic approach's hard phase

The hard phase is composed by 3 BBs (figure 1) , matrixes which come from QFD's House of Quality (HoQ) (Hauser and Clausing, 1988), defined by Akao (Akao, 1990) "as a method for developing and design quality aimed at satisfying the customer and than translating the customer's demand into design targets and major quality assurance point to be used through the production stage". Matrixes in the BBs, as HoQs, correlate "what" with "how" through a weight. Relationship values are defined differently in each BB because they depend on the BBs' focus.

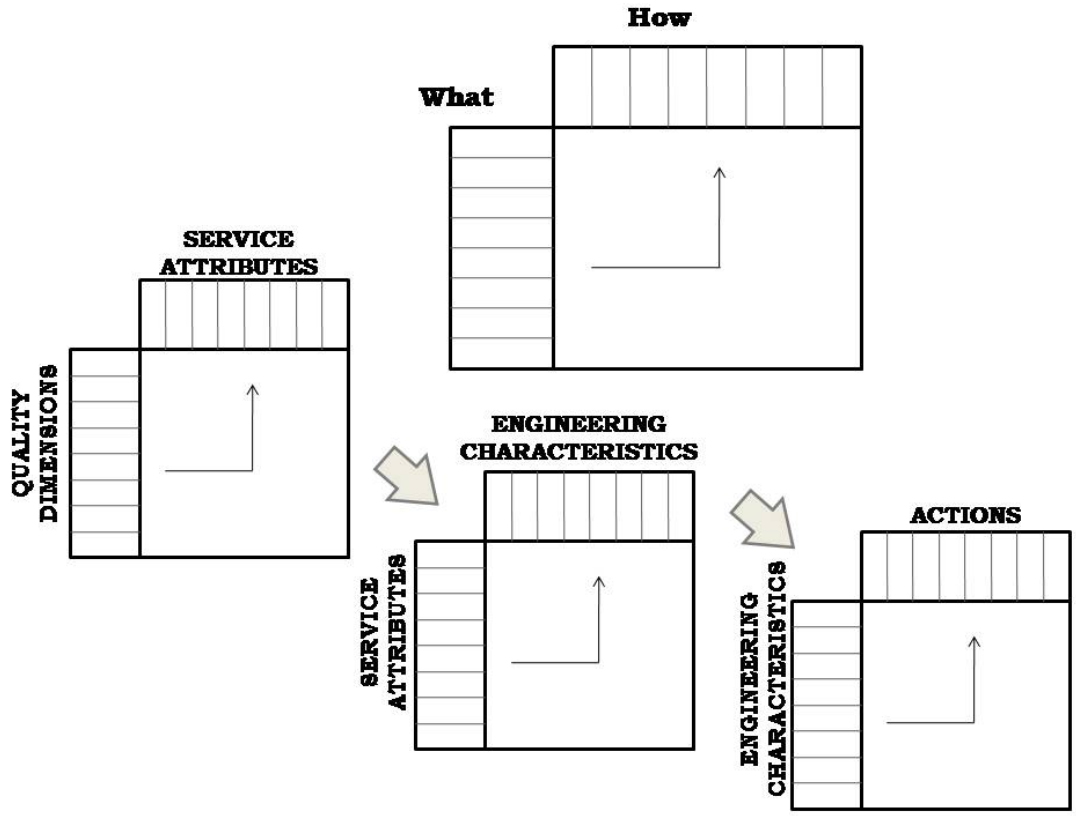

Figure 1. The three Building Blocks of the hard phase.

The first BB starts from analyzing what customers expect from a good hotel service to be satisfied. It has as "WHAT" the customer's *quality dimensions,* in which a service could be decomposed, that can be grouped together in five key dimensions defined by SERVQUAL methodology (Zeithaml et al., 1990), i.e. reliability, assurance, tangibles, empathy, and responsiveness, and as "HOW" the *service attributes*, the requirements explicitly asked for, or implicitly attended by customers (i.e. a silent room, a fast room-service, etc.).

The primary purpose of this first BB is to relate service attributes with overall customer satisfaction. In fact a customer reaches overall satisfaction when all the quality dimensions are fulfilled by the satisfaction of the service attributes. Each *quality dimension* has a weight α_i, which represents the impact of the dimension on the overall customer satisfaction. Each *service attribute* can represent an implicit or an explicit requirement, with different impact on the customers' satisfaction.

The logic which enables to consider the different impact of service attributes and that classifies requirements on this bases is Kano model's logic. Kano model (Kano, 1984) shows the variation of customer satisfaction at various degrees of customer perception for the different typologies of requirements (implicit, explicit, exciting experiences).

Let us first examine the lower semi-plane of Kano's model (figure 2), therefore differentiating service attributes on the basis of how they affect dissatisfaction, giving a priority to actions on attributes and on characteristics that set them. In order to integrate Kano's logic within the first BB, the authors have defined two parameters: Us and P.

Us represents, varying between 0 and 5, the severity of a possible dissatisfaction caused by the lack of perception of a requirement, while P, varying in this case between -5 and 0, represents degree of lack of perception of a requirement by customers.

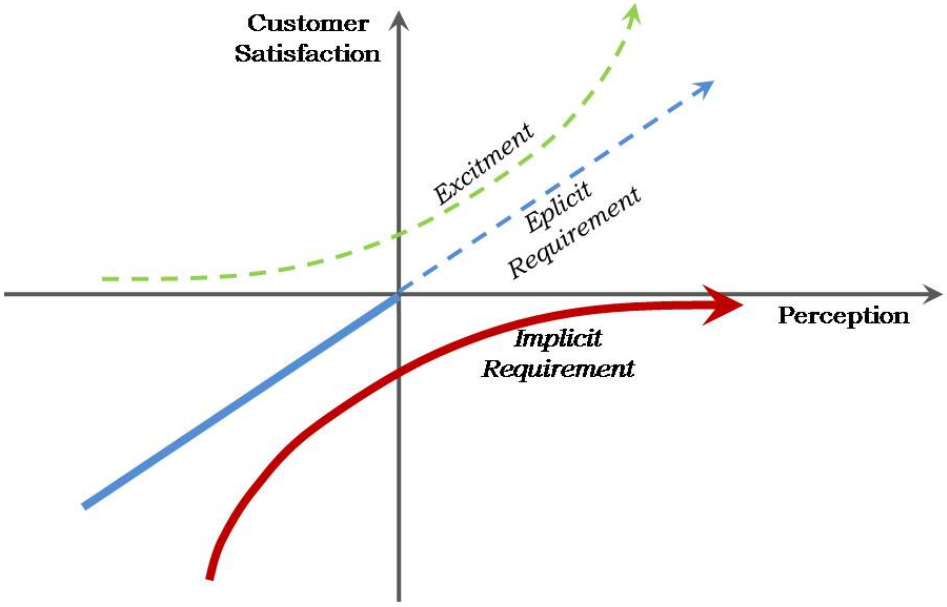

Figure 2. The lower semi-plane of Kano model.

By means of the composition of Us and P it is possible to differentiate between implicit and explicit requirements. In fact implicit requirements generate high levels of dissatisfaction as perception decreases, therefore will have a very high value of Us (5), that once combined with a very negative perception (-5) will generate very high dissatisfaction (-25). On the other hand if an implicit requirement (even a critical one, i.e. with a very high Us) is balanced by a good perception (P=0) there is no or little impact on satisfaction. Explicit requirements, that usually a linear relationship between perception and satisfaction, will have low-average values of Us (1-3) that combined even with very low levels of perception (-5) will generate average levels of dissatisfaction.

In this way each pair of values (Us, P) represent a point on Kano's customer satisfaction curves on the negative satisfaction semi-plane.

In a similar way it is possible to identify the points belonging to the upper area in Kano's model, the satisfaction semi-plane (figure 3), representing explicit and exciting requirements. The equivalent of the Us parameter is now called S, varying between 0 and 5, representing how much satisfaction the perception of a requirement can generate in a customer. The P perception parameter in this case varies between 0 and 5.

Consequently the combination of S and P can generate very high levels of satisfaction, when the requirement is extremely sensible (high level of S) and it is highly perceived (high level of P), or

average levels of satisfaction, for explicit requirements with average-high perception or exciting experiences with low perception. In this way the upper semi-plane of Kano's model has been represented.

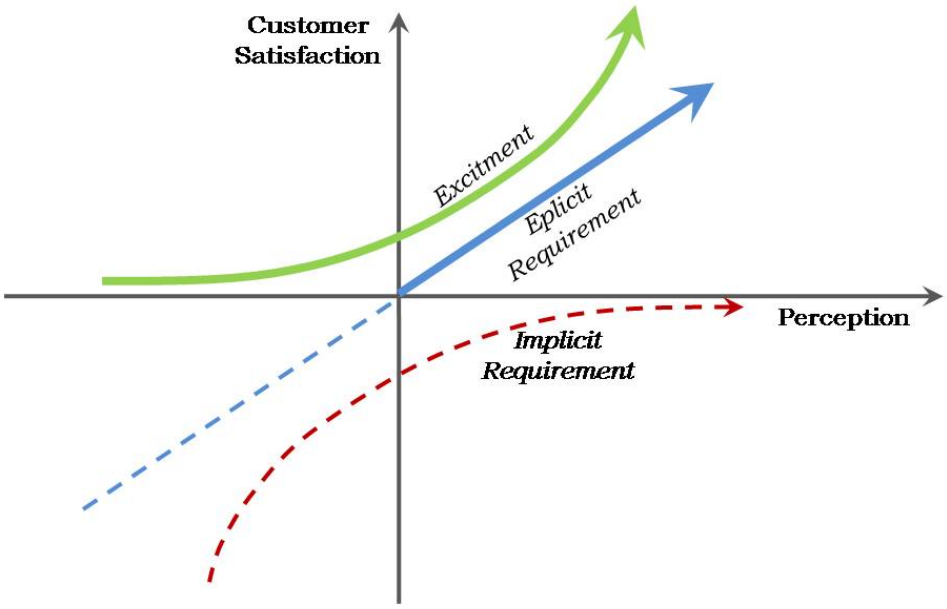

Figure 3. The upper semi-plane of Kano model.

All values of P, Us and S are given to each service attribute *j* (Us_j; S_j; P_j) in the first BB (figure 4) and are independent from quality dimensions on which service attributes have impact. The combination of the satisfaction of all service attributes covering by means of α_i the *i* quality dimensions generates customer's overall satisfaction.

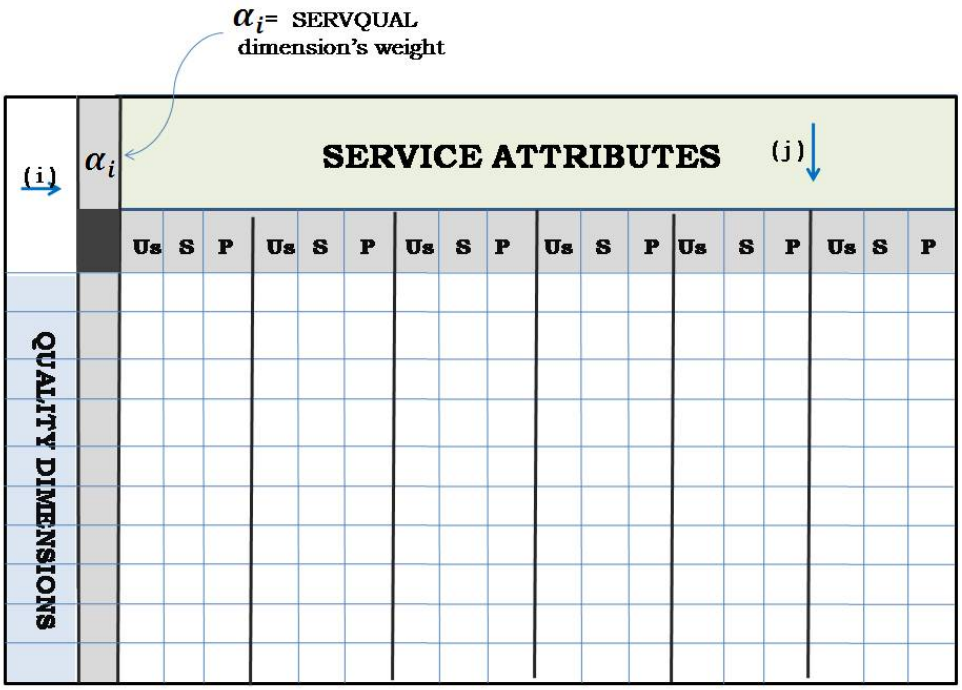

Figure 4. The first Building Block of the hard phase.

The second BB (figure 5) has as "WHAT" *service attributes*, and as "HOW" *engineering characteristics*, i.e. the structural and organizational elements that impact on service attributes (e.g. the hotel wall's thickness, that impacts on the "silent room" service attribute, or the number of room service attendants that impact on the "fast room service" service attribute).

For each engineering characteristic *k*, the authors have defined other two parameters: O_k and I_{jk}.

O_k represents the occurrence of a service characteristic, i.e. the frequency with which it happens (e.g. how many walls are thick, how often do we have many room service attendants); I_{jk} shows the impact of an engineering characteristic on a service attribute (e.g. how much does a think wall impact on the room's silentness, how much does the number of room service attendants impact on room service speed).

Whilst O_k can vary from 0 (almost no occurrence) to 5 (high occurrence), I_{jk} can be positive varying from 0 to 5, or negative, varying from -5 to 0, depending on positive or negative impact the characteristic *k* might have on a service attribute *j*.

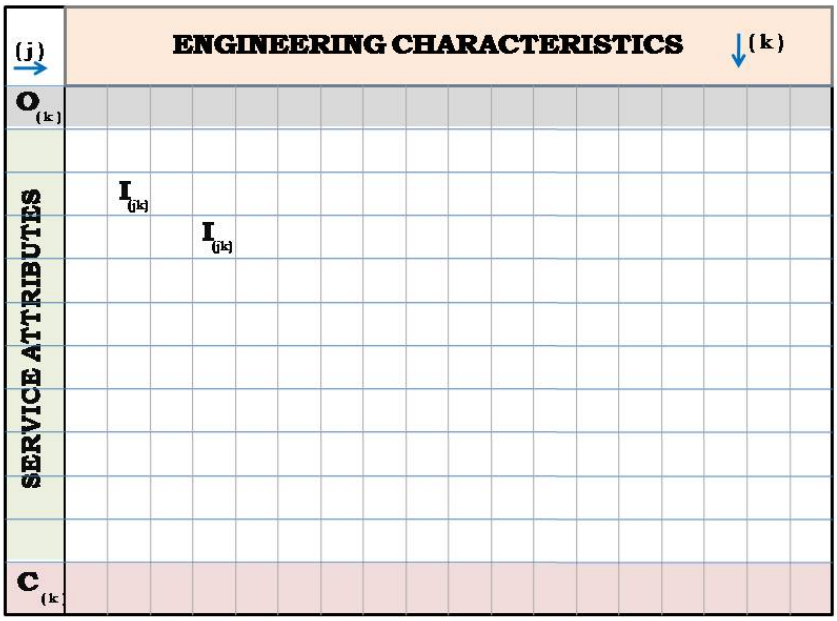

Figure 5. The second Building Block of the hard phase.

In the lower part of the second BB the cost for each characteristic is identified, in order to be able to perform a complete cost-benefits analysis.

Through the analysis and decomposition made in second BB it is possible to achieve a complete vision on each single characteristic's incidence on customer satisfaction, in order to give a priority to characteristics according to this.

In fact, the authors have defined two indicators, NQPN (Non Quality Priority Number) and QPN (Quality Priority Number) for each characteristic. NQPN considers all attributes on which a characteristic impacts, that have Us_j different from zero, (and so S_j will be zero), and so it considers the dissatisfaction from a lack in some implicit or explicit requirement, while QPN considers all attributes which have S_j different from zero (and so Us_j will be zero), that represent the satisfaction from explicit requirements and exciting experiences.

NQPN is the product of Us_j; P_j, O_k, I_{kj} and it represents how much the absence of a characteristic can generate customer dissatisfaction through its contribution on service attributes. It can be calculated by:

$$NQPN_k = O_k \times \sum_j I_{kj} \times Us_j \times P_j$$

QPN represents how much the presence of a characteristic can increase customer satisfaction through its contribution on service attribute, and can be calculated by:

$$QPN_k = O_k \times \sum_j I_{kj} \times S_i \times P_j$$

Each characteristics *k* can have both a NQPN value and a QPN value, since that characteristic could influence both negatively and positively different requirements.

NQPN and QPN help giving a priority to characteristics compared to satisfaction or dissatisfaction level. In fact characteristics with high NQPN will have highest priority being those that generate most dissatisfaction. A correct strategy would be to choose a characteristics mix that minimizes large negative NQPN values without decreasing QPN values, and increase QPN values without decreasing NQPN values.

The last BB (figure 6) has as "WHAT" *engineering characteristics* and as "HOW" *actions* that could be realized by an organization to implement a specific characteristic.

Authors divide actions in three categories:

1. Organizational actions, i.e. actions that modify organizational aspects
2. Maintenance actions, i.e. actions that the hotel structure but only in a light way
3. Structural actions, i.e. actions that imply deep interventions on the structure.

Each characteristics can be realized through one or more actions also of different typologies. This possibility is shown by a "x" in meeting point between rows (engineering characteristics) and columns (actions).

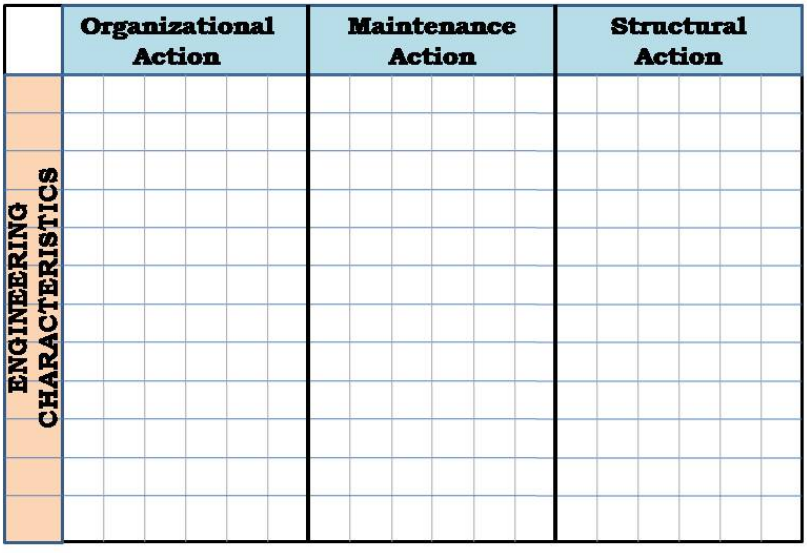

Figure 6. The third Building Block of the hard phase.

The choice of which action to implement for realizing a characteristic depends on which life-cycle phase a hotel is in (figure 7), if in a reorganization phase**,** a restructuring phase, or a planning/design phase of a new structure.

In fact if a hotel is in reorganization phase it can implement only organizational actions, if it is in restructuring phase both organizational and maintenance actions, whilst if a hotel is in planning/design/renovation phase it can implement all three action typologies.

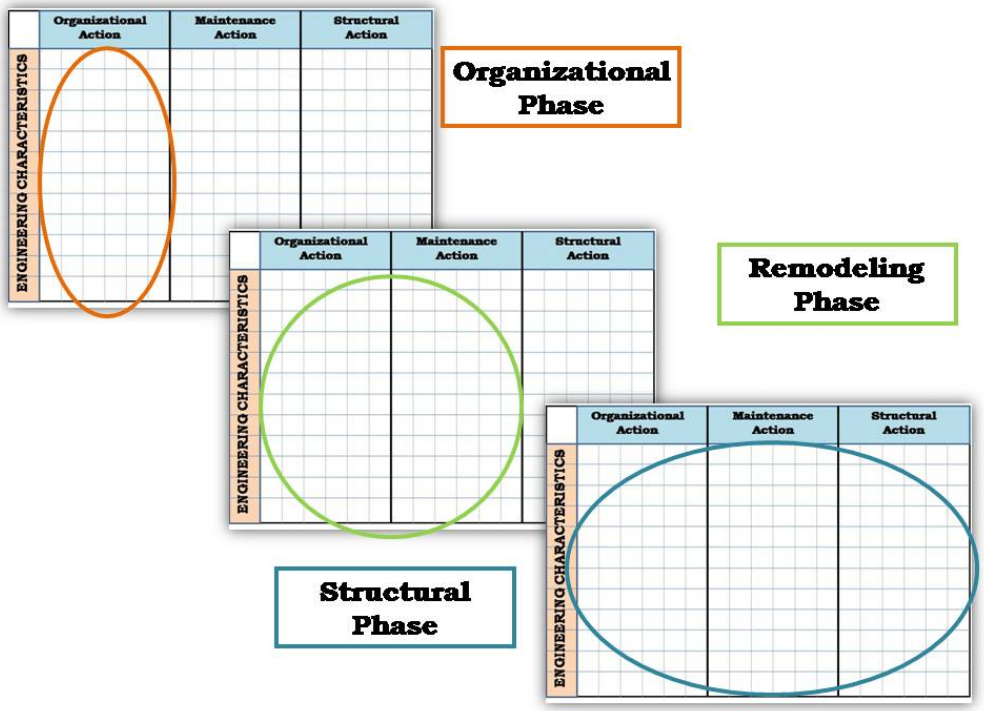

Figure 6. The choice of actions in the third Building Block.

Renovation, maintenance or reorganization?

Once an organization has developed all BBs levels, it has a complete vision of its processes, elements and characteristics, of how they impact on customer satisfaction and of the costs that each phase could imply. With all these elements an organization can perform a cost-benefits analysis and choose which kind of changes to implement.

The choice between different phases, and therefore the choice between elements, characteristics and actions to focus on, depends on the life cycle phase in which organization is, on its needs and on its budget.

Each choice changes the BBs: some elements disappear and others change their status. Each choice, indeed, changes a hotel, more o less profoundly, it generates new priorities and is the starting point for new maintaining and improving phase, the soft phase described below.

Some consideration on the hard phase

Until now we have seen hard phase, and we have seen its big impact on hotel structure and on its organization, much more an organizational/structural impact than a cultural impact, which requires economic investment and organizational commitment.

Indeed the hard phase has a big "magnitude" but in a short time (especially compared with the soft phase). The hard phase could involve many employees but more commonly only a part of them, or even only the top management.

Top management is involved in the hard phase, analyzing the hard phase BBs and making decisions using industrial tools and way of thinking. This phase requires a cultural change towards an industrial culture, but mainly only at a management level. And this is an important starting point for an organization's cultural change.

During the soft phase this cultural change is spread to all the rest of the organization. Soft phase will instill industrial culture throughout all the organization.

The systemic approach's soft phase

The systematic approach's soft phase starts from the top management's choices made in the hard phase BBs.

The purpose of the soft phase is to preserve and continually improve all elements, both new ones put in practice from the hard phase, and already existing ones.

The approach the authors are suggesting pursue this purpose through the implementation of industrial operative tools (such as FMEA and a TPM) and through the diffusion and strengthening of industrial culture of operational excellence within the service organization.

In this phase all changes are more gradual and continuous than in the hard phase, but they have a deeper impact because they touch every employee in his/her behavior, their daily work, and their approach to their job on the long term.

It is also possible to realize the soft phase without implementing the hard one. In this case, however, a service organization would have to implement industrial tools and develop an industrial culture among employees without being sure of a strong industrial culture in the top management, with the risk of probably less results and less benefits. In this case BBs elements will derive from an analysis on the service, processes and hotel characteristics that already exist.

The BBs, indeed, are core elements on which the soft phase will base the implementation of the industrial tools of FMEA and of TPM, which help to maintain and to realize continuous improvement of hotel service and of all its parts as well as to introduce and develop an operational excellence culture in all employees. They also give a guideline to top management, and to all employees consequently, on what to focus their resources and their attention on.

BBs, deriving from the hard phase and the top management's choices, produce a list of engineering characteristics which have an impact on customer satisfaction and on the service attributes. Passing from the hard phase to the soft phase, a hotel organization needs to add a further BB, which has as

"WHAT" the engineering characteristics already implemented in the hotel, and as "HOW" the part characteristics that compose them. In this way it is possible to have a complete vision on all single part implemented. On these "parts elements" the authors have put in practice FMEA and of TPM tools. Let's start with FMEA tool.

FMEA tool pays attention on single elements, on their failure mode and relative causes, on identifying them in advance, in order to train employees to prevent their occurrence and to face them when they happen, as well as to make action for improvement.

FMEA tool asks to identify for every part characteristics its relative potential failure mode and for each failure mode 3 elements:

- Severity (S), the seriousness of the effects of the failure; the severity rating applies only to the effect
- Occurrence (O), the frequency of the failure - that is, how often the failure can be expected to take place.
- Detection (D), the ability to identify the failure before it reaches the end user/customer.

Every element, S, O, D, is given a value from 1 to 5, based on part characteristics analysis and on historical data.

Multiplying severity, occurrence and detection ratings we obtain the Risk Priority Number, ($RPN = S \times O \times D$), a measurement of the relative risk, used to prioritize actions and resources.

RPN enables to define a part characteristics ranking, based on their relative risk, which could be used by top management to optimize employees' efforts on part characteristics which have an impact, even if indirectly, on customer satisfaction.

Two additional considerations about RPN.

1. When one of the three elements, S, O, D, is zero, and so it is not possible to identify part characteristics failure, or failure doesn't happen or it is impossible to find it or it hasn't any serious effect, RPN is zero, and so the importance to focus on that part characteristics disappears.
2. RPN value changes over time, as a result of corrective and preventive actions made on the element, so it needs a dynamical/continuous analysis.

It is quite evident that the FMEA concept has been the basic concept on which the QPN and NQPN have been developed. However FMEA tool used in the soft phase and in the hard phase are quite different, since in the first case the authors adapted this tool to work on a special "failure", that is the incapacity to understand customer expectations and their importance, in order to understand the relative importance of engineering characteristics which have a direct impact on customer satisfaction. Instead in the soft phase FMEA is used to understand the actual failure mode of part characteristics. But combining the two uses, RPN gives additional information to the users than in ordinary FMEA applications. Not only how much it is important to pay attention to a characteristic part for its failure mode consequences, but also how much a potential part characteristics' failure mode impacts on customer satisfaction. This since all part characteristics are related to engineering

characteristics (through the additional BB) which are related to customer satisfaction through their QPN and NQPN.

Another industrial tool used by the authors in the soft phase for building a systematic approach for operational excellence is TPM. Total Productive Maintenance (TPM), is a tool mainly focused on operations, production processes and maintenance, but also on some cultural and structural aspects as empowerment, commitment and training. These elements enable all employees to develop their full potential. TPM consequently helps to build the cultural aspects and the methodological aspects of the systemic approach.

The authors have focused their attention on TPM's aspects related to efficiency increase of the hotel facility ("plant") through autonomous and preventive maintenance, rather than on other TPM aspects, such as TPM for office that distracts the attention from operation in favor of services that support operation.

As said before, hotel services rely on tangible elements just as on intangible elements, and for this reason TPM fits very well. The tangible elements of a hotel, on which TPM can be applied, are its facilities, therefore both the location in which services are performed (bedroom, bathroom, restaurant, etc.), and the equipment used by employees (for example cleaning trolley). The authors have adapted the "5S" (Seiri- Sort, Seiton- Systematize; Seiso- Sweep; Seiketsu- Standardize; Shitsuke- Self Discipline) and seven out of eight TPM pillars (with the exception "office TPM") to both of these elements.

But what does implementing TPM in hotel services really mean?

It means to analyze each part of the service activities and their respective tangible elements to find which of these activities and elements create value and which could be eliminated; it means to preserve neat and clean the "plant" (the location in which services are performed, but also the employees support equipment) to reduce the time for maintenance or improvement interventions, for finding any lack or mistake; it means to describe activities, operational standards, procedures, as well as to define check lists to increase activities speed and reliability; it means to standardize elements, activities, support equipment to reduce supply level and replacement variability. It means for every employee to own a part of the facility and to take care of it, repairing failures and improving its performances autonomously, being accountable and proud for its own job and for its results.

Autonomous and preventive maintenance, the 5S, training, are all TPM elements, here briefly described, which can help a reader to have an idea on what TPM in hotel services might mean.

Autonomous, preventive and quality maintenance, become more and more sustainable and profitable as the level of experience and competence of the employees increases. Training courses are made to increase employees' competences to achieve their full potential. 5S help to achieve gradually and systematically a better workplace in which eventually problems are visible and in which it is easier to work well and to implement other the TPM pillars.

In this way each employee not only is able to preserve the "status quo" but also to continually improve and make part of the facility he/she "owns" more and more effective.

Finally a well organized workplace motivates people, improves safety, work efficiency, productivity and encourages ownership.

A practical example of TPM in this approach?

One can start for example from making each hotel cleanser accountable for a fixed range of rooms (that will become his/her rooms) providing him/her with the priority list resulting from FMEA failure mode analysis on the elements of those rooms and their relative consequences and customer's visibility (RPN, QPN, NQPN). The cleanser is free to make a decision on those elements, which can be improved or modified to optimize them and their spare parts, as far as there is an evident return from this (for example, he can change all light bulbs in all the rooms he is accountable for, in order to standardize them, minimizing spare parts, and possibly do this in agreement with the other room owners in order to achieve scale economy). The cleanser can define a check list which can help him/her to remember and to find solutions to improve his/her activity. And finally he/she will be measured on the overall performances of his/her rooms.

Which results can be achieved with TPM in hotel services?

Lower cost for ordinary maintenance, because some of it is performed by internal employees, reducing external maintenance costs; lower extraordinary maintenance and so not only lower cost but also lower customer dissatisfaction and element unavailability.

Wider employee satisfaction for a wider employee commitment and empowerment, caused by wider operative discretionary and training.

Continuous improvement in all aspects in which employees are committed, and so continuous improvement in all hotel service.

Operational culture becoming in this way effective throughout all the organization and in all its employees, because each of these really know, at different levels, hotel operative processes and their relative elements, as well as they have visibility on how their work contributes to the hotel overall success and are rewarded for this.

Possible benefits

Why should a hotel service organization use this approach? Why should industrial tools and methods be used in the service sector, and especially in the hotel sector?

Because the approach that the authors propose is a systematic approach which analyzes the organization in its deepest aspects and which enables that organization to raise a question to itself about the services it develops or that will develop, building them on customer expectation.

Because the systematic approach is a tool that helps to analyze a problem and its relative cause, breaking it in sub-problems, finding variables that have an impact on the problem and on which it is possible to act.

Because it is a tool that helps an organization, from the management to the operative workers, to know profoundly its processes and their relative component parts, with their failure mode and effects, having as results better control on variables that have an impact on customer satisfaction.

More foreseeable and controllable processes mean more robust processes (a robust process is a process that can reasonably expected to produce consistent results with very little variation in output), and so more reliable processes, which enable to perform a better service with lower costs.

A systematic approach to operational excellence brings service excellence under control without losing sight of organizational efficiency. In fact it gets costs under control both in the hard phase, in which they are highlighted in the 3rd BB to understand possible elements or processes synergies to reduce total costs, and in the soft phase, in which costs are decreased with autonomous maintenance.

And this systematic approach helps to make more efficient a hotel structure whichever is the phase in which hotel life cycle is (process re-engineering phase, reorganization or restructuring phase, planning phase of a new structure).

It helps to increase value perceived by a customer, matching expectation with service, the supplied with the perceived. But it also helps to grow perceived service value adding to the service itself a "human factor", coming from employee empowerment through TPM and a direct contact between the customer and the employee owning each service part or facility. This "human factor" becomes more relevant whenever service has an impact on the private sphere.

Finally the systematic approach helps organizations to focus their attention on their most important resource, that is employees, every single employee, becoming a basis for an engaging environment, a starting point for higher level of employee performance and so for higher organizational performance. In fact higher organizational performance can be achieved not only (or sometimes not at all) through the increase of resources (and therefore costs), but also through letting employees know how important they are to the success of the business, giving them the opportunity to contribute, and helping them believe that their job is important. In one word, giving them a vision, engaging them.

Future developments

The systematic approach developed is now in its test phase. For the future it can be seen as the first step in a service sector, in particular in hotel service, for the achievement of an operational excellence culture.

The author hypothesize that, as it has happened in the industrial sector, also in the service sector as the level of consciousness and competence of management and workers increases, total quality tools and principles (QFD, TPM,…) can easily evolve towards a six sigma philosophy, a "service six sigma".

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