FERNANDA HELOISA NALON FONTES

EVALUATING A CHANGE MANAGEMENT PROJECT USING PRINCIPLES OF TOTAL QUALITY MANAGEMENT AND BEST PRACTICES

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Monografia apresentada à Escola Politécnica da Universidade de São Paulo para obtenção do certificado de Especialista em Gestão e Engenharia da Qualidade – MBA/USP

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"Coming together is a beginning; keeping together is progress; working together is success."

(Henry Ford)

ABSTRACT

After the Second World War (1939 - 1945), the world changed considerably. The Japanese inserted the concept of quality management to help deliver a product in time and following client expectations. Companies had to change the way they work to survive and be more competitive. In this context, the objective of this study is to use the principles of Total Quality Management and best practices to analyze a change management project that had as a challenge to change the way the employees worked in the organization using methods and tools available in an industrial context to increase productivity and reduce costs in delivery. This study shows if quality concepts can be applied in an environment where the product is change, in other words, if controls, measurements, communication can help move on with the change process.

Keywords: Total Quality Management. Feedback. Improvement. Data and Facts. Communication. Change.

RESUMO

Após a Segunda Guerra Mundial (1939 - 1945), o mundo mudou consideravelmente. Os japoneses criaram o conceito de gestão da qualidade para ajudar a entregar um produto no prazo, seguindo as expectativas do cliente. Com isso, as empresas tiveram que mudar a sua maneira de trabalhar para serem mais competitivas e sobreviverem no mercado. Neste contexto, o objetivo deste estudo é usar os princípios da Gestão da Qualidade Total e as melhores práticas para analisar um projeto de gestão da mudança, que teve como desafio mudar a maneira de como os funcionários trabalhavam na organização, utilizando métodos e ferramentas disponíveis no contexto industrial, para aumentar a produtividade e reduzir os custos na entrega do produto. Este estudo mostra se os conceitos de qualidade podem ser aplicados em um ambiente em que o produto é a mudança, ou seja, se os controles, as medições e a comunicação podem ajudar a seguir em frente com o processo de mudança.

Palavras-chave: Gestão da Qualidade Total. Comentários. Melhoria. Dados e Fatos. Comunicação. Mudança.

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LIST OF SYMBOLS OR ABBREVIATIONS

ADSL	Asymmetric Digital Subscriber Line
ANZ	Australia, New Zealand
APAC	Asia-Pacific
ASEAN	Association of Southeast Asian Nations
ASG	Austria, Switzerland, Germany
CM	Change Management
DCS	Data Center Services
EALA	Europe, Middle East, Africa and Latin America
FY	Fiscal Year
IGEM	Italy, Greece, Eastern Europe, Middle East
IT	Information Technology
ITCMM	IT Capability Maturity Model
ITIL	Information Technology Infrastructure Library
ITOM	IT Operations Management
ITST	IT Service Transformation
ITSE	IT Service Excellence
ITSM	IT Service Management
KPI	Key Performance Improvement
LATAM	Latin America
NTS	Network Technology Services
PDCA	Plan-Do-Check-Act
RFP	Request for Proposal
SME	Subject Matter Experts
SPAI	Spain, Portugal, Africa, Israel
TQM	Total Quality Management
UKI	United Kingdom, Ireland
WB	Workbench

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1. INTRODUCTION

1.1. INITIAL CONSIDERATIONS

Nowadays the Organizational Change Management is an important factor for a company to achieve set results. Any change that is necessary, and also influential to most of the people, e.g. changing the system, the office, the way people work, etc., needs to be planned and structured so people accept the future stage with motivation, instead of being resistant to adopt the change, and impact the final results.

To be a competitive company, its products must be delivered on time, with less cost and effort. For this reason, it is important to have a well-defined process available to all the organization to increase the productivity and reduce rework and costs.

Otherwise, the organization needs to take care of is employees who carry all the knowledge and keep the organization alive and healthy. At this context, could the quality be applied to manage the people who will manage the changes?

1.2. OBJECTIVES

The purpose of this study was to evaluate an internal change management project using the principles of Total Quality Management and analyze the best practices to apply in the change management project.

The objectives of the change management project were to increase the engagement of practitioners, and make them aware of the importance of using the available tools and best practices, encourage them to change the way they work, and also to help create a collaborative work environment.

2. REVIEW OF LITERATURE

2.1 QUALITY

Quality means matching with the needs and expectations of the client. The needs and expectations are related to the price that clients are prepared to pay and the level of competition in the market.

Some aspects are detailed in the Total Quality Management section, which should be considered to understand how the client judges the quality:

a. Intrinsic quality (the essential characteristics):

- Good functionality – it does the job well;
- Reliable – acceptable level of breakdowns or failure;
- Consistency – adherence to the same principles;
- Durable – lasts as long as it should.

b. Cost of quality:

- Value for the money.

c. Quality for human senses:

- Good design – looks and style.

d. Quality on sale:

- Good after sales service.

e. Quality in delivery.

f. Safety and ecology.

Quality is important to determine the success of an organization, such as:

- Customer loyalty – customers return, purchase again and recommend the product or service to others;
- Strong brand reputation for quality;
- As the product is perceived to be better value for the money, it may command a premium price and will become more price inelastic;
- Fewer returns and replacements lead to reduced costs;
- Attracting and retaining good staff.

2.2 CHANGE MANAGEMENT

Change is a shift between one state of being to another. It can be an improvement (Developmental Change), it can occur to fix a problem (Transitional Change) or it can be survival: change or die; or trivial: breakthrough needed to pursue new opportunities (Transformational Change).

Change Management is the act of managing the change from the beginning, to achieve the new state. It's accomplished by engaging and motivating the people in the organization to work together with the purpose of achieving and keeping in the new state.

2.2.1 Developmental Change

Developmental Change is a kind of change that occurs when a company makes an improvement in the current business. It is often a logical adjustment to current operations, i.e., a situation is identified that does not need to be eradicated, but needs improvement. The improvement can be done in an existent skill, a process, a method, or in a performance standard.

This type of change occurs to keep the company competitive. The focus of this change is to improve the knowledge, skills, practice, and performance. People are motivated to do "better than" or "more of" what is currently done. For this reason, the risks to implement the developmental change are low in comparison to the transitional and transformational changes.

The strategy to manage and perform the developmental change is through training, skill development, communications, and new techniques or process to accomplish the higher goals.

2.2.2 Transitional Change

Transitional Change is a type of change more intrusive than the Developmental Change because it replaces the existent process and procedure with something new to the company. A Transitional Change occurs when there is a

company reorganization, merger, acquisition, creation of new products or services, or the implementation of new technology. In this type of change, there is a specific phase called the transitional phase that is the period of the old process being dismantled and a new process being implemented.

The Transitional Change may not cause a change in the behavior or culture, but it is more challenging than the developmental change, because the future state of the organization is unknown, and it can cause a discomfort to the employees when the transformation begins. This feeling happens because it is necessary to let go of the old way of operating and move to a transition phase while the new state is being put into place. The transition phase is not clear; it is like a long bridge whose end is not possible to see.

The focus of the Transitional Change is to redesign the strategy, structures, systems, processes, technology or work practices (not culture). Instead of a simple improvement of "what is", Transitional Change replaces "what is" with something totally different.

The strategies for managing the Transitional Change include a well-communicated case for change, a clear change plan, high employee involvement and implementation of that plan, local control of implementation, and guaranteed support to achieve the new state.

2.2.3 Transformational Change

Transformational Change is a type of change that occurs after the transition period and may involve both developmental and transition changes.

The Transformational and Transition Changes may occur at the same time. A company may face an emergency that requires adopting a new technology,

performing significant changes in supply and demand, or it might run into an unexpected competition, have lack of revenue, or other major shifts in how they do business. A solution to keep the company competitive may not be offered by the developmental and transition changes, it is necessary to drastically change the way people work along with their mindset.

The Transformational Change is the most complex change, because it is a radical shift from one state of being to another. A change in culture, behavior, and mindset are required to successfully implement the transformation, and be able to sustain it over time. During the transformational process, the employees' awareness is shifted; the way they see the world, their customers, their work and themselves is changed.

The focus of this type of change is to overhaul the strategy, structure, systems, processes, technology, work, culture, behavior, and mindset.

The strategy for performing the Transformational Change is focused on people, through personal growth training, dialogue, coaching, team learning practices, profound benchmarking experiences, experimental education, frequent communications, and others.

2.3 TOTAL QUALITY MANAGEMENT

The Total Quality Revolution started in Japan in the 1950s, and generated a rise in productivity in certain organizations. This changed the way companies compete, which became fierce and global.

Society and the market have become more demanding, punishing companies that do not meet their requirements with the worst punishment: not purchasing their products and services.

The benefits of adopting Total Quality Management (TQM) are numerous (CALEGARE, 2005, p. 7):

- Improved customer satisfaction;
- Increase in profits;
- Productivity Improvement;
- Reduction of costs;
- Increase in revenue;
- Achievement of new markets;
- Reduce the number of accidents;
- Increase in satisfaction of stakeholders;
- Self-realization of internal staff;
- Economic growth in the country.

However, the biggest prize of TQM is to allow survival of the organization in the long run, in a market each more competitive (CALEGARE, 2005, p. 7).

To achieve these benefits, ten principles for TQM were defined:

1. Treat the customer like he would be your boss and benefactor;

2. Respect and value the human being;

3. Constantly seek improvement;

4. Involve all, in all sectors, in all processes, at all levels of the organization;

5. Increase communication in the organization;

6. Make decisions based on facts and data;

7. Standardize processes;

8. Use the PDCA Cycle;

9. Encourage neatness, orderliness, cleanliness and self-discipline;

10. Be methodical, patient, and persistent.

2.3.1 Treat the customer like he would be your boss and benefactor

This principle states that the client is responsible for the employment and survival of the companies because the products developed and the services provided need to satisfy the desires and expectations of the client. A low level of client satisfaction may impair the growth of the company, and for this reason, companies should not ignore the opinion of the client.

This principle also states that another aspect that should be considered is that the client only continues to be a benefactor as it is convenient, so the

relationship between the client and supplier needs to be beneficial to continue to exist.

The six characteristics that are used by the client to judge the products and services in terms of quality are shown below:

A. INTRINSIC QUALITY (Essentials)

- Technological characteristics (dimensions, mechanical, electrical etc.);
- Suitable packaging;
- Temporal characteristics (continuity over time):
  - Good reliability (low probability of failure during certain time and under certain conditions of use);
  - Good availability (to remain permanently in service, with capacity for repair when it fails);
  - Good preventative maintenance, corrective or predictive.

B. COST OF QUALITY

- Compatible price and accessible to the client.

C. QUALITY FOR HUMAN SENSES

- Beauty, taste, pleasant odor, no noise, discomfort, sensitivity to touch;

- Ergonomics.

D. QUALITY ON SALE

- Vendors capable, attentive and polite;
- Professional ethics and honesty in selling.

E. QUALITY IN DELIVERY

As previously agreed between the parties (client and supplier):

- Deadline right;
- Place appropriate;
- Quantity established.

F. SAFETY AND ECOLOGY

- No risk to the customer and the community;
- Life cycle - research and development, design, production, operation or use, maintenance and scrapping - respecting the environment.

These characteristics are important and should be considered to collect the client feedback. Some approaches to collect this information are:

- Opinion research;

- Suggestion boxes;
- Websites, emails and phones available in the company to receive complaints and suggestions;
- Opening channels of communication with all customer levels of the organization, without intermediaries.

2.3.2 Respect and value the human being

This principle states that the organization is composed of three elements:

- Hardware: composed of the equipment, materials, and infrastructure;
- Software: composed of the procedures, methods, and way of doing things;
- Humanware: made up of human beings.

The company´s survival also depends on the satisfaction of shareholders, customers, employees, suppliers and neighbors. People need to be motivated to produce the products and services to:

- Improve the hardware (e.g. improve facilities, acquire new machines);
- Improve the software (e.g. improve the processes and procedures);

- Improve the humanware (e.g. recruit trained and competent people; training);

- Improve the social capital (e.g. motivate the team work and collaboration environment).

This principle also states that employees are valorized and are considered part of the company, actively participating in the duties and also the rights and benefits. They see leaders as friends and mentors, always ready to collaborate in solving problems that are beyond their functions.

2.3.3 Constantly seek improvement

This principle states that the objectives of TQM are to improve the performance of the company for its survival, increase its competitiveness, and generate attractive profits for the owners and stakeholders of the company.

The problems are handled with ease and realism. It is not necessary to hide them, the solution will occur according to the plan. TQM helps systematization for the improvements, and changes occur in an arranged manner in the organization.

Anything that may be out of date in the future can be improved, and changes are good for the advancement of the company while keeping its competitiveness.

People do not like change because of the unknown, they prefer to keep things as they are. Thus it is necessary to engage the people and show them what is expected after the changes have been implemented. The client expectation should also be considered before planning a change.

2.3.4 Involve all, in all sectors, in all processes, at all levels of the organization

This principle states that it is very important to engage all employees in all career levels to deploy and consolidate the TQM. There should be an intensified meaning of team work, working in consensus and always satisfying the client.

The employees are divided in three groups:

- **President of the organization:** this person should know the concepts of the TQM and verify if the TQM should be applied in the organization; he also needs to dedicate time to discuss this program to the organization;

- **Managers:** these employees are very important for the success of the program, and they can be resistant to adopting the TQM program. There should be communication and training on the TQM, and managers should be convinced about the importance of adopting this program;

- **Employees:** these people used to be less resistant to adopt the TQM program, it is necessary to motivate them, show them the program's benefits, and recognize their commitment to achieve the results of the TQM.

2.3.5 Increase communication in the organization

This principle states that an organization that adopts TQM should have a freedom of expression, where everyone feels comfortable to express their ideas and opinions without fear or apprehension, regardless of the hierarchical level of the

speaker, who is listening, because everyone is interested in having a good environment, and the criticism/disapproval should be seen as contributions to improved performance.

The problems should be faced and solved according to a planning and priority. It is necessary to understand and accept the facts, and motivate the dialogue among the employees to collect suggestions to solve the problems.

It is common to filter some ideas from operational areas to present to the leadership. There is a fear about the acceptance of the ideas by the leads and president, and for this reason, it is suggested to have three career levels to decrease the bureaucracy: leader, manager, director and president.

This principle also states that it is necessary to have a horizontal communication, where there is an immediate communication among all the employees which contributes to the increase of the interaction among all areas of the organization. It also states that the leads should be accessible to their employees, to guide, help, and answer questions about tasks being performed.

2.3.6 Make decisions based on facts and data

This principle states that the facts do not occur by chance, facts are a consequence of a series of causes. Facts and numeric data are essential to making a decision. It is necessary to use numbers, graphics and tables to analyze a situation in the organization.

This principle also states that the organization should create key process improvements (KPI) to follow the evolution of important aspects of the processes and help the constant improvement of the organization. KPI is a number to measure the

result of a process over time (e.g. cost of quality by month, revenue by item by week, number of employed people by month).

Another way to evaluate the facts and numeric data is to create verification items. The verification item checks the intermediate points of the process, so corrective actions can be taken before the final results become negative.

2.3.7 Standardize processes

This principle states that it is important to standardize the processes, i.e., to establish a procedure to be followed regularly by all employees for the execution of a task. The main objective of standardizing the process is to improve the performance of the organization instead of leaving the organization more bureaucratic.

This principle also states that the processes should be simple and clear for all employees that execute them. Each process should be detailed according to the answers of the following questions (**5W1H**):

- **What** happened?
- **Where** did it take place?
- **When** did it take place?
- **Why** did it happen?
- **Who** is it about?
- **How** did it happen?

After detailing the process, measurements such as KPIs should be defined, to measure the entire process and Verification Items to measure a specific point of the process.

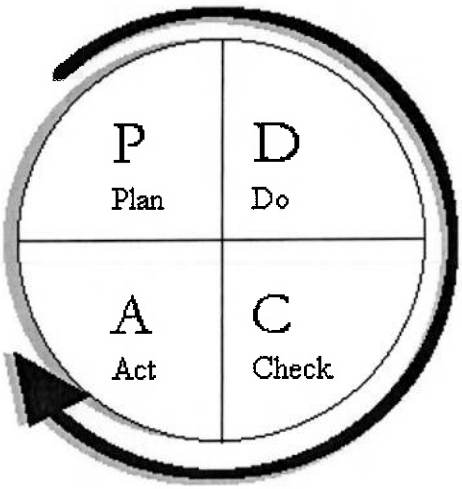
2.3.8 Use the PDCA Cycle

This principle states that planning is not a wasted time; planning helps to gain time when the activities are being executed. It is worth it to plan activities in advance and update what was planned when necessary.

One of the most important tools for the TQM is the PDCA Cycle which demonstrates that improvement programs must start with careful planning, must result in effective action, and must move on again to careful planning in a continuous cycle.

The PDCA Cycle is illustrated below:

Figure 1 - PDCA Cycle



Source: HCi Consulting (2012)

Each stage of PDCA Cycle means:

- **P** (Plan): set goals; define the methods to achieve the objectives;
- **D** (Do): educate and provide trainings for employees; execute the planned activities;
- **C** (Check): verify the accomplishments and results;
- **A** (Act): act to correct the problem.

2.3.9 Encourage neatness, orderliness, cleanliness and self-discipline

This principle states that it is important to use the 5-S practice to establish and maintain quality environment in an organization. The name stands for five Japanese words described below:

- **Seiri** (Sort): it sorts through the contents of the workplace and removes unnecessary items. This action identifies and eliminates all unnecessary items from the workplace.
- **Seiton** (Systematize): it puts the necessary items in their place and provides easy access. This action puts every necessary item in good order, and focuses on efficient and effective storage methods.
- **Seiso** (Sweep): it involves cleaning everything, keeping it clean daily, and using cleaning to inspect the workplace and equipment for defects. This action cleans the workplace daily.
- **Seiketsu** (Standardize): it involves creating visual controls and guidelines for keeping the workplace organized, orderly and clean.

This is a condition where a high standard of good housekeeping is maintained.

- **Shitsuk** (Self-Discipline): it involves training and discipline to ensure that everyone follows the 5S standards. This is a condition where all members practice the first four S's spontaneously and willingly as a way of life. Accordingly, it becomes the culture in the organization.

2.3.10 Be methodical, patient and persistent

This principle states that the implementation of TQM represents the true revolution within the organization; functions are changed, power changes hands, there is democratization.

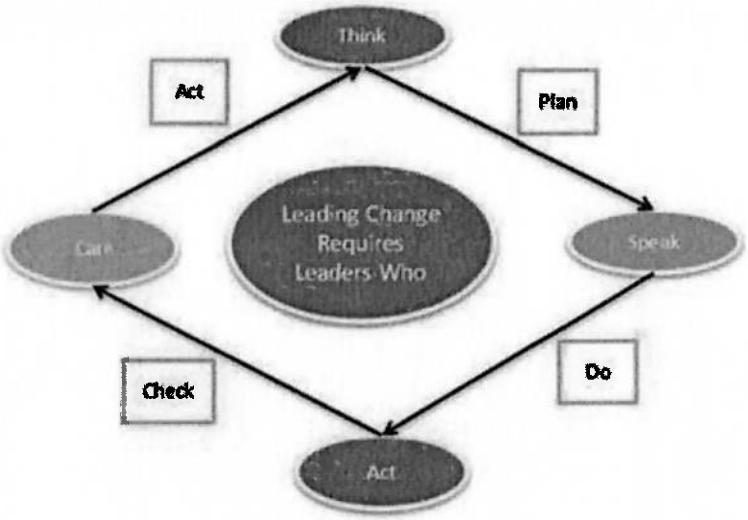
This principle also states that it is necessary to be methodical about implementing TQM to avoid inexperienced status; the organization needs to define a plan and agree with the employees on the activities that should be performed. It is necessary to be patient and persistent because the results may be noticed after five or ten years.

2.4 CHANGE LEADER PDCA MODEL

The PDCA cycle was created to structure the problem/issue and keep a sequence to solve the problem/issue.

The PDCA for Model for Change Leaders was created to help structure and implement the change in the organization. The figure below shows this model:

Figure 2 - Change Leader PDCA Model



Source: PEX - Process Excellence Network (2012)

According to this model, it is necessary to think before a speech, speak before an action, act to provide care, and assure the change takes hold.

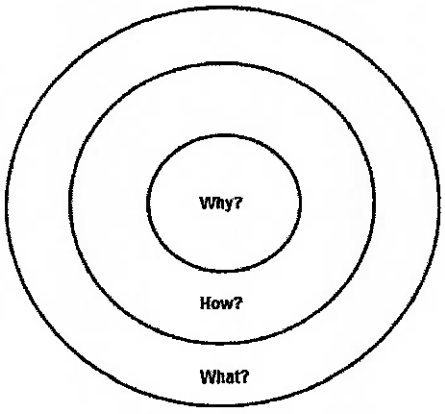
The practical sequence of the PDCA Model for Change Leaders is **Plan** what they are going to say before they speak, **Do** deliver a consistent message to all the employees from the organization about the change, **Check** to see if what they are saying is inspiring the action required to make the change, and **Act** to provide attention to areas in the organization not moving forward as quickly as desired to retain the achieved gains.

2.5 HOW GREAT LEADERS INSPIRE ACTION

According to the Cambridge dictionary, inspire means to make someone feel that they want to do something and can do it, or to make someone have a particular strong feeling or reaction.

"How great leaders inspire action" was an analysis made by Simon Sinek to understand how leaders inspire the people to follow them. According to him, there is a golden cycle divided by what, how and why, and depending on the direction of the communication, the inspiration is different.

Figure 3 - The golden cycle

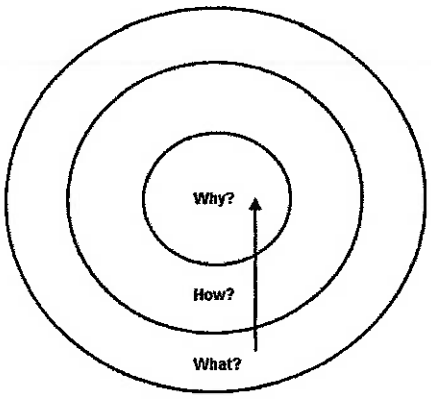


Source: TED - Technology, Entertainment and Design (2009)

According to Simon Sinek, every single person or organization knows what they do, some people or organizations know how they do it, and a few people or organizations know why they do what they do.

Most of the people and organizations see and make the communication from out to in, i.e. what-how-why. The direction for this communication is shown below:

Figure 4 - What-How-Why direction

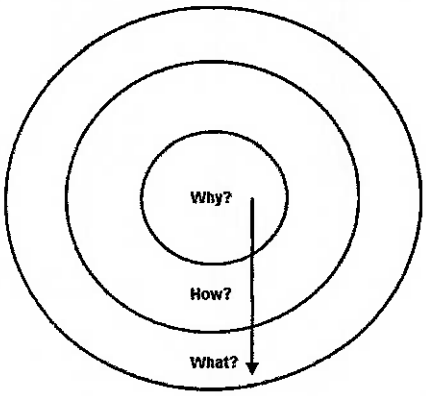


Source: TED - Technology, Entertainment and Design (2009)

This type of communication is focused on what. For example, the company develops great televisions, (what), the televisions were developed in high quality definition (how) and television are simple to use (why). This type of communication shows that the company is the best in developing televisions, but people are not interested in buying a television, why should they buy? Is it what they need and want? What is the purpose, beliefs and the causes to develop televisions like that?

Another communication approach is to start from the inside out, i.e. why-how-what. The direction for this communication is shown below:

Figure 5 - Why-How-What direction



Source: TED - Technology, Entertainment and Design (2009)

This type of communication is focused in why. In other words, it is focused on the purpose, cause and beliefs. For example, the company believes that their creation challenges the status quo, they believe in thinking different (why), the way that the company challenges the status quo is developing products with high quality, well designed and simple to use (how), the company develops great televisions (what). This type of communication shows that the company believes in what they develop, there is a purpose in developing these products, there is a challenge behind. In this case, probably most of the people would be excited to buy this television.

According to Simon Sinek, when there is a communication from what to why (out to in), people understand complex information as characteristics, benefits, facts and numbers, but this information does not influence their behavior. When there is a communication from why to what (in to out), it is spoken straight to the side of the brain which controls the behavior, letting the people think about the tangible things, what is said and done.

The objective of this principle is to sell things to people that believe in what you believe (why), and not to sell to people that need what you do (what).

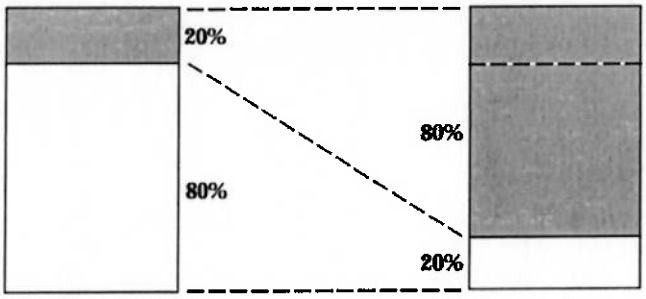
2.6 PARETO PRINCIPLE

2.6.1 Pareto Principle

"The Pareto Principle was propounded by Vilfredo Pareto (1848-1923) when he observed that 20 percent of the people of Italy owned 80 percent of the wealth" (JOHN MOTIL, 2011). Pareto´s rule states that 20 percent of the causes are responsible for 80 percent of the effects (the 20-80 Rule).

"This principle of concentration, inequality, or inverse proportion can be seen from the following diagram, where the smaller first part increases to the larger second part as shown in gray" (JOHN MOTIL, 2011).

Figure 6 - Proportion of cause and effects



Source: California State University (2011)

Other examples of the 20-80 Rule are:

- 80% of a problem can be solved by identifying the correct 20% of the issues;
- 80% of benefit comes from the first 20% of effort;
- 80% of customer complaints are about the same 20% of your projects, products, services;
- 20% of the time expended produces 80% of the results;
- 20% of the people cause 80% of the problems.

2.6.2 Checklist Sheet

The checklist sheet is a document to record the number of occurrences of an event and it is used to help collect the data to be analyzed using the Pareto Principle. The checklist sheet is structured to facilitate the gathering of data as shown below:

Table 1 - Data collected using a checklist sheet

Problem	Occurrence	Total of Occurrence
The product was delivery on time	///// ///// ///// ///	18
Web site is not working	///// ///// ///// //	17
Product with defect	///// ///// /	11
Incomplete delivery	///// ///	8
Total		**54**

Source: Table created in this study to illustrate the sample (fictitious data)

2.6.3 Pareto Chart

According to the Pareto Principle, if you know what category of defects or causes you are experiencing the most, you will know what to work on. Working on the category with the highest occurrence has the potential to give you the most benefit (CARREIRA; TRUDELL, 2006).

The Pareto Chart is created based on the steps below:

1. Collect the data such as defects, feedback, etc.;

2. Categorize the data using a Check sheet;

3. Determine the percentage of the occurrence of each category relative to the total amount of the data (defects, feedback, etc.);

4. Generate the Pareto graphic.

In step 1, the data to be collected needs to be based on the following questions:

- What do we want to know?

- What do we register?

- What are the variables for stratification?

- How will the harvesting of data be done (operational definitions)?

This step is very important to plan what is necessary to measure and to detail the operational definitions (define who's responsible to collect the data, where the data will be collected, how the data will be collected – automatic, via software, manually, and when the data will be collected – time to collect and periodicity) to help prioritize the problems accordingly.

After that, in step 2, the data is grouped in categories (stratification phase) and the occurrence frequency is calculated.

For example: this shows that there is a company that performs deliveries of their products, and in the beginning of December, the following complaints were received and included in a Checklist sheet:

Table 2 - Complaints received in December, 2012 (first week)

Date	Problem	Occurrence Number
1-Dec-12	The product was delivery on time	10
1-Dec-12	Product with defect	5
2-Dec-12	Product with defect	4
3-Dec-12	Incomplete delivery	2
3-Dec-12	Web site is not working	12
3-Dec-12	Incomplete delivery	1
4-Dec-12	Product with defect	2
5-Dec-12	Web site is not working	5
5-Dec-12	Incomplete delivery	5
5-Dec-12	The product was delivery on time	8

Source: Table created in this study to illustrate the sample (fictitious data)

After receiving this information, an analysis was made and the data was stratified (Categorized) as below:

Table 3 - Stratification of the data per Category

Date	Problem	Category	Occurrence Number
1-Dec-12	The product was delivery on time	Delivery	10
1-Dec-12	Product with defect	Defect	5
2-Dec-12	Product with defect	Defect	4
3-Dec-12	Incomplete delivery	Delivery	2
3-Dec-12	Web site is not working	Web site	12
3-Dec-12	Incomplete delivery	Delivery	1
4-Dec-12	Product with defect	Defect	2
5-Dec-12	Web site is not working	Web site	5
5-Dec-12	Incomplete delivery	Delivery	5
5-Dec-12	The product was delivery on time	Delivery	8

Source: Table created in this study to illustrate the sample (fictitious data)

In the following, the data was summarized by Category:

Table 4 - Data summarized per Category

Category	Occurrences Number
Delivery	26
Web site	17
Defect	11

Source: Table created in this study to illustrate the sample (fictitious data)

In step 3, the percentage of the occurrence of each category is determined relative to the total amount of the data, and also the accumulative percentage.

Considering percentage = P; delivery percentage = DP; web site percentage = WP, occurrence number = ON; sum of occurrence number = SON, the percentage (P) is calculated as below:

$$P = (ON / SON) \times 100 \qquad \textbf{(1)}$$

The percentage for Delivery and Web Site Categories using eq.**(1)** is calculated below:

$$DP = (26 / (26 + 17 + 11)) \times 100 \sim 48{,}15\ \%$$

$$WP = (17 / (26 + 17 + 11)) \times 100 \sim 31,48\ \%$$

Considering accumulative percentage = AP; first cause percentage = FP; current cause percentage = CP; delivery accumulative percentage = DAP; web site accumulative percentage = WAP, the accumulative percentage is calculated as below:

$$AP = FP + CP \qquad \textbf{(2)}$$

The accumulative percentage for Delivery and Web Site Categories using eq.**(2)** is calculated below:

$$DAP = 0 + 48,15 = 48,15\ \%$$

$$WAP = 48,15 + 31,48 = 79,63\ \%$$

The table below shows the percentage and accumulative percentage for the causes:

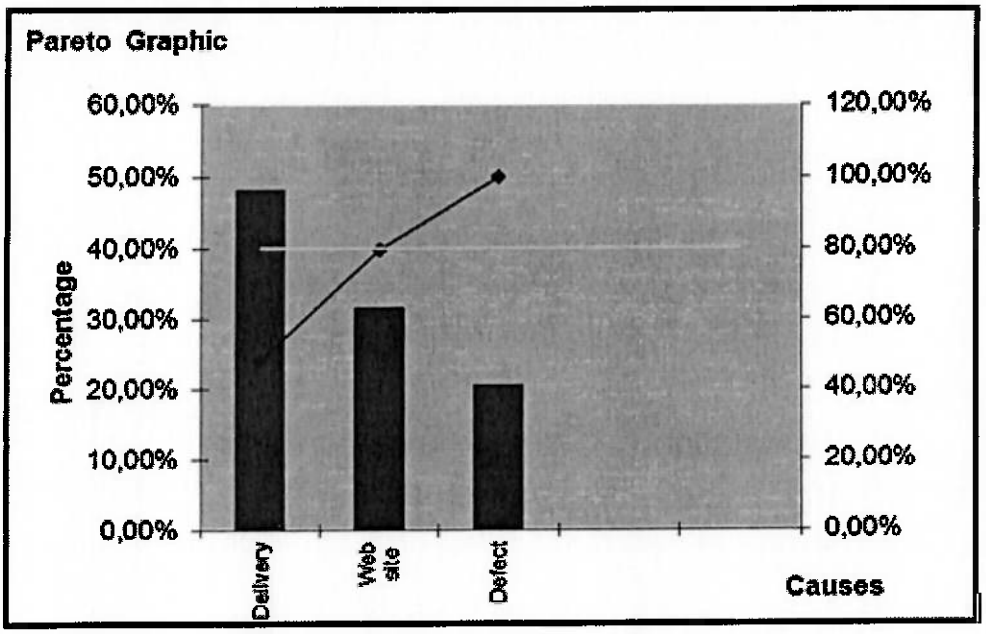
Table 5 - Percentage and Accumulative Percentage per Category

Category	Percentage	Accumulative Percentage
Delivery	48,15%	48,15%
Web site	31,48%	79,63%
Defect	20,37%	100,00%

Source: Table created in this study to illustrate the sample (fictitious data)

In the last step, the Pareto is generated using the cumulative percentage:

Graphic 1 - Complaints received (1-Dec to 5-Dec-12)



Source: Table created in this study to illustrate the sample (fictitious data)

According to the Pareto Principle, 80 percent of the problems are related to 20 percent of the causes. In the graphic above, the yellow line matches the blue line in the second cause (Web site), where the 80 percent of complaints are concentrated. All the causes in the left side of this point should be prioritized. After finishing this analysis, an action plan should be created to solve the problems related to Delivery and Web site causes.

2.7 IT INFRASTRUCTURE LIBRARY (ITIL)

IT Infrastructure Library (ITIL) is a framework to deliver and support the IT services to the business and could provide value to customers.

ITIL framework is organized around a Service Lifecycle which includes: Service Strategy, Service Design, Service Transition, Service Operation and Continual Service Improvement. The purpose of each lifecycle is described below:

- Service Strategy: understanding the IT customers, the service offerings that are required to meet the customers´ needs, the IT capabilities and resources to develop these offerings for executing successfully driven thought strategy well defined;

- Service Design: this lifecycle assures that the new and change services are designed to meet the customer expectations. The design of technology and architecture, design process to manage services are part of this lifecycle to meet the customer expectation;

- Service Transition: through this lifecycle, the design is build and tested and moved into production to assure that the business customer can achieve the desired value. In this phase, the configuration of hardware and software are done, associated with new and changed systems, service validation and testing the components to be prepared for the operation phase;

- Service Operation: after finishing the transition phase, this lifecycle delivers the service on an ongoing basis, overseeing the daily overall health of the service. In this lifecycle, service is monitored and controlled, incidents are treated, and the root cause of problems are determined and analyzed;

- Continual Service Improvement: this lifecycle measure and improve the service levels, the technology and the processes. It also detects trends associated with recurring issues, handling daily routine end user requests and managing service access.

3. CASE STUDY

3.1. CONTEXT OF THE ORGANIZATION

This study was based on an international organization which provided global management consulting, technology services and outsourcing services in more than 120 countries.

The organization was divided into three Geographical Units and several Regions:

- North America: USA, Canada;
- EALA: ASG, Gallia, IGEM, Nordic, SPAI, UKI, Latin America;
- APAC: ASEAN, ANZ, Greater China, India, Japan, South Korea.

Internally there was an initiative called "Industrialization Program" whose main objectives were saving hours and delivering the client solution with high quality. The focus of this initiative was to improve the productivity and the quality, and reduce the costs from the sales phase to the deployment phase of a project using standard processes and solutions, reusing documentation, sharing best practices, optimizing the solutions, and automating the deliveries.

The context of this study was related to the Infrastructure tools, processes, procedures, and documentation that were used to help deliver the infrastructure projects.

The infrastructure projects were divided into three business areas:

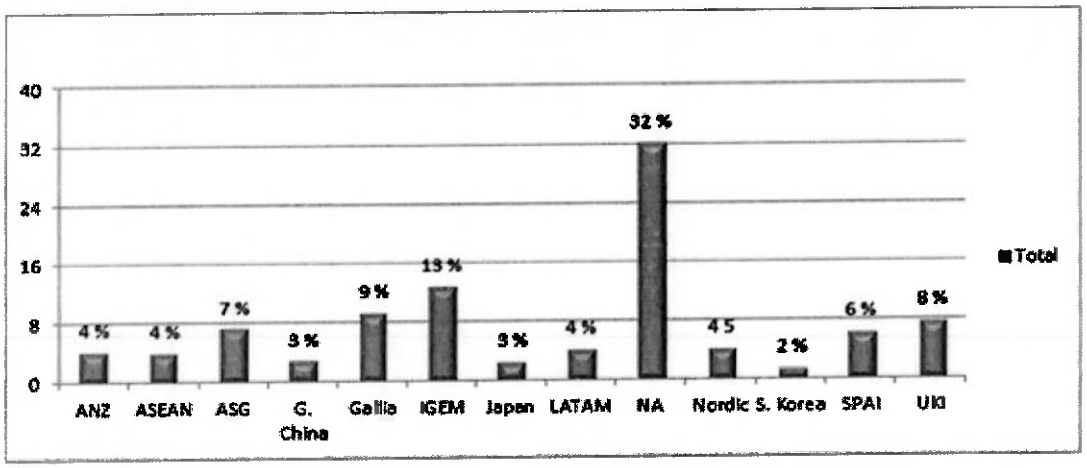
- Data Center Services: this business area helped clients plan and implement data centers providing some services as data center optimization, data center automation, database optimization, server optimization, and storage transformation;

- IT Service Excellence: this business area helped clients plan and implement ITIL processes in their organizations;

- Network Technology Services: this business area helped clients understand and determine how to capitalize on network trends providing some services as network optimization, wireless and network service management.

To help achieve the industrialization objectives, all the processes, tools, and best practices should be structured and available for all the infrastructure practitioners. The percentage of infrastructure practitioners per region on September 22nd, 2012 is shown in the graphic below:

Graphic 2 - Percentage of Infrastructure Practitioners per Region



Source: internal organization data (2012)

The industrialization methods and tools to help the development of infrastructure projects were:

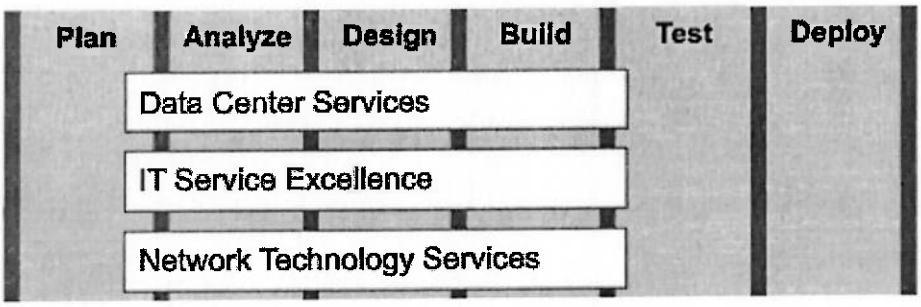
- Delivery Methods for Infrastructure: included content and tools that could aid in the delivery of Data Center Services, IT Service Excellence, and Network Technology Services projects in a standardized and organized way;

- Estimator tool: helped infrastructure projects deliver accurate estimates based on experience and historical data;

- Workbench tool: a repository that contained project's best practices, experiences and re-usable assets, and served as the knowledge management repository where it was possible to find content about sales and training materials related to Infrastructure.

The Delivery Methods framework for Infrastructure is shown below:

Figure 7 - Delivery Methods Framework for Infrastructure



Source: internal organization data (2012)

Each part of the methodology has taken six to seven months to be updated, and Subject Matter Experts, who were people with expertise from high career levels, helped validate the content and documentation of each task (procedure) of a project's life cycle phase (Plan, Analyze, Design, Build, Test and Deploy). As these experts were involved, it was very expensive to update each part of the methodology.

Each work stream showed above in the Methods framework (Data Center Services, IT Service Excellence, and Network Technology Services) was composed of three key types of content:

- Processes and Procedures: how and what you needed to do;
- Deliverables (work products): what you needed to produce;
- Roles: who needed to do it;
- Supplemental content material: guidelines, checklists and supporting materials.

After the methodology was updated for each work stream, the Change Management approach started through marketing and communications (e-mails, videos, etc.), and training was conducted so practitioners would understand what was updated and what was new. The second phase of the Change Management approach was to identify projects that could use and leverage the industrialization methods and tools, and provide feedback to help improve them.

The change management project was divided into three areas (towers):

- Communications: this area was responsible to disseminate timely, accurate, and relevant information. Communication was critical to ensure that all infrastructure employees were aware of upcoming changes in the industrialization methods and tools, and how it impacted them. The main activities were:
  - Inform of new updates of the Methodology, Estimators, and Workbench tool through postcards (sent by the Infrastructure

Global Lead) and e-mail announcements (sent by the Infrastructure Region Leads);

- Announce new virtual and live training;

- Training for new hires;

- Surveys;

- Communication Reinforcement Activity.

- Training: the overarching training purpose was to create a formal structure in which infrastructure employees became familiar with updates and increased speed to competency and proficiency. The main activities were:

  - Virtual sessions about the industrialized methods and tools;

  - Online learning: 30 minutes sessions about the industrialization methods and tools, these trainings were located in the internal web site of organization;

  - Demo sessions about Methods, Estimator and Workbench to projects that to understand more about these tools and use in their projects;

  - Infrastructure global live training for infrastructure employees and executives.

- Mobilization: this area was responsible to identify Infrastructure projects, which delivered an infrastructure solution to the client, to use the Methodology, Estimator and Workbench during the progress

of the project, and collect feedback about the processes, procedures and documentation. The main activities were:

- Use Delivery Methods, Estimators, and Workbench tool, supported by their respective teams and Champions;

- Engage the team to use the available assets, provide feedback / suggest improvements, share assets and best practices.

- Champions: this was a cross initiative created to help engaging the infrastructure employees to use the infrastructure methods, estimators, and the content repository in each region. The Infrastructure Global Lead, who was the sponsor of this initiative, requested all the Region Leads in September, 2011, to nominate people that could help increase the usage of the industrialization methods and tools, and also improve the skills, knowledge and motivation of infrastructure employees, help disseminate timely and accurate information about the industrialization tools, and be a key resource for methods, estimators and infrastructure the content repository in each region. The main activities were:

  - Communication reinforcement (new releases, training);

  - Write articles for the region;

  - Conduct training (virtual, live);

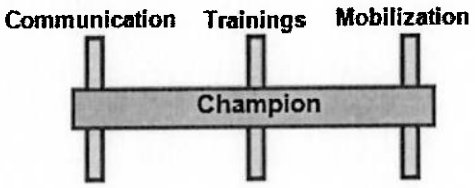
  - Present in global or region events (infrastructure meetings, new joiners meetings);

  - Identify projects to use the industrialized methods and tools and coach the projects during this usage;

- Identify improvement opportunities for methods and estimators, and collect better documentation from previous projects in the region.

The picture below shows how the areas were structured:

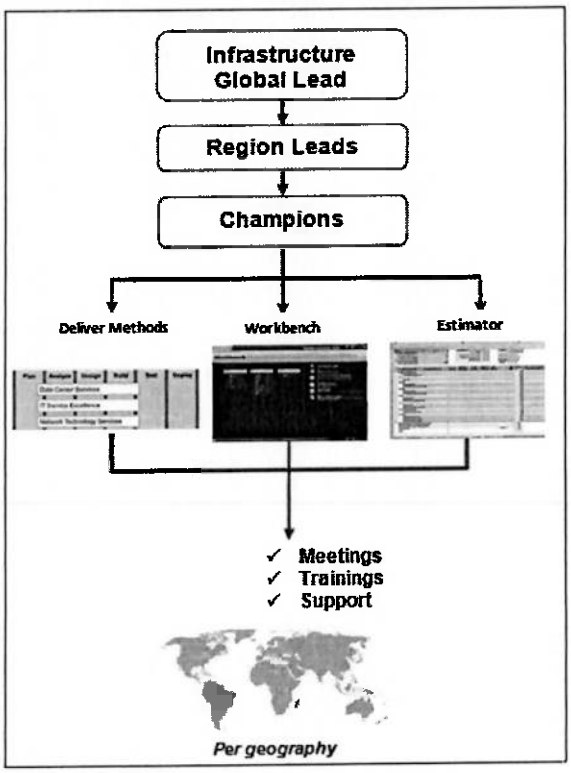
Figure 8 - Structure of the change management project



Source: internal organization data (2012)

The beginning of the Champions initiative is shown below:

Figure 9 - Champions initiative



Source: internal organization data (2012)

3.2. EVALUATING THE CHANGE MANAGEMENT PROJECT USING THE TOTAL QUALITY MANAGEMENT AND BEST PRACTICES

3.2.1. Principle: Treat the customer like he would be your boss and benefactor

The focus of the change management project was to engage the Infrastructure employees (internal client). The relationship with them was through training, marketing and communication, meetings, and a help desk.

According to this principle, the client opinion is important to understand the needs and make assertive improvements in the product or in the service.

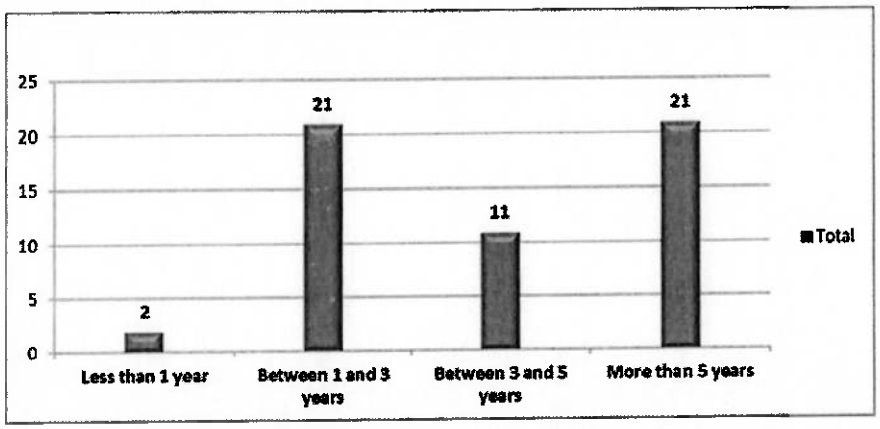
Thinking about client opinion, two surveys were applied to evaluate the Workbench tool and the help desk service, and to understand why few Infrastructure practitioners were attending the virtual training sessions about the industrialization tools.

3.2.1.1. Evaluation about the Workbench tool – First Survey

This survey was launched on October, 2012 and it was sent to all the Infrastructure employees in all the regions. There were fifty six answers. The questions and the responses related to the service provided by the help desk team are shown below:

1. How many years of experience do you have with Infrastructure?

Graphic 3 - Experience with Infrastructure

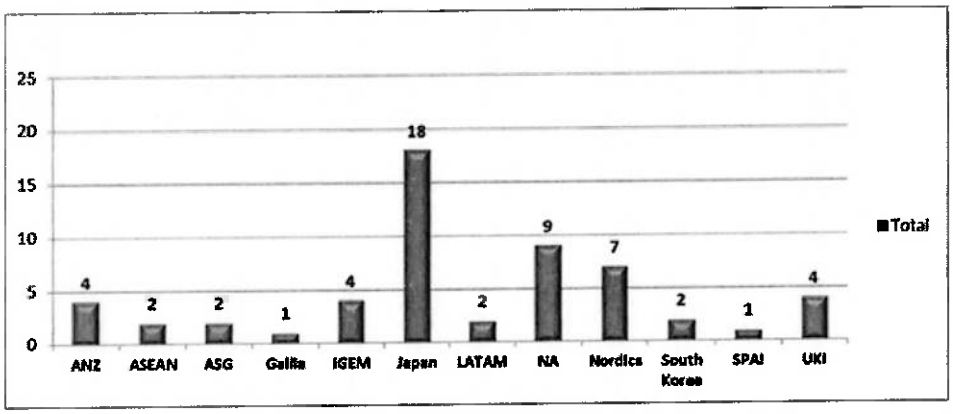


Source: internal organization data (2012)

Percentage: Less than 1 year (4%); Between 1 and 3 years (38%); Between 3 and 5 years (20%); More than 5 years (38%)

2. What Region are you in?

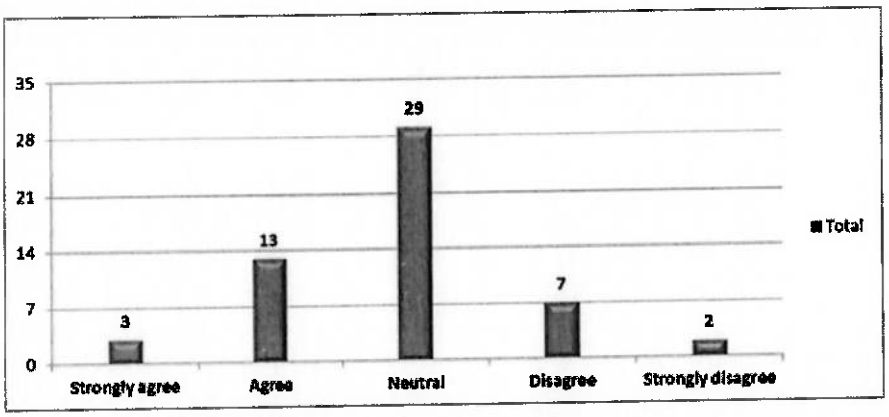
Graphic 4 - Survey Responses per Region



Source: internal organization data (2012)

3. I usually request support from the Service Desk when facing issues with the Workbench.

Graphic 5 - Request Support from the Service Desk

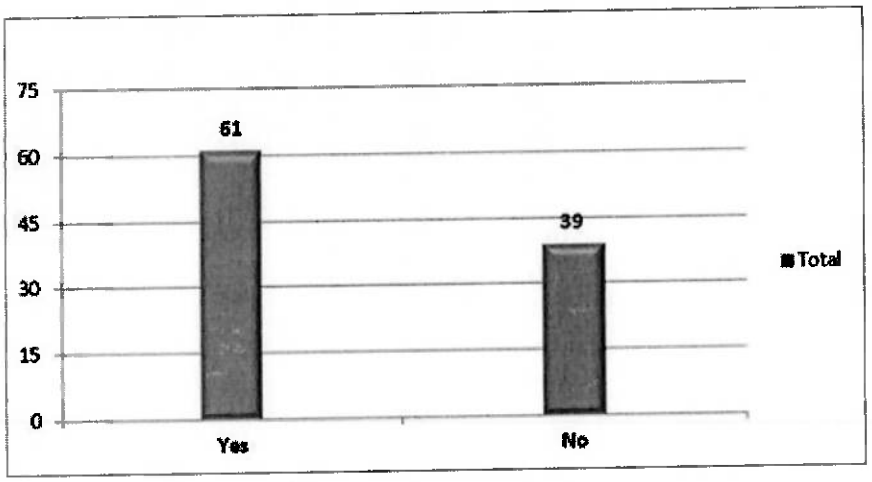


Source: internal organization data (2012)

Percentage: Strongly agree (6%); Agree (24%); Neutral (54%); Disagree (13%); Strongly disagree (4%)

4. I've requested support from the Workbench Service Desk in the past.

Graphic 6 - Requested Support to Service Desk in the past

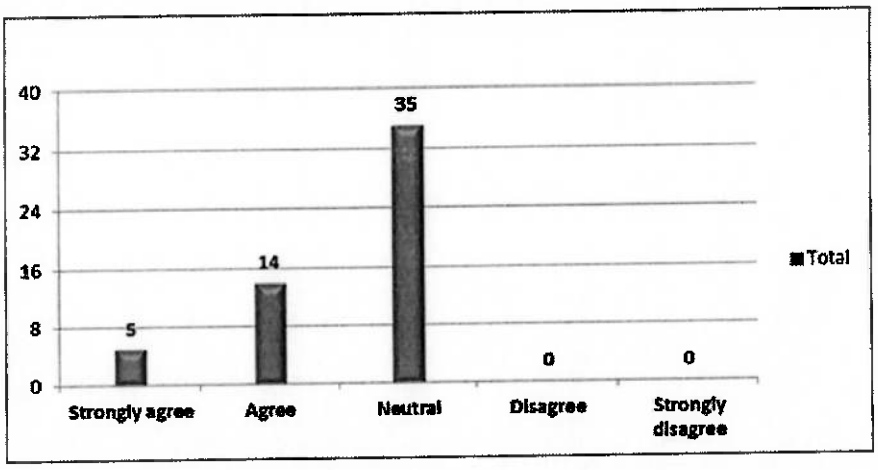


Source: internal organization data (2012)

Percentage: Yes (61%); No (39%)

5. The Service Desk team was able to resolve all the issues I reported.

Graphic 7 - Issue resolved by Service Desk



Source: internal organization data (2012)

Percentage: Strongly agree (9%); Agree (26%); Neutral (65%); Disagree (0%); Strongly disagree (0%)

6. Please provide feedback (Optional)

   a. User desk is very good and reactive. Use of chat message is good, sometimes I don´t always have the time to answer though;

   b. In terms, they helped me to "clean" bad packages installation but the package installation issue remains;

   c. Reinstall is a time consuming solution to incidents;

   d. I promise to post bugs;

   e. No basis;

   f. Yes they can. But sometimes it was time consuming to me considering of my use;

g. It was an issue with the installation of the workbench and I had to re-install it.

According to this survey, it was possible to know that:

- Most of the employees that answered the survey had at least one year of experience in Infrastructure;
- Most of the employees that answered the survey were from Japan;
- The infrastructure employees have requested support recently and in the past;
- The issues were resolved by the service desk team, but some solutions were not the most suitable for the situation (e.g. reinstall the application);
- The user desk is able to resolve the issue.

This survey was very important because it was possible to know the opinion of the infrastructure employees about the service provided by the service desk to resolve the issues. Two initial improvements were identified that should be considered to provide a service with more quality:

- Review the proposed time to resolve an issue to provide a better solution;
- Review the proposed time to close the issue after a response from the requestor to not impact the requestor´s work.

Considering this information, it was possible to observe that the quality of a service is different from the quality of a product. Products are related to their characteristics and functions, they are tangible, and the product quality is measured through the degree that a product adheres to its formal specifications. Services are related with act or action, they are intangible, and the service quality is measured considering the client's desired result, and the client's expectation of a consistent, reliable and timely provision of a service.

Other feedback about the Workbench was received from the Infrastructure practitioners. Around one hundred comments were collected through the survey and are shown in Appendix A – Other feedback about the Workbench.

Using this feedback about the Workbench application, the Pareto Principle was applied to prioritize the most relevant causes in order to resolve the most important problems. The idea was to stratify these responses by:

- Question related to: described the topic of the feedback related to a previous question (e.g. installation, content, package download, search feature, auto update feature, etc.);
- Category: what the feedback was about;
- Reason: described the cause of the problem, a word which summarized the feedback;
- Quantity: the count of the feedback received with the same content.

The stratification is shown in Appendix B - Stratified Data.

It is important to note that the same feedback was provided by different Infrastructure practitioners, such as the feedback in lines 73 and 84 (Appendix B - Stratified Data), the total number of feedback received was 107.

After that, the feedback was grouped by Category and Reason, and sorted in descending order:

Table 6 - Feedback grouped by Category

Category	Occurrences Number
Content	29
Features	25
Download of packages	21
Search feature	9
Upgrade	8
Service Desk	6
Installation	5
Authentication	4
Total	**107**

Source: internal organization data (2012)

Table 7 - Feedback grouped by Reason

Reason	Occurrences Number
Lack of content	21
Long time to download the packages	17
Functionalities need improvement	15
Content out of date	7
Error during upgrades	7
Need more functionalities	6
Error during the download of packages	5
Amount of search results not required, not ordered	5
Error during authentication	4
Waste time to find the content	3
Waste time to other features	3
Long Process to install	3
Not appropriate solution	2
Wait much time to solve the issue	2
Significant amount to download	1
Error during installation	1
Lack of content in search results	1
Approach to contact not appropriate	1
Content updated	1
Application is slow	1
Issue not solved at all	1
Total	**107**

Source: internal organization data (2012)

Using the tables above, the percentage and the accumulative percentage were calculated. The calculation was performed in a Microsoft Excel application and the results are shown below:

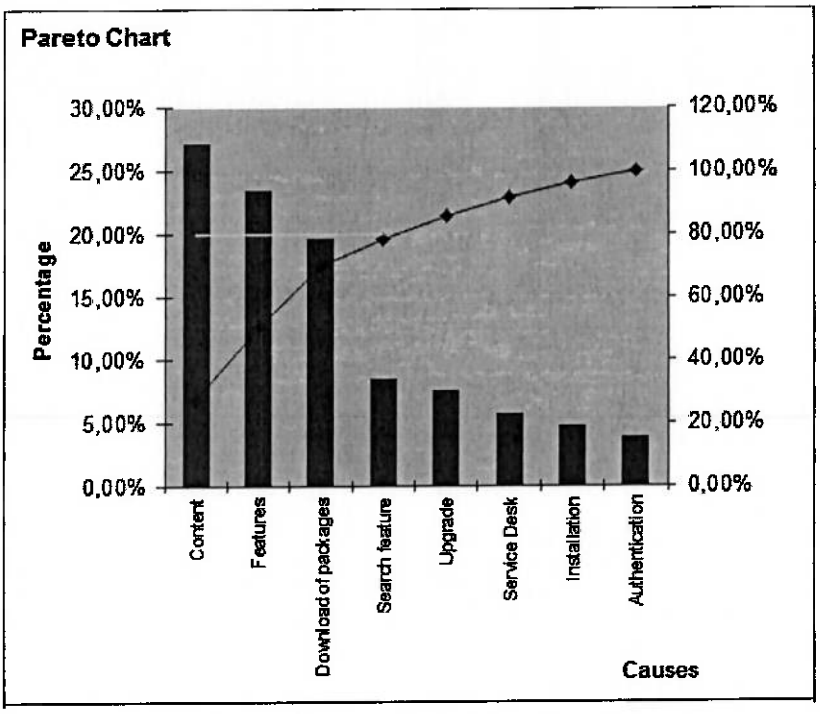
1. Analysis - Causes per Category of the feedback received:

Table 8 - Calculation Percentage and Accumulative Percentage for Category

Category	Percentage	Accumulative Percentage
Content	27,10%	27,10%
Features	23,36%	50,47%
Download of packages	19,63%	70,09%
Search feature	8,41%	78,50%
Upgrade	7,48%	85,98%
Service Desk	5,61%	91,59%
Installation	4,67%	96,26%
Authentication	3,74%	100,00%

Source: internal organization data (2012)

Graphic 8 - Causes per Category of the feedback received



Source: internal organization data (2012)

Analysis Result: according to the Pareto Principle, the following causes were prioritized in the following order to resolve the identified problems and improve the Workbench application:

- Content;
- Features;
- Download of packages.

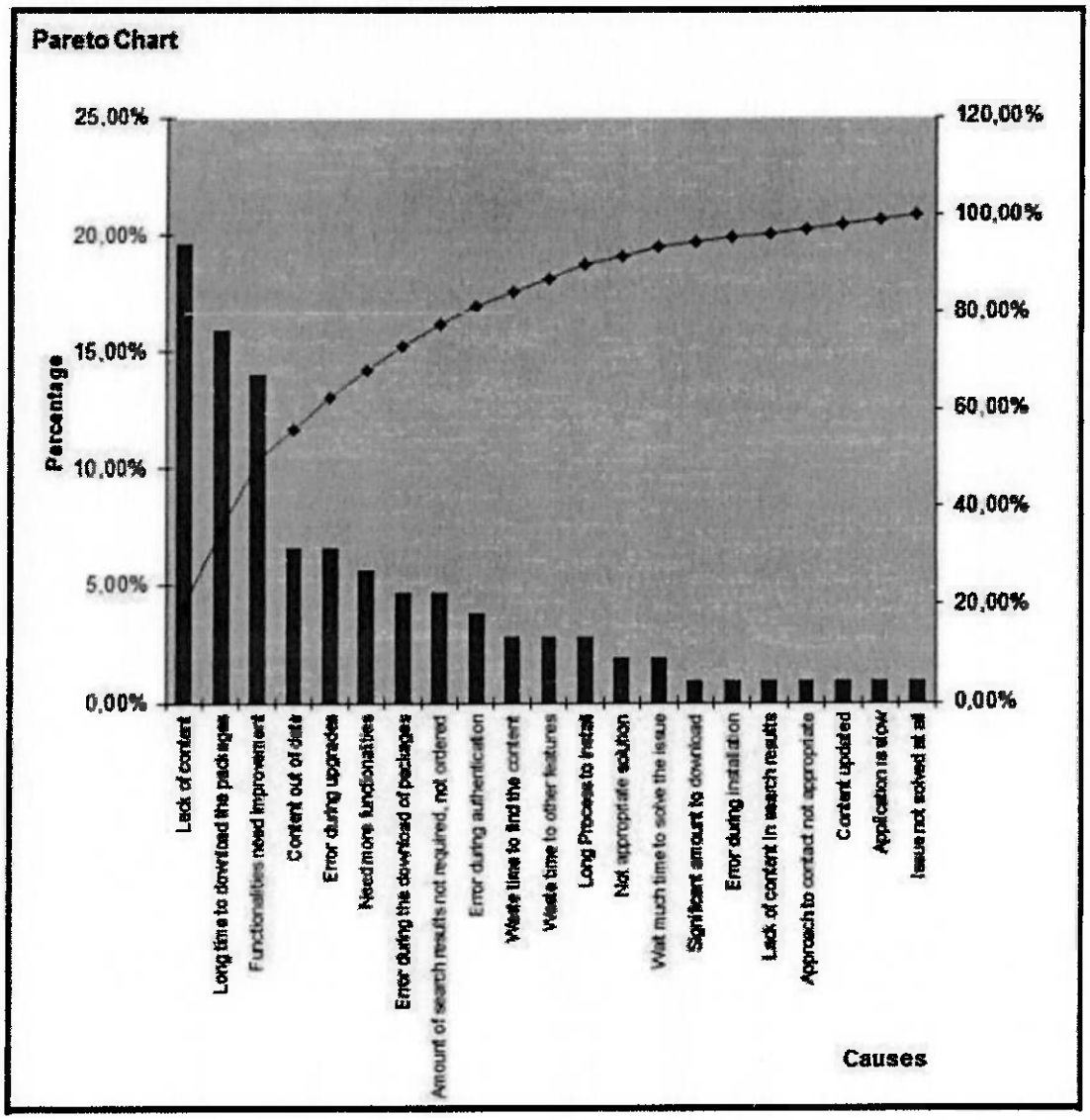
2. Analysis - Causes per Reason of the feedback received:

Table 9 - Calculation Percentage and Accumulative Percentage for Reason

Category	Percentage	Accumulative Percentage
Lack of content	19,63%	19,63%
Long time to download the packages	15,89%	35,51%
Functionalities need improvement	14,02%	49,53%
Content out of date	6,54%	56,07%
Error during upgrades	6,54%	62,62%
Need more functionalities	5,61%	68,22%
Error during the download of packages	4,67%	72,90%
Amount of search results not required, not ordered	4,67%	77,57%
Error during authentication	3,74%	81,31%
Waste time to find the content	2,80%	84,11%
Waste time to other features	2,80%	86,92%
Long Process to install	2,80%	89,72%
Not appropriate solution	1,87%	91,59%
Wait much time to solve the issue	1,87%	93,46%
Significant amount to download	0,93%	94,39%
Error during installation	0,93%	95,33%
Lack of content in search results	0,93%	96,26%
Approach to contact not appropriate	0,93%	97,20%
Content updated	0,93%	98,13%
Application is slow	0,93%	99,07%
Issue not solved at all	0,93%	100,00%

Source: internal organization data (2012)

Graphic 9 - Causes per Reason of the feedback received



Source: internal organization data (2012)

Analysis Result: for the second analysis which was deeper than the first, as a second level, considering the Pareto Principle, the following causes were prioritized in the following order, to resolve the 80% of problems identified in the Workbench and improve the tool:

- Lack of content;
- Long time to download the packages;

- Functionalities need improvement;
- Content out of date;
- Error during upgrades;
- Need more functionalities;
- Error during the download of packages;
- Amount of search results not required, not ordered.

Conclusion: Analyzing the feedback provided by the Infrastructure practitioners helped the Workbench Lead to structure a plan which included the prioritized causes, the responsible to resolve the problems, and the deadline to finalize the activities.

3.2.1.2. Low attendance in virtual training sessions – Second Survey

This survey was launched on October, 2012 and it was sent to all the Champions for all the regions, to gather information about why few Infrastructure practitioners were attending the virtual training sessions. The main reasons for the low attendance are shown below:

Table 10 - Main Reasons for Low Attendance

Geography	Region	Client Site/ Meetings	Replay Convenient	Not Required	Low Priority	Not Interest	No Motivation	Language
NA	US							
	CANADA	x						
APAC	ANZ							
	ASEAN	x				x	x	
	G.CHINA							
	JAPAN				x			x
	S.KOREA			x				
EALA	ASG	x	x		x			
	GALLIA							
	IGEM			x				
	LATAM	x	x					
	NORDICS	x						
	SPAI	x						
	UKI							
Total		6	2	2	2	1	1	1

Source: internal organization data (2012)

To help understand, each reason was detailed below:

- Client site / meetings: most of the Infrastructure practitioners were working at the client site or were busy with client meetings during the work day;

- Replay convenient: all the virtual training sessions were recorded, and it was convenient to wait for the replay of the session (replay session);

- Not required: this type of training was not required by the leadership (not mandatory);

- Low priority: as this training was not mandatory, it was a low priority to attend the training sessions;

- No interest: Infrastructure practitioners had no interest in the material covered;

- No motivation: Infrastructure practitioners were not inspired to attend this training;

- Language: the English language was used to present the content, and this was a challenge for non-English speaking practitioners.

The reasons were analyzed and prioritized to check the main causes that should be treated to increase the audience of the virtual sessions. The Pareto Principle was used and it is shown below:

1. The reasons were sorted in a descending order and the total of occurrences was calculated:

Table 11 - Summarized the data by Reason

Reason	Occurrences Number
Client site / meetings	6
Replay Convenient	2
Not required	2
Low priority	2
No interest	1
No motivation	1
Language	1

Source: internal organization data (2012)

2. The percentage and the accumulative percentage were calculated:

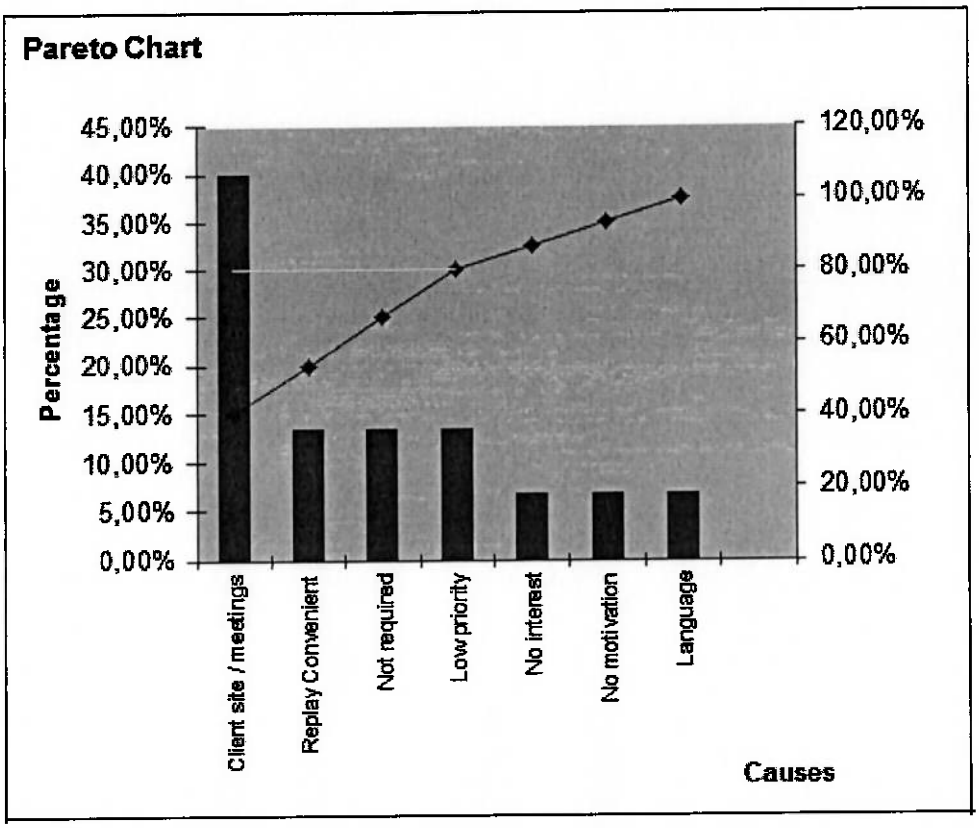
Table 12 - Calculation of Percentage and Accumulative Percentage for the Reason to Low Attendance

Category	Percentage	Accumulative Percentage
Client site / meetings	40,00%	40,00%
Replay Convenient	13,33%	53,33%
Not required	13,33%	66,67%
Low priority	13,33%	80,00%
No interest	6,67%	86,67%
No motivation	6,67%	93,33%
Language	6,67%	100,00%

Source: internal organization data (2012)

3. The Pareto chart was generated:

Graphic 10 - Causes per Reasons for Low Attendance



Source: internal organization data (2012)

Analysis Result: according to the Pareto Principle, the following reasons were prioritized in the following order to improve the schedule of virtual training sessions:

- Client site / meetings;
- Replay convenient;
- Not required;
- Low priority.

3.2.2. Principle: Respect and value the human being

According to this principle, the organization is composed of hardware, software, and humanware. The main focus of the change management project was to improve the humanware through training, disseminating valuable information about the industrialization tools to help the productivity of the infrastructure employees, increasing external customer satisfaction, and cutting IT operational costs. The social capital was also improved in order to motivate the infrastructure employees to leverage and improve the methodology and tools provided by the company, and support them to deliver the solution.

Some actions were promoted to increase the awareness and motivation of employees:

- Virtual training sessions:

  - Virtual training sessions about the latest releases of Methods, Estimator, and Workbench were scheduled. This type of training was conducted by geography (North America, EALA and APAC) considering the best time and date for each, and a SME or a Champion was the presenter to make the training more interesting, since they had the knowledge about the content, and also the practical expertize to show how the infrastructure employees could use the content in their projects;

  - The training material was developed by the change management project and it was validated with the presenters. Most of the training highlighted the main updates, explained a

use case scenario, or provided a live demonstration about the industrialization tools. At the end of each virtual training, there was a question and answer session and also a recap session to emphasize the main points that were presented during the training. After finishing the training, a survey was launched to evaluate it (the content, the tool used to conduct the training, and the presenters).

- Send messages by e-mail: There were two types of e-mails used to strengthen the communication channel and to announce new releases, upcoming training, or any other relevant communication about the infrastructure domain:

    - Postcards strengthened the global communication. They were sent by the Infrastructure Global Lead who made the first announcement of the content, motivating the infrastructure employees to check the information, including the benefits and the value about the new content. Postcards were also sent to invite the infrastructure employees to participate in a virtual training session or a global event about Infrastructure. This type of postcard was created by the change management team and validated with the marketing team before releasing it globally by the Infrastructure Global Operator team;

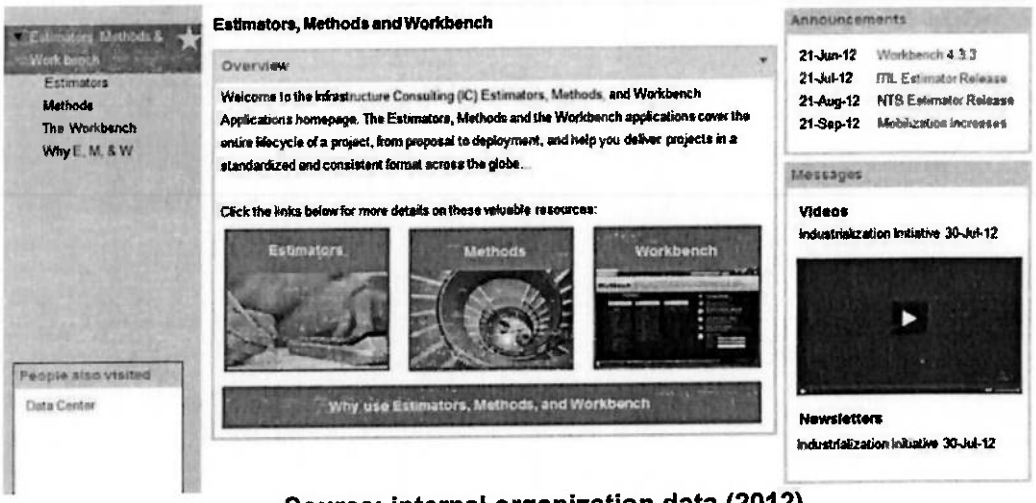
    - E-mail announcements strengthened the regional communication. They were sent by the Infrastructure Region Lead who made the second announcement, usually after one month, about the new content that was released (a new process or tool). This message was also created by the change management team and validated with the marketing team. After this validation, the e-mail was sent to the

Champions to ask their Region Leads to release this communication in the region.

- Global infrastructure events: The Global Infrastructure Lead was invited to talk about Methods, Estimators, and Workbench in a global virtual event. This type of event usually happened once a year. The last one happened on July, 2012 and it covered the status of the Infrastructure area, provided a vision about what is expected for business for the next fiscal year (September 2012 to August 2013), and also promoted the methods and industrialization tools to help achieve the objectives in next fiscal year.

- Web site about Infrastructure: A new version of the Infrastructure web site was released consolidating all the information about Methods, Estimators, and Workbench (replay training sessions, upcoming sessions, benefits of usage, important links, etc.). The figure below shows the web site area with all the consolidated information about the industrialized methods and tools which was available for all infrastructure employees.

Figure 10 - Infrastructure web site



Source: internal organization data (2012)

As it was possible to analyze, many activities were performed to engage the infrastructure practitioners, and there was a concern about the humanware and capital social of the infrastructure employees. But, the release of new content,, improved process and tools, and making them available for all the infrastructure employees was not enough to engage them. It would also be necessary to conduct assertive communications, and educate them.

Other activities were planned to continue the promotion of the industrialization methods and tools, and increase the usage by the infrastructure employees such as:

- Record a video with the Infrastructure Global Lead talking about the industrialization initiative and usage of industrialized tools;
- Conduct new surveys;
- Increase sponsorship and engage more leads to talk about Methods, Estimators, and Workbench, and the benefits of using them, and write success stories about that;
- Schedule specific virtual training sessions for the Infrastructure group to take advantage of Methods, Estimators and Workbench (deep dive session).

All these activities needed to be planned and performed periodically to maintain the awareness and motivation of the infrastructure employees, and also to keep the humanware and the capital social live in the infrastructure area.

3.2.3. Principle: Constantly seek improvement

The main purpose of this principle is changing and keeping the change.

One of the main challenges of the change management project was to change the way people work. There were two premises related to this challenge: people are used to work in the same way for years, and people do not like to change, they are afraid of the unknown.

Considering this information, people may change the way they work if they know the benefits and the future state, and have the sponsorship to make the change.

After increasing the awareness of infrastructure employees through messages and training, the mobilization phase began. The mobilization phase was very important to keep the industrialization methods and tools alive, and it was the time to improve the processes, documentation and tools. Feedback was collected from client projects that were using the process and documentation from the Delivery Methods (methodology), from projects that were using the Estimator tool to provide an assertive estimative and sell the project, and also from projects that were using the Workbench tool to get specific content, tools and best practices to improve their work.

During the mobilization phase for Delivery Methods, around 30 improvements were collected from the projects since November, 2012. These improvements were related to better documentation (templates, samples, guidelines, checklists), and better content of the processes and procedures. The mobilized projects were from North America, Japan, SPAI and LATAM, which accepted to leverage the Delivery Methods and provide their feedback.

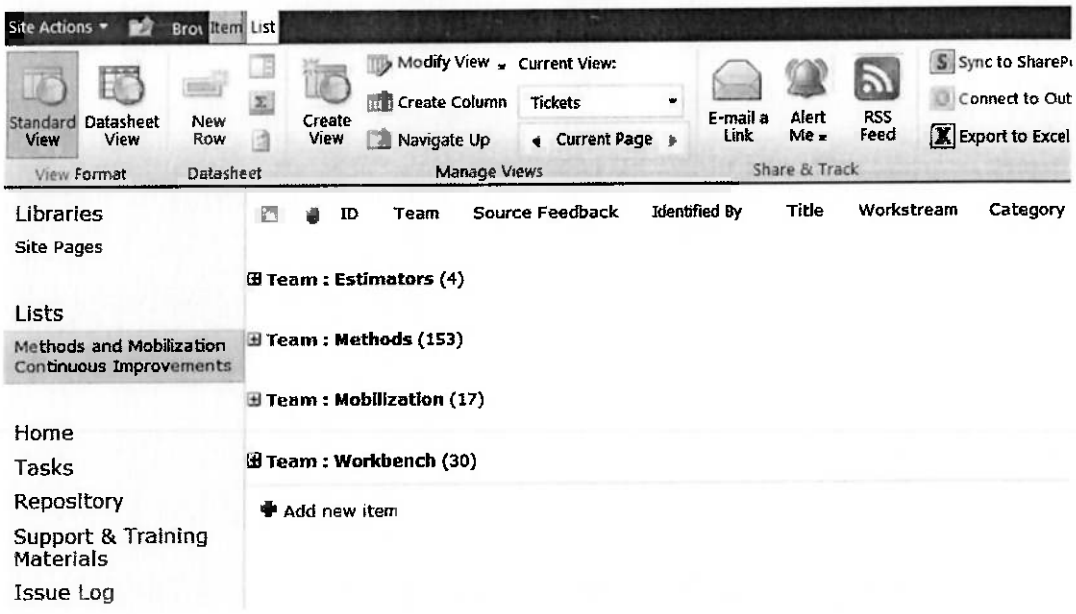
The mobilization phase for Estimators started in March, 2012 after releasing the new version the Data Center Estimator (a tool to estimate Data Center Services projects). Many improvements were collected from projects that were using the estimator to deliver Data Center Services and IT Service Excellence engagements.

Some feedback provided by the projects were: this tool was complex to use, there was missing information to complete the estimate, the estimator tool was not applicable for all type of Data Center or ITIL engagements, and others.

Regarding the Workbench, the mobilized projects that were using the Delivery Methods also provided improvements for the Workbench, for example: to include new Sales or Delivery documentation, include new credentials that could help other projects in the selling phase, and to improve the search feature and the specific processes.

All these improvements were controlled in an internal "SharePoint" that was used by the change management project. There was a list to log all the improvements received, to control the progress and release dates of the solutions. This list is shown below separated by Estimators, Methods, Mobilization and Workbench:

Figure 11 - Improvement List

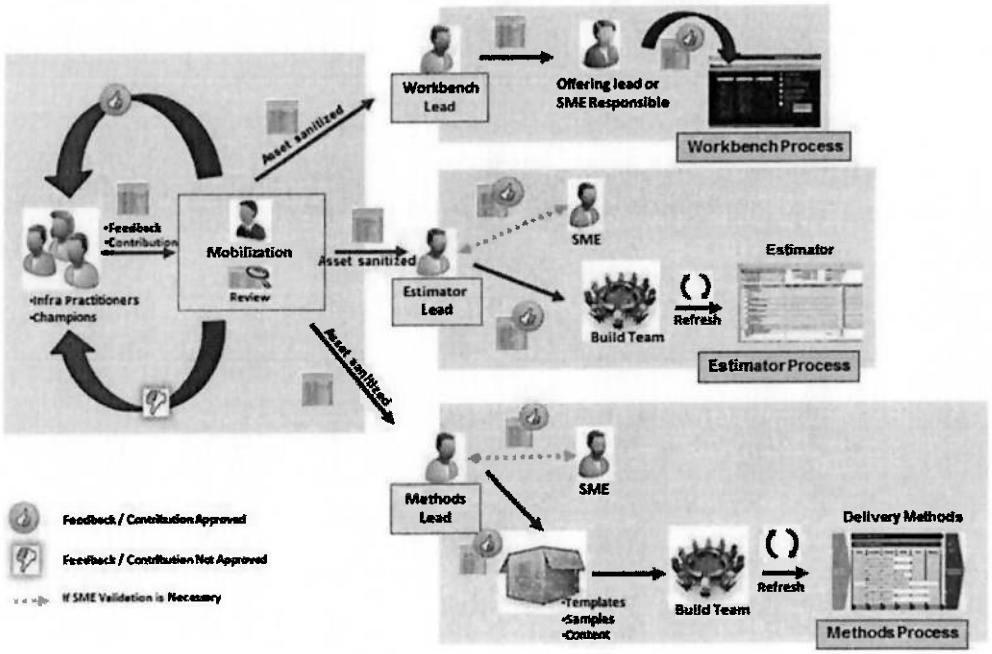


Source: internal organization data (2012)

In the mobilization phase, the feedback received from an Infrastructure practitioner or Champion was sent to the Mobilization team. After an analysis, the

improvement was delegated to the correct team (Estimator team, Methods team or Workbench team). The improvement process is shown below:

Figure 12 - Improvement Process



Source: internal organization data (2012)

To finish this analysis, another challenge of the change management project was to measure the success of the change, i.e. to measure how many hours the projects were saving using the industrialization methods and tools. These hours were related to the productivity of the projects delivering the client solution. The change management project was looking for success stories from projects that used the methodology, and to demonstrate to all the infrastructure employees the benefits of changing the way they work. The benefits could be saving hours, reducing the rework and time, using the best practices (activities that characterize an organization if it works well) and reusing the documents without creating them from scratch. Without success stories, it was difficult for the infrastructure employees to accept the change and trust in the results of using the industrialization methods and tools.

3.2.4. Principle: Involve all, in all sections, in all processes, at all levels of the organization

This principle was not applied to analyze the change management project because there was not any plan to implement the TQM in the project.

Therefore, there is an important approach described in this principle: it is necessary to unionize efforts to achieve the objectives. Thinking about the objectives of the change, which were to increase the usage of industrialization methods and tools and help the projects save hours, effort, and costs, all the infrastructure employees needed to be at the same page. They all needed to have the same speech, needed to be aware of the benefits, and needed to know about the future new state. At this point, all the effort could be focused to achieve the same goals, and to all head in the same direction.

3.2.5. Principle: Increase communication in the organization

As it was informed previously, activities were performed to increase the communication in the organization, such as postcards, e-mail announcements, training, and global/regional events. Despite this communication, there was also internal communication among the change management project, Champions and mobilized projects that should also be considered to analyze this principle.

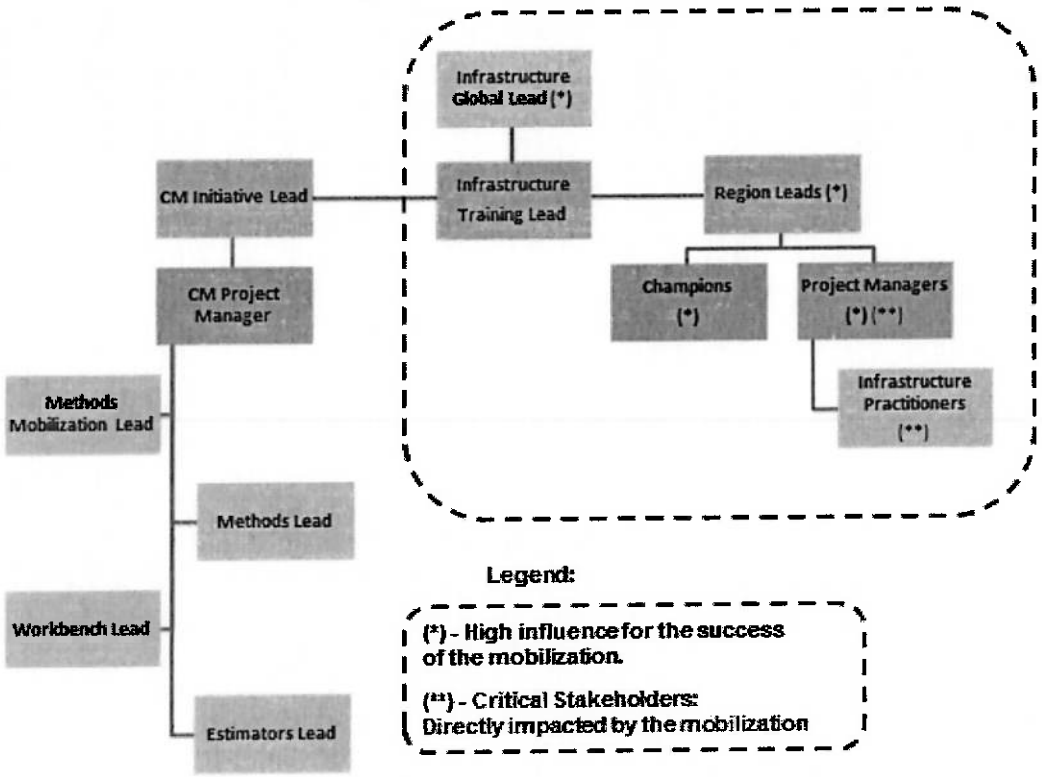
Regarding the Champions, there was a check point meeting with each of them on a monthly basis using available tools to conduct conference calls to inform them of what is new (releases, training, mobilized projects, etc.), show the measurements per quarter, ask for their accomplishments and plans in that period, discuss new ideas to engage the infrastructure employees in their region, and to provide an opportunity to listen to them and strengthen the relationship. As they were

located around the world, the monthly meeting helped increase the communication with them. This was an example of a good communication channel.

In the feedback collected in these meetings, it was stated that it was difficult to talk to their Region Infrastructure Lead to plan activities to engage the infrastructure employees, and to ask for their support in the Champion initiative. Champions from a specific region from EALA informed that they felt a lack of sponsorship, and this discouraged them from executing activities to engage the infrastructure employees in that region.

Regarding the hierarchy level, as the company was presented in more than 120 countries; there were more than three hierarchy levels. So, if there was any issue related to relationship and lack of sponsorship, the issue was escalated to the Mobilization Project Manager (the closest executive). The figure below shows the hierarchy structure for the change management project:

Figure 13 - Stakeholders of the change

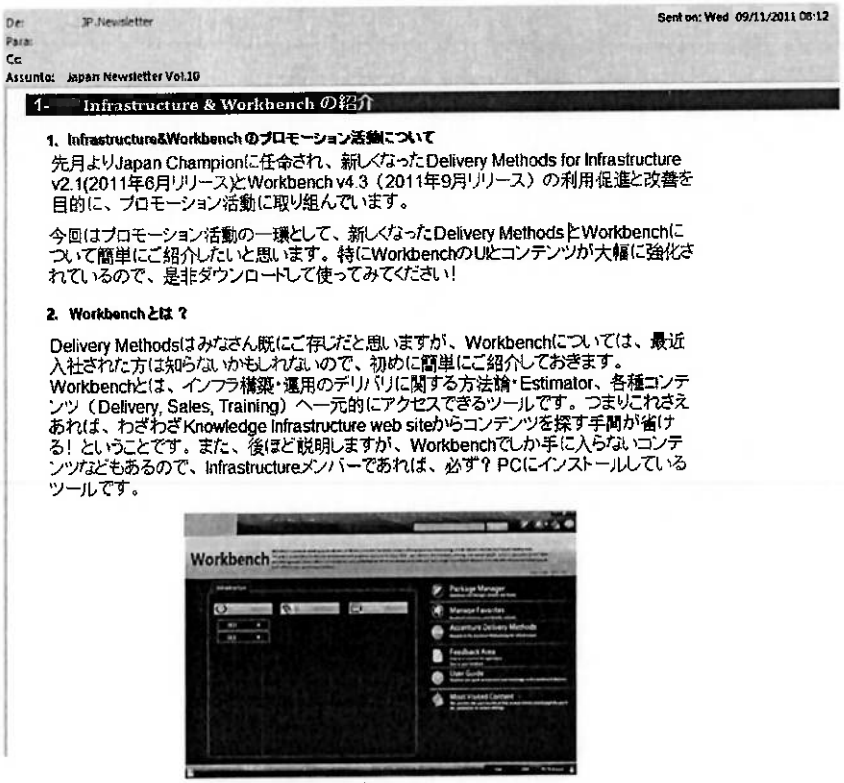


Source: internal organization data (2012)

The horizontal communication was used by the Champions to reinforce any communication in the region. They reinforced the postcards, emphasized the importance of attending a training session, completed a recorded training or answered a survey, etc.

Another activity performed by the Champions to strengthen the communication was to write an article in a newsletter (regional communication) to be released in the region. The articles could be written in their native language (e.g.: French, Japanese, Korean, etc.) to talk about Methods, Estimators, and Workbench. Writing in the region's native language was an important approach because the infrastructure employees didn't have a good knowledge of the English language, which was the only language used to create global communications in the company. A newsletter about the Workbench released in the Japanese region is shown below:

Figure 14 - Japan Newsletter



De: JP.Newsletter
Para:
Cc:
Assunto: Japan Newsletter Vol.10
Sent on: Wed 09/11/2011 08:12

1- Infrastructure & Workbench の紹介

1. Infrastructure&Workbench のプロモーション活動について

先月よりJapan Championに任命され、新しくなったDelivery Methods for Infrastructure v2.1(2011年6月リリース)とWorkbench v4.3（2011年9月リリース）の利用促進と改善を目的に、プロモーション活動に取り組んでいます。

今回はプロモーション活動の一環として、新しくなったDelivery MethodsとWorkbenchについて簡単にご紹介したいと思います。特にWorkbenchのUIとコンテンツが大幅に強化されているので、是非ダウンロードして使ってみてください！

2. Workbenchとは？

Delivery Methodsはみなさん既にご存じだと思いますが、Workbenchについては、最近入社された方は知らないかもしれないので、初めに簡単にご紹介しておきます。
Workbenchとは、インフラ構築・運用のデリバリに関する方法論・Estimator、各種コンテンツ（Delivery, Sales, Training）へ一元的にアクセスできるツールです。つまりこれさえあれば、わざわざKnowledge Infrastructure web siteからコンテンツを探す手間が省ける！ということです。また、後ほど説明しますが、Workbenchでしか手に入らないコンテンツなどもあるので、Infrastructureメンバーであれば、必ず？PCにインストールしているツールです。

WorkBenchの画面キャプチャ
（このツールを持っていないとInfrastructureメンバーとは言えない！？）

Source: internal organization data (2012)

For mobilized projects, the first contact was made by e-mail with a brief description about the Industrialization Program initiative, and it also mentioned the purpose of using the industrialization methods and tools the importance of improving them. The second contact was made by a meeting where more details about the project were collected (scope, start and end dates, current phase, etc.). During this meeting, the project manager confirmed whether it would be possible to leverage the industrialization methods and tools in the project. There were two situations at this point:

- If it was possible to leverage the industrialization tools, other meetings were scheduled to check if the project needed some assistance to use the industrialized methods and tools, with an agreed-upon date to provide the feedback on that;

- If it was not possible to leverage the industrialization tools, due to some reasons (project used the client methodology, project was not sold, project was postpone or finished, etc.), the project was removed from the candidate list.

For mobilized projects, the communication needed to be very objective, understandable and pleasant to create a good relationship with the project managers. The Champion from North America informed during a check point meeting that some projects from his region did not understand the purpose of the meetings. This was an issue considering that it has been difficult to find projects to use the industrialized methods and tools due to the reasons described above.

Considering the change management project in this analysis, the relationship with the infrastructure employees, Champions or mobilized projects was through a virtual way because they were located around the world. As the only contact was by phone calls or conference calls and e-mails, the communication needed to be very clear and objective, and the meeting needed to be attractive (new content, good

presentations). The change management team also needed to be prepared for each meeting (purpose of the meeting, expectations, clarifications, dates) to keep the proposal time (30 minutes or 1 hour duration) and save the time of the attendees. The English language was a mandatory skill to communicate efficiently and without being misunderstood.

According to the analysis above, it was verified that there was an effort to communicate well with the infrastructure employees, Champions and mobilized projects. However, were the speech and content inspiring the people to use and adopt the industrialized methods and tools?

At this point, it is important to consider what Simon Sinek believes is an inspiring communication. All the communications needed to be reviewed (postcards, e-mail announcements, training materials, presentations, etc.); the messages should start with: why was there an industrialization initiative, what the purpose and beliefs were for this initiative. Following that, explain how to believe through knowledge and expertise from the SMEs, best practices, and standard processes. Finally, show what the company offers, such as excellent industrialization methods and tools that were improved periodically.

Among several communications, a model of the e-mail was analyzed. This message was sent to a candidate project to use the industrialization methods and tools. This message was sent from the beginning of the mobilization phase and it is shown below:

Figure 15 - Mobilization message

Hi <Project Manager>,

As part of the FY13 Industrialization Program sponsored by <Sponsor Name>, we would like to partner with you to assist in taking advantage of the Data Center Methodology for your project.

I am the Methods lead. With the help of Data Center SMEs, we coordinated the development of the Data Center Estimator and refresh of its respective methodology (Deliver Methods). We are also responsible for Marketing, Communication and Mobilization of the Estimators and Methods. In addition, we help and support projects take advantage of Deliver Methods for Infrastructure to deliver Data Center solutions.

We are now looking for projects that haven't started yet, or are at the early stages (Plan, Analyze and Design), to use the Delivery Methods for Infrastructure-Data Center. We would like to help the projects leverage the Methodology, either by providing additional information or conducting workshop sessions to educate the project teams. Our goals are to improve the Methods, and support the projects throughout the full lifecycle. Also, this is a great opportunity to hear people's thoughts / needs / feedbacks to update the methodology in future releases.

I would like to schedule a 30 minutes meeting with you to review the scope of your project and present this initiative.
Let me know if you have any questions or comments.

<Methods Lead Name>

Source: internal organization data (2012)

The quality of this message could be improved to inspire the project manager to accept to meet and talk about his project, and agree on the next steps to use the industrialization methods and tools. The suggestion is showed below:

Figure 16 - Suggestion of Mobilization message

Hi <Project Manager>,

As part of the FY13 Industrialization Program sponsored by <Sponsor Name>, we believe that the industrialization can provide a competitive advantage in the marketplace, can increase the predictability, repeatability and reliability on projects, can improve the quality and reduce delivery risks, and can raise productivity and drive down cost-to-serve.

We believe that to achieve these goals, we need to have standard process, estimators, best practices, automated tools and accelerators. We believe also that working together as a partner we can contribute to have updated process and tools aligned with the business to bring increased value to our clients.

With the help of Data Center SMEs, we developed the Data Center Estimator and refreshed the Data Center Methodology. We would like to partner with you to take advantage of the methodology and estimator to deliver Data Center solutions, and also collect your feedback to improve the methodology in future releases.

Could I schedule a 30 minutes meeting with you to present this initiative?

Let me know if you have any questions or comments.

<Methods Lead Name>

Source: internal organization data (2012)

The figure above shows in the first three paragraphs the purpose (why), how, and what content respectively to improve the communication with the candidate projects to use the industrialization methods and tools.

3.2.6. Principle: Make decisions based on facts and data

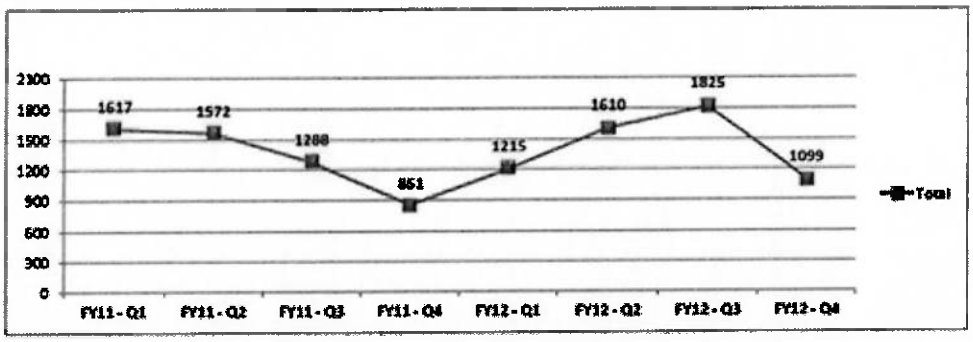
One of the mentioned challenges of the change management project was to measure the success of the change. This means to measure how many people changed their way of working using the industrialization methods and tools; the challenge was to measure how many people adopted the change.

For this reason, KPIs were defined to measure the success of change and make assertive decisions based on facts and data. The KPIs that were defined to measure the engage of infrastructure employees were:

- KPI: Number of web hits:
  - Description: number of people that accessed the methodology per quarter.
  - Reasons to measure: to verify if the methodology was being used by the infrastructure employees, and understand why the infrastructure employees were not using the methodology and take actions, measure the speed of the mobilization.

The graphic below shows the number of access per quarter:

Graphic 11 - Number of Methods Web Hits



Source: internal organization data (2012)

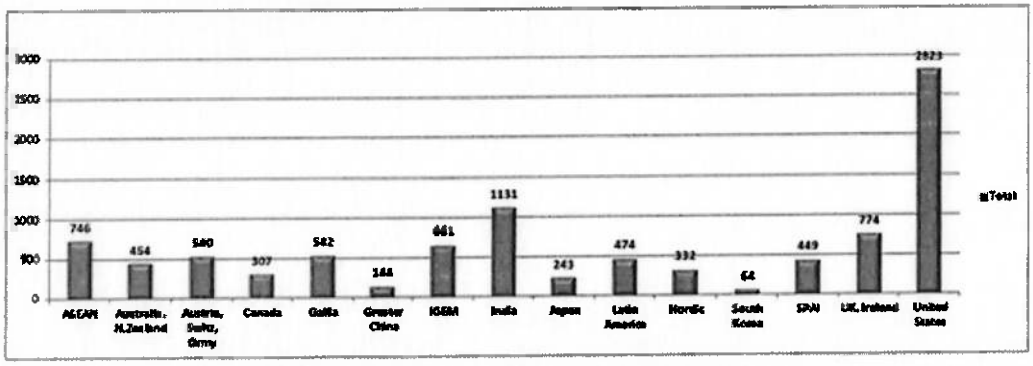
Comments about the graphic above:

- FY11-Q1: the change management project started and some communication activities were performed (postcards about the Infrastructure Methodology);

- FY11-Q4: few infrastructure practitioners accessed the methodology in this period because it was a vacation period (July and August);

- FY12-Q3: it was the most productive quarter of the change management project. Many activities were performed in all the three towers (communication, trainings and mobilization). In this period, the Champions also performed most of the activities in their region to engage the infrastructure practitioners to use the industrialized methods and tools.

Graphic 12 - Web Hits per Region (FY11-Q1 to FY12-Q2)



Source: internal organization data (2012)

Comments about the graphic above:

- Most of the web hits in the Infrastructure Methodology were from the North America infrastructure practitioners. This number was also related to the high number of infrastructure practitioners in North America (32%).

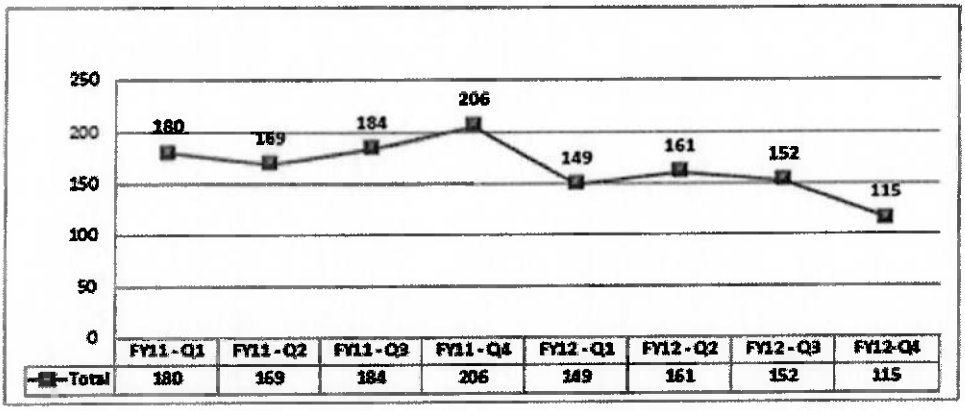
- KPI: Number of methodology downloads:

  - Description: number of people that downloaded the methodology per quarter.

  - Reasons to measure: verify if the methodology was downloaded by the infrastructure employees, as most of them worked at the client site and did not have an external internet connection.

The graphic below shows the number of downloads per quarter:

Graphic 13 - Number of Methods Downloads



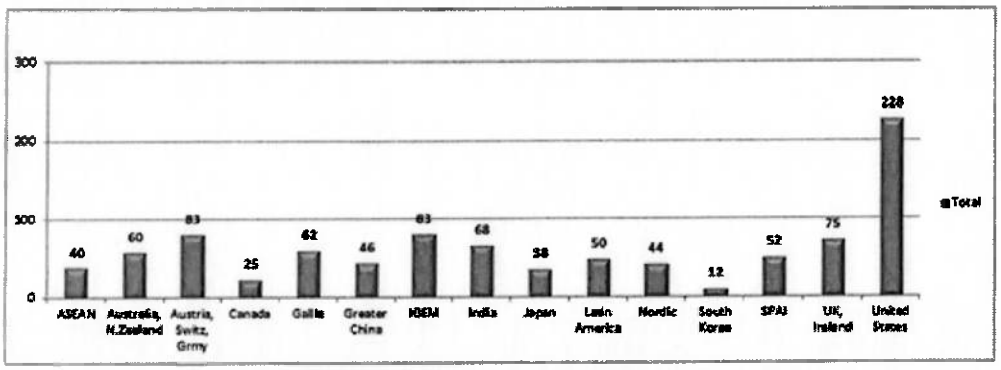
Source: internal organization data (2012)

Comments about the graphic above:

- The methodology could be accessed by a link using an internet connection. The infrastructure practitioners could also download the methodology in their computers and access it without being connected to the internet. This feature could help them make consults in the client site. Once the methodology was installed in the computer, a message appeared to the user to refresh the content for new releases;

- FY12-Q4: most of the infrastructure practitioners downloaded the methodology in this quarter. It was also a reflection of the recent updates of the Data Center Services Methodology and IT Service Excellence Methodology that were released in FY11, and a virtual training was conducted to inform about the updates.

Graphic 14 - Methods Downloads per Region (FY11-Q1 to FY12-Q4)



Source: internal organization data (2012)

Comments about the graphic above:

- Most of downloads were done by the North America infrastructure practitioners.

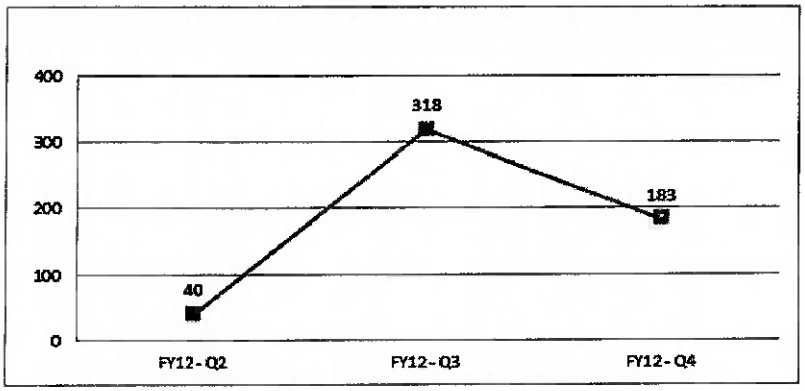
- KPI: Number of estimator downloads:

  - Description: number of people that downloaded the estimator per quarter.

  - Reasons to measure: measure the number of Managers and Sr. Managers that were using the Estimator, whose projects could also be candidates to provide feedback about the Estimator.

The graphic below shows the number of Data Center Estimator downloads per quarter:

Graphic 15 - Data Center Estimator - Downloads

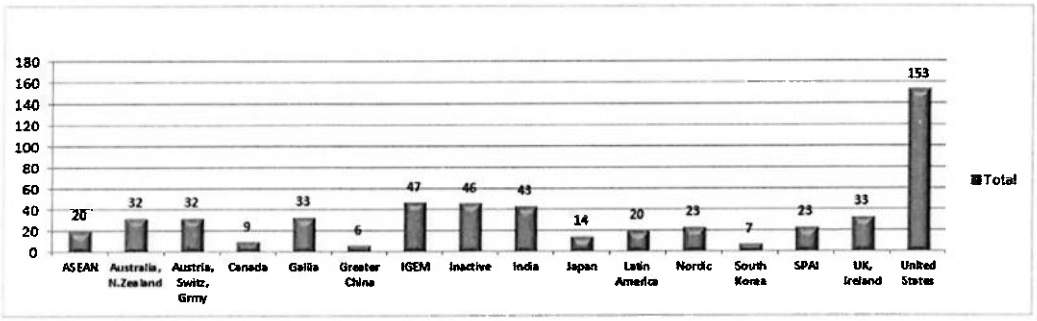


Source: internal organization data (2012)

Comments about the graphic above:

- The Data Center Estimator was released in March, 2012, and this explains the high number of downloads in FY12-Q3. This tool was released after two years of work by the Estimator team; there was a big expectation for this release.

Graphic 16 - DCS Estimator Downloads per Region (FY12-Q2 to FY13-Q4)



Source: internal organization data (2012)

Comments about the graphic above:

- As the previous graphics, most of the downloads were done in the North America region.

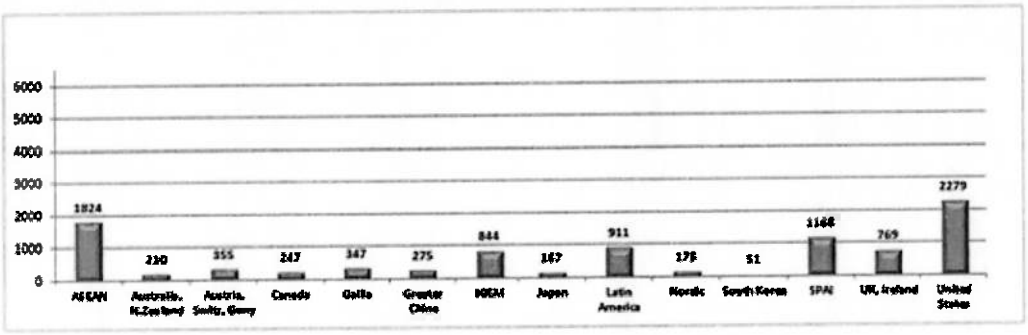
- KPI: Number of users registered in the Workbench:

- Description: number of people that registered in the Workbench by region.

- Reason to measure: verify how many users were registered in the Workbench and accessed the specific content for Infrastructure (documentation and best practices) in the Workbench.

The graphic below shows the registered users in the Workbench by region:

Graphic 17 - Workbench Registered Users per Region (FY09-Q2 to FY12-Q4)



Source: internal organization data (2012)

Comments about the graphic above:

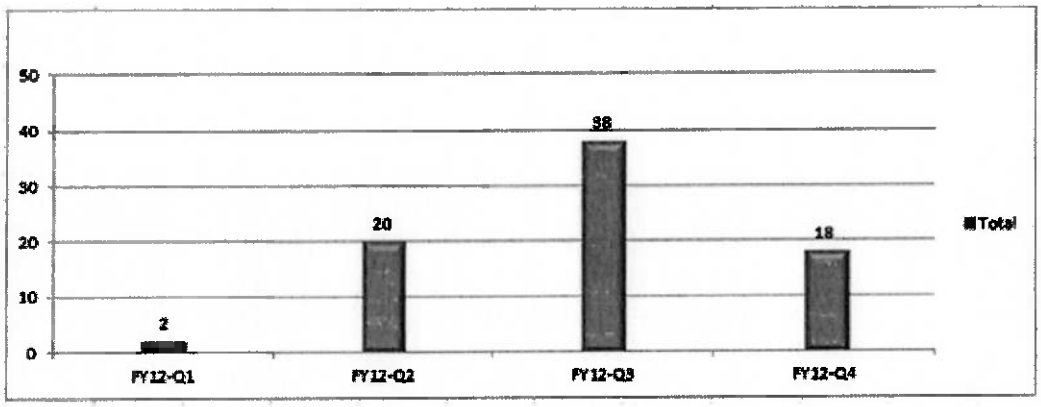
- Most of the users registered in the Workbench were from the North America and ASEAN regions.

- KPI: Number of completed online learning
  - Description: number of people that completed the online training about the methodology per month.

  - Reason to measure: verify how many infrastructure employees were going through the training and building their skills.

The graphics below show the number of people that completed the online learning session about Data Center Methodology per quarter:

Graphic 18 - DCS Methods - Online Training per Quarter (completed sessions)

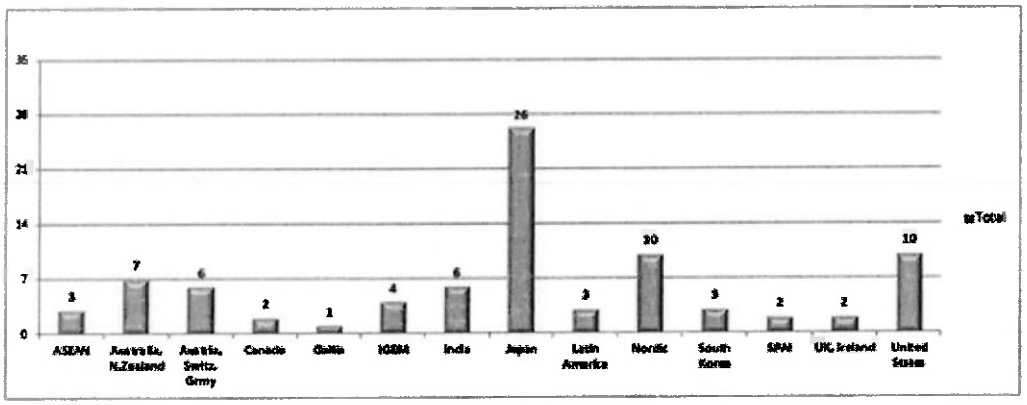


Source: internal organization data (2012)

Comments about the graphic above:

- FY12-Q3: most of the infrastructure practitioners completed the online learning about the Data Center Methodology in this quarter. This was the result of several activities to engage the infrastructure practitioner in this quarter.

Graphic 19 - DCS Methods - Online Training per Region (FY12-Q1 to FY12-Q4)



Source: internal organization data (2012)

Comments about the graphic above:

- There was a high number of completed training in the Japan region, and this was the result of the activities performed by the Japan Champion in the region.

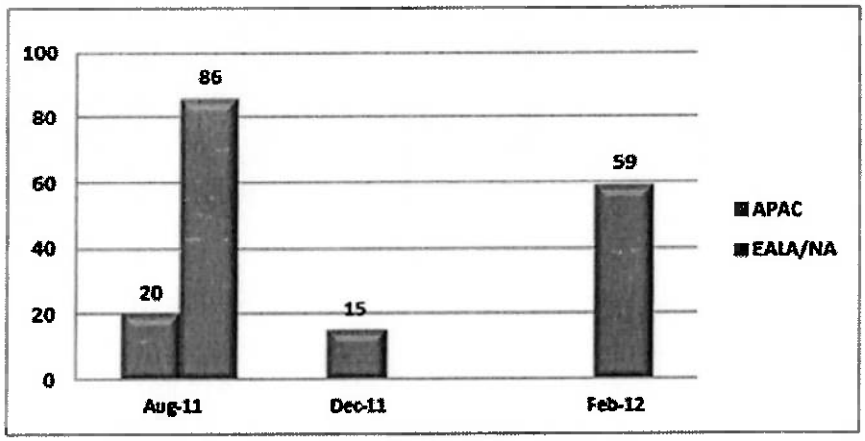
- KPI: Number of attendees per virtual sessions:

  - Description: number of people that joined a virtual training.

  - Reason to measure: verify how many people participated of the virtual sessions about Estimator, Methods, and Workbench.

The graphics below show the number people that participated in the virtual sessions for Methods and Estimator:

Graphic 20 - Virtual Sessions for Infrastructure Methods (DCS & ITSE)



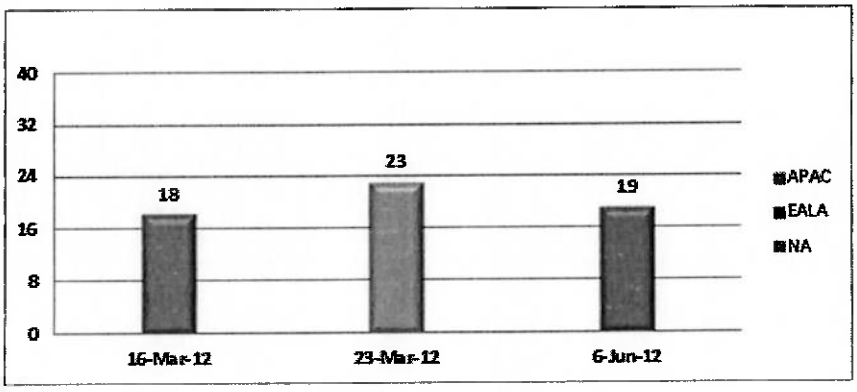
Source: internal organization data (2012)

Comments about the graphic above:

- The first virtual session about the last updates in the Infrastructure Methodology was conducted in August, 2011, and a significant number of infrastructure practitioners in all the geographies attended the session;

- There were other sessions about the same content: in APAC (December, 2011) and in NA&EALA (February, 2012).

Graphic 21 - Virtual Sessions for DCS Estimator



Source: internal organization data (2012)

Comments about the graphic above:

- There was one session about the new Data Center Estimator per geography. It was possible to see that only a few infrastructure practitioners attended the sessions and a concern was raised about it. There were some possible reasons for that: the date and time were not good, the people could not stop their work and participate in the training at the client site, or the content was not interesting enough and important enough to motivate the infrastructure practitioners to attend it;

- A survey was conducted of the Champions to understand their regions better and improve the quality of the training sessions (date and time, generic or deep dive content, reasons for low attendees, best and worst months to have virtual sessions in the region). The results of this survey were showed above in

the first principle of TQM (Treat the customer like he would be your boss and benefactor).

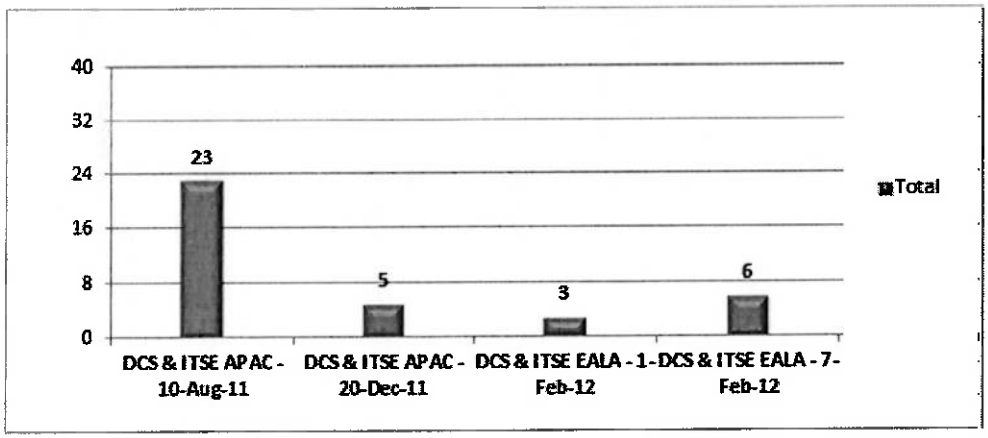
- KPI: Number of people that downloaded the replay sessions

  - Description: number of infrastructure employees that downloaded the replay session of the virtual trainings.

  - Reasons to measure: verify how many people downloaded the replay sessions of the virtual trainings.

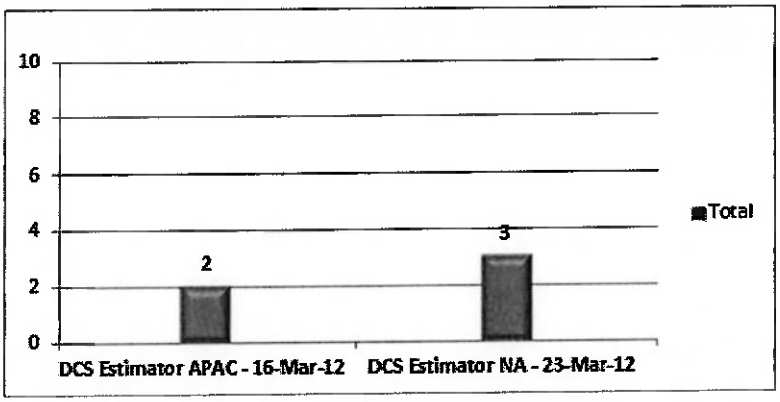
The graphics below show the number of people that downloaded the replay session of a virtual session:

Graphic 22 - Methods and Workbench Replay Session Downloads



Source: internal organization data (2012)

Graphic 23 - DCS Estimator Replay Session Downloads



Source: internal organization data (2012)

Comments about the graphics above:

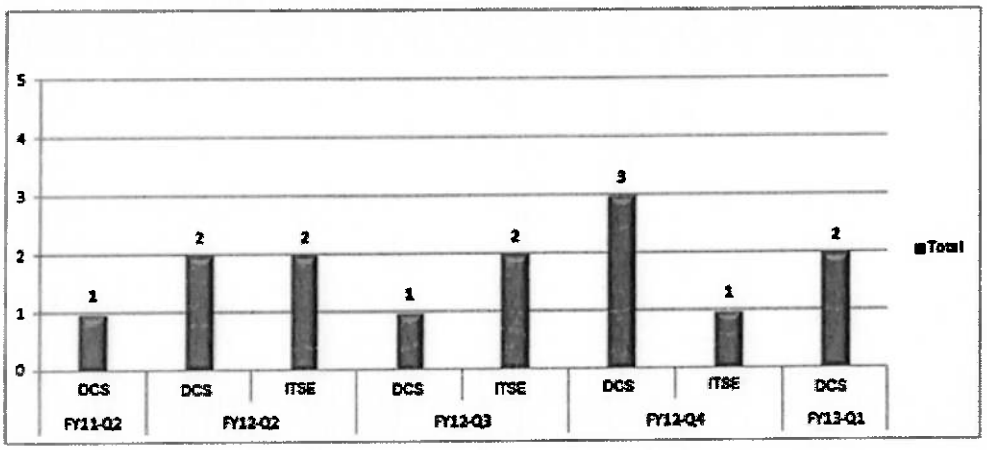
- The graphics above show that infrastructure practitioners downloaded the replay session about the recent updates in the Infrastructure Methodology and Estimator. This number was relevant and was considered in the analysis of the low number of attendees for the virtual training sessions.

- KPI: Number of mobilized projects:
  - Description: number of projects that were using the methodology.

  - Reasons to measure: verify how many projects were using the methodology and would provide feedback.

The graphic below shows the number of mobilized projects per quarter:

Graphic 24 - Number of Mobilized Projects per Quarter



Source: internal organization data (2012)

Comments about the graphic above:

- Nine projects were mobilized to use the Data Center Services Methodology. The initial target was to identify eleven projects to use the methodology and provide feedback;

- Five projects were mobilized to use the IT Service Excellence Methodology. The initial target was to identify ten projects to use the methodology and provide feedback.

There were also KPIs to measure the Champion Program initiative which are:

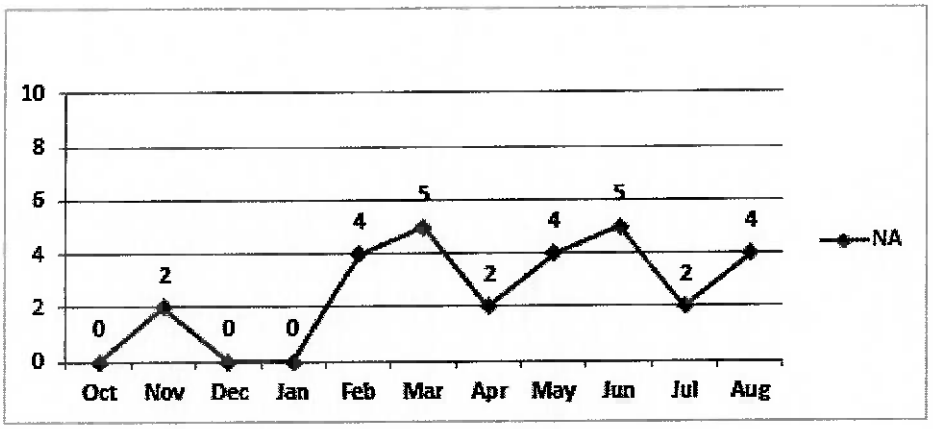
- KPI: Number of activities performed per month

  - Description: number of activities performed by each Champion in the region per month.

  - Reason to measure: verify the Champion performance by month and during the Champion initiative.

The graphic below shows the number of activities performed by the North America Champion per month in FY12:

Graphic 25 - Accomplishments per Month



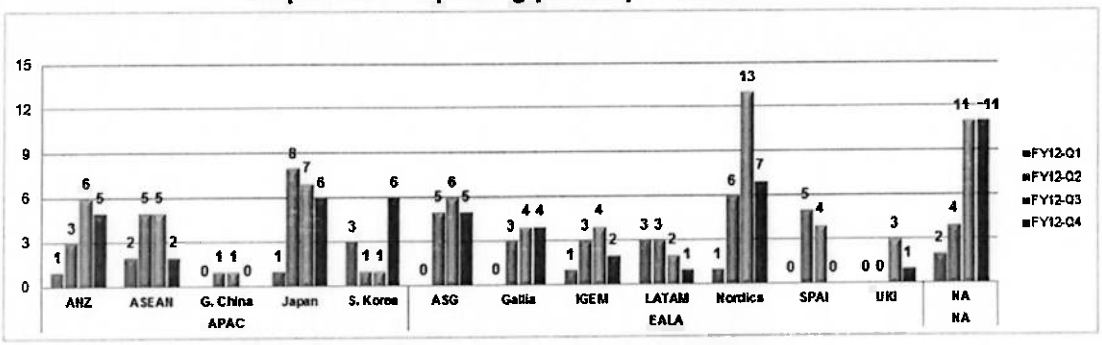
Source: internal organization data (2012)

Comments about the graphic above:

- October: beginning of the Champion initiative;
- December and January: vacation period;
- March and June: total of 5 activities (the most productive months);
- Overall: activities were performed every month;

- KPI: Number of activities performed per quarter
  - Description: number of the activities performed per quarter in the region.
  - Reason to measure: verify the performance of each Champion per quarter.

Graphic 26 - Reporting period per Quarter



Source: internal organization data (2012)

Comments about the graphic above:

- FY12-Q3 was the most productive quarter; most of the activities were performed by the Champion in this period in their region.

3.2.7. Principle: Standardize the process

According to this principle, the process needs to be standardized. This means that the process should be created from a consensus of all the stakeholders and all employees, because the main purpose is to simplify the life of all employees and improve the performance and effectiveness of the process.

Considering the requirements to standardize in the TQM, the change management project and the industrialization tools were analyzed:

A) Voluntariness

- According to this requirement, the standard is adopted because it produces better results, and not because it is mandatory.

- The success of the change was related to the motivation of projects in using the industrialization tools to get its benefits. Adopting the change required writing success stories indicating what it was gained, how many hours were saved, and how many hours of productivity were gained. If the infrastructure leads knew the results, the methodology and tools would be used in their current project and also they would inform other leads about this advantage, then the usage of the industrialization methods and tools would not be mandatory.

B) Consensus

- According to this requirement, a standard needs to be adopted through a democratic way, with the participation of all the people involved.

- The methodology was developed considering the feedback of the Subject Matter Experts (SME) who were expert infrastructure employees that knew deeply how to deliver an infrastructure solution. As they were experienced employees, they had collected a lot of lessons learned and best practices that could be interesting to the organization. The methodology was developed based on a consensus of all infrastructure SMEs that were designated to help the refresh of the content and documentation.

- For each refresh, around fifteen SMEs were nominated to help analyze the content and documentation, and provide their feedback to improve the methodology. The analysis of each process was shared among them. For example, if one process was reviewed by five SMEs, all five SMEs needed to sign-off the final version of the process. Meetings were conducted with

the group of SMEs to understand their feedback and agree the final version of the process.

C) Dynamic Sense

- According to this requirement, the standard is not static; it can be replaced if there are better standards to produce better results.

- The refresh of the methodology started in 2010:

    - The refresh of the methodology started in Third release in February, 2012: focused on the process to develop a network project (Network Technology Services Methodology).

    - First release in March, 2011: focused on the process to develop a data center project (Data Center Services Methodology).

    - Second release in August, 2011: focused on updating the process to develop an ITIL project (IT Service Excellence Methodology).

- A new revision of the methodology is planned to be released in May, 2013. All the methods related to Data Center Services and IT Service Excellence will be reviewed. The main purpose of this revision is to include the best practices, best assets and procedures that have been collected since the last refresh, to help deliver the solution with quality, with less effort, and on time to the client.

D) Standardize is a middle and not an end

- According to this requirement, the standard needs to help improve the performance of the organization. If the standard is not working, it needs to be replaced by another standard.

- One of the objectives of the organization was to industrialize the solutions and standardize the processes.

- Industrialization means to discover the essence of how an activity is optimally done, and then do it in exactly the same way every time. It optimizes each part of the task, eliminates the redundancies, automates and standardizes to drive the work to less cost and much more quality.

- Thus, standardization was part of the industrialization initiative to achieve the best results for the client and for the organization.

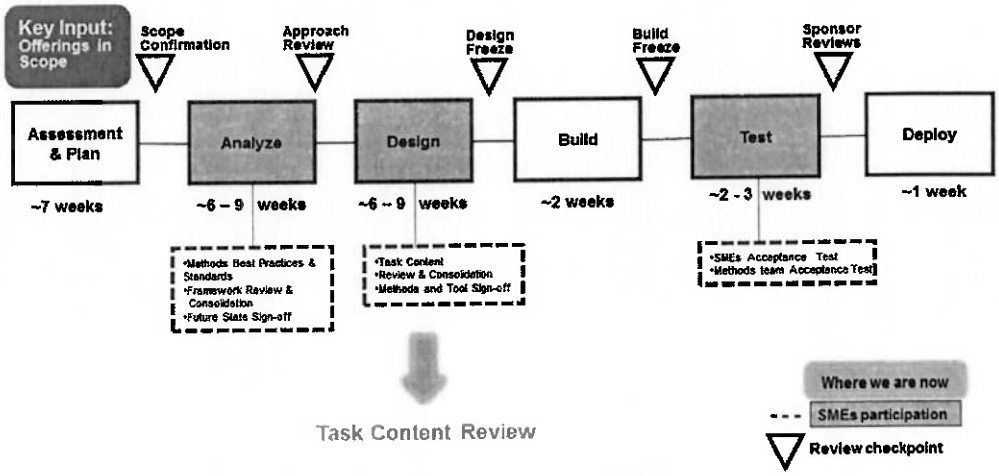
E) Record the process

- According to this requirement, the standards are in the heads of people (it is a knowledge) and need to be recorded.

- The methodology was updated according to the knowledge and expertise of the Subject Matter Experts (SME) for data center services, ITIL and network areas. Feedback was collected from projects to improve the content and the documents, and they validated by the SMEs.

- In Fiscal Year 2013, there will be another refresh of the methodology. There will be planning to make the refresh according to the example below:

Figure 17 - High-level planning to refresh the methodology



Overall expected timeline: 6 - 8 months

Source: internal organization data (2012)

- The refresh of the methodology follows also a development life cycle (Assessment, Plan, Analyze, Design, Build, Test and Deploy phases) which helps plan the activities, identify the risks in advance, and established the quality assurance per phase (peer reviews). There are specific activities for each phase:

  - Assessment & Plan: define the scope of the refresh, plan the activities, and plan how many SMEs will participate in the refresh.

  - Analyze: SMEs review the framework of the methodology and identify the first gaps.

- Design: SMEs review the processes, procedures and documentation and identify the gaps and improvements. After that, the Methods Analysis team consolidates all the feedback and provides a final version of processes, procedures and documentation. In this phase, there is a peer review step to assure the quality and check if the standards were used.

- Build: Methods Development team receives the final version of the process and builds the new content in the methodology.

- Test: SMEs verify the content and sign-off the new state.

- Deploy: Methods Development team deploy in the production environment to be available for all the infrastructure practitioners.

- In the last refreshes of the methodology (Data Center Services, IT Service Excellence and Network Technology Services), this planning was created to deliver accurate and useful information to help the infrastructure practitioners.

F) Training

- According to this requirement, before applying a standard, it is necessary to train the people on it.

- Training was conducted to all the Infrastructure employees to announce the latest updates and changes in the methodology,

clarify the integration among the industrialization tools (Methods, Estimators, and Workbench), and help them get the maximum value from the methods and tools.

- Demonstration sessions were conducted to mobilized projects to help them understand how to navigate in the methodology (tasks, steps, assets, guidelines, reference materials and checklists), how to use the estimating tool, and how to take advantage of the specific content in the Workbench.

G) Continuous checking

- According to this requirement, the standards should be checked until the activities are performed in a regular and repetitive way.

- The continuous checking was the work of the change management project. The KIPs, such as number of web hits, was the main KPI to verify if the methodology was being accessed by the infrastructure employees. One point to be considered related to the measurements: it was difficult to measure how many infrastructure practitioners continued to access the industrialization methods and tools per month as there were around 2,500 infrastructure employees in the organization around the world. Thus, some facts could be observed: an infrastructure practitioner could not access the Methods, Estimators, and Workbench if he was working in a project not related to deliver an infrastructure solution, or if he was waiting to work on a new project.

3.2.8. Principle: Use the PDCA

For this principle the PDCA customized for Change Leaders was considered, and for each phase, the change management project was analyzed.

According to the Change Lead PDCA Model:

A. Plan:

- In the first phase of the change management project (January 2011 to August 2011), few activities were planned, the main focus was marketing and communication through postcards to announce the first and second refresh of the methodology for Data Center Services and IT Service Excellence processes respectively.

- In the second phase of the project (August 2011 to March 2012), the number of activities increased (marketing and communication, training, and mobilization).

- During the second phase, an issue was identified in this period: a virtual training for EALA Infrastructure practitioners was cancelled due to a public holiday in some regions from EALA geography, and it was necessary to wait two months to get a new slot. As lessons learned, the training needed to be planned in advance by the organization to get the desired date and time, checking all the holidays around the world. Thus, as the industrialization tools were global, some training was also global.

- The third phase of the project was from March 2012 to August 2012. On March, the change management team built their

knowledge and skill in Organizational Change Management through their own cost to help leverage the change, bringing more ideas, treating the issues and identifying the risks in advance and monitoring them closely.

- The fourth phase began in September 2012, when all the activities to be performed in Fiscal Year 2013 (September 2012 to August 2013) were planned. The team was more mature, for each new release of Methods, Estimators or Workbench, a set of activities was planned: postcards, e-mail announcements, videos, virtual training, online learning, global events and mobilization.

B. Do:

- After planning the activities, it was necessary to perform accordingly. The first activities were related to the communication (postcards, e-mails announcements) to start the awareness of the infrastructure practitioners about the industrialization methods and tools. Afterward, trainings were conducted to help build the knowledge and skills. The communication was beyond of messages and trainings; the change management speech was also presented in global and region events by Champions or Infrastructure Leads, and a consistent message was delivery to all the infrastructure practitioners. Speak was an important way to increase the awareness of the people.

C. Check:

- All the activities performed by the change management team and Champions were monitored closely to avoid unexpected

issues. All the activities were reviewed in a weekly basis to confirm the next steps, time and date of execution, responsible for the activities, etc. Case there was an issue, actions were defined to be performed and solve the problem.

D. Act:

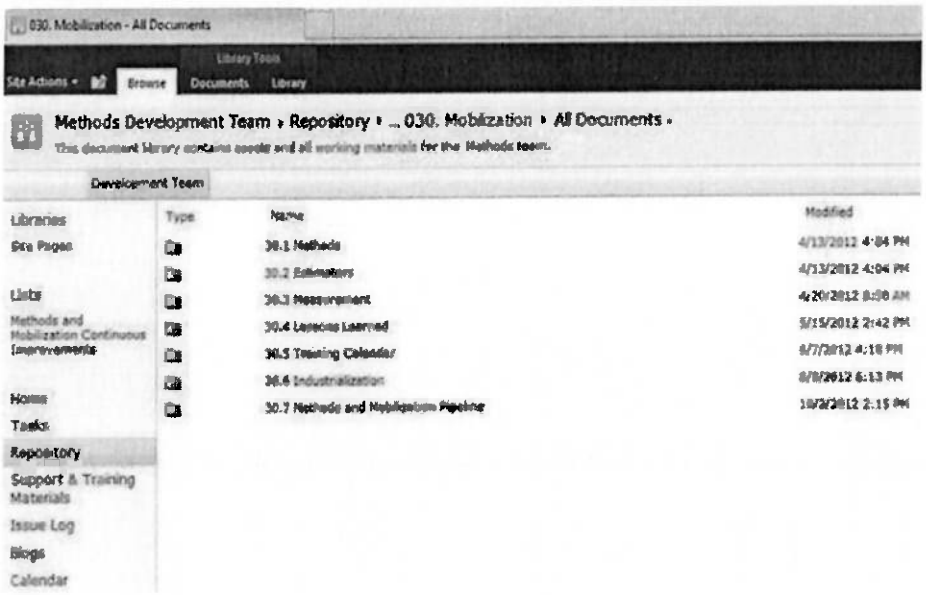
- All the facts and data were collected and measured to check how the change was around the globe. More attention was given to the regions where there was little engagement (for example, Gallia, G. China, South Korea).

3.2.9. Principle: Encourage the neatness, orderliness, cleanliness and self-discipline

According to this principle it is important to encourage the neatness, orderliness, cleanliness and self-discipline. The 5-S practice was suggested to achieve these goals.

Analyzing the context of the change management project, the support documentation, training materials and presentation decks were created or updated in a daily work, important e-mails were sent at least once a month. This documentation was shared in a repository, organized by folders, for future reference and also to control the last version of each document. The picture below shows this repository of documents:

Figure 18 - Change Management repository



Source: internal organization data (2012)

The first structured proposed to storage the change management documents is showed below:

Figure 19 - First structure to storage the documentation

SharePoint CM Structure	Folder Description
1. Change Management	Repository to storage the documentation
1.1 Methods	Documents related to Methods, Estimator and Workbench
1.1.1. Communication	Documents related to Communication (e-mails, SharePoint, etc.)
1.1.1.1. Postcards	Folder to storage e-mails sent by the Infrastructure Global Lead to announce wha it is new for Methods, Estimator, Workbench and training sessions
a. Methods	E-mails sent to announce new Methods and update releases
b. Estimators	E-mails sent to announce new Estimators and update releases
c. Workbench	E-mails sent to announce update releases about the Workench
d. Virtual Sessions	E-mails sent to announce comming virtual sessions about Methods, Estimator and Workbench
e. e-Learnings	E-mails sent to announce e-Learnings about Methods, Estimator and Workbench
f. Champions	E-mail sent to announce the Champions in their region
1.1.1.2. E-mail - Region Lead	Folder to storage e-mails sent by the Infrastructure Region Lead to announce wha it is new for Methods and Estimator
a. Methods	E-mails sent to announce new Methods and update releases
b. Estimators	E-mails sent to announce new Estimators and update releases
1.1.1.4. Surveys	E-mail sent to announce a survey
1.1.2. Meetings	Documents related to each type of meeting (e-mails, presentations, etc.)
1.1.2.1. Infrastructure Leads Global Meetings	Storage documents related to the Infrastructure Leads Global Meetings
1.1.2.2. Steering Committee	Storage documents related to the Steering Committee
1.1.2.3. Town Hall Meetings	Storage documents related to the Town Hall Meetings
1.1.2.4. Community Meetings	Storage documents related to the Community Meetings
1.1.2.5. Lunch and Learn	Storage documents related to the Lunch and Learn
1.1.2.6. Champions	Storage documents related to the monthly Champion meetings
1.1.3. Trainings	Documents related to each type of training (scripts, presentations, etc.)
1.1.3.1. Virtual Sessions	Folder to storage documents related to the Virtual Sessions
a. Instructions and template	Storage how-to instructions and templates
b. Sessions	Storage the presentations and scripts
1.1.3.2. e-Learnings	Folder to storage documents related to the e-Learning trainings
a. Methods	Storage presentations and scripts related to Methods e-Learning trainings
b. Estimator	Storage presentations and scripts related to Estimators e-Learning trainings
d. Workbench	Storage presentations and scripts related to Worbench e-Learning trainings
1.1.3.3. New Hire Orientation	Storage presentations and scripts related to New Hire training sessions
1.1.3.4. Community Workshops	Storage presentations and scripts related to Community Workshops sessions
1.1.3.5. Infrastructure Executive Training	Storage presentations and scripts related to Infrastructure Executive training sessions
1.1.3.6. Champions Training	Storage all the documents related to Champions (e-mails, control sheets, etc.)
1.1.4. Post Release and Measurements	Storage the measurements for Methods, Estimator and Workbench
1.1.5. Knowledge Transfer	Storage the documents related to knowledge transfer

Source: internal organization data (2012)

The table x shows that all the content related to Estimator, Methods and Workbench was inside a folder called "1.1 Methods":

After a few months, more folders were created and the control of the unique information in the correct folder was lost. For example, a folder called Estimator was created to storage content related to Estimators. The structure is showed below:

Figure 20 - Structured created to storage Estimator documentation

SharePoint CM Structure	Folder Description
1. Change Management	Repository to storage the documentation
1.1 Estimator	
1.2 Estimator	Documents only related to Estimator
1.2.1. Communication	Documents related to Communication (e-mails, SharePoint, etc.)
1.2.1.1. Postcards	Folder to storage e-mails sent by the Infrastructure Global Lead to announce what it is new only about Estimators and training sessions
a. Methods	E-mails sent to announce new Methods and update releases
b. Estimators	E-mails sent to announce new Estimators and update releases
c. Workbench	E-mails sent to announce update releases about the Workench
d. Virtual Sessions	E-mails sent to announce comming virtual sessions only about Estimator
e. e-Leamings	E-mails sent to announce e-Leamings only about Estimator
1.2.1.2. E-mail - Region Lead	Folder to storage e-mails sent by the Infrastructure Region Lead to announce wha it is new only about Estimator
1.2.2. Meetings	Documents related to each type of meeting (e-mails, presentations, etc.) only related to Estimator
1.2.3. Trainings	Documents related to each type of training (scripts, presentations, etc.) only about Estimator
1.2.3.1. Virtual Sessions	Folder to storage documents related to the Virtual Sessions
a. Estimator	
1.2.3.2. e-Leamings	Folder to storage documents related to the e-Learning trainings
a. Estimator	Storage presentations and scripts only related to Estimators e-Learning trainings
1.2.3.4. Leadership Demos	leadership
1.2.3.5. Infrastructure Virtual Workshops	Storage presentations and scripts related to infrastructure Virtual training sessions only about Estimator
1.2.3.6. Estimator Installation Guides	Storage the installation guides about Estimator
1.2.3.6. Estimator Frequently Questions	Storage the frequently answers and questions about Estimator

Source: internal organization data (2012)

The highlighted folders in the table X were created after the creation of the first structure, and duplicated the information about the Estimator.

Using the 5-S practice, it was possible to clean and organize all the folders and the information. A solution was proposed: move all the Estimator content to the Estimator structure in section 1. Change Management\1.2 Estimator, and create a new structure to storage the Workbench content.

The final version of the change management repository to storage documents related to Methods and Estimator is showed below:

Table 21- Minimized view of the repository

SharePoint CM Structure	Folder Description
1. Mobilization	Repository to storage the documentation
1.1 Measurements	Consolidated folder to storage all the measurements
a. Methods	
b. Estimators	
c. Workbench	
1.2 Champions	Consolidate folder to storage all the documents related to Champions (e-mails, control sheets, etc.)
1.3 Methods	Folder to storage only content related to Methods
1.4 Estimators	Folder to storage only content related to Estimator
1.5 Workbench	Folder to storage only content related to Workbench
1.6 Lessons Learned	Folder to storage the lessons learned collected based in the activities performed in the change management project

Source: internal organization data (2012)

According to table X, the Measurements content and Champions content were separated in other folders due to cross information to Methods, Estimator and Workbench.

The updated structure for Methods and Estimator and the new structure for Workbench are showed below:

Figure 22 - Structure for Methods

SharePoint CM Structure	Folder Description
1. Mobilization	Repository to storage the documentation
1.1 Measurements	
1.2 Champions	
1.3 Methods	Documents related only to Methods
1.3.1. Communication	Documents related to Communication (e-mails, SharePoint, etc.)
1.3.1.1. Postcards	Folder to storage e-mails sent by the Infrastructure Global Lead to announce wha it is new only for Methods and training sessions
a. Methods	E-mails sent to announce new Methods and update releases
b. Virtual Sessions	E-mails sent to announce comming virtual sessions only about Methods
c. e-Learnings	E-mails sent to announce e-Learnings only about Methods
1.3.1.2. E-mail - Region Lead	Folder to storage e-mails sent by the Infrastructure Region Lead to announce what it is new only for Methods
a. Methods	E-mails sent to announce new Methods and update releases
1.3.1.4. Surveys	E-mail sent to announce a survey
1.3.2. Meetings	Documents related to each type of meeting (e-mails, presentations, etc.)
1.3.2.1. Infrastructure Leads Global Meetin	Storage documents related to the Infrastructure Leads Global Meetings
1.3.2.2. Steering Committee	Storage documents related to the Steering Committee
1.3.2.3. Town Hall Meetings	Storage documents related to the Town Hall Meetings
1.3.2.4. Community Meetings	Storage documents related to the Community Meetings
1.3.2.5. Lunch and Learn	Storage documents related to the Lunch and Learn
1.3.2.6. Champions	Storage documents related to the monthly Champion meetings
1.3.3. Trainings	Documents related to each type of training (scripts, presentations, etc.)
1.3.3.1. Virtual Sessions	Folder to storage documents related to the Virtual Sessions
a. Instructions and template	Storage how-to instructions and templates
b. Sessions	Storage the presentations and scripts
1.3.3.2. e-Learnings	Folder to storage documents related to the e-Learning trainings
a. Methods	Storage presentations and scripts related to Methods e-Learning trainings
1.3.3.3. New Hire Orientation	Storage presentations and scripts related to New Hire training sessions
1.3.3.4. Community Workshops	Storage presentations and scripts related to Community Workshops sessions
1.3.3.5. Infrastructure Executive Training	Storage presentations and scripts related to Infrastructure Executive training sessions
1.3.3.6. Champions Training	Storage all the documents related to Champions (e-mails, control sheets, etc.)
1.3.4. Knowledge Transfer	Storage the documents related to knowledge transfer
1.4 Estimators	Folder to storage only content related to Estimator
1.5 Workbench	Folder to storage only content related to Workbench
1.6 Lessons Learned	Folder to storage the lessons learned

Source: internal organization data (2012)

Figure 23 - Structure for Estimators

SharePoint CM Structure	Folder Description
1. Mobilization	Repository to storage the documentation
1.1 Measurements	
1.2 Champions	
1.3 Methods	
1.4 Estimator	Documents only related to Estimator
1.4.1. Communication	Documents related to Communication (e-mails, SharePoint, etc.)
1.4.1.1. Postcards	Folder to storage e-mails sent by the Infrastructure Global Lead to announce what it is new only about Estimators and training sessions
a. Estimators	E-mails sent to announce new Estimators and update releases
b. Virtual Sessions	E-mails sent to announce comming virtual sessions only about Estimator
c. e-Learnings	E-mails sent to announce e-Learnings only about Estimator
1.4.1.2. E-mail - Region Lead	Folder to storage e-mails sent by the Infrastructure Region Lead to announce what it is new only about Estimator
a. Estimators	E-mails sent to announce new Estimators and update releases
1.4.2. Meetings	Documents related to each type of meeting (e-mails, presentations, etc.) only related to Estimator
1.4.3. Trainings	Documents related to each type of training (scripts, presentations, etc.) only about Estimator
1.4.3.1. Virtual Sessions	Folder to storage documents related to the Virtual Sessions
a. Estimator	
1.4.3.2. e-Learnings	Folder to storage documents related to the e-Learning trainings
a. Estimator	Storage presentations and scripts only related to Estimators e-Learning trainings
1.4.3.4. Leadership Demos	Storage presentations and scripts related to demonstrations for leadership
1.4.3.5. Infrastructure Virtual Workshops	Storage presentations and scripts related to Infrastructure Virtual training sessions only about Estimator
1.4.3.6. Estimator Installation Guides	Storage the installation guides about Estimator
1.4.3.6. Estimator Frequently Questions	Storage the frequently answers and questions about Estimator
1.5 Workbench	Folder to storage only content related to Workbench
1.6 Lessons Learned	Folder to storage the lessons learned

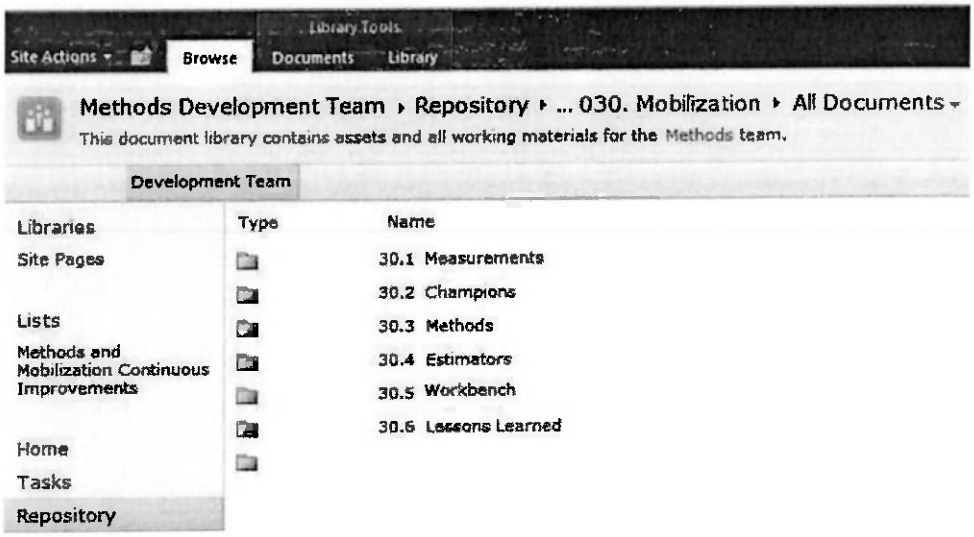
Source: internal organization data (2012)

Figure 24 - Structure for Workbench

SharePoint CM Structure	Folder Description
1. Mobilization	Repository to storage the documentation
1.1 Measurements	
1.2 Champions	
1.3 Methods	
1.4 Estimator	
1.5 Workbench	Documents only related to Workbench
1.5.1. Communication	Documents related to Communication (e-mails, SharePoint, etc.)
1.5.1.1. Postcards	Folder to storage e-mails sent by the Infrastructure Global Lead to announce wha it is new only about Workbench and training sessions
a. Workbench	E-mails sent to announce new releases of the Workbench
b. Virtual Sessions	E-mails sent to announce comming virtual sessions only about Workbench
c. e-Learnings	E-mails sent to announce e-Learnings only about Workbench
1.5.1.2. E-mail - Region Lead	Folder to storage e-mails sent by the Infrastructure Region Lead to announce what it is new only about Workbench
a. Workbench	E-mails sent to announce new released of the Workbench
1.5.1.4. Surveys	E-mail sent to announce a survey
1.5.2. Meetings	Documents related to each type of meeting (e-mails, presentations, etc.)
1.5.3. Trainings	Documents related to each type of training (scripts, presentations, etc.)
1.5.3.1. Virtual Sessions	Folder to storage documents related to the Virtual Sessions
a. Workbench	
1.5.3.2. e-Learnings	Folder to storage documents related to the e-Learning trainings
a. Workbench	Storage presentations and scripts related to Worbench e-Learning trainings
1.6 Lessons Learned	Folder to storage the lessons learned

Source: internal organization data (2012)

Figure 25 - New structure for the change management repository

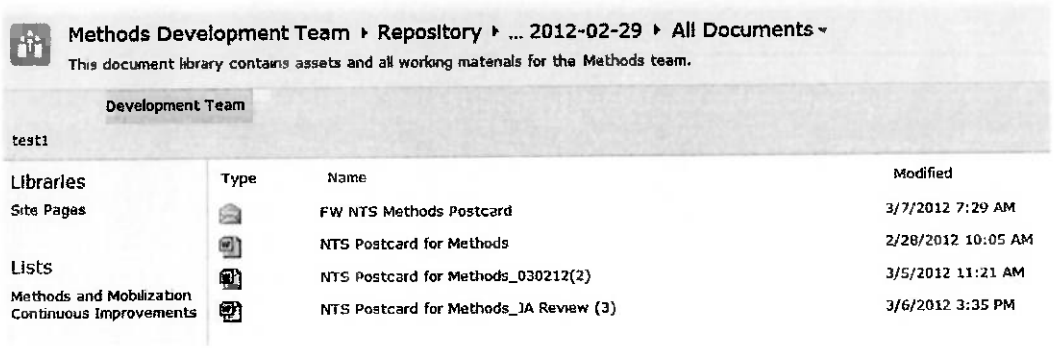


Source: internal organization data (2012)

These new structures helped the change management team to manage the documents and find the accurate information easier without duplication.

Another situation was identified in the repository of the documents: some documents had more than one version, showing that the information was not unique and it was not organized to get the accurate data, and the version control feature was not being used accordingly. For example, the "NTS Postcard for Methods" document showed below:

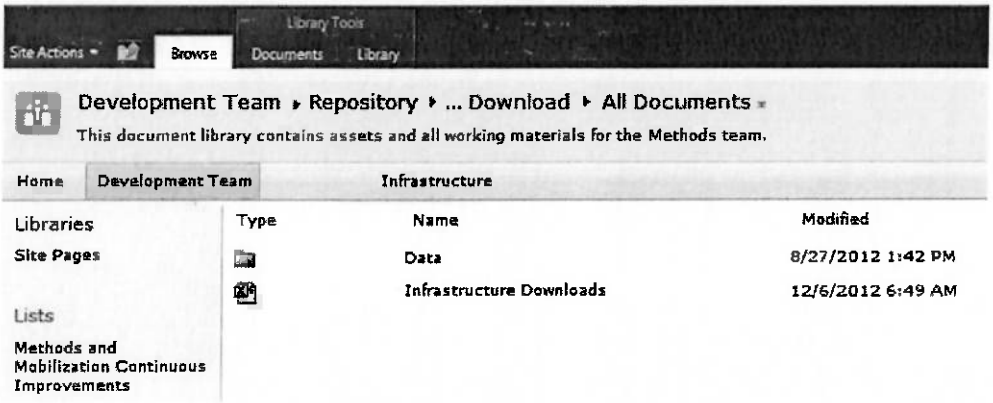
Figure 26 - Messages to announce the Network Methods



Source: internal organization data (2012)

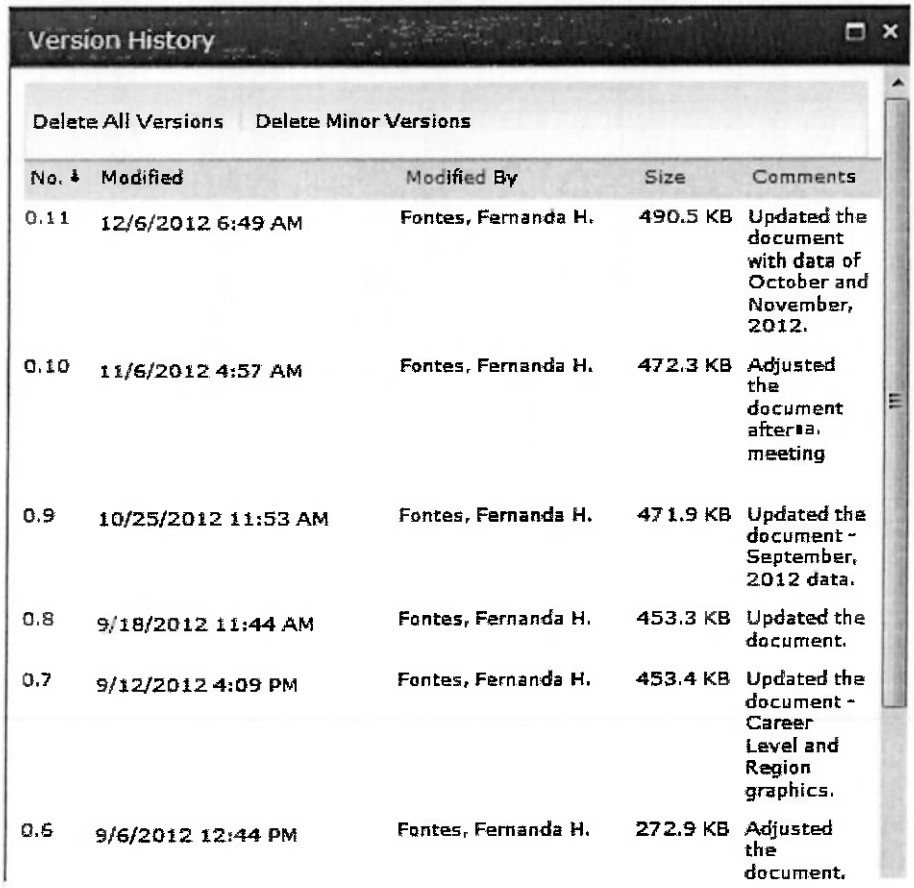
Regarding the version of the file, all the versions were consolidated and the repository features were used to control the version of each document, without includes a flag in the end of the file name. The figure below shows a unique document in the folder and the version was controlled by the Version History feature of the repository (figure y):

Figure 27 - A unique document in the folder



Source: internal organization data (2012)

Figure 28 - Version control



Source: internal organization data (2012)

To complete this analysis, the 5-S practice helped the change management team to restructure the repository, documents that were not important were removed,

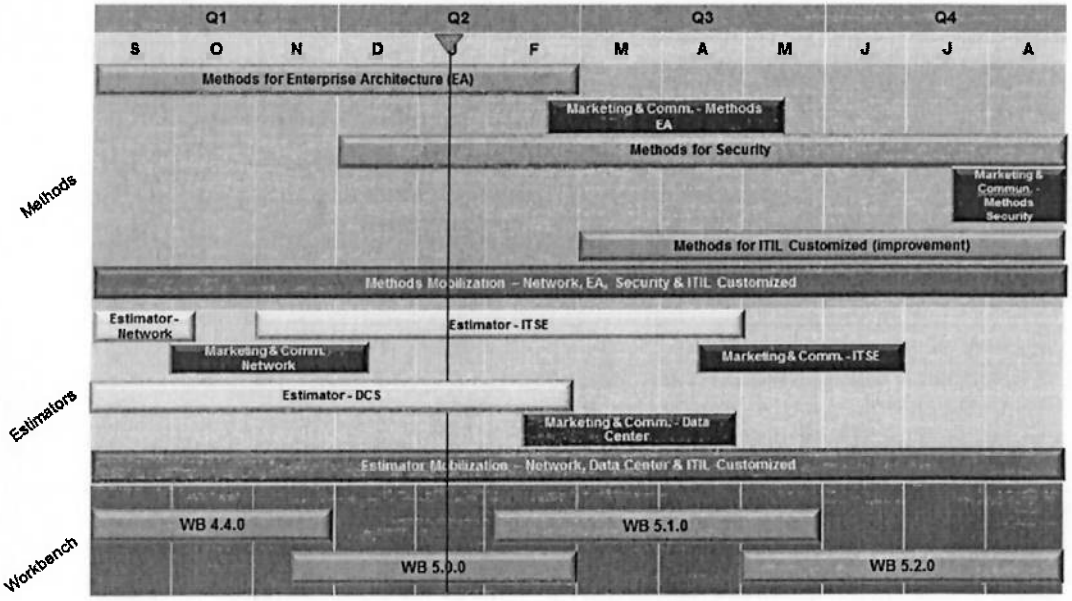
the folders that were not used were removed and the folders with duplicate information were kept only one place to storage unique information.

3.2.10. Principle: Be methodical, patient and persistent

According to this principle, the results of the TQM will appear after five or ten years, it is necessary to be patient and positive to gather the results. It also important to be persistent and methodical because there will be resistant to implement the TQM in an organization due to use objectives and qualitative controls such as indicators to measure the quality and efficiency of the process and performed activities, and creating new functions which people will be responsible to monitor the progress of the TQM and results.

Analyzing the change management project and the objective to change the way people use the process in the organization, the continuity of this effort was considered, the change management project started on FY11 and continued in FY13, the controls were kept and improved. The awareness about the industrialization tools (Estimator, Methods and Workbench) was a constant concerned that helped to insert more content, samples, uses cases in trainings and communications. A timeline for FY13 with the main activities and accomplishments was created in the beginning of FY13 and it will be followed for all the year. This timeline is showed below:

Figure 29 - Timeline of Methods, Estimators and Workbench



Source: internal organization data (2012)

This timeline shows the plans to update and improve the Estimator, Methods and Workbench. After each update, the Marketing and Communication approach starts through postcards and e-mail announcements (first awareness about the new release). The Methods Mobilization and Estimator Mobilization encompass all the activities of the change management project since awareness (postcards, e-mail announcements), trainings and find projects to use the industrialization tools. The mobilization activities were planned to be performed every month, until the end of the fiscal year. So for Fiscal Year 2013, the controls and continuity will be kept, but soon it will be necessary to plan the activities for next fiscal year (FY14) and so on. The continuity effort was kept in FY11, FY12 and FY13, and need to continue to keep alive the change and the collaborative environment to improve the industrialization methods and tools.

4. FINAL COMMENTS

The analysis of the change management project using the Total Quality Management approach and best practices was worth, not only to check the progress and performance of the project through principles of quality, but it was also possible to identify new ideas to improve the change management project and help the process of change.

This study showed that the quality could be applied in a project that interacted with people and the product is the change. Instead of thinking about how a product was being developing (concrete), the main thinking was how the change was being developed and deployed in the culture of the organization (abstract).

The Total Quality Management approach helped to confirm if the change management project was going to the right way. Some key words such as communication, feedback, improvement, humanware, controls, data, measurements, knowledge, training, planning, discipline, patient and persistence were presented and within the change management project. Even if the change was related to people and organizational culture, the search for the quality contributed to delivery accurate information, increase the communication among the team and Infrastructure practitioners, generate a collaborative environment where all the suggestions and new ideas were valuable, and also strengthen the relationship with the global and regional leadership to increase the sense of sponsorship.

Despite the change being intangible, the quality could make it more tangible and perceptible by the affected people. Change is an ongoing process, and more and more it is necessary to accept it as a natural process. Change brings hope, progress, challenge, motivation, strength, thinking, and courage to keep the current state and prepare for the coming change, because according to Heraclitus, a Greek Philosopher (540-475 BC), "There is nothing permanent except change".

5. BIBLIOGRAPHIC REFERENCES

ANDERSON, D.; ANDERSON L. A. **Beyond Change Management: Advanced Strategies for Today's Transformational Leaders**, Pfeiffer © 2001.

CARREIRA, B.; TRUDELL, B. **Lean Six Sigma that Works: A Powerful Action Plan for Dramatically Improving Quality, Increasing Speed, and Reducing Waste**, Amacom © 2006.

BUSINESS MANAGEMENT, **Change is inevitable in an organization. Different types of change require different strategies to implement the change successfully**. This content is available in <http://suite101.com/article/types-of-change-a28594>. Page visited on July 15th, 2012.

MANAGEMENT TRAINING SPECIALISTS, **Change Management: Types of Change**. This content is available in <http://www.m-t-d.co.uk/blog/change-management.htm>. Page visited on July 15th, 2012.

HCi, **PDCA Cycle**. The content is available in <http://www.hci.com.au/hcisite3/toolkit/pdcacycl.htm>. Page visited on July 23rd, 2012.

iSixSigma, **A Practical Approach to the Successful Practice of 5S**. The content is available in <http://www.isixsigma.com/tools-templates/5s/practical-approach-successful-practice-5s/>. Page visited on July 23rd, 2012.

WIBAS, **Industrialization and standardization - implement it with CMMI, ITIL and Change Management**. The content is available in <http://www.wibas.com/publications/business_transformation/industrialization_and_standardization/index_en.html>. Page visited on October 21st, 2012.

MORAN, J. W. **The PDCA Cycle for a Change Leader**. The content is available in <http://www.processexcellencenetwork.com/people-performance-and-change-in-process-improveme/articles/the-pdca-cycle-for-a-change-leader/>. Page visited on October 21st, 2012.

Tutor2u. **Quality - Introduction**. The content is available in < www.tutor2u.net/business/production/quality-introduction.htm>. Page visited on October 25th, 2012.

CHRON. **The Differences Between Measuring the Quality of a Manufactured Product and the Quality of a Service**. The content is available in < http://smallbusiness.chron.com/differences-between-measuring-quality-manufactured-product-quality-service-31089.html>. Page visited on November 10th, 2012.

TED. **Simon Sinek - How Great Leaders Inspire Action**. The content is available in < http://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action.html?qtwh=true&utm_expid=166907-15>. Page visited on November 16th, 2012.

CAMBRIDGE DICTIONARIES ONLINE. **Inspire**. The content is available in < http://dictionary.cambridge.org/dictionary/british/inspire?q=inspire>. Page visited on November 16th, 2012.

MOTIL, J. **The Pareto Principle**. The content is available in < http://www.csun.edu/~jmotil/Pareto.pdf>. Page visited on January 10th, 2013.

HAFNER, A. W. **Pareto's Principle: The 80-20 Rule**. The content is available in < http://www.bsu.edu/libraries/ahafner/awh-th-math-pareto.html>. Page visited on January 10th, 2013.

CEDET. **Gráfico de Pareto**. The content is available in < http://www.cedet.com.br/index.php?/Tutoriais/Gestao-da-Qualidade/grafico-de-pareto.html>. Page visited on January 8th, 2013.

HOSKEN, M. **Ferramentas da Qualidade**. The content is available in < http://www.qualidade.adm.br/uploads/qualidade/ferramentas.pdf>. Page visited on January 12nd, 2013.

ABREU, J. G. R; ABREU, N. A.; SILVA, S.V. **Ferramentas da Qualidade**. The content is available in <http://max.uma.pt/~a2043407/ferram.pd>. Page visited on January 12nd, 2013.

IDÉIA SUSTENTÁVEL. **Dez desafios da gestão sustentável nas empresas**. The content is available in <http://www.ideiasustentavel.com.br/2012/01/dez-desafios-da-gestao-sustentavel-nas-empresas/>. Page visited on January 18th, 2013.

BUSINESS BALLS. **The Evolution of Quality**. The content is available in < http://www.businessballs.com/dtiresources/quality_management_history.pdf>. Page visited on January 19th, 2013.

BEST MANAGEMENT PRACTICE. **ITIL®: The Basics**. The content is available in < http://www.best-management-practice.com/gempdf/ITIL_The_Basics.pdf>. Page visited on January 20th, 2013.

6. APPENDICES

APPENDIX A - OTHER FEEDBACK ABOUT THE WORKBENCH

Number	Feedback about the Workbench
1	Long process
2	Takes too long to install the packages. I believe it depends on the size of the package.
3	I have to reinstall few times and crashes during updates
4	Installation is easy but the load process is very bad.
5	Needs uninstall and then reinstall just to get the latest patch.
6	Installing the workbench and optional assets takes a long time.
7	A little puzzled with the manual registration process initially; but okay overall.
8	Frequent logging error due to that authentication.
9	Frequent logging error
10	Some times the program is blocked and i need to logoff
11	All the artefacts to be downloaded are sometimes taking a long time and it would be good to have an estimation on the duration before starting the process as we might have to stop it in the middle.
12	it is difficult to update; hard to determine if anything has failed; hard to determine if something is really completed after failures / recoveries
13	Regarding the need for separate registration.
14	I had problems installing the workbench and had to clear some Internet Explorer cache to get it working
15	The auto-update sometimes crashes the application
16	Never actually seen it work. It still forces me to upgrade to latest patch (incl. full un+reinstall -see above)
17	Sorry I thought it wasn't automatic
18	Slow download
19	It probably depends on the downloader speed.
20	The speed is reasonable but I get interrupted downloads and the occasional authentication failure (despite keying in the right ID and password and it working in the earlier login attempt).
21	It's slow and have a lot of bugs: interrupt, restart and double count the bytes them crash, etc. This occurs in all versions I tested.
22	Download takes many times.
23	Not really bothered about the download speed - I assume it is going to take a long time anyway. Should be more options to just download everything you can. comments on package manager above - I don't think it is intuitive yet.
24	Application is slow. The downloads are not at ADSL standard speeds it seems.
25	Download speed is way to slow, downloader is not resilient enough. I often get application crashes due to files still being locked on OS level. Resume doesn't work which makes the slow download speed even more problematic. Some assets are not accessible to download even though you can select them. One can't skip these assets during download and is asked for password again and again.
26	It's really slow in Moscow office on wire and wireless connections both.
27	Significant amount to download, particularly because of dependencies between packages

continued

continuation

Number	Feedback about the Workbench
28	Slowness and frequent error, disconnection during the downloading... Main reason of getting not to use the workbench
29	Because of Internet Connection Speed, it took a long time to dowonload contents.
30	Slowness and frequent error
31	Not always that's why it would be good to have an estimated duration
32	Takes a very long period of time and often crashes / stops working requiring restarts.
33	Sometimes download hangs up and need to be restarted.
34	Lack of contente
35	Depends on windows search working (which it does not always). you should add a feature to sort by package or just in 1 package, eg: if I am after application migration credentials, I don't need credentials for security.
36	Seems like a arbitrary word search. too many hits.
37	I search the Windows folder of the workbench instead of the Workbench search function itself after a colleague informed me this works way faster.
38	Not well categorized from my memory.
39	But unfortunately sometimes need to download new packages which can take more time than checking on the internal site
40	It is sometimes easier find relevant assets directly in the instalation folder.
41	Takes a bit of time to get used to...
42	Application is rather slow.
43	Once you are within the Methods content, navigation is fine. However the workbench UI is really unintuitive and difficult to use.
44	In general - yes, but some features are unstable so application falling with error.
45	No investment in Network Technology section for over a year - at least not that I have seen - information is over a year old and no value to my day to day work.
46	Some important assets are quite old
47	I found example template too old to be applicable on 2012. A lot of sections without templates, examples
48	Needs to also have time stamp and link into internal site
49	Not very good for short term tech consulting assignments. For long term implementation is ok.
50	Most of the assets are out of date for the relevant areas that I've looked at - some back to 2007. We really need to get up to date assets.
51	There's really good content if you can find it. Many of the documents are too basic though and not suitable to be used in projects.
52	ITSM (Process) Assets are outdated and not presented in an easy to use format.
53	From my experience. The real project deliverables are the best option to refer to in Korea. Workbench don't provide it.
54	Missing details or cerdentials sometimes
55	But not always useful. See prior comment on scrubbing.
56	In terms: they help me to "clean" bad package installation but the pachage installation issue remains
57	User desk is very good and reactive. use of lync-messaging is good. sometimes i don't always have the time to answer though...
58	Reinstall is a timeconsuming solution to incidents.
59	Yes they can. But sometimes it was time consuming to me cosidering of my use.
60	It was an issue with the installation of the workbench and I had to re-install it

continuation

continuation

Number	Feedback about the Workbench
61	Project Plan samples. I believe those will be part of Methods content.
62	I still rely on the ITSE internal site from some ITSE Specific artifacts. However the links to the various Community sites is great.
63	Workplace Security
64	Assets based on previous client experience; templates
65	I just can't load all packages I need
66	Assets of ITST like ITOM, ITCMM.
67	Getting better... I like when it shows what links will be available soon but are not yet.
68	Limited number of example deliverables, workplans, approach/ proposal documentation
69	Requirements for infrastructure outsourcing incl. ITSM KPIs.
70	Storage transformation information is from 2007
71	IT Strategy assets
72	Example client deliverable itself. much appreciated even if scrubbed.
73	Real project deliverables.
74	Now I have a trouble about update of workbench.
75	Information to complete RFPs
76	Network credentials and information on our partnerships with products such as Cisco
77	Regular governance and process to update assets.
78	Calculators
79	Better package management
80	Button to report broken links automatically search by package, filter/sort on packages, dates. button which allows you to submit a client deliverable for annonymization for a specific topic that you are currently looking at
81	Integration with social newsgroups for asking questions and usable assets.
82	Client deliverables repositor
83	More powerful search functions with more visibility
84	Information on partnerships - Cisco, Vmware, etc.
85	I've jsut tried to fill this survey. I tried to do more than ranting about how disappointed I am with the workbench. guess what? my survey response turned into an error message... is there anythign workign with the workbenhc? not even the survey is working!
86	Links to Win Cards of similar projects, so assets that aren't on the internal site (yet) can be obtained by contacting the appropiate person.
87	I like the way the AMC Way Assets are organized.
88	Proposal material
89	A functional and reliable package management
90	Needed a quick response when I click each menu buttom.
91	Overuse of embedded windows, ie: you open a powerpoint in workbench & there is no option to open it in powerpoint and edit it (although it should be easy), same for IE windows, eg: expert search - I'd prefer that launches in a separate window
92	Speed and stability to begin with please :) Thanks!
93	The interface. I still think a sharepoint would be much better, can still be offline and can be used for development activities as well.
94	Defintely the UI and the package downloader. Maybe something more traditional would have been better than the custom UI. The downloader needs to be more resilient.

continuation

Number	Feedback about the Workbench
95	Accessibility, Speed, Content, Look and Feel.
96	- Easier install - Remove the need of manual process - iPAD/iPhone version!
97	I find the workbench to be unstable when I start the application and click on different links in the tool. I often have to navigate away from the workbench before the tools responds to my clicks.
98	The UI is not very usable - easy to get lost, not clear what all buttons do Also, the application crashes when behind a proxy at my client site.
99	Too frequent errors during the package downloading.
100	The information could be displayed outsite of the workbench desktop.
101	I need to push myself and my team more often to use the Workbench as the initial source of information. Too many years of trying to use assets that weren't suitable and falling back on my peers and colleagues has led to bad habits!

APPENDIX B - STRATIFIED DATA

Num	Feedback about the Workbench	Question related to	Category	Reason	Quantity
1	Long process	Installation	Installation	Long Process to install	1
2	Takes too long to install the packages. I believe it depends on the size of the package.	Installation	Download of packages	Long time to download the packages	1
3	I have to reinstall few times and crashes during updates	Installation	Upgrade	Error during upgrades	1
4	Installation is easy but the load process is very bad.	Installation	Upgrade	Long time to download the packages	1
5	Needs uninstall and then reinstall just to get the latest patch.	Installation	Upgrade	Error during upgrades	1
6	Installing the workbench and optional assets takes a long time.	Installation	Installation	Long time to download the packages	1
7	A little puzzled with the manual registration process initially; but okay overall.	Installation	Installation	Long Process to install	1
8	Frequent logging error due to that authentication.	Installation	Authentication	Error during authentication	1
9	Frequent logging error	Installation	Authentication	Error during authentication	1
10	Some times the program is blocked and i need to logoff	Installation	Authentication	Error during authentication	1
11	All the artefacts to be downloaded are sometimes taking a long time and it would be good to have an estimation on the duration before starting the process as we might have to stop it in the middle...	Installation	Download of packages	Long time to download the packages	1
12	it is difficult to update; hard to determine if anything has failed; hard to determine if something is really completed after failures / recoveries	Installation	Upgrade	Error during upgrades	1
13	Regarding the need for separate registration.	Installation	Authentication	Error during authentication	1
14	I had problems installing the workbench and had to clear some Internet Explorer cache to get it working	Installation	Installation	Error during installation	1
15	The auto-update sometimes crashes the application	Auto update	Upgrade	Error during upgrades	1
16	Never actually seen it work. It still forces me to upgrade to latest patch (incl. full un+reinstall -see above)	Auto update	Upgrade	Error during upgrades	1
17	Sorry I thought it wasn't automatic	Auto update	Upgrade	Error during upgrades	1
18	Slow download	Package download	Download of packages	Long time to download the packages	1
19	It probably depends on the downloader speed.	Package download	Download of packages	Long time to download the packages	1
20	The speed is reasonable but I get interrupted downloads and the occasional authentication failure (despite keying in the right ID and password and it working in the earlier login attempt).	Package download	Download of packages	Error during the download of packages	1
21	It's slow and have a lot of bugs: interrupt, restart and double count the bytes them crash, etc. This occurs in all versions I tested	Package download	Download of packages	Long time to download the packages	1

continued

continuation

Num	Feedback about the Workbench	Question related to	Category	Reason	Quantity
22	Download takes many times.	Package download	Download of packages	Long time to download the packages	1
23	Not really bothered about the download speed - I assume it is going to take a long time anyway. Should be more options to just download everything you can. comments on package manager above - I don't think it is intuitive yet.	Package download	Download of packages	Long time to download the packages	1
24	Application is slow. The downloads are not at ADSL standard speeds it seems.	Package download	Download of packages	Long time to download the packages	1
25	Download speed is way to slow, downloader is not resilient enough. I often get application crashes due to files still being locked on OS level. Resume doesn't work which makes the slow download speed even more problematic. Some assets are not accessible to download even though you can select them. One can't skip these assets during download and is asked for password again and again.	Package download	Download of packages	Long time to download the packages	1
26	It's really slow in Moscow office on wire and wireless connections both.	Package download	Download of packages	Long time to download the packages	1
27	Significant amount to download, particularly because of dependencies between packages	Package download	Download of packages	Significant amount to download	1
28	Slowness and frequent error, disconnection during the downloading... Main reason of getting not to use the workbench	Package download	Download of packages	Long time to download the packages	1
29	Because of Internet Connection Speed, it took a long time to dowonload contents.	Package download	Download of packages	Long time to download the packages	1
30	Slowness and frequent error	Package download	Download of packages	Long time to download the packages	1
31	Not always that's why it would be good to have an estimated duration	Package download	Download of packages	Long time to download the packages	1
32	Takes a very long period of time and often crashes / stops working requiring restarts ...	Package download	Download of packages	Long time to download the packages	1
33	Sometimes download hangs up and need to be restarted.	Package download	Download of packages	Error during the download of packages	1
34	Lack of content	Search feature	Search feature	Lack of content in search results	1
35	Depends on windows search working (which it does not always). you should add a feature to sort by package or just in 1 package, eg: if I am after application migration credentials, I don't need credentials for security.	Search feature	Search feature	Amount of search results not required, not ordered	1

continuation

continuation

Num	Feedback about the Workbench	Question related to	Category	Reason	Quantity
36	Seems like a arbitrary word search. too many hits.	Search feature	Search feature	Amount of search results not required, not ordered	1
37	I search the Windows folder of the workbench instead of the Workbench search function itself after a colleague informed me this works way faster.	Search feature	Search feature	Waste time to find the content	1
38	Not well categorized from my memory.	Search feature	Search feature	Amount of search results not required, not ordered	2
39	But unfortunately sometimes need to download new packages which can take more time than checking on the internal site	Search feature	Search feature	Waste time to find the content	1
40	It is sometimes easier find relevant assets directly in the instalation folder.	Search feature	Search feature	Waste time to find the content	1
41	Takes a bit of time to get used to...	Other features	Features	Waste time to other features	1
42	Application is rather slow.	Other features	Features	Application is slow	1
43	Once you are within the Methods content, navigation is fine. However the workbench UI is really unintuitive and difficult to use.	Other features	Features	Waste time to other features	1
44	In general - yes, but some features are unstable so application falling with error.	Other features	Features	Waste time to other features	1
45	No investment in Network Technology section for over a year - at least not that I have seen - information is over a year old and no value to my day to day work.	Updated content	Content	Content out of date	1
46	Some important assets are quite old (IAT)	Updated content	Content	Content out of date	1
47	I found example template too old to be applicable on 2012. A lot of sections without templates, examples, ...	Updated content	Content	Content out of date	1
48	Needs to also have time stamp and link into internal site	Updated content	Content	Content out of date	1
49	Not very good for short term tech consulting assignments. For long term implementation is ok.	Updated content	Content	Lack of content	1
50	Most of the assets are out of date for the relevant areas that I've looked at - some back to 2007. We really need to get up to date assets.	Updated content	Content	Content out of date	1
51	There's really good content if you can find it. Many of the documents are too basic though and not suitable to be used in projects.	Updated content	Content	Lack of content	1
52	ITSM (Process) Assets are outdated and not presented in an easy to use format.	Updated content	Content	Content out of date	1

continuation

continuation

Num	Feedback about the Workbench	Question related to	Category	Reason	Quantity
53	From my experience. The real project deliverables are the best option to refer to in Korea. Workbench don't provide it.	Updated content	Content	Lack of content	2
54	Missing details or cerdentials sometimes	Updated content	Content	Lack of content	1
55	But not always useful. See prior comment on scrubbing.	Updated content	Content	Lack of content	1
56	In terms: they help me to "clean" bad package installation but the pachage installation issue remains	Service Desk - solve the issue	Service Desk	Issue not solved at all	1
57	User desk is very good and reactive. use of lync-messaging is good. sometimes i don't always have the time to answer though...	Service Desk - solve the issue	Service Desk	Approach to contact not appropriate	1
58	Reinstall is a timeconsuming solution to incidents.	Service Desk - solve the issue	Service Desk	Not appropriate solution	1
59	Yes they can. But sometimes it was time consuming to me cosidering of my use.	Service Desk - solve the issue	Service Desk	Wait much time to solve the issue	2
60	It was an issue with the installation of the workbench and I had to re-install it	Service Desk - solve the issue	Service Desk	Not appropriate solution	1
61	Project Plan samples. I believe those will be part of Methods content.	Information not found in the Workbench	Content	Lack of content	1
62	I still rely on the ITSE internal site from some ITSE Specific artifacts. However the links to the various Community sites is great.	Information not found in the Workbench	Content	Lack of content	1
63	Workplace Security	Information not found in the Workbench	Content	Lack of content	1
64	Assets based on previous client experience; templates	Information not found in the Workbench	Content	Lack of content	1
65	I just can't load all packages I need	Information not found in the Workbench	Download of packages	Error during the download of packages	1
66	Assets of ITST like ITOM, ITCMM.	Information not found in the Workbench	Content	Lack of content	1
67	Getting better... I like when it shows what links will be available soon but are not yet.	Information not found in the Workbench	Content	Content updated	1
68	Limited number of example deliverables, workplans, approach/ proposal documentation	Information not found in the Workbench	Content	Lack of content	1
69	Requirements for infrastructure outsourcing incl. ITSM KPIs.	Information not found in the Workbench	Content	Lack of content	1
70	Storage transformation information is from 2007	Information not found in the Workbench	Content	Content out of date	1
71	IT Strategy assets	Information not found in the Workbench	Content	Lack of content	1

continuation

continuation

Num	Feedback about the Workbench	Question related to	Category	Reason	Quantity
72	Example client deliverable itself. much appreciated even if scrubbed.	Information not found in the Workbench	Content	Lack of content	1
73	Real project deliverables.	Information not found in the Workbench	Content	Lack of content	2
74	Now I have a trouble about update of workbench.	Information not found in the Workbench	Upgrade	Error during upgrades	1
75	Information to complete RFPs	Information not found in the Workbench	Content	Lack of content	1
76	Network credentials and information on our partnerships with products such as Cisco	Information not found in the Workbench	Content	Lack of content	1
77	Regular governance and process to update assets.	New features	Features	Need more functionalities	1
78	calculators	New features	Features	Need more functionalities	1
79	Better package management	New features	Features	Functionalities need improvement	1
80	Button to report broken links automatically search by package, filter/sort on packages, dates. button which allows you to submit a client deliverable for annonymization for a specific topic that you are currently looking at	New features	Features	Functionalities need improvement	1
81	Integration with social newsgroups for asking questions and usable assets.	New features	Features	Need more functionalities	1
82	Client deliverables repository	New features	Features	Need more functionalities	1
83	More powerful search functions with more visibility	New features	Search feature	Amount of search results not required, not ordered	1
84	Information on partnerships - Cisco, Vmware, etc.	New features	Features	Need more functionalities	2
85	I've jsut tried to fill this survey. I tried to do more than ranting about how disappointed I am with the workbench. guess what? my survey response turned into an error message... is there anythign workign with the workbenhc? not even the survey is working!	Need improvement	Features	Functionalities need improvement	1
86	Links to Win Cards of similar projects, so assets that aren't on the internal site (yet) can be obtained by contacting the appropiate person.	Need improvement	Features	Functionalities need improvement	1
87	I like the way the AMC Way Assets are organized.	Need improvement	Features	Functionalities need improvement	1
88	Proposal material	Need improvement	Content	Lack of content	1
89	A functional and reliable package management	Need improvement	Features	Functionalities need improvement	1

continuation

Num	Feedback about the Workbench	Question related to	Category	Reason	Quantity
90	Needed a quick response when I click each menu buttom.	Need improvement	Features	Functionalities need improvement	1
91	Overuse of embedded windows, ie: you open a powerpoint in workbench & there is no option to open it in powerpoint and edit it (although it should be easy), same for IE windows, eg: expert search - I'd prefer that launches in a separate window	Need improvement	Features	Functionalities need improvement	1
92	Speed and stability to begin with please :) Thanks!	Need improvement	Features	Functionalities need improvement	1
93	The interface. I still think a sharepoint would be much better, can still be offline and can be used for development activities as well.	Need improvement	Features	Functionalities need improvement	1
94	Defintely the UI and the package downloader. Maybe something more traditional would have been better than the custom UI. The downloader needs to be more resilient.	Need improvement	Features	Functionalities need improvement	1
95	Accessibility, Speed, Content, Look and Feel.	Need improvement	Features	Functionalities need improvement	1
96	- Easier install - Remove the need of manual process - iPAD/iPhone version!	Need improvement	Installation	Long Process to install	1
97	I find the workbench to be unstable when I start the application and click on different links in the tool. I often have to navigate away from the workbench before the tools responds to my clicks.	Need improvement	Features	Functionalities need improvement	1
98	The UI is not very usable - easy to get lost, not clear what all buttons do Also, the application crashes when behind a proxy at my client site.	Need improvement	Features	Functionalities need improvement	1
99	Too frequent errors during the package downloading.	Need improvement	Download of packages	Error during the download of packages	2
100	The information could be displayed outsite of the workbench desktop.	Need improvement	Features	Functionalities need improvement	1
101	I need to push myself and my team more often to use the Workbench as the initial source of information. Too many years of trying to use assets that weren't suitable and falling back on my peers and colleagues has led to bad habits!	Need improvement	Content	Lack of content	1
Total					107