



Enhance Internet Banking Service Quality with Quality Function Deployment Approach

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Abstract

Internet banking providers tend to introduce to consumers as many services as possible very often without knowing what the customers really want and expect from them. Within the traditional banking environment it was almost impossible to monitor and record data on second-by-second actions and interactions with the customers. The fact is that the electronic environment allows Internet banking providers to capture enormous amount of information about customer behaviour during the whole process of service consumption and to collect their opinions and requirements in different forms. However, the first question is whether Internet banking providers are able to analyse and conceptualise them and further to translate them into service design specifications. The second issue concerns an e-service quality management framework based on the customers' requirements that would allow managing the quality of Internet banking services, developing quality measurement system and so facilitating full control over service quality in electronic environment. Quality Function deployment (QFD) is a distinguished product and service design technique primary oriented to deliver 'voice of the customer' throughout every single planning and design activity. Taking into account the trends of moving the banking products and services online this paper demonstrates the application of QFD to Internet banking and it outlines the links among service quality management, its concepts, and tools and Internet banking services. QFD application resulted in formulating the current service quality dimensions, disclosed the quality management deficiencies and provided decision support for the e-banking managers.

Introduction

According Forrester Research [1] one in five Europeans already banks online and the number will double to 130 million in 2007. Online banking services now attract 18% of all European adults considering that this number has more than doubled in the last 2 years. However, during the next five years, the growth will slow down. Internet banking has undergone distinct change during the past 10 years from informational to transactional form. The change shifting traditional banking into electronic environment has strongly influenced different domains of banking services particularly the mode of

interaction with the services, service management, the range of banking products and services, and the quality criteria used to assess banking services [8]. The web and its related technologies have transformed the way in which the finance transactions are processed, finance has been eliminated from being the interface between organizations and customers, customers are generating orders through Internet sites, delivery of services automatically follows with no need for personal contact or finance to be involved. Nowadays Internet banking services represent a huge e-commerce industry and banks no longer differentiate themselves by merely an Internet presence. The level of quality of Internet banking services is stagnating, not advancing at a desired therefore the primary objective of the researchers as well as practitioners should be to understand the deficiency of service quality in Internet banking sector by the adoption of the services quality management concepts, frameworks and methodologies.

1. Internet Banking in the Context of Service Quality

The term quality means a different thing to different people resulting in many definitions of quality basically grouped into five categories transcendent, product led, process or supply led, customer led and value led. The definition of service quality is based on customer led quality definition where quality is defined satisfying customer's requirements' (Deming, Juran, Feigenbaum, Ishikawa) relying on the ability of the organisation to determine customers' requirements and then meet these requirements. From the point of view of organization it means that customers have to be seen as individuals having individual requirements expecting them to be fulfilled. If a standard level of service quality is defined this will be certainly provided and if the organization claims to be providing high quality services the customer's requirements will be even exceeded and the organization will have satisfied customers creating positive image. What is a high quality service? High quality service does not mean minimizing negative quality (such as poor service or inconsistency) but maximizing positive quality (such as fun and luxury); this creates value [6]. As the customer requirements, opinions and his individual perceiving are the most important then high quality service intends to maximize the individual customer expectations fulfilment extending beyond the average service attributes with regard to the reality that the customer needs and expectations are variables depending on different factors the primary division into external and internal customers, age segmentation, differentiation due to profession, etc.

This service quality definition reflects well on Internet banking services. Internet banking is one-to-one service where every individual bank client happens to interact with a bank web presentation. If a bank considers Internet as long term means to achieve the bank strategic goals, it necessarily has to focus on providing high quality services over Internet and thus maximizing positive quality assuring the customers satisfaction. The customers in service sector are very sensitive to service quality and service delivery while they are always in contact with front-line personnel and nowadays e-commerce revolution, in contact with interface information technologies. Self-service technologies and the customer perception of the services provided via these points-of-purchase or moments of truth decide whether the customer will come back or shift to the next-door competitor. Service qualitative attributes such as convenience, reliability, responsiveness, timeliness or assurance cannot be added or inspected in they must be designed into services. For bank manager of any level it should be a must to control quality level of their Internet banking services to be ahead of the pure Internet players and competitors too. The practice directs to focus on quality design techniques, to understand precisely the tools of achieving quality goals and going further on assuring that the high quality will be maintained in long-term measures.

2. The perspectives of Service Quality and Internet Banking

Basically service quality is viewed from two perspectives. From the perspective of the customer service quality differentiates sought and perceived quality, on the provider side there are target and delivered quality.

2.1 Customer Perspective

The customer is the most important in designing, providing and evaluating the level of quality particularly in service industries and very sensitive to its fluctuations too. Sought quality is the level of quality customers explicitly or implicitly demand and expect on service providers. The sought quality (customer expectations) is created due to several factors - primarily the expectations are formed during a previous personal experience of a customer with a service, the customer is influenced by the experiences of the other users and by the image of an organization. Perceived quality means the overall impression a customer has and experiences about the level of quality after service realization. The potential between the sought and perceived quality give the service provider the opportunity to measuring customer satisfaction based on formulating the precise and actual criteria according which the customers are assessing the services.

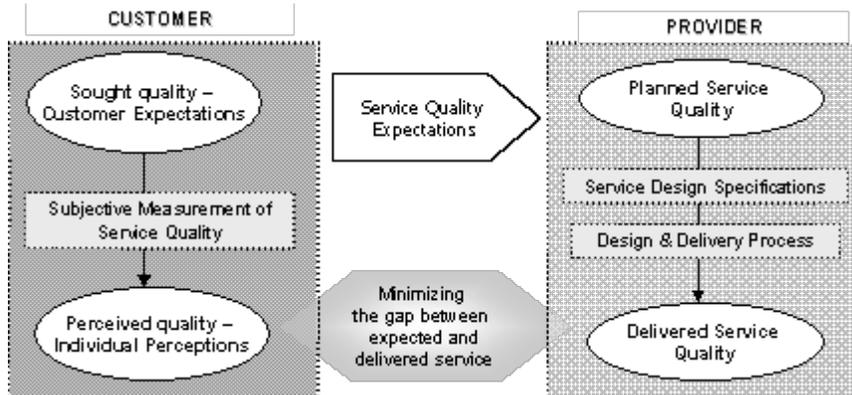


Figure 1: Service Quality Perspectives

To effectively enhance online banking service quality, bankers are first required to understand the attributes customers use to judge service quality [7]. The traditional services quality conceptualisations were created to capture the interpersonal nature of service encounters [10], [5] and there have been done many studies addressing the key quality dimensions in the traditional banking environment. Currently the research on service quality in electronic environments represents a significant part of management and information sciences research activities, however, not giving a unique formulation of customers quality expectations and perceptions of e-commerce. Moreover, a prevalent part of the research papers deal with e-commerce in general. Consequently, there does not exist a prescribed framework for gathering and analysing the customer expectations and perceptions of e-service quality and there does not exist a comprehensive e-service quality concept providing a set of quality dimensions assuring an Internet banking manager that these are the quality criteria fully satisfying online banking customers.

Internet banking as banking and finance product belongs to the group of services explicitly characterized by orientation on intangible tenures, indirect customer contact fully supported by exchanging information and know-how between bank and its client. On the other hand online banking necessarily plays important role in e-commerce. It is not only a part of e-business models but generally it creates the basis for doing any kind of e-commerce transactions and so nowadays bank has to have overall knowledge of all e-commerce technologies and advanced technical support. Therefore Internet banking challenges, in general, can be classified into two groups technical and managerial. Technical challenges deal with hardware, software, and network problems; in addition, payment methods, security, service support [9]. The technical innovations have accelerated the changes in the pattern of service offer what resulted in quality criteria transformation used to evaluate the quality of banking services; technology has influenced the customer perception of quality criteria and also the reaction of services providers to the customers requirements [8]. This consequently created completely new challenges for Internet banking managers. Apart from dealing with organizational changes and service offer innovations characterized by significant cohesion, they become the managers of web site design, they are responsible for the information management published on the web site, they decide what kind of data will be gathered about the customers, how it will be stored and managed so that the data can be effectively used and so that the managers, engineers and key personnel are armed to identify service benchmarks and to design technical benchmarks.

2.2 Providers Perspective

The focus of process or supply led quality definition is rather internal than external and it is defined as conformance to requirements (Crosby and Taguchi). It lays emphasis on the importance of the management and the supply-side quality and there is an important role of the process in determining the quality of outcome [4]. Quality of conformance represents the quality perception from the point of view of service provider, in the case of banking service: share holders, bank management, and employees. Achieving the quality of conformance between the planned (target) quality level and the real quality delivered to customers depends on the service quality management system in an organization. The quality system of an enterprise is defined as a subsystem of the global organizational system controlling and assuring the service quality and when it is necessary the quality subsystem undertakes the suitable functions of the global system [3]. The system of quality embodies sub-elements of different nature such as the objects (personnel or services), operational rules, performance logics, communication network and can be called management system of process creation or nervous system all the functions of leadership, directions, coordination, detection, regulation, control and its internal and external feedbacks.



Figure 2: Quality from Service Provider Point of View

The recent situation of Internet banking as separate and complex banking product and managerial means is more than interesting and astonishing. Internet banking manager looking for a comprehensive guide that would support him in decision-making has a big problem. Having the objective to satisfy clients' requirements the manager has couple choices: buy and read overwhelming number of publications in the field, follow all the information technology news and e-service trends and the best world practices, hire a consultancy group to do this work for him and many others. The bankers are forced to utilize very diversified external resources and personnel; however these still do not have to necessarily provide him answer to his original problem.

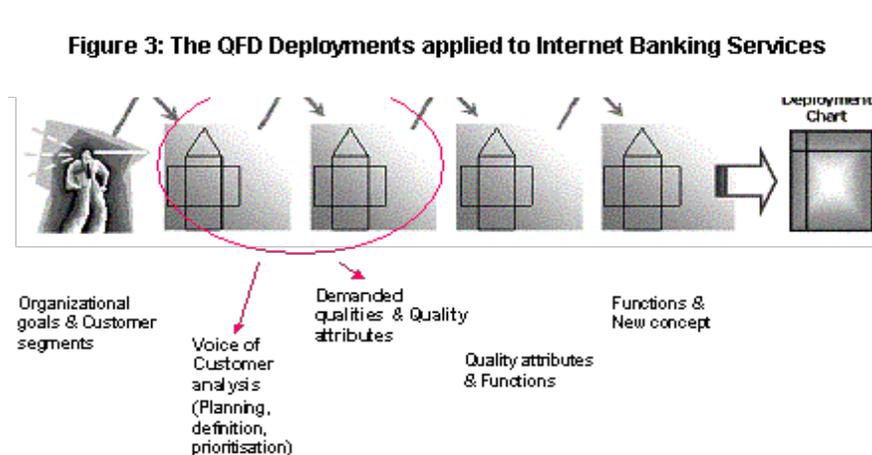
Quality management history proves that almost in every business case all the answers, solutions and knowledge are hidden in the organization and not well communicated through organizational structure. Establishing a suitable quality system and the dispositions related to the quality system (role of management, responsibility structure and repartition, politics of quality, documents control, human resources, working infrastructure and environment, working facilities, internal and external information, methods and tools, process planning, tasks preparation and repartitioning, exploration of internal and external requirements, internal audit a. o.) will assure the desired results with lower acquisition and purchase costs. Reaching a certain level of quality so that the customers are completely satisfied at the moment does not have to be a problem for an organization. However, customers' requirements and preferences are changing in time and these changes are unpredictable. The present customer satisfaction with the provided online services represents only a short-time profit guarantee. Internet banking requires a flexible customer oriented management framework allowing adjusting the level of quality of Internet banking services according the "real-time" customer demands and expectations. Further more this management framework should be flexible and adjustable to some extend so that the system can be reengineered itself when necessary.

This eventually has to lead to the conclusion that the present management concepts do not provide sufficient knowledge and decision support for the e-banking managers and must be explored and expanded. We employed Quality Function Deployment methodology, in this particular e-business domain. The techniques like Quality Function Deployment (QFD) with accompanying tool-support can certainly contribute to the development of high quality e-commerce (and so e-banking) and provide the

means of their effective management. The unique approach of QFD is its ability to integrate customer demands with the technical aspects of a product or a service, QFD helps IT managers and design teams through the conceptualization process of building an e-commerce site on a structured method that relates customer needs with technical requirements. QFD helps IT departments to make the key tradeoffs between the customer needs and the technical requirements to build an e-commerce site [9].

3. QFD for Services: The Starting Point for Internet Banking

Quality Function Deployment (QFD) is one of the processes incorporated in Total Quality Management (TQM) concept. QFD is not only a methodological and statistical tool designed for one use propose but an overall concept that provides a means of translating customer requirements for each stage of product development and production [2]. QFD is a coherent technique that analyses, prioritizes, translates spoken and unspoken customer requirements and is participated by everyone in an organization. QFD was widely incorporated particularly in healthcare and education services design; QFD is a philosophy for quality assurance, not merely a series of steps to follow. The name Quality Function Deployment expresses its true purpose, which is satisfying customer (Quality) by translating their needs into a design and assuring that all organizational units (Function) work together to systematically break down their activities into finer and finer detail that can be quantified and controlled (Deployment) [6]. QFD dates from 1966 (Yoki Akao) and its penetration into service industries started in the early 1980s in Japan companies. Quality Function Deployment (QFD) is a systematic matrix-based visual approach for designing quality products and services. The best-known matrix is the first in the QFD hierarchy, referred to as the House of Quality (HoQ), popularized by Hauser and Clausing (1988) in their seminal Harvard Business Review. A matrix is the fundamental of QFD methodology and process. During whole process different size matrices are being constructed (planning matrix/HoQ, concept selection matrix, subsystem/assembly deployment matrix, process planning matrix).



From the system implementation point of view the following deployments (figure 3) has be addressed and precisely analyzed particularly in a service organization:

Organizational Deployment:

To map the QFD steps to the different organizational functions; who is responsible for what activities and when during the service planning and development process; highly recommended that organizational deployment be done before QFD is applied to a specific service;

Customer Deployment:

The deployment of organizational goals into core competencies, into customer attributes, into target customer segments. This helps tailor the services to the needs of those customers who can best help achieve organization goals.

Voice of Customer Deployment

VOC tables are used to record raw customer data, use characteristics for defining quality requirements, and so separate the different types of service attributes. To

(VOC): satisfy customer, it is important to understand how meeting their requirements effects satisfaction and other specific aspects such as customer involvement, customer preference, customer responsiveness, methodological items of processing and prioritizing client requirements.

Quality Deployment: Customer demanded quality and priorities into measurable service quality attributes.

Function Deployment: Used to identify functional areas of the organization, which are critical for performing tasks that must achieve the quality attribute targets.

New Concept Deployment: Used to conjunction with Quality Improvement Stories (a structured problem solving approach), to select a new process that will best satisfy customers needs.

Task Deployment: Breaks down critical jobs into tasks and steps.

Reliability Deployment: Identifies and prevents failures of critical customer requirements.

4. QFD Application to Internet Banking Services

The Quality Function Deployment application was carried out in cooperation with a Slovak bank at the Electronic Banking and Development department in 2002. The bank is operating in the Slovak financial market since 1993 and is well recognized as corporate and retail bank possessing an advanced technology platform however not promoting the quality of online services at a sufficient level. The preparation process consisted of a series of the bank visits while the bank internal materials were provided. The QFD application consisted of Voice of the Customer Deployment and of Quality Deployment (figure 3) consisting of several sub-steps.

4.1 Voice of the Customer Deployment

The first step in our case study was to identify the criteria the customers were expecting from the services. The data were collected in the form of unstructured customer suggestions and ideas about the bank services using over Internet and were analyzed in following stages:

- Iterative completion of a list of all the suggestions
- Suggestions clustering due their affinities (23 clusters, frequencies)
- Definition of demanded quality criteria
- Clusters allocated among the demanded qualities - each cluster could have shared more than one of the formulated service criteria allowing allocating frequencies for each of the service criteria.
- Prioritisation of service quality criteria

The first step in our case study allowed us to identify the service features the customers were expecting from the service and resulted in the formulation of the quality criteria (Table 1). The results showed that adaptability according individual customer preferences, personal choice from application settings giving users the possibility to modify the user interface according their present needs were considered as the most important criteria. The following were the communication with the customers, providing fast and easy access to information, providing relevant information in an appropriate format and at an appropriate descriptive level.

<i>Response time (reasonable loading time)</i>	Technical aspect of the service including the operational attribute of the service to fulfil the requests in the shortest possible time.
<i>Expanding functionality</i>	The ability of adding value to the basic service, particularly represented by adding new services to the Internet Banking application as an open information system and by cross-selling the financial services and products.
<i>Communication with a costumer</i>	Systematic informing a client and determining his requirements in the way he prefers.
<i>Convenience</i>	Service accessibility from place, time and technology facilities point of view.
<i>Availability of information about financial resources management</i>	Ability to provide history information about account balances and transaction and also schedule of planned future transaction.
<i>Application modularity</i>	Application ability to be adapted according individual customer requirements due to data presentation (customer has a choice from application setting offerings).
<i>Reliability</i>	Permanent and accurate service providing due to organizationally planned extent (permanent and accurate service functionality).
<i>Be informed</i>	Providing information (feedback) about financial resources balance and transactions by different communication channels (SMS notification, e-mail notification, displaying message about /un/successful transaction realization etc.).
<i>Security</i>	System possibilities to protect financial transaction and information.
<i>Easy performance and navigation</i>	Number of actions to achieve the wanted result.
<i>Design</i>	(Functional) Transparency and graphical arrangement.

Table 1: Internet Banking Quality Criteria

4.2 Quality Deployment

The second step (Quality Deployment) included the construction of the House of Quality provided the translation of the customer service quality criteria into the service technical characteristics ensuring the quality of Internet banking services and customer satisfaction. Quality Deployment consisted of:

- Determining the service quality attributes (the Internet banking team members consisting of the IB manager, technical and marketing personnel worked out a set of the service attributes that corresponds to the quality criteria demanded by the customers)
- Evaluating the relative relationships among the customer quality criteria and the service quality attributes
- Assessment of the implementation difficulty of the service quality attributes

- Calculating technical significances for each service quality attribute
- Competitive analysis based on the customer quality criteria and also on the service quality attributes.

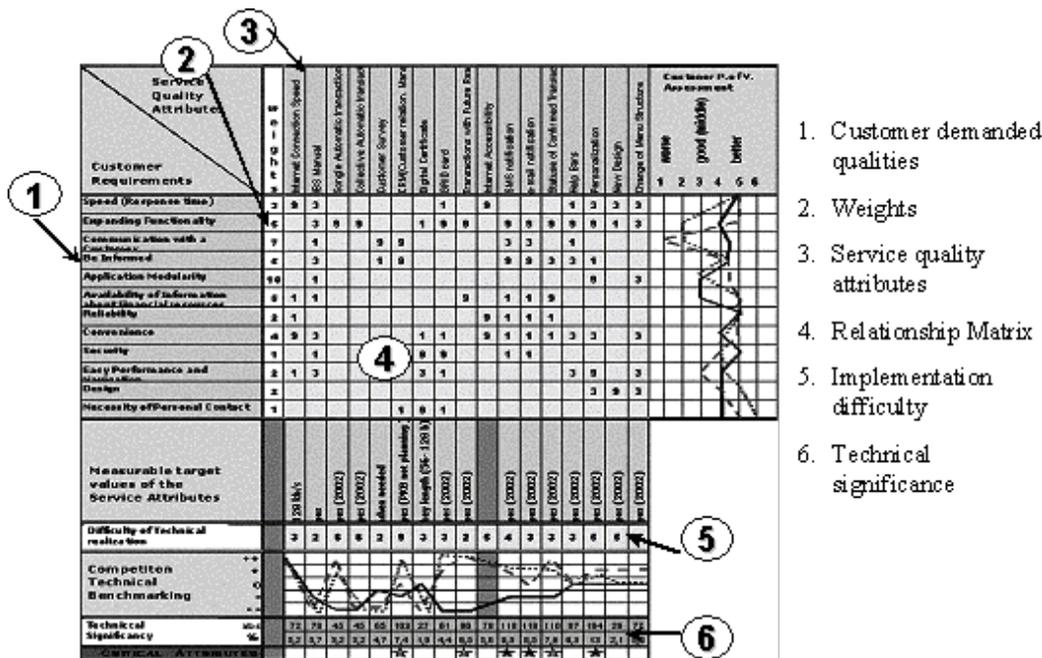


Figure 4: Quality Deployment for Internet Banking Services

5. Conclusion

Exploring online banking customer requirements allowed the definitions of service criteria assuring customer satisfaction at the time of realization and so the factors regulating the quality level of Internet banking services. Construction of the House of Quality for Internet banking pointed out the critical technical attributes exposing the level of quality of the services, the remarkable strengths and also positioning at the current market via competitive benchmarking. Strategic change in understanding the importance of voice of a customer as an individual is unavoidable for the bank. Analyzing voice of the customer and building a transformation framework bringing it into practice are the leading steps of the methodology and the most important factors in regulating the level of quality of Internet banking services. If not done precisely and correctly application of the methodology does not show its real value, does not bring the expected return of time and capital investments and data processing happens to be wasting of resources. Only a systematic and permanent monitoring of the customer requirements incorporated in all bank processes and a system of their prioritization will guarantee future benefits and will lead all business efforts to correspond to the real structure of the customers demands and needs. The importance of correctly assessing customer requirements and integrating them into every single business process is well known. To win all QFD benefits it is strongly recommended to design QFD application as a complex project management preceded by practical training. The training will introduce QFD methodology; will demonstrate QFD tools usage and the most important aspect of the training is that it will induce the practitioners to understand the QFD methodological way of thinking and analyzing arising problematic. By applying QFD we demonstrated the potential this technique in defining the customer expectations and the translation into the design specifications ensuring the customer satisfaction.

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