

# Service Quality and Process Maturity Assessment

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## Abstract

This article deals with service quality and the methods for its measurement and improvements to reach the so called service excellence. Besides older methods such as SERVQUAL and SERVPERF, there are also shortly described capability maturity models based on which the own methodology is developed and used for process maturity assessment in organizations providing technical services. This method is equally described and accompanied by examples on pictures. The verification of method functionality is explored on finding a correlation between service employee satisfaction and average process maturity in a service organization. The results seem to be quite promising and open an arena for further studies.

*Keywords: SERVQUAL, SERVPERF, service excellence, capability maturity models, business process management, balanced scorecard, employee satisfaction index*

*JEL Classification: L84*

## 1. INTRODUCTION

Authors as for example Payne (1996), Kotler (2004), Cram (2012) states in general that quality inside a company together with employee satisfaction has a positive influence on customer satisfaction and respectively on business success. Heskett et al (1993), Foret (2000), Reichheld (2006) declares that a service employee satisfaction has an influence on customer satisfaction and consequently also on a business success of a service providing organization. It is apparent that in services people, processes and their quality play an inevitable role. Therefore in this paper I focus on developing a method for measuring a quality of services. The functionality of this method I will verify on a study among service employees of several service organizations by measuring their employee satisfaction index and comparing with a process maturity found in the researched company. In other words my research is focused on finding if and how much is the service employee satisfaction influenced by quality of processes and their management within the service organizations.

## 2. THEORETICAL BACKGROUND

### 2.1. SERVQUAL and SERVPERF

There are certain methods used for measuring a service quality – SERVQUAL and SERVPERF, which rather reflects the real service performance. SERVQUAL is focused on defining the gaps between customer expectations and their real perceptions, eventually comparing the findings with the findings of the best performing company in a specific branch of services (Landrum,



Prybutok, Kappelman, & Zhang, 2008). In a cycle of providing services can appear different views on the quality. Therefore an original SERVQUAL model presented by Parasuraman et al. (1985) has defined not only the gaps in customer expectations and perceptions but also disclosed the gaps in understanding, aspiration and perception of service quality by service employees and management of services as well. The original SERVQUAL model consisted of seven such gaps.

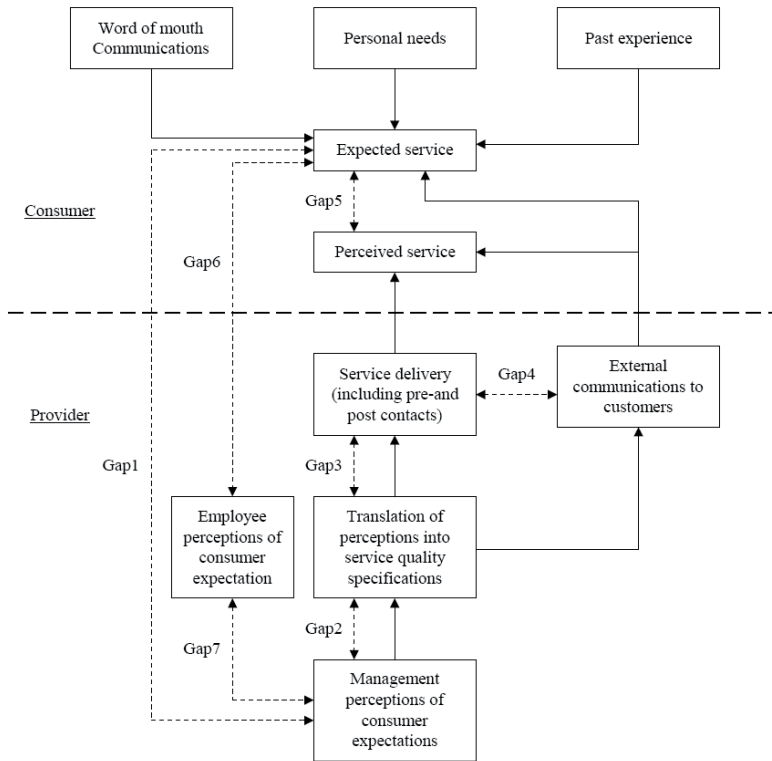


Fig. 1 – A conceptual model of service quality. Source: Parasuraman et al, 1985.

SERVPERF model, which focuses on real service performance, seems to be derived from SERVQUAL model by using different attributes for evaluating a quality of service. Some authors as for example Cronin and Taylor (1992) affirm an originality of this derived model and rather call it as a subset of SERVQUAL. Similarly Sang-Lin Han and Sung-Tai Hong applied both models in a sequence to evaluate a service quality and performance (see Fig. 2).

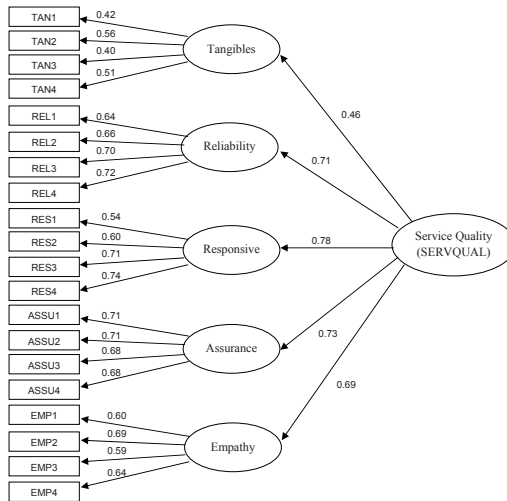



Fig. 2 – SERVQUAL deployed into SERVPERF. Source: Han, Hong, 2005.

## 2.2. Capability Maturity Models

Capability Maturity Models (CMM) are focused on Business Process Management (BPM) and its maturity (BPM). In praxis we focus rather on capability of a process because mostly it is not possible to watch all running service processes in real time. In general the maturity models are defined as follow: “A maturity model conceptually represents phases of increasing quantitative or qualitative capability changes of a maturing element in order to assess its advances with respect to defined focus areas.” (Schroeder – Teuteberg, 2005)

Business process maturity can be rated on a scale from 1 to 5 as it is illustrated in a table below together with the corresponding examples.

Tab. 1 – Business process maturity. Source: Paulk et al, 1993.

Low Maturity		High Maturity
Un-coordinated, isolated projects	<b>5. Optimized</b> <b>4. Managed</b> <b>3. Repeatable</b> <b>2. Defined</b> <b>1. Initial State</b> 	Co-ordinated BPM Activities
Low BPM Skills		High BPM Expertise
Key Personnel		Organizational Wide Coverage
Reactive		Proactive
Manual		(Meaningful) Automation
Internally Focused		Extended Organisation
Low Resourcing		Efficient Resourcing
Naive		Comprehensive Understanding
Static		Innovative

### 3. RESEARCH AIM AND METHODOLOGY

The research aim, as already mentioned in the introduction, is to find a methodology for evaluation of a service organization’s readiness and capability to provide best quality services, so called service excellence. To motivate the service organization to endeavor for service excellence I try to find a positive correlation between an employee satisfaction and service excellence, respectively high maturity of service processes. Both aspects (service employee satisfaction and high maturity of service processes) are important part of service quality.

#### 3.1. Service excellence

By my view, supported by my leading and consulting roles in several service organizations, service excellent company should have a good organization, good processes and good management systems in place. Consequently service excellence means an organization capability to provide best-in class services. Because my main practical focus are organizations providing technical services thus a service excellence in technical services may look as on Fig. 3.



Fig. 3 – Service excellence. Source: own.

Service excellence concept and elaborated tool for service quality assessment is an example of SERVQUAL and SERVPERF methods application and adaptation to the specific technical services conditions. The assessment tool, which is used during so called Service Excellence reviews, is based on process maturity mapping in accordance to Capability Maturity Models (CMM).

#### 3.2. Invention of own capability maturity assessment tool

I have elaborated own method for process capability maturity assessment and the formal frame (tool) for its application in partner companies providing technical services for our company. As an inspiration was used CMMI (Capability Maturity Model Integration) invented by Carnegie



Mellon Software Engineering Institute. An evolution of own capability maturity model assessment tool followed certain important milestones:

1. Pre-analysis consisted of demands and targets statements.
2. Definition of the categories and subcategories relevant and desirable for the process capability maturity assessment.
3. Invention of formal frame for the assessment – tool which will be applied during the assessment process in a partner company (as portable solution was decided to use MS Excel sheets).
4. Definition of the final three assessment criteria summarizing the evaluation of service partnership categories to certified service partner, certified service provider, non-compliant service provider.
5. Facilitation of the possible feedback in order to correct the deficiencies in the assessment method and to implement the creative inventions which can come up during the assessment process.

The mentioned milestones are illustrated in form of an algorithm below on Fig. 4.

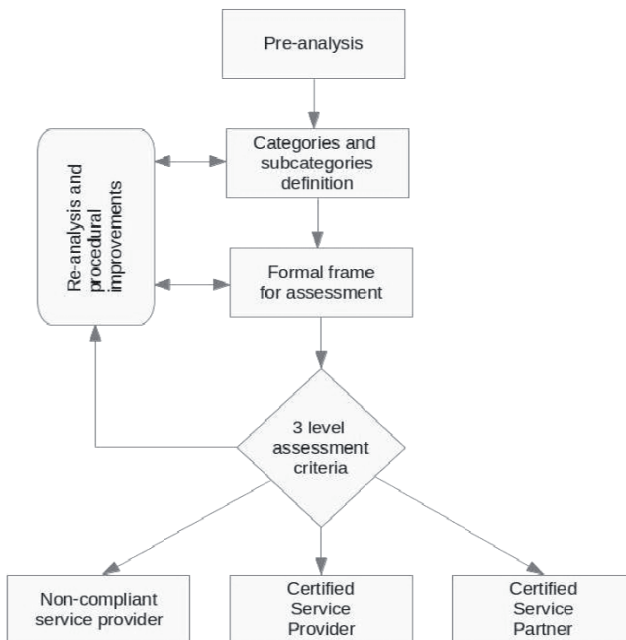


Fig. 4 – Process of assessment tool development. Source: own.

### 3.3. Reviews of service excellence

During the reviews of service excellence are reviewed the processes and management systems of a service organization and rated on five point scale according to their maturity. The minimum standard should be to have the required processes described (for instance in Standard Operation Procedures and/or by a process diagram) and implemented them in real service organization life. This corresponds to the scoring of two or three respectively. If a process is fully operational, monitored and continuously improved then this level deserves a scoring of four. In case the process is fully implemented, supported and optimized by an IT system then it equals to the highest maturity scoring of five. Such IT system can be for instance a service CRM, which guides a service employee through every step of mutual interaction with a customer, collects all relevant data, facilitates their analysis and reports provision to management in order to improve a quality or an effectiveness of customer services.

During the process maturity assessment it is really important that consistency in scoring takes place. Therefore a table below (Tab. 2) was invented to guide an assessor in determining the realistic maturity score for a process step.

Tab. 2 – Guidelines for process maturity scoring. Source: own.

<b>Maturity Score</b>	<b>Description of Maturity Score</b>	<b>Notes on how to Evaluate</b>
<b>0</b>	n.a. - not available	This process step is not applicable in this business or market
<b>1</b>	Process Step is named	The process step is understood and should be implemented but has not been
<b>2</b>	Process Step described	The process step is understood by affected employees but has not been fully implemented or is currently being rolled out
<b>3</b>	Process Step implemented	The Process Step is implemented and is in day to day use but the quality and consistency could be improved
<b>4</b>	Process Step implemented and fully operational	Process Step is consistently in use, if appropriate has monitoring and KPI's, and is now in the continuous improvement phase
<b>5</b>	Process Step implemented, fully operational, IT supported	The process step is at level 4 but is in addition supported by an IT solution which steps or guides employees through the process step

The process maturity assessment is performed on several categories (currently eight) which are deployed to the subcategories and process descriptions. There are given two milestones which distinguish between two levels of service quality. The lower milestone is the minimum requirement for a service provider. The higher limit is the minimum requirement for a service partner which equals also to a higher standard of a mutual cooperation between our company and an



external service company based on more trust. In an assessment table there are also stated examples of evidence for review, comments, maximal and the actual maturity scoring of a given process. See an example of such table consisting of one assessed category below in Tab. 3.

Tab. 3 – An example of assessment table part. Source: own.

4) Maintenance Operations: Installation	Minimum requirements for Service Provider	Minimum requirements for Service Partner	Examples of Evidence to Review	Comments	Max Score	Process Step Maturity
4.1) Pre-Installation						
4.1.1) Presumed Installation Timelines are confirmed with service resource availability before communication to customer.	3	4	Installation Project Plan - Sales/Service/Customer interaction	excel sheet; planner	5	4
4.1.2) Lead times for instrument orders are coordinated with Siemens and considered in the installation timelines.	3	4	Sales communication with Siemens and customer - order date, ship date	see above + new installation check list	5	4
4.2) Instrument Arrival & Installation						
4.2.1) Instrument is stored at suitable premises during transit.	2	4	Local work instructions	new bigger storage location; we seen on the pictures	5	4

The results in all sub-categories are consolidated into the final report (see Fig. 5) which combines quantitative values with qualitative findings (comments). It is necessary to mention that also quantitative values were reached by evaluation of mostly qualitative phenomena in an organization's service management. Anyway the final review report is aligned with the principles of Balanced Scorecard (BSC) which balances quantitative and qualitative indicators of a company performance.

## SERVICE MATURITY RATING FOR *A Company Ukraine*

ASSESSMENT ON

Nov 23, 2012 in Kiev

Assessors

Ing. Radomir Serek, Bc. Michal Klus

### Final Review

	Partner Score	Target	Partner Maturity Rating	Service Provide Baseline	Service Partner Baseline	Process	Siemens Assessment
Svc Org & Resource Allocation	44,00	65,00	3,38	1,54	3,62	■	
Certification Requirement	36,00	45,00	4,00	1,22	3,89	ok	
Inst Base & Svc Level Mgt	34,00	40,00	4,25	2,63	4,88	■	
Maint. Operations_Installation	42,00	45,00	4,20	2,50	4,13	ok	Service Partner
Maint. Operations_Update	67,00	75,00	4,47	2,20	4,00	ok	
Maint. Operations_PM	68,00	75,00	4,53	2,07	3,80	ok	
Maint. Operations_CM	88,00	105,00	4,63	1,32	3,27	ok	
Service Parts Logistics	49,00	70,00	3,77	2,07	3,43	ok	

### Comments

This year were applied higher measures which resulted in slightly lower evaluation but this does not equal to the lower service quality rather opposite.

The service organization grew up in 1 year in treated InstallBase and also people. Therefore the "baby" diseases disappeared and A Company service organization can be compared with developed service organizations in spite of the challenging conditions on Ukrainian market.

We rate highly an attitude to the people including their knowledge capital and investing in them and to the importance of good processes and IT systems.

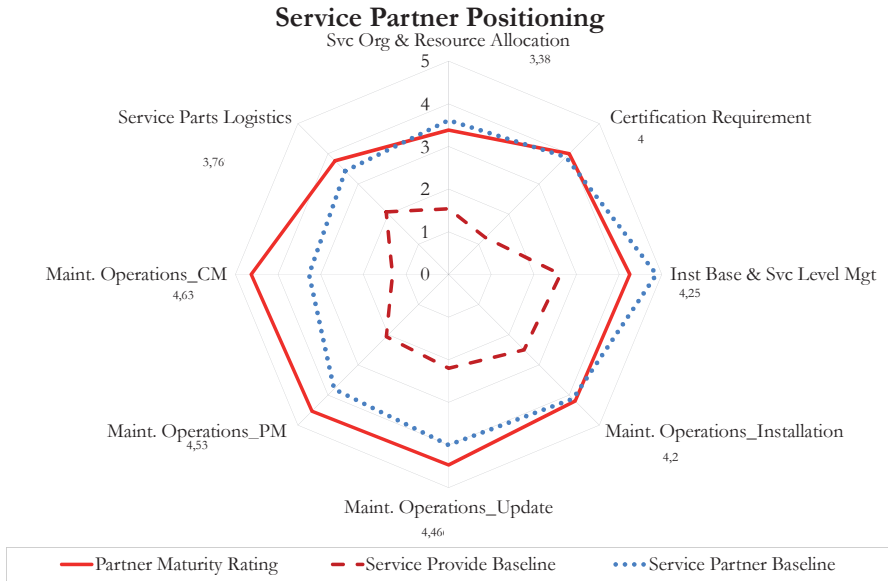
### Agreed Actions Identified

A Company to review all process steps scoring ■

Fig. 5 – Example of an audit final report. Source: own.

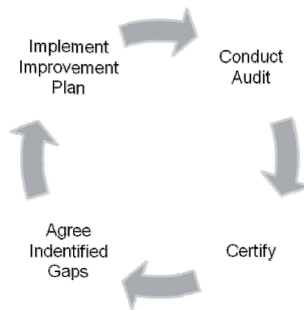
Balanced Scorecard (BSC) approach enables easy and fast overview of an organization performance and therefore is a useful tool for manager's decision making process. There is also a spider diagram which is deployed from the final assessment table (see Fig. 6).





*Fig. 6 – Spider graph of final achievements. Source: own.*

Darker dotted line indicates the minimum service quality requirements and when reached then an external company is authorized to work as certified service provider. When a lighter dotted line on Fig. 6 is overreached then a service providing company becomes a certified service partner. There is a certain deviance allowed. A company can fail slightly in maximum of two evaluated criteria (but never below the service provider line) and the sum of all criteria ratings needs to be above a given value at the same time. Service Excellence concept with regular reviews every year is meant as a tool for continuous improvement of service quality and for best practices sharing. The continuous process of Service Excellence is illustrated on Fig. 7.



*Fig. 7 – Continuous process of service excellence. Source: own.*

### 3.4 Research results and discussion

In my company praxis we have reviewed already fifteen service providing organizations. Out of these fifteen ten have reached certified service partner status, four have been classified as certified service provider and one company failed to reach minimum service quality requirements.

It is quite clear that every additional indication about a service quality is good as for a service consumer so for a service provider. From this perspective service excellence reviews fulfil its purpose. It should be additionally mentioned that a company I work for use this service excellence concept and reviews to distinguish a quality of services within its distributors and agents and at the same time use it as a tool for continuous improvement of service quality. In this case the mother company acts also as a consumer of services provided by its agents and distributors. Therefore a service excellence concept seems to be a mean of mutual partnership in business which common denominator is a fact that customer when buying an equipment of a company (directly or through a distributor) expects certain quality of related services. His aspirations rise with a brand and goodwill of a product or a company regardless if related services are provided by a mother company or its agents and distributors. For instance contemplate a buy of Mercedes car. The aspirations on quality of product and connected services will be certainly high. But on the other hand it is not typical that the service employees in a car repairshop would be genuine Mercedes employees. Therefore service excellence concept and reviews can find its place in many different areas of services after an adaptation to the specific conditions of a specific service area.

The challenge rather seems to be how to positively motivate a company to participate on this initiative. One motivation factor can be found in the increase of trust between the business partners. Trust generally has a positive influence on costs and speed of mutual transactions. When a company communicates appropriately a certified service partner or provider status to its customers then this should also have a positive influence on trust level and customer willingness to buy services from such company. Although there exists some studies about a factor of trust (Zack – Knack 2011, Helliwell – Huang 2008, Edelman 2009, Šerek 2013) it is quite difficult to apply the outcomes on specific branches of business and quantify the positive effects accordingly.

Therefore I focused on to find a correlation between an overall process maturity in a company and its employee satisfaction. In case of significant correlation is found it could serve as an additional motivation factor for the service providing companies to work on improvement of their process maturity. An exploration question is thus stated as follows: “Is a service employee satisfaction index dependant on a process maturity rating of a company?” An explanatory variable for simple linear regression has been chosen to be an average process maturity (APM) rating of a company which came out of service excellence review. A dependant variable is then an employee satisfaction index calculated from answers on the following questions in employee survey realized by method of on-line and anonymous questionnaire:

1. How are you satisfied in your work?
2. Do you have an opportunity for self-realization and implementation of creativity?
3. How would you rate your working environment?
4. What is a level of trust within your organization?

5. Do you know your team's vision and ways to implement them?
6. How would you rate your willingness to remain in this work after one year?

The rating on the above questions was allowed in 10 point scale and employee satisfaction index (ESI) was calculated as a sum of average employee ratings on each question divided by a number of questions (six). The process maturity final average scores (APM) and the values of employee satisfaction index (ESI) are in the following Tab. 4.

Tab. 4 – An example of assessment table. Source: own.

Organization	APM	ESI
SLO	3,95	6,9
HM	4,15	7,9
TAY	4,23	7,5
BV	4,47	6,9
SCZ	4,49	7,6
HR	4,53	7,3
IF	4,61	9,5

The APM and ESI values, which has been obtained for seven service organization, are displayed in graph including linear regression function together with a correlation coefficient on Fig. 8.

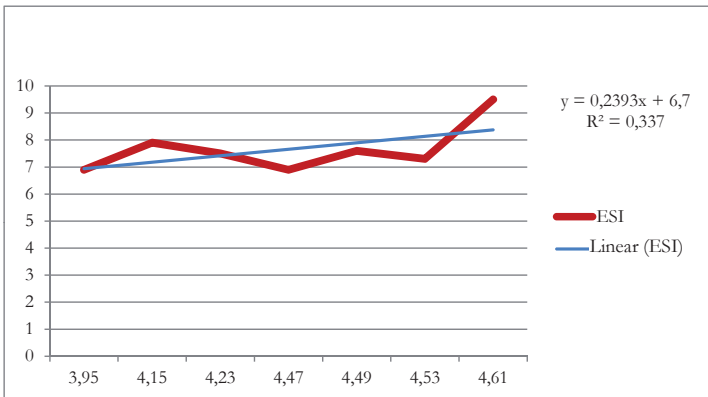


Fig. 8 – ESI in relation to APM. Source: own.

There was found a weak correlation ( $R=0,337$ ) between Average Process Maturity (APM) and Employee Satisfaction Index (ESI), which can be interpreted that there might be a certain influence of process maturity in a service organization on service employee satisfaction. Due to application of linear regression we even could formulate that the influence is positive and to certain extent linear. In other words with higher process maturity of service organization is connected higher employee satisfaction. On the other hand a brief glimpse at the chart above (Fig. 8)

indicates that one service organization seems to be outperforming the others in both parameters – process maturity and employee satisfaction as well. Unfortunately when this organization is removed from the calculation then the correlation factor drops to an insignificant value and we cannot speak about linear correlation any more.

Perhaps there might be a certain break-even point (APM equals roundabout 4.5) when the employee satisfaction accelerates its growth. I presume that a similar break-even point could be found on the left side of curve displaying a dependency of employee satisfaction on process maturity in service organizations. This point would mean a significant decline of employee satisfaction because employees probably will not like chaotic and non organized management. I can only guess that the value of Average Process Maturity could be round about 3.5 in this case. Therefore my future explorations need to seek and focus on the companies which are outperforming in process maturity as well as underperforming to better proof a correlation between process maturity and employee satisfaction.

It should be also mentioned that process maturity is not a salutary and only factor which could have an influence on service employee satisfaction. There might be also many others as for example:

- Safety
- Place for creativity and self-realization
- Meaningful work
- Targets and visions
- Trustful and ethical environment
- Acknowledgement

## 4. CONCLUSION

In this article is presented a methodology which supports an evaluation of quality in service providing organization. This methodology is based on assessment of process maturity or its capability. The main utilization of this method I see in companies which do not provide services directly for any reason but through external service providers. By means of service excellence reviews and process maturity assessment table they can distinguish the level of service quality in an external organization and apply desirable actions to fill any gaps from expectations. The presented methodology will find its place also in a company which has its own branch offices providing services throughout the country or worldwide. This way they are able not only unify and standardize the quality of provided services but also set up on a way to their continuous improvements by defining and filling the gaps found in process maturity. Processes and people play very important role in services. Quality inside a service providing company is to the certain extent influenced by quality of processes (respectively their maturity) and by quality of service personnel (respectively their motivation to provide excellent services). These are essential premises to have satisfied customers and reach a business success. Therefore the correlation between process maturity and employee satisfaction was examined in this study as well. Results do not confirm this correlation directly but seems to be promising for the future studies.

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