TQM and QFD: exploiting a customer complaint management system

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Abstract

Purpose – To present a simple yet comprehensive customer complaint management system (CCMS) which includes tools and concepts from total quality management (TQM) and quality function deployment (QFD) proposed by the authors.

Design/methodology/approach – A comprehensive CCMS model based on the Deming cycle that integrates practice-tested methodologies such as QFD, problem solving and failure mode effect analysis (FMEA) was developed. In order to provide an example of the application, possibilities and limitations of our proposed CCMS model, a project developed for a major Latin American transportation company is presented.

Findings – Excellent service can only be achieved with a profound knowledge of evolving customer needs. Functional CCMS should be implemented in every company, regardless of its size, structure or products. QFD, FMEA and problem-solving tools are very useful but, rather than the tools themselves, the fundamental element to develop a successful CCMS is the spirit of improvement towards total customer satisfaction energized by top management's leadership and commitment. A successfully implemented CCMS can change the perspective of complaint management and transform the process of answering complaints from a trivial activity to a more exciting process-design and learning experience, renovating the spirit of continuous improvement towards service excellence.

Research limitations/implications – The model may not be useful to some major companies that already have their own database systems for storing and analyzing customer complaints in real time. The results were only validated in a single project with its particular characteristics.

Practical implications – In a service economy, comprehensive systems for capturing, analyzing and translating customer complaints into adequate actions for focused improvement are required for competitiveness. Simple CCMS can be implemented without significant investment, in order to exploit customer complaints.

Originality/value – This paper presents a simple, yet comprehensive CCMS based on practice-tested methodologies successfully implemented in an improvement project. Companies that do not have formal CCMS can find efficiency in the model because of its simplicity.

Keywords Quality function deployment, Complaints, Customer services quality, Failure modes and effects analysis

Paper type Research paper

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Introduction

A decade ago, even before the "internet boom", Zeithaml *et al.* (1990 p. 1) reported that "executives ranked the improvement of service and tangible product quality as the single most critical challenge facing U.S. business". In addition, services accounted for approximately 75 percent of the US gross national product (GNP), and 90 percent of the

new jobs the economy created. This transition towards a service economy has represented a global trend and is a major competitive issue. Nevertheless, service worldwide does not appear to have improved as much as customers require. Furthermore, in many service industries, current customer complaints are the same as were received ten years ago.

Deming (1986) believed that failures in service, and therefore complaints, are inevitable due to the number of variables and perceptions involved in service transactions. He also showed us, with his Deming cycle, that feedback and learning from mistakes were both key ingredients for achieving true TQM and sustained profitability. As Zeithaml *et al.* (1990 p. 3) wondered, "How do we explain the incongruity that service excellence pays off and yet it is in such short supply?" If service companies frequently get information from the customer about what is going wrong, why are so many service companies not changing fast enough?

Complaints are expensive, both as direct and indirect costs. But for this price, companies can extract priceless knowledge, because complaints contain the direct voice of the customer (VOC). One of the main steps of quality function deployment (QFD) is "going to the *gemba*". Akao and Mazur (2003 p. 23) define *gemba* as "a Japanese term that refers to the place where source information can be learned". This confirmation at the place where actions for the customer are taking place is one of the strengths of QFD. Therefore, *gemba* visits should be carefully planned to obtain the "real" voice of the customer. When a complaint arises, however, there has been such a large gap between expected and perceived basic needs that the *gemba* has taken the initiative by contacting the company to make sure that its voice is completely understood!

If complaints are transformed into knowledge about customers, they can provide a valuable amount of capital for enterprises (González Bosch, 2001). To exploit this capital, companies must design, build, operate and continuously upgrade systems for managing complaints. These systems are called customer complaint management systems (CCMS).

Considering the value that customer complaints have, it could be expected that robust CCMS are being used successfully at many service companies. However, Tax *et al.* (1998) state that in general, firms are not well informed on how to deal with either service failures or with the impact of CCMS.

Berry (1996) describes three main factors that hinder the proliferation of CCMS:

(1) CCMS costs are visible and immediate, while their benefits are long-term and indirect;

(2) managers doubt customer honesty when voicing a complaint; and

(3) many unsatisfied customers do not complain: according to Stephens and Gwinner (1998 p. 172), up to two-thirds of unsatisfied customers do not complain.

In addition, we find that in many organizational cultures a complaint stands for failure and blame, so employees try to minimize or hide the occurrence of complaints.

Customer complaint management system model

Although important research has been conducted around CCMS (e.g. Technical Assistance Research Program, 1979), most models are not comprehensive enough, and understate the importance of some steps that have been demonstrated to be crucial to

the process through experience with TQM and QFD methodologies. Therefore, a model for CCMS that integrates practice-tested methodologies such as QFD, problem solving and failure mode effect analysis (FMEA) was developed.

The seven steps of the CCMS model, based on the Deming cycle, are all traceable to a TQM methodology (QFD, FMEA or 8Ds). These steps are:

- document the voice of the customer (VOC);
- translate VOC into customer needs and problems;
- analyze and solve the problem;
- exploit customer needs;
- update FMEA to avoid recurrence;
- share solutions with affected customer; and
- update system performance measurements (Figure 1).

Three important indicators for measuring the CCMS success are proposed:

(1) time to respond to a customer complaint, from receiving it to giving an answer to the affected customer;

(2) percentage of closed cases out of complaints received; and

(3) evaluation of service level.

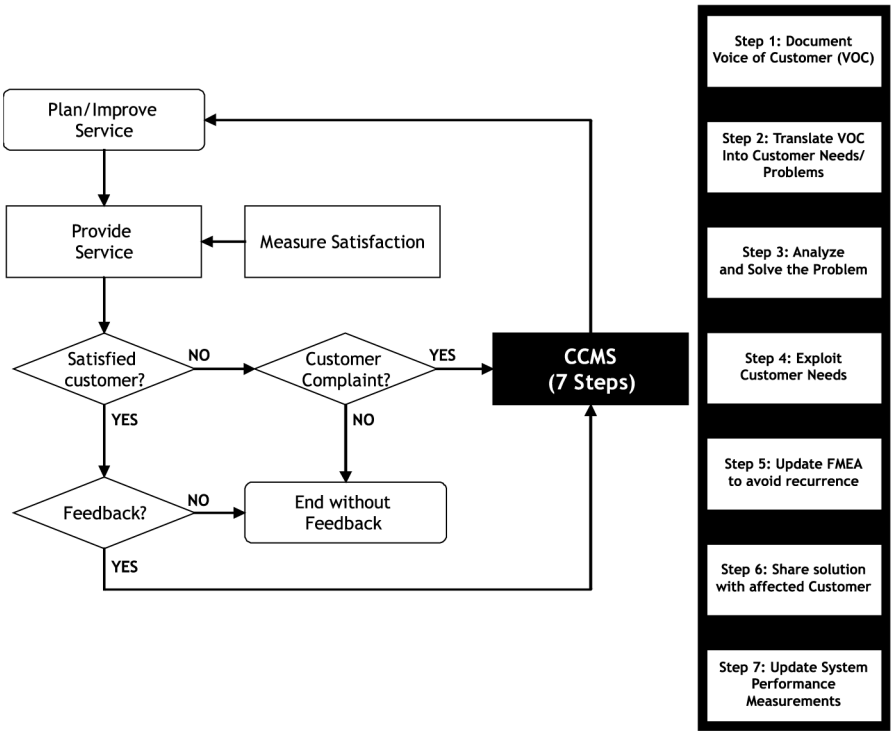

Figure 1.
CCMS model

Although service level is affected by many variables other than CCMS, it can provide a reference for the general improvement status of the company through its service strategies.

Case study: LatinAir

In order to provide an example of the application, possibilities and limitations of our proposed CCMS model, we present a project developed for a major Latin American transportation company. In order to keep things confidential, we will refer to it as "LatinAir". Numbers, figures, dates and exact verbalizations have also been modified slightly for the same purpose. The improvement team assigned to this project, and integrated by LatinAir personnel and the authors, will be referred as "LA Team".

With the intention of making this process easier to understand for LatinAir personnel, a Microscoft Excel document was developed with five linked worksheets. Worksheet 1 includes voice and customer needs (CNs), as well as the problem definition and its causes. Worksheet 2 is an FMEA format. Worksheet 3 is a matrix that relates CNs with processes. Worksheet 4 is an automatically generated apology letter for the customer. Finally, Worksheet 5 is a diagram that shows unmet needs. These worksheets simplified the work and served as a useful validation tool. They also allowed LatinAir personnel to easily modify and adopt the tool to their needs and language as they mastered the process.

Step 1: document VOC

The first step was to document the VOC into the worksheet. Although there is a format to document complaints at LatinAir, every complaint has been managed as a single issue. In a complaint, there may be more than one useful verbalization, so we divided each complaint in all the verbalizations to be analyzed (Table I).

Step 2: translate VOC into customer needs and problems

For each verbalization, the LA Team identified the customer need (CN) behind the verbalizations. For some verbalizations, more than one CN was identified. In order to achieve consistency, the team wrote each CN to complete the sentence "I need to ..." (Table II). The QFD concepts and tools were very useful in this part of the process, since the LA Team had already studied how to translate the VOC into expected benefits, filtering process features.

The LA Team also clearly defined the problem that most probably caused the CN not to be satisfied, specifying all available dimensions of the problem (Table III). Using

Complaint number	Flight	Route	Voice of customer (verbalization)
10.1	44	A-C	"At the counter, we were informed that we would be boarding at Gate 2. After a while, we noticed a lot of movement in Gate 3 [...] Gate 3 was the correct boarding gate, not Gate 2 [...]"
10.2	44	A-C	"[...] the agent rudely commented to us that we were not eligible for hotel and dinner like the rest of the passengers, because we had arrived late (because of the boarding gate issue) [...]"

Table I.
Voice of customer example (partial view of Worksheet 1)

the CONCATENATE Function of Excel, the problem was automatically described as "8 passengers with service response mistaken at boarding gate on Mar-15-01".

Step 3: analyze and solve the problem

After defining the problem, the affected processes were analyzed and the causes were determined (Table IV). Previously, causes were not completely validated, so there were no real solutions, only contingency and non-permanent countermeasures. When looking for root causes, LatinAir executives obtained very useful information about their systems. This strongly motivated their interest in participating actively in this learning process, providing both ideas and resources. This step also allowed the LA Team to establish corrective countermeasures that were more customer-oriented, since they considered the CNs behind the complaints. Nevertheless, a problem-solving methodology (e.g. 8Ds) is not enough for orienting the service processes to CNs, because the scope of problem-solving methodologies is problem correction and QFD's scope is understanding and satisfying customer needs: therefore, the next steps were followed.

Step 4: exploit customer needs

Exploiting customer needs means maximizing the value to the company. Complaints are a first-rate source for identifying Kano's expected and basic requirements (CNs) to be satisfied. Exciting requirements can be extracted from congratulations and positive comments. When a comprehensive QFD house of quality (HoQ) or CN-weighted priority list exists, the CNs extracted from the complaints could be useful for improving or updating those planning tools. When there is no information available on CN priority, these needs could serve as an initial reference for customer-oriented improvement.

There was no prioritized list of CNs at LatinAir. In this project, the team stratified the CNs and then prepared a basic list of equivalent-level CNs with the frequency that the needs were not met (Figure 2). This will allow LatinAir to continue focusing its

Table II.
Customer need example (partial view of Worksheet 1)

Complaint number	Need (I need to . . .)
10.2	. . . receive a friendly and respectful service

Table III.
Problem definition example (partial view of Worksheet 1)

	What is the problem?					
Complaint number	Identity (what: object) noun	Identity (what: defect) negative adjective	Where?	When?	Magnitude (how much)	Magnitude (concept)
10.2	Service response	Mistaken	Boarding gate	Mar-15-01	8	Passengers

Table IV.
Process affected and causes analysis (partial view of Worksheet 1)

Complaint number	Cause of process failure	Affected process
10.2	Protocol rules for answering passengers were not followed	Passenger service

efforts on these needs and as a reference point for subsequent comprehensive QFD projects to be developed. The LA Team strongly recommended a project for identifying and prioritizing CNs directly from the customer. The LA Team concurred to assume at this point that all CNs had relatively the same importance, so focus for service process redesign should be assigned to the CNs that were generating higher number of reports.

A matrix was developed (Figure 3) to identify which processes were related to which CNs. This allowed LatinAir to identify interesting patterns and processes that needed to be redesigned or drastically improved.

Step 5: update FMEA to avoid recurrence

There was no service FMEA at LatinAir. With the documentation of the first group of complaints, an initial FMEA was developed (Tables V and VI). This FMEA has been serving as a basis for detecting failure modes and developing an initial preventive system. Many more preventive actions were added to this FMEA later. Steps 4 and 5 allowed the LA Team to establish some relevant preventive actions to be taken that

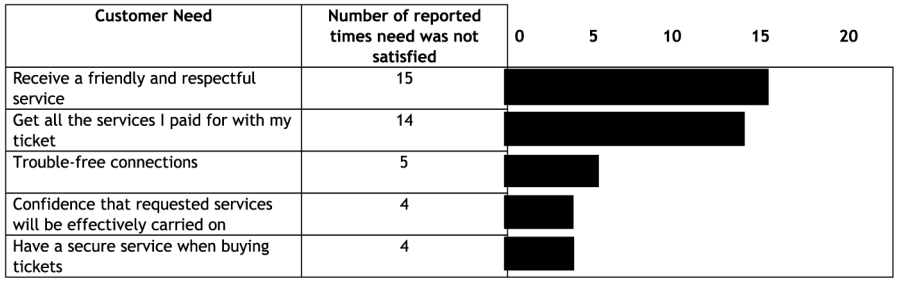

Figure 2.
Example of some critical customer needs (partial view of Worksheet 5)

Needs vs. Processes	Passenger service	Tickets purchasing	Boarding
Receive a friendly and respectful service	15		
Get all the services I paid for with my ticket	7		7
Guarantee that there will not be problems with the flight connections		5	
Confidence that requested services will be effectively carried on		9	

Figure 3.
Matrix of customer needs versus processes (partial view of Worksheet 3)

Complaint number	Process description: what is done?	Potential failure mode: how it fails?	Potential failure effect: consequence (need not satisfied)
10.2	Passenger service	Service response mistaken	Receive a friendly and respectful service

Table V.
FMEA (partial view of Worksheet 2)

were useful to prevent detected failure modes and/or to protect identified important CNs. The LA Team agreed that this generated a more customer-oriented service process.

Step 6: share solutions with the affected customer

When a customer has a problem with a company, but the problem is properly managed, it is highly probable that the customer will remain loyal to the company. Moreover, it is also very likely that the customer will make comments to others about the excellence of the response (Barlow and Moller, 1996). Customers like to be listened to and considered, because this makes them feel respected and important. Therefore, it is essential to give the customer a sincere apology and to respond to their complaint as soon as possible. Our Excel document automatically generates an "apology letter" that includes the identified need, the problem definition and its causes, the corrective and preventive actions to be taken, and the e-mail address of the employee responsible for the implementation. We included this letter as a validation for the analysis done, because it should sound coherent when all of the elements are put together. LatinAir is using these letters as a reference for responding to their customers.

Step 7: update system performance measurements

When the process is finished, two metrics should be updated at LatinAir:

(1) the percentage of customer complaints closed; and

(2) the total closing time.

In this project, we found that a time-effective complaint closing process is a key element for achieving a high percentage of closed cases. Therefore, closing time is a critical variable to be controlled.

Conclusion

Excellent service is a genuine key for a better future, for both customers and suppliers (Zeithaml *et al.*, 1990). However, this can only be achieved with a profound knowledge of evolving customer needs. A functional customer complaint management system will generate this knowledge, and such a system should be implemented in every company regardless of its size, structure or products. QFD, FMEA and problem-solving tools are very useful: nevertheless, during the implementation process, the LA Team determined that rather than the tools themselves, the fundamental element to develop a successful CCMS is the spirit of improvement towards total customer satisfaction energized by top management's leadership and commitment. QFD concepts and tools were especially valuable because they did not just provide an answer to the problems detected. They allowed for a better understanding of the customer needs behind the

Causes of potential failure	PRN	Recommended actions: what do you do to prevent failure?	Responsible
Protocol rules for answering passengers were not followed	125	Review everyday protocol and their importance rules with all service personnel, to avoid lack of observance	J. Smith, Manager e-mail: jsmith@latinair.com

Table VI.
FMEA (partial view of Worksheet 2)

verbalizations and they freed the LA Team to focus on learning and achieving higher customer satisfaction. This change in the perspective of complaint management at LatinAir transformed the process of answering complaints from a trivial activity to a more exciting process design and learning experience. Complaints are no longer seen as a source of blame but as a unique learning opportunity. There is a renewed spirit of continuous improvement toward service excellence. Procedures, service rules and training in TQM and QFD tools and systems are being developed. Before the implementation of the CCMS at LatinAir, the total closing time for answering a complaint would usually be measured in weeks – now it is only a matter of days. The percentage of closed cases has increased as well. Although enthusiasm at LatinAir is contagious and their culture has evolved, there is still much work to do. LatinAir employees say that they want to be the best customer-service team in the market, and they mean it. The smiles on their faces and the pride and energy their leaders are conveying through their example and actions are strong indicators that their continual improvement will lead to world-class customer-service success.

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