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### **Emerald Article: Improving processes in financial service organizations: where to begin?**

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# Improving processes in financial service organizations: where to begin?

Financial service organizations

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## Abstract

**Purpose** – The purpose of this paper is to create actionable knowledge, thereby supporting and stimulating practitioners to improve processes in the financial services sector.

**Design/methodology/approach** – This paper is based on a case base of improvement projects in financial service organizations. The data consist of 181 improvement projects of processes in 14 financial service organizations executed between 2004 and 2010. Following the case-based reasoning approach, based on retrospective analysis of the documentation of these improvement projects, this paper aims to structure this knowledge in a way that supports practitioners in defining improvement projects in their own organizations.

**Findings** – Identification of eight generic project definition templates, along with their critical to quality flowdowns and operational definitions. An overview of the distribution of improvement projects of each generic template over different departments and the average benefit per project for each department. The generic templates give people with knowledge about the process under improvement the ability to use their knowledge effectively in the form of an improvement project.

**Originality/value** – Due to increasing international competition, financial service organizations must continuously improve in order to secure a competitive advantage. This paper turns continuous improvement from an abstract concept into something tangible and achievable, by giving practitioners with local knowledge tried and tested templates to identify promising themes for process improvement, and to make effective project definitions.

**Keywords** Generic templates, Lean Six Sigma, Improvement projects, Financial services, Organizational processes

**Paper type** Research paper

## 1. Introduction

Financial service organizations are coping with increasing international competition. Organizations willing to gain or to secure a competitive advantage are required to continuously improve. One strategy to improve results is to eliminate operational inefficiencies.

Lean Six Sigma (LSS) is a method that deals with eliminating operational inefficiencies on a project-by-project basis, by taking each project through define-measure-analyze-improve-control (DMAIC) phases (Schroeder *et al.*, 2008). Whereas the method has its origins in manufacturing, it is increasingly used in service organizations as well. From 2001 onwards, books and papers have been written on this subject and described typical issues involved for service organizations, such as a lack of tangible output, a lack of a process view of work, the scarcer availability of useful measurements, and a greater human element (Snee and Hoerl, 2005; Antony *et al.*, 2007;



Kumar *et al.*, 2008; Nakhai and Neves, 2009). Despite the clearly structured approach of the LSS-method, not every project is successfully executed.

Successful execution of a project depends on many aspects. One of these aspects is the clear definition of a project's objective and the measures that need to be improved in order to achieve this objective (Morris and Hough, 1987; Partington, 1996; Linderman *et al.*, 2003; Lynch *et al.*, 2003). Unclear project definition can result in project leaders ("Green Belts" and "Black Belts" in LSS) and project owners ("Champions" in LSS) developing diverging views. Clearly structured relations between the typically high-level objectives and the constituting factors can be captured in models such as the balanced scorecard (Kaplan and Norton, 1992) or the critical to quality (CTQ)-flowdown (De Koning and De Mast, 2007).

The balanced scorecard is a management tool that maps a company's overall strategy by linking traditional financial measures to additional perspectives like customers, internal business processes and learning and growth (Kaplan and Norton, 1996a, b, 2004). The four perspectives reveal trade-offs and prevent a company from solely pursuing short-term goals (Kaplan and Norton, 1993, 2000; Chan, 2004).

CTQ-flowdowns are project specific and therefore less holistic than the balanced scorecard. A CTQ-flowdown links strategic focal points to project objectives. These project objectives are linked to and decomposed into CTQs, which are made operational in the form of measurements. This is done by specifying operational definitions, which provide measurement procedures. The CTQ-flowdown along with its operational definitions thus links strategic focal points of the organization to one-dimensional, well-defined metrics that need to be improved (De Mast *et al.*, 2006; De Koning and De Mast, 2007; Zu *et al.*, 2008).

The purpose of this article is to provide practitioners with concrete, tried and tested, improvement opportunities in the processes of the financial services sector, by providing generic templates for the definition of improvement projects. These generic templates facilitate project definition by a case-based reasoning (CBR) approach.

Our case base of 181 improvement projects executed in the processes of financial service organizations is structured into eight generic project definition templates, consisting of a CTQ-flowdown and operational definitions (Section 2). This overcomes the potential problem of unclear definition in the start-up phase of a project and increases the chance of successful execution.

Section 2 explains the method used to form the definition of generic templates from our sample of projects and the way practitioners could use it. Section 3 describes the case base in more detail. Section 4 describes the templates of the generic project definitions. For illustrative purposes, each project definition template is accompanied by a brief description of an improvement project using this template. The templates aim to give a clear representation of the projects in our sample. Differing theoretical perspectives are discussed where relevant. The last section concludes.

## 2. Method

Methodological advice in the form of rules and guidelines is suitable for well-structured tasks. Project definition, generally an ill-structured task, is hard to capture with such rules and guidelines. For ill-structured problems, an alternative is found in CBR. CBR is a methodology developed by artificial intelligence researchers (Slade, 1991; Aamodt and Plaza, 1994), but is nowadays used extensively outside the artificial

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intelligence research area (Bichindaritz and Marling, 2006). Rather than using a system of rules, CBR uses past experience to solve new problems by adapting previously successful solutions to similar problems (Aamodt and Plaza, 1994; Niemeijer *et al.*, 2011).

Aamodt and Plaza (1994) state that the general CBR cycle consists of the four steps: retrieve, reuse, revise and retain. Practitioners facing a problem access a case base to retrieve similar problems and the associated solutions. The next step is for the practitioner to reuse the solution of the similar problem and revise the solution to the specifics of the problem at hand. Finally, the practitioner can add the newly solved problem to the case base, thus retaining the new case. By structuring the reusable elements of a case base of improvement projects, this paper aims to facilitate CBR by presenting an overview of improvement projects in the form of generic templates.

We look at 181 projects aiming to improve processes of financial service organizations. The aim is to accumulate experience and structure this into generic templates that can be used by practitioners via the CBR cycle. We do not intend to define a typology or taxonomy of projects, with the claim of completeness these terms imply. We also do not claim that our sample is representative for projects executed in the financial services sector. This is not a problem, as CBR does not require this.

The information extracted from our sample of 181 projects in order to define generic project definition templates, consists of:

- a business case;
- a project description;
- CTQ metrics; and
- a measurement procedure for each CTQ.

The idea is to group projects with similar reusable elements into generic templates. On a high level, practically all projects are similar in the sense that they aim to increase profit, whereas on a detailed level, every project has its own specifics. The value of grouping projects in generic templates is motivated by what is called the power/generality tradeoff (Newell, 1969; Smith, 1994; Fensel and Motta, 2001). By retaining too high a level of detail, the case base loses generality and reusability (that is, the templates would become too specific to be broadly applicable). On the other hand, making a case too general comes at the expense of the power and operability of the solution. Following Smith (1994) we aim for an intermediate level of detail, by removing project specifics and keeping the distinction between project objectives (i.e. increase sales, reduce full-time equivalent (fte), etc.). This provides an organizing principle that was used to extract the reusable elements from each case. Grouping cases that were identical after removal of the project specifics resulted in eight different groups of project definitions. For each group the CTQ-flowdown and operational definitions of a typical case were chosen to serve as the generic template for this group. The resulting generic templates represent the practically tried and tested project definitions of different types of projects in our case base.

In line with CBR, we propose that practitioners use the templates in the following manner. A practitioner starting an improvement project should search for a template bearing sufficient similarities to the project at hand. If such a template is found, the practitioner copies the CTQs as the objectives of the project, the CTQ-flowdown as a model for the underlying rationale, and the operational definitions as a guidance

for the operationalization of the project. The next step is to modify these templates to account for project specifics. In this way, the retrieve, reuse and revise steps generally adopted in CBR systems are supported (Aamodt and Plaza, 1994). Since updating the case base is not possible for the practitioner in the proposed approach, the retain function general to CBR systems is restricted to the authors.

This paper follows up on the article of De Koning *et al.* (2008), which proposes generic project definition templates based on 65 projects in financial services. Adding 116 projects resulted in the addition of two generic project definition templates and the refinement of the existing templates.

### 3. Data

We use 181 improvement projects carried out in 14 financial service organizations executed between 2004 and 2010. This section describes the case base in more detail.

Each improvement project was carried out by a Green Belt or Black Belt trained by the same institute. Projects vary along key dimensions such as objective of the project (increase revenue, decrease cost, reduce operational losses, improve business decision making), department (accounting and control, back office, human resources, IT, financial administration, product development, purchasing department, sales, facility management and customer services) and size (benefits ranging from €20,000 to €41,500,000).

The remainder of this section presents an overview of the different departments where the improvement projects were executed and an overview of the average benefits per project per department.

Figure 1 shows the frequency of improvement projects within each department, where allocation to department was done after Pugh *et al.* (1968). Table I again shows

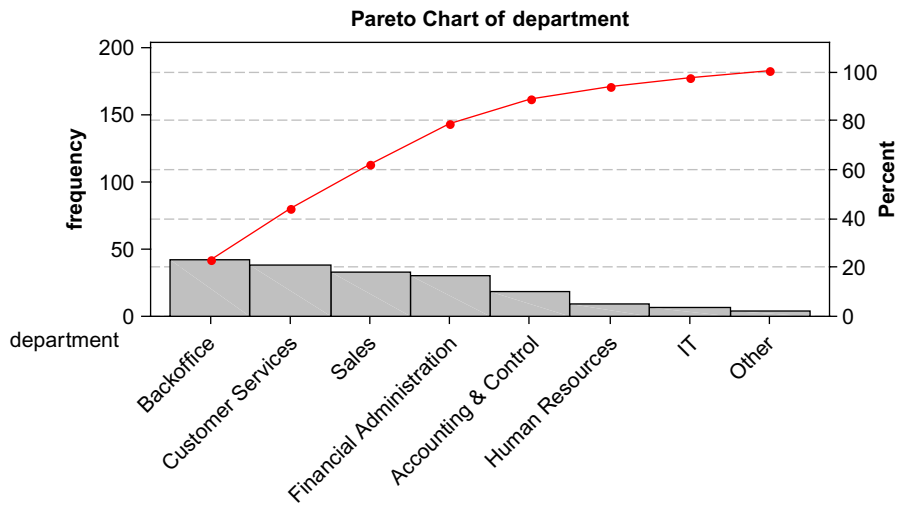


Figure 1.  
Pareto chart of department

frequency	42	38	33	30	19	9	7	4
Percent	23.1	20.9	18.1	16.5	10.4	4.9	3.8	2.2
Cum%	23.1	44.0	62.1	78.6	89.0	94.0	97.8	100.0

	Accounting and control	Back office	Customer services	Facility management	Human resources	IT	Financial administration	Product development	Sales
Increase efficiency of human resources	3	13	7		5	4	5		4
Increase customer value			9		2		2		2
Improve sales processes		1	1				4		22
Increase timeliness of received payments		1						1	
Reduce purchasing costs	4	1		2		2			
Reduce operational losses		2	2			1	9		1
Improve business decision making	6								
Increase efficiency of human resources and increase customer value	6	25	19		2		10	1	4

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**Table I.**  
frequency of department  
per generic project type

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the frequency of projects within each department, but split up per generic project type. Table II shows the combinations of department and generic project template that could occur in practice.

About 80 percent of the improvement projects in our sample took place in the back office, customer services, sales or financial administration departments. Since we do not claim to have a representative sample, more interesting is the observation that improvement projects took place in a variety of departments. From this we conclude that the proposed methodology is not restricted to a specific department within an organization.

In addition to the occurrence of projects within different departments, it is interesting to look at the average benefit per project within each department. Table III gives an overview of the different departments and the average benefit per project. Only departments with five or more projects are taken into account. Because not every project had properly defined benefits, average benefit was calculated for the six departments as shown in Table III.

Again, since our sample is not representative, the only claim we make is that successful execution of the proposed methodology is not restricted to specific departments within an organization.

#### **4. Generic templates for projects in financial services**

By reconstructing CTQ-flowdowns and operational definitions from our sample of 181 improvement projects, we define the following eight generic project definition templates:

- (1) increase revenue by increasing customer value;
- (2) increase revenue by improving sales processes;
- (3) increase revenue by increasing the timeliness of received payments;
- (4) reduce cost by increasing efficiency of human resources;
- (5) reduce purchasing costs;
- (6) reduce operational losses;
- (7) improve business decision making; and
- (8) the eighth template is a combination of the first and fourth template, since many projects focus on increasing revenue by increasing customer value and reducing cost by increasing efficiency of human resources simultaneously.

This overview is likely to develop as more cases are added.

Of our sample of 181 project descriptions, all but one project contained reusable elements which are represented in the above templates. The one project left was too specific to be likely to be helpful in future cases. Figure 2 shows the Pareto chart of the generic project templates, where the ten projects in the category "other" consist of nine projects that are some combination of multiple templates, plus the one project containing no reusable elements.

The fact that most of the expenses in processes of financial service organizations are related to personnel, could explain why increasing efficiency of human resources is so prevalent in our sample. Next to that, increasing competition and the relative ease with which customers can switch could explain the focus on creating value for customers.

In this section, the CTQ-flowdowns for the eight generic project templates in financial services are discussed, along with their operational definitions. The CTQs are

	Accounting and control	Back office	Customer services	Facility management	Human resources	IT	Financial administration	Product development	Sales
Increase efficiency of human resources	X	X	X	X	X	X	X	X	X
Increase customer value	X	X	X	X	X	X	X	X	X
Improve sales processes			X					X	X
Increase timeliness of received payments	X	X					X		X
Reduce purchasing costs	X	X	X	X	X	X	X	X	X
Reduce operational losses	X	X	X	X	X	X	X	X	X
Improve business decision making	X					X			
Increase efficiency of human resources and increase customer value	X	X	X	X	X	X	X	X	X

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**Table II.**  
Possible combinations of department and generic project types



purely based on the metrics found in our project sample, whereas the project objective and strategic focal point in the flowdowns are also based on theory. If additional or different CTQs are expected on theoretical grounds, this is discussed.

Practitioners may copy the mentioned CTQs as the objectives of their own project, and the CTQ-flowdown as a model of the underlying rationale, and the operational definitions as a guidance for the operationalization of their own project. Next, by adjusting these generic definitions, the practitioner applies the reuse and revise steps in CBR.

As the templates only serve the purpose of defining improvement projects, every template is accompanied by a brief example of an improvement project, serving to illustrate the possible use of the templates.

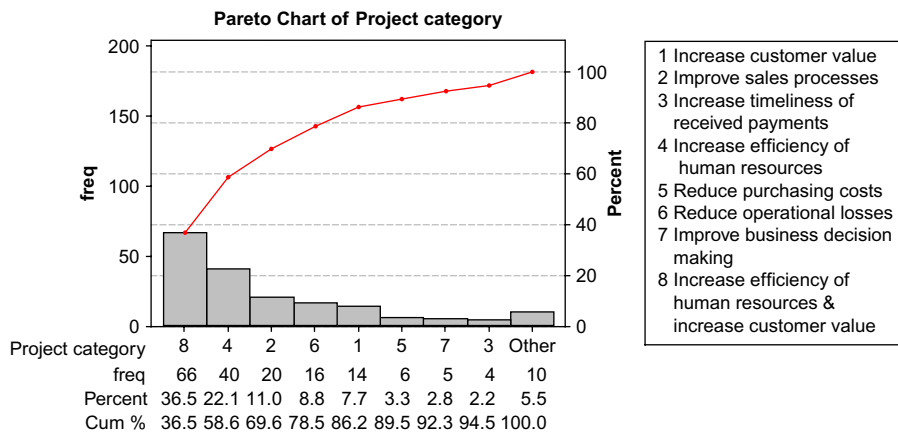
*Template 1: increase revenue by increasing customer value*

Projects in the first template aim to increase revenue by increasing customer value. Increasing customer value can increase revenue through improved price elasticity, higher customer retention or increased demand. Customer value depends on the quality perceived by the customer. Quality, however, is hard to capture in a definition (Parasuraman, 1997; Woodruff, 1997).

The CTQ-flowdown derived from our sample is in line with Gronroos (1982) who made the distinction between technical quality, involving the actual product or service a customer receives, and functional quality, involving the manner in which the product or service is delivered. Translating this distinction into the CTQ-flowdown, customer value is increased by either focusing on the quality of the process, by reducing:

Department	Average benefit (€)
IT	346.627
Accounting and control	293.650
Sales	263.685
Customer services	218.097
Back office	217.397
Financial administration	195.567

**Table III.**  
Average benefit per project



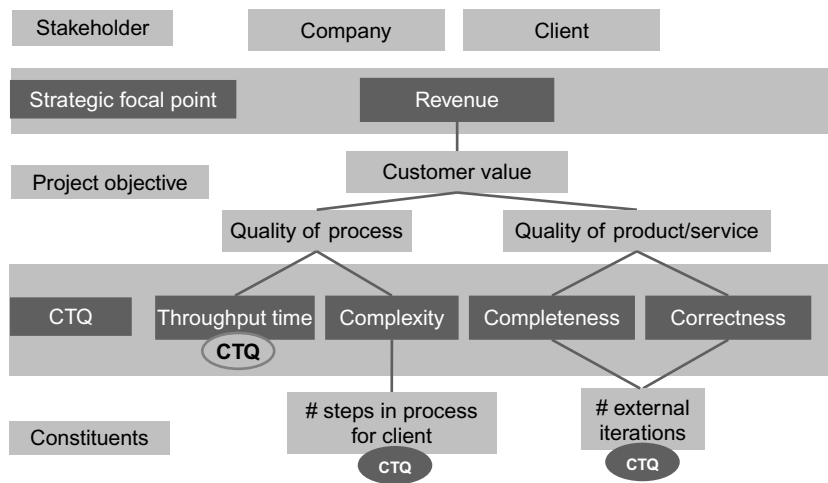
**Figure 2.**  
Frequency of generic project templates

- throughput time; or
  - complexity, being the number of steps that need to be taken by the customer to initiate and complete the process.
- or by focusing on the quality of the product or service, by reducing:
- external iterations, which equals the number of times a product is sent back to the process, because a customer is not satisfied with the product.

Other aspects relating to customer value known in literature, such as interaction (Parasuraman *et al.*, 1985), did not occur in our case base.

The CTQ-flowdown for this type of project can be seen in Figure 3. Operational definitions, used to describe per what unit each CTQ is measured, how each CTQ is measured and what the desired target value is, are described in Table IV. For illustrative purposes, the example describes an improvement project in our database using template 1.

*Example 1.* A Dutch Bank improved its process of complaint handling. The Black Belt of this project wanted to increase customer value and decided to reduce throughput time, being the duration from the moment a customer files a complaint until the moment the customer receives an answer or solution. In addition, the Black Belt wanted to reduce iterations, because too often, the customer was not satisfied with the offered solution. By restructuring the pre-case handling process and adding quality checks, the Black Belt managed to drastically increase timeliness as well as quality of complaint handling.



**Figure 3.** CTQ-flowdown “increase revenue by increasing customer value”

CTQ	Throughput time	No. of steps in process for client	No. of external iterations
Unit	Per job	Per job	Per job
Measurement procedure	Track a sample of jobs	Track a sample of jobs	Track a sample of jobs
Target	As low as possible	As little as possible	As little as possible

**Table IV.** Operational definitions “increase revenue by increasing customer value”

By decreasing throughput time and the number of external iterations, the Black Belt improved both the quality of the process and the quality of the product, thereby increasing customer value. The increased customer value potentially leads to more customers, or to customers willing to pay more.

*Template 2: increase revenue by improving sales processes*

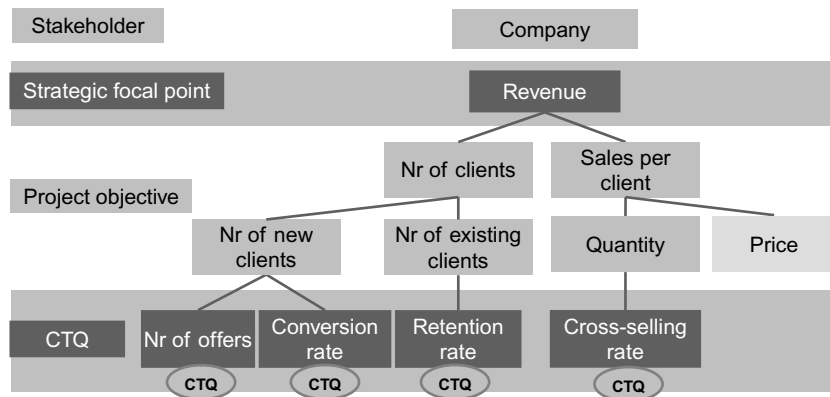
The second project template aims to increase revenue by improving sales processes. Sales revenue depends on the number of clients and the sales per client. Therefore, projects in this template either aim for increasing the number of clients, by:

- increasing the number of offers to potential clients;
- increasing the conversion rate, which is the percentage of offers to potential clients that is accepted and thereby converts potential clients into actual clients; or
- increasing the retention rate, being a measure for customer relationships that are maintained on a long-term basis.

or by increasing sales volume per client, by:

- increasing the cross-selling rate per client, which represents the number of complementary products that are sold additionally to a primary product.

The CTQ-flowdown for this type of project can be seen in Figure 4. The operational definitions for the different CTQs are described in Table V. Again, for illustrative purposes, the example describes an improvement project in the database using template 2.



**Figure 4.** CTQ-flowdown “increase revenue by improving sales processes”

CTQ	No. of offers	Conversion rate	Retention rate	Cross-selling rate
Unit	Per week, per month	Per offer	Per customer	Per customer
Measurement procedure	Customer relationship management (CRM) database	CRM database	CRM database	CRM database
Target	As high as possible	As high as possible	As high as possible	As high as possible

**Table V.** Operational definitions “increase revenue by improving sales processes”

*Example 2.* A Dutch pension fund wanted to increase revenue by focusing on the retention of clients. By increasing focus on the client segment that was likely to leave, assigning responsibilities for this segment and increasing customer service, retention rate increased by 10 percent. Due to the large difference in cost between retaining a client and acquiring new clients, this resulted in a benefit of nearly €700,000. Additional benefits were a more loyal customer base, more insight in the product and customer portfolio and higher employee satisfaction.

*Template 3: increase revenue by increasing timeliness of received payments*

The next project template aims to reduce cost by reducing cost of capital. Projects within this template aim to increase return on a companies' assets by converting debtors into cash more quickly. By failing to convert debtors into cash, a company misses potential income from interest.

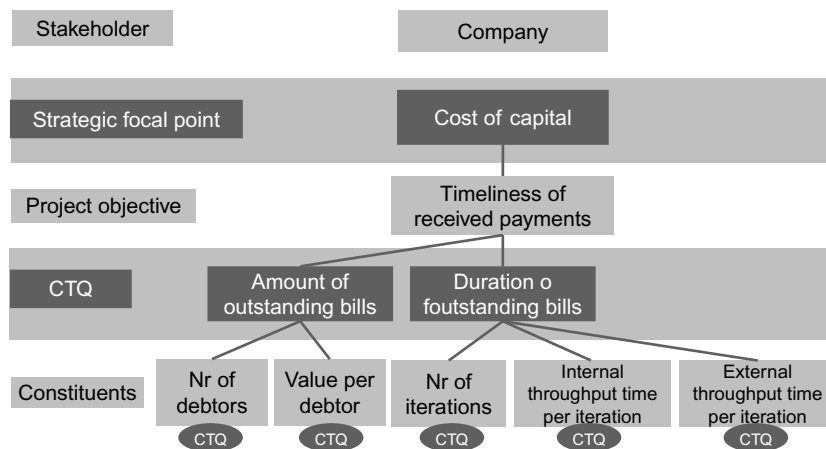
Reducing cost by increasing timeliness of received payments is done either by decreasing the amount of outstanding bills, by reducing:

- the number of debtors; or
- the value per debtor.

or by reducing the duration of outstanding bills, by reducing:

- The number of iterations, being the number of times a company needs to contact a debtor before the bill is paid. Multiple contact moments can arise due to incompleteness or incorrectness of the bill or simply because the debtor disagrees or refuses to pay; or
- internal throughput time, being the time it takes the company to send out the bill or to contact a client; or
- external throughput time, being the time between the debtor receiving a (renewed) bill and the debtor paying or signaling to refuse.

The CTQ-flowdown for this type of project is depicted in Figure 5. The operational definitions for the different CTQs are described in Table VI. The example describes an improvement project in the database using template 3.



**Figure 5.** CTQ-flowdown “increase revenue by increasing timeliness of received payments”

*Example 3.* A Dutch insurance company wanted to improve the timeliness of payments received. The Green Belt not only reduced the number of debtors, but also the duration of outstanding bills by reducing the number of actions taken per debtor. Before this improvement project, outstanding bills amounted to a total of €3,000,000 missed revenue per year. The Green Belt managed to reduce this with 10 percent, thus saving €300,000 annually. Additional benefits were that less fte were needed to run the process and that money was saved on mailing costs.

*Template 4: reduce cost by increasing efficiency of human resources*

The fourth template focuses on a reduction of cost by reducing staffing (measured in fte). An fte reduction is realized when either work volume is reduced, by:

- reducing the incoming workload; or
- increasing the percentage of workload handled automatically;

or when productivity per employee, being the output per labor-hour, is increased by:

- reducing average cycle time per task;
- increasing availability of personnel, being the time spent on value adding activities; or
- reducing the amount of rework.

Figure 6 shows the CTQ-flowdown of this type of project. The operational definitions for the different CTQs are described in Table VII. The example describes an improvement project in the database using template 4.

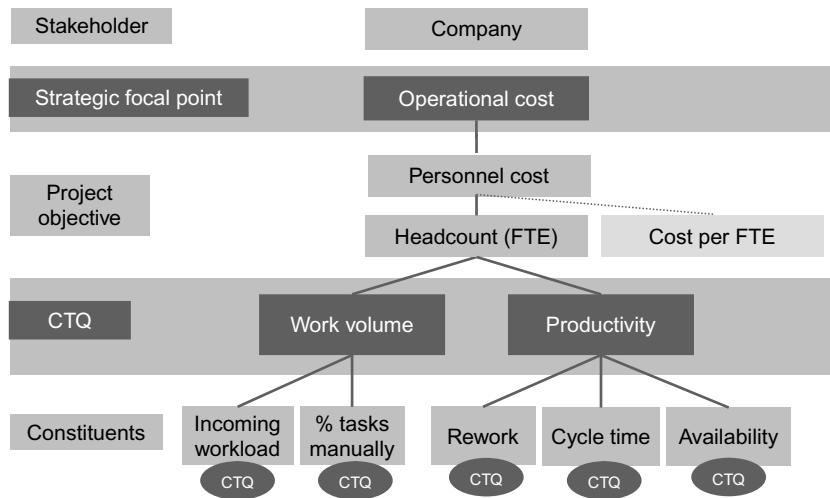
*Example 4.* A Dutch pension fund focused on improving one of their administrative processes. The Black Belt aimed at reducing operational cost by reducing staffing. The strategy was to increase productivity by ensuring a reduction in cycle time and an increase in availability. The Black Belt found that there was no internal focus on productivity. By making employees and managers responsible for their productivity and by introducing visual management, productivity increased by 20 percent. Separating irregular workflow from regular workflow increased productivity by another 5 percent through lower cycle times. Total savings were estimated to be €700,000.

*Template 5: reduce purchasing costs*

While the main source of cost for most processes in financial service organizations involves personnel, costs relating to other sources can play a significant role as well. This project template aims to reduce purchasing costs.

CTQ	No. of debtors	Value per debtor	No. of iterations	Internal throughput time	External throughput time
Unit	Per month, per year	Per debtor	Per debtor	Per iteration	Per iteration
Measurement procedure	Enterprise resource planning	Sales database	Track a sample of bills	Track a sample of bills	Track a sample of bills
Target	As low as possible	As low as possible	As low as possible	As low as possible	As low as possible

**Table VI.** Operational definitions “increase revenue by increasing timeliness of received payments”



**Figure 6.** CTQ-flowdown “reduce cost by increasing efficiency of human resources”

CTQ	Incoming workload	% tasks manually	Rework	Cycle time	Availability
Unit	Per day, per week	Per day, per week	Per job	Per job	Per day
Measurement procedure	ERP, job tracking system	ERP, job tracking system	Track sample of jobs	Track sample of jobs	Time sheets
Target	As low as possible	As high as possible	As low as possible	As low as possible	As high as possible

**Table VII.** Operational definitions “reduce cost by increasing efficiency of human resources”

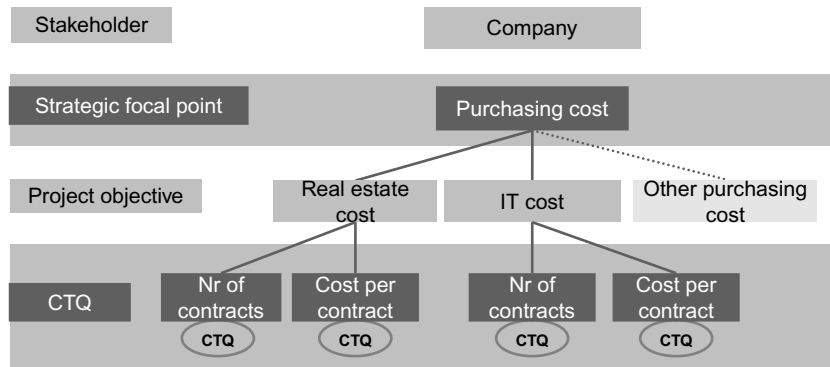
Projects in our sample aim to reduce purchasing costs of real estate and IT. In theory, this can apply to many other types of cost as well, such as utilities, food, advertizing, insurance, etc. Projects aiming to reduce purchasing costs all have similar structure, namely reducing either:

- the number of contracts related to a specific type of cost; or
- the average cost per contract.

The CTQ-flowdown for this type of project can be seen in Figure 7. The operational definitions for the different CTQs are described in Table VIII. The example describes an improvement project in the database using template 5.

*Example 5.* A Dutch bank was overspending on IT contracts. A project was started to reduce the number of contracts. The Black Belt of this project found that hard- and software contracts were not ended when they were no longer needed and focused on the timely ending of these contracts. By realizing a reduction in the number of contracts, the Black Belt managed to reduce cost. An additional benefit of this project resulted from the reduction in contract management costs brought about by the smaller number of contracts. The savings for this project were estimated to be €1.2 million.

**Figure 7.**  
CTQ-flowdown “reduce purchasing costs”



**Table VIII.**  
Operational definitions  
“reduce purchasing costs”

CTQ	No. of contracts	Cost per contract
Unit	Per month, per year	Per contract
Measurement procedure	Contract register	Contract register
Target	As little as possible	As low as possible

*Template 6: reducing operational losses*

The next generic template describes projects that reduce operational losses. Operational losses are losses resulting from inadequate or failed internal processes, people or systems, or from external events and can relate to both income and cost. Operational losses on the income side arise because of revenue a company is entitled to but never receives, whereas operational losses on the cost side arise because of errors that result in the company needing to pay for compensation of these errors.

Projects aiming to reduce operational losses do this either by reducing:

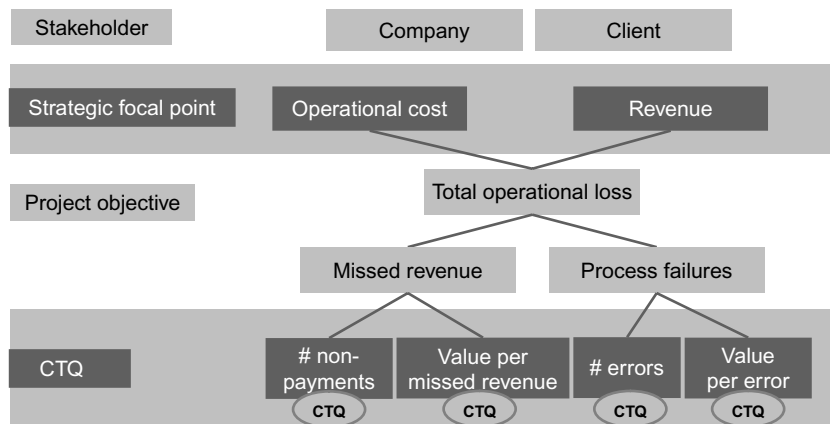
- the number of non-payments, being the number of times the company does not receive income it is entitled to; or
- the average value of these non-payments.

or by reducing:

- the number of errors resulting in cost for the company; or
- the average cost of these errors.

The CTQ-flowdown for this type of project can be seen in Figure 8. The operational definitions for the different CTQs are described in Table IX. The example describes an improvement project in the database using template 6.

*Example 6.* A Dutch insurance company needed to improve their process of sending commercial mails for marketing and sales purposes, to prevent being fined by the government. Customers who do not want to receive commercial mails can indicate this. A system where a customer receives a service without asking for it with the possibility of ending this service on request is called an opt-out system. If a company does not respect the opt-out requests made by its recipients, the company can get fined. The Green Belt of this project improved the administration of opt-out requests, thereby reducing the number of violations of these requests and preventing a fine. The Dutch



**Figure 8.** CTQ-flowdown “reducing operational losses”

CTQ	No. of non-payments	Value per non-payment	No. of errors	Value per error
Unit	Per month, per year	Per non-payment	Per month, per year	Per error
Measurement procedure	Financial systems	Financial systems	Track a sample of errors	Track a sample of errors
Target	As low as possible	As low as possible	As low as possible	As low as possible

**Table IX.** Operational definitions “reducing operational losses”

government imposes a maximum fine of €450,000. An additional benefit was that another €150,000 was saved on no longer sending commercial mail to customers not wanting to receive this.

*Template 7: improve business decision making*

The next generic project template is one that does not focus directly on improving revenue or reducing cost, but rather indirectly by providing management with more complete and accurate information about the performance of each subdivision of a company.

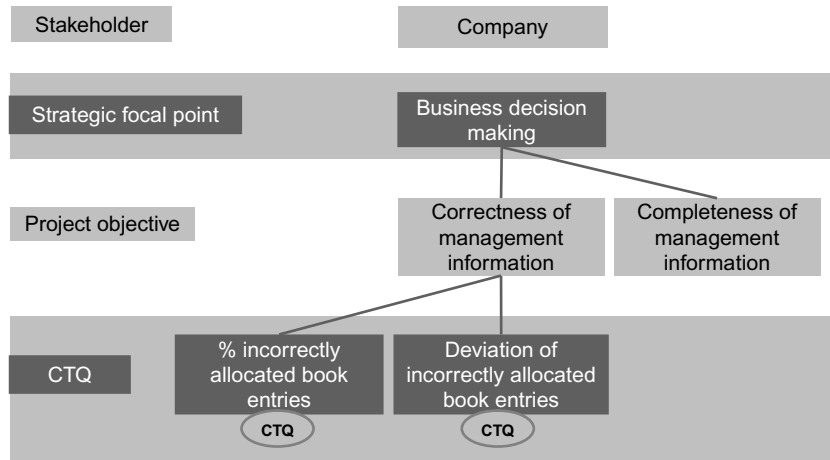
Projects in this category increase the quality of management information and thereby improve business decision making, by reducing:

- the percentage of incorrectly allocated book entries; or
- the deviation of the incorrectly allocated book entry from the true value.

The CTQ-flowdown for this type of project can be seen in Figure 9. The operational definitions for the different CTQs are described in Table X. The example describes an improvement project in the database using template 7.

*Example 7.* A Dutch bank wanted to improve the quality of financial information. An unclear procedure around invoice and claim handling resulted in an unexplained deficit on the cost account. By studying the process the Green Belt explained the deficit on the cost account and found that the information used to determine customer fees was not up to date. In combination with introducing a clear procedure, this resulted in





**Figure 9.**  
CTQ-flowdown “improve business decision making”

**Table X.**  
Operational definitions  
“improve business decision making”

CTQ	% incorrectly allocated book entries	Deviation of incorrectly allocated book entries
Unit	Per month, per year	Per incorrectly allocated book entry
Measurement procedure	Accounting systems	Accounting systems
Target	As low as possible	As low as possible

a fair allocation of cost to the appropriate departments within the bank, resulting in more accurate management information. Benefits due to using the right customer fees and after charging several clients were estimated to be €1,000,000.

*Template 8: increase revenue by increasing customer value and reduce cost by increasing efficiency of human resources*

The last template is a combination of the first and fourth generic template:

- reduce cost by increasing efficiency of human resources; and
- increase revenue by increasing customer value.

And is in line with Garvin (1983), who showed that improving quality and reducing cost can go hand in hand. The CTQ-flowdown of projects in this template is simply the CTQ-flowdowns of the two templates joined together. The same holds for the operational definitions. The following example describes an improvement project in the database using template 8.

*Example 8.* A Dutch insurance company wanted to improve its process of handling information requests. There was no insight in the way of working, which resulted in requests being handled too late. The Green Belt of this project analyzed the process, finding there was no standard way of working, responsibilities were not assigned and cases were not handled in order of arrival. By streamlining the process, introducing standard operating procedures and assigning responsibilities, throughput time and quality of handled requests were greatly improved. Furthermore, by upgrading their internet tool, both workload

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and the number of incoming requests with incomplete information were reduced. A reduction in required fte led to yearly savings of €325,000, while most cases were now handled in compliance with customer requirements in terms of timeliness. The case study described in Uprety (2009) gives another example of a successful project increasing both customer value as well as efficiency of human resources.

### 5. Conclusions and discussion

Research and analysis based on our sample of 181 improvement projects resulted in the definition of eight generic project definition templates, along with an overview of departments where projects were executed. All templates aim to increase revenue, reduce cost or improve business decision making and are based on clear business rationale. This paper aims to facilitate practitioners with practically tried and tested project definition templates and case examples, thus supporting them to improve processes in their own organization. The project definition templates in the form of a CTQ-flowdown and operational definitions provide a means to successfully execute projects. Our sample shows that successful execution of the proposed methodology is not restricted to specific departments within an organization.

Project improvement is most effective when carried out by a project team with local knowledge about the processes involved (Wruck and Jensen, 1994). In most cases however, local knowledge of the process and expertise about improvement methodology are not both present in a team member simultaneously. Antony *et al.* (2005) emphasize that this lack of expertise can be even more apparent in small and medium sized enterprises. Given the importance of local knowledge in improving a process and the difficulty in acquiring this, we believe it is more valuable to provide local knowledge experts with knowledge about the improvement methodology than the other way around. As a crystal clear project definition is an important determinant for successful execution of a project, our generic templates support organizations to let their improvement projects be executed by employees with local knowledge.

Current findings give practitioners direction in the definition phase of an improvement project. This article illustrates what an improvement project for each template could look like, by briefly describing a project from the case base for each template. Future research could aim to generalize the subsequent phases, by mapping what are known to have been successful improvement directions for each project definition template. Such research could help close the gap between the aim to improve and the required actionable knowledge even further.

Next to that, a larger case base could enrich the collection of generic templates. By repeating the study in the future, when a sufficient number of new cases becomes available, the authors partly fulfill the function of the retain step in CBR.

Our research has some limitations. The fact that our sample is not representative does not make it a suitable basis for strong claims about which types of projects should be run and about where the largest improvement potential is to be found. The case base is simply not intended for that purpose; rather, we propose best practices represented in the case base as a source of valuable knowledge in itself. In addition, project definition templates should be validated theoretically, to check whether all important strategic focal points relevant to financial services organizations are covered. Practitioners should keep this in mind when using this article as a guide in improving their processes.

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