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

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 Microsoft 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

<table>
<thead>
<tr>
<th>Complaint number</th>
<th>Flight</th>
<th>Route</th>
<th>Voice of customer (verbalization)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1</td>
<td>44</td>
<td>A-C</td>
<td>“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. . . .”</td>
</tr>
<tr>
<td>10.2</td>
<td>44</td>
<td>A-C</td>
<td>“[. . .] 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) [. . .]”</td>
</tr>
</tbody>
</table>

*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>
<thead>
<tr>
<th>Complaint number</th>
<th>Need (I need to …)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2</td>
<td>… receive a friendly and respectful service</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2</td>
<td>Service response</td>
<td>Mistaken</td>
<td>Boarding gate</td>
<td>Mar-15-01</td>
<td>8</td>
<td>Passengers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Complaint number</th>
<th>Cause of process failure</th>
<th>Affected process</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2</td>
<td>Protocol rules for answering passengers were not followed</td>
<td>Passenger service</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Customer Need</th>
<th>Number of reported times need was not satisfied</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive a friendly and respectful service</td>
<td>15</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Get all the services I paid for with my ticket</td>
<td>14</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Trouble-free connections</td>
<td>5</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Confidence that requested services will be effectively carried on</td>
<td>4</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Have a secure service when buying tickets</td>
<td>4</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2</td>
<td>Passenger service</td>
<td>Service response mistaken</td>
<td>Receive a friendly and respectful service</td>
</tr>
</tbody>
</table>

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**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

<table>
<thead>
<tr>
<th>Causes of potential failure</th>
<th>PRN</th>
<th>Recommended actions: what do you do to prevent failure?</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protocol rules for answering passengers were not followed</td>
<td>125</td>
<td>Review everyday protocol and their importance rules with all service personnel, to avoid lack of observance</td>
<td>J. Smith, Manager e-mail: <a href="mailto:jsmith@latinair.com">jsmith@latinair.com</a></td>
</tr>
</tbody>
</table>
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.

References


González Bosch, V. (2001), *La Administración de las Quejas como Capital de las Empresas* (in Spanish), ITESM, Monterrey.


Further reading