

SPREADING A MINDSET FOR QUALITY (SM4Q): A CHANGE MANAGEMENT APPROACH

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Author
Raul SOTO-ACERO

Project Leader:
Valerie GALLEGO

Project Tutors:
Arnaud DERATHE
Gilbert FARGES

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ABSTRACT

The High Voltage Cabling Industry provides the perfect background to develop a mindset-change for quality improvements, its high-risk nature requires a quality mature and focused organizational culture.

This work exposes a change management methodology based on other existing methodologies such as PDCA and professor John P. Kotter's 8-step change management approach, developed as a top-management led approach, while strongly promoting a bottom-down response from middle managers.

The ultimate objective of this proposed approach is to launch a change process within any organization for a strong top and middle management commitment and leadership towards the establishment of a quality mindset.

Key-Words:

Management, change, leadership, quality, mindset, commitment, people, training, cable, high voltage, underwater, business.

RÉSUMÉ

L'industrie des systèmes de câblage d'haute tension est un milieu idéal pour le développement d'une démarche axée sur le mûrissement de mentalités, pour obtenir des améliorations qualité grâce à l'implication des gens.

Ce travail présente une nouvelle méthodologie basée sur d'autres approches déjà existantes comme le PDCA et l'approche de la conduite du changement en 8-pas du professeur John P. Kotter, afin d'implémenter une approche portée dans un sens *top-down*, qu'au même temps cherche à obtenir des fortes réponses *bottom-up* de la part des cadres intermédiaires.

L'intérêt principal de la démarche proposée est de démarrer un processus de changement applicable à toute entreprise dans une situation similaire, pour obtenir un engagement fort des cadres dirigeants et intermédiaires avec le développement d'une mentalité qualité dans l'entreprise.

Mots-Clés :

Gestion, conduite, changement, leadership, qualité, mentalité, engagement, personnes, formation, câble, haute tension, affaires.

RESUMEN

La industria de sistemas de cableado de alta tensión es el entorno ideal para desarrollar un proceso de gestión de cambio organizacional, hacia una mentalidad que permita mejorar el nivel de desempeño en calidad, la naturaleza de alto riesgo de esta industria requiere una cultura organizacional madura bien enfocada en la calidad.

Este documento expone una metodología de gestión del cambio basada en otras ya existentes como el PDCA o la metodología de 8 pasos del profesor John P. Kotter. Este nuevo método propone una aproximación de tipo top-down liderada por la alta gerencia, que sin embargo busca promover una respuesta bottom-up de la parte de los gerentes y mandos medios.

El objetivo final de este proceso propuesto es poner en marcha un proceso de cambio dentro de cualquier organización para obtener un fuerte compromiso y liderazgo de la alta y media gerencia con la instauración de una mentalidad de calidad en la empresa.

Palabras Clave:

Cambio, gestión, calidad, liderazgo, actitud, compromiso, personas, capacitación, cable, alta tensión, negocios.

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CONTENTS

- INTRODUCTION 8
- CHAPTER I: High Voltage Handles Big Risk - A Mindset Challenge 10
 - The High Stakes of HV Cabling Industry..... 11
 - The Magnitude of Risk in HV projects 16
 - Occurrence due to redesigns and modifications 17
 - Defaults consequences severity 17
 - Special processes hard-to-detect defaults 19
 - Dealing with Risk: A Mindset Matter 20
- CHAPTER II: 7-steps to a Quality Mindset..... 24
 - Position Stakeholders 26
 - State Commitment to Change 27
 - Define Shared Priorities 29
 - Launch the Mindset Change 31
 - Map Present State vs. Wanted State..... 32
 - Require and Supervise Action Plans 33
 - Support the Change..... 34
- CHAPTER III Engaged Change Leaders Forging a Quality-Wise Organizational Culture ... 35
 - A Consolidated Set of Improvement Priorities 36
 - Middle Managers Leading Change Teams 37
 - Quality Management Board Supporting Change 37
- REFERENCES 38

FIGURES

- Figure 1. Global cable market value 2012-2019 forecast (USD Billions)[4] 11
- Figure 2. World net electricity generation from renewables, 2012–40 (trillion kilowatt-hours)[5]..... 11
- Figure 3. European energy market integration[6] 12
- Figure 4. High Voltage Cable Project example [8] 12
- Figure 5. Installed HV cable upward trend (length in km) [8] 13
- Figure 6. Cable Industry top 10 global companies [10] 14
- Figure 7. Nexans Business Groups global presence and revenue share[14]..... 15
- Figure 8. The three Business Lines belonging to the HVUC Business Group[14]..... 15
- Figure 9. The three factors for a High Risk Rated Product [source: author]..... 16
- Figure 10. 3-dimensional risk characterization matrix [source: author] 17
- Figure 11. Cost breakdown for Land and Submarine cabling projects [17] 18
- Figure 12. Electrical breakdowns extreme consequences examples[19] [source: author] 19
- Figure 13. Typical cause-effect fishbone diagram[24] 21
- Figure 14. Risks in the HV Industry 5M Analysis [source: author] 22
- Figure 15. Stakeholders mapping [source: author] 27
- Figure 16. Top management commitment to lead change [source: author] 27
- Figure 17. The Quality policy statement as a symbol of commitment [source: author]..... 28
- Figure 18. Priorities definition workgroups [source: author] 29
- Figure 19. Actual example of an organized set of priorities developed. 30
- Figure 20. Change launch, making it official [source: author] 31
- Figure 21. Real example of a change presentation workshop performed..... 32
- Figure 22. Current vs. Goal status mapping [source: author] 32
- Figure 23. Active and supporting supervision [source: author] 33
- Figure 24. Top-down support for bottom-up change actions [source: author] 34
- Figure 25. Inscribing change in a finite number of PDCA continuous improvement cycles[28]..... 36
- Figure 26. A broadly supported set of improvement priorities [source: author] 36
- Figure 27. Empowered middle managers leading the change [source: author] 37
- Figure 28. Quality finding its natural supporting function [source: author] 37

GLOSSARY OF TERMS

MIM: Mémoire d'Intelligence Méthodologique

QPO: Qualité Performance des Organisations

PDCA: Plan, Do, Check, Act

ISO: International Organization for Standardization

UTC: Université de Technologie de Compiègne

EN: European Norm

HV: High Voltage

8D: 8 Do or 8 disciplines

IEC: International Electrotechnical Commission

INTRODUCTION

This work represents a milestone in a process of professional and personal development that I started nearly two years when I was accepted to be a part of the Master's degree *Qualité et performance dans les Organisations*, "QPO" in the Sorbonne Universities - University of Technology of Compiègne, in France.

The Master's degree Systems and Services Engineering: Specialty Quality and Organizational Performance, has three concrete professional targets. The first one, "to form effective actors in the implementation or accompaniment of quality dynamics and changes for the improvement of performance in public, mixed or private organizations". The second one, "to develop competencies on complex organizations modeling, diffuse information extraction, and value analysis of acquired experiences, processes and potential of companies". And the third one, "to integrate material and immaterial innovation as a source of profitability for companies or organizations, while orchestrating the factors of human creativity and dominating the conditions of its development".

I joined the master's degree "QPO" after completing an Engineer's diploma in Mechatronics in the National University of Colombia, an innovative career where I acquired and experienced knowledges in basic sciences like mathematics and physics, as well as its practical application to the design and development of technological products and services, integrating mechanical, electronics and software solutions.

This skill structure of an engineering/technical core, with a layer of organizational and human factors studies, has allowed me to join the group Nexans via a 6-month-internship, a world leader in cables and cabling systems, in which I supported the Quality Direction of the High Voltage and Underwater Cables Business Group, with the application and deployment of the knowledge and methodologies I have studied along my academic training as Mechatronics Engineer and Master's degree in Quality.

My main motivations for Quality as a profession come from a personal passion for efficiency and innovation, two central concepts in the routine a Quality professional who must optimize by diagnosing and proposing solutions every day to issues and risks that threaten or diminish enterprises customer satisfaction.

On top of this, from a practical point of view, Quality is a trade that can generate value

across all industries, as quality is not anything but a synonymous for “client satisfaction”, which makes this profession an excellent professional choice that allows to explore diverse industries in a transverse way, regardless of its products or services focus, while allowing to capitalize any given industry best practices on value created through the adaptation and transposition of these practices as solutions for other enterprises.

The Quality Engineer Internship: Quality Academy, proposed by the Nexans Quality Direction attracted me particularly due to the presence of an already established project, with well-defined needs and goals, which allowed me to apply, from the beginning of the internship, all the learned methodologies while at the same time I could acquire knowledge on the cabling industry with all its particularities, this opportunity to develop my professional project as a “Learning by doing” dynamic, along with the vast professional experience of my of internship supervisor in companies with well-known and established quality practices (including some of the biggest actors of the automotive and rolling-stock industries) were very motivating as they represented an opportunity to begin in a successful way my postgrad professional project.

Quality has obtained and consolidated a central place among the priorities of nowadays organizations. As a profession, Quality has established itself as a powerful lever to increase enterprises performance, due to its transversal nature that allows its implementation on different organizational levels such as external client satisfaction improvements quests, internal processes performance developments or management practices change for employee progress.

CHAPTER I: High Voltage Handles Big Risk - A Mindset Challenge

The High Stakes of HV Cabling Industry

The high voltage cables and accessories industry is projected to grow steadily from 2016 to 2021 [1], in response to the global economy development but especially because the existent urge for even cleaner, safer and more efficient energy sources and networks to help reduce global carbon emissions and slow-down rising temperatures from climate change [2][3].

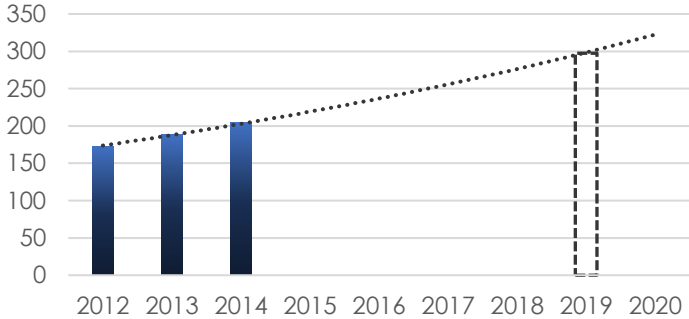


Figure 1. Global cable market value 2012-2019 forecast (USD Billions)[4]

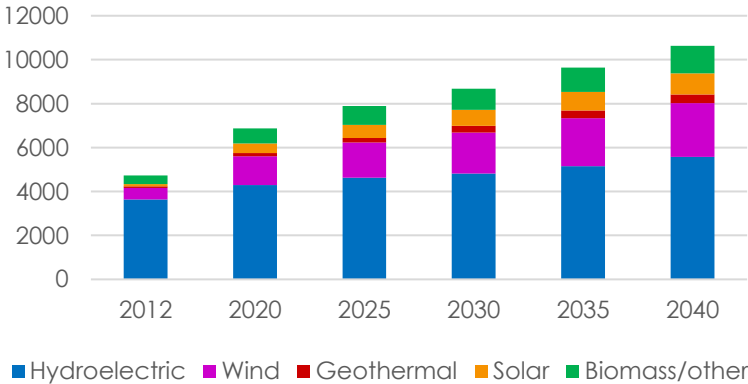


Figure 2. World net electricity generation from renewables, 2012–40 (trillion kilowatt-hours)[5]

Needs for cleaner energy consumption and production are being addressed in the European Union through a strategy defined in early 2015 and further endorsed after the Paris COP21 agreements, the European Energy Union, which focuses on energy security, decarbonization of the EU economy, increasing energy efficiency and fully integrating the European energy market, with a target for electricity interconnection between all member states defined at a 10% minimum for 2020. This is expected to improve robustness of electrical grids, and dependability on renewable energy sources[6].

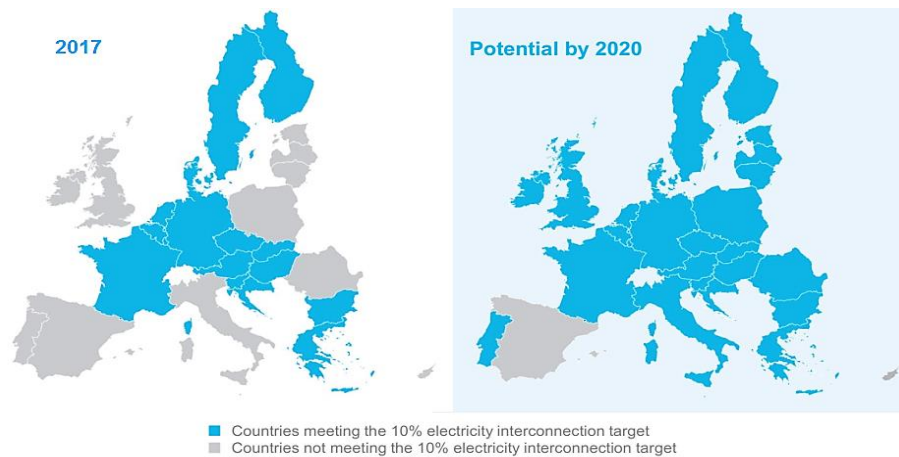


Figure 3. European energy market integration[6]

High voltage cables are the links in electrical grids. By definition “High Voltage” regroups any voltage equal or bigger than 1000 V, but most high voltage cables must withstand electrical tension ranging from 10 kV and up to 500 kV, and in some (research and development) projects even more[7], in order to connect through hundreds of kilometers with obstacles such as mountains or seas, countries and regions that rely upon them to satisfy their everyday energy needs[8].

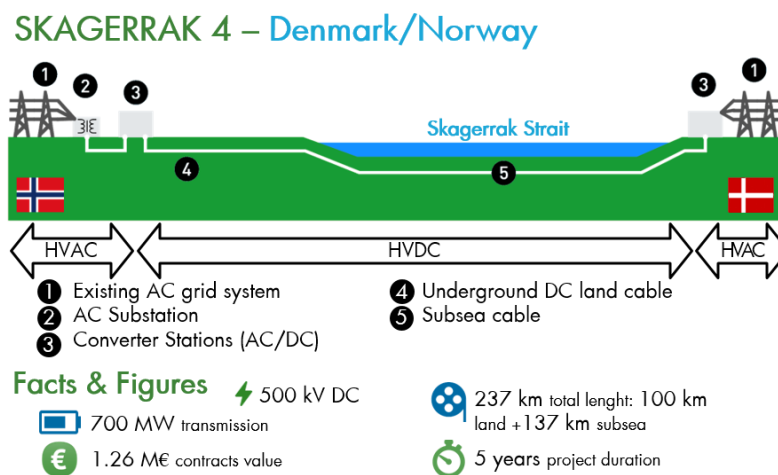


Figure 4. High Voltage Cable Project example [8]

One example of a High Voltage project in power transmission is Skagerrak 4, a cable interconnector from Norway to Denmark, inaugurated in late 2014 it increased the power exchange capacity between the electrical networks of both countries. With over 100 km of underground cabling, and 137 km of submarine cables, the project is a milestone for Europe's high voltage transport technology across very long distances.

Danish windfarm network can export excess power generated during windy seasons and store on the other side of the Skagerrak strait in Norway's dams as potential hydropower which in turn can be imported back in Denmark whenever windfarms experience weak winds, diminishing the total need for fossil fuel (coal and gas) power use.

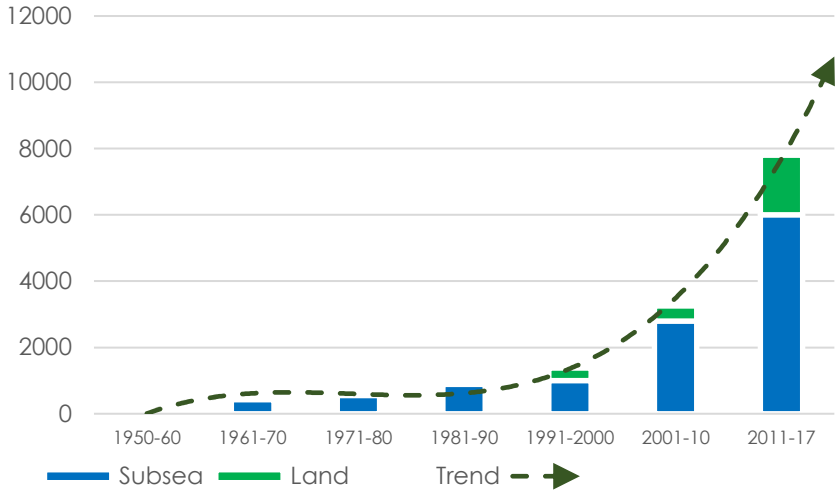


Figure 5. Installed HV cable upward trend (length in km)[8]

Projects like Skagerrak demonstrate that subsea and underground cables have acquired fundamental importance for national, regional and global necessities, High voltage cabling grew over 8000 kilometers of cables installed between 2010 and 2014 alone [8], adapting in a versatile way as an entire range of solutions for power transmission and power distribution in both land and sea.

Enterprises belonging to the high voltage cable industry need to guarantee an excellent level of quality and compliance to requirements and standards from clients and international organizations[9], as a consequence of the challenges undertaken in any high voltage project and by any cable that will withstand the proof of harsh environments and time. Ensuring customer satisfaction through their lines of products and services (i.e. cable installation), to retain and grow their market share and to assure their mid and long-term business sustainability and success.

The cable industry is a heterogenous environment with different types of companies from different regions and backgrounds, where most of the industry leaders like Prysmian, Nexans or General Cable origins date back to the first decades of the 20th century or even before. In 2013, the main global players of the cable industry were ranked as follows [10]:

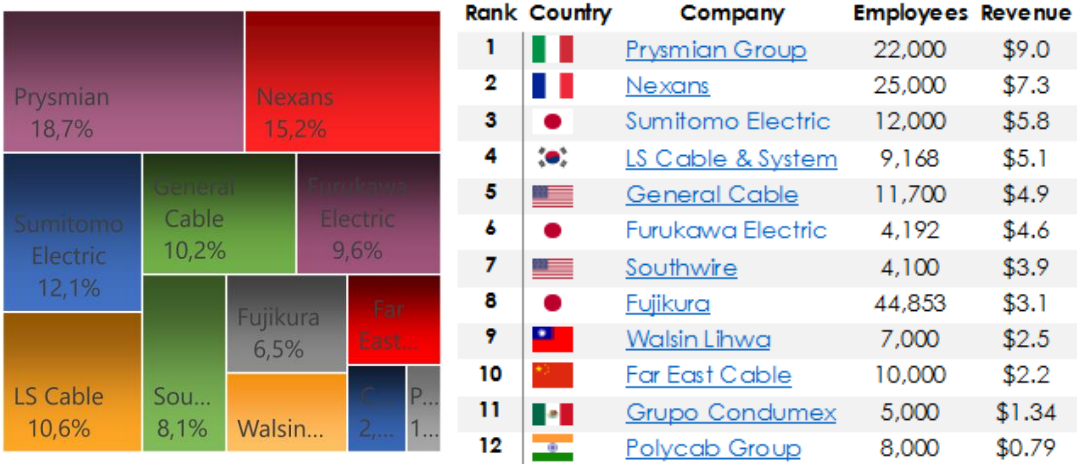


Figure 6. Cable Industry top 10 global companies [10]

Growing total combined revenue for the leading global insulated wire and cable producers reached US\$100,580 million in 2015 [11].

Among these top players, the French company Nexans SA is one of world leaders of the cable industry. It supplies cables and cabling systems and solutions for energy infrastructure, industrial applications, building and civil works, and networks (LAN) markets. Covering a wide range of product and service lines[12]. It is also the sponsor company for the internship in which this work was developed.

Nexans has an industrial presence in 40 countries with 91 plants and a commercial worldwide presence, counting around 26000 employees, the company is quoted on the Euronext Paris stock exchange and is a part of the CAC Mid 60 and the SBF 120 indices as one of the 100 listed actions with the highest market capitalizations[13].

The global presence of Nexans is organized through seven different Business Groups, these groups correspond for the most part to a regional segmentation of the world markets, with the exception of two global-reach business groups (High Voltage Business Group and Harnesses Business Group) which serve with a consolidated offer of products and services these two world market segments [7]

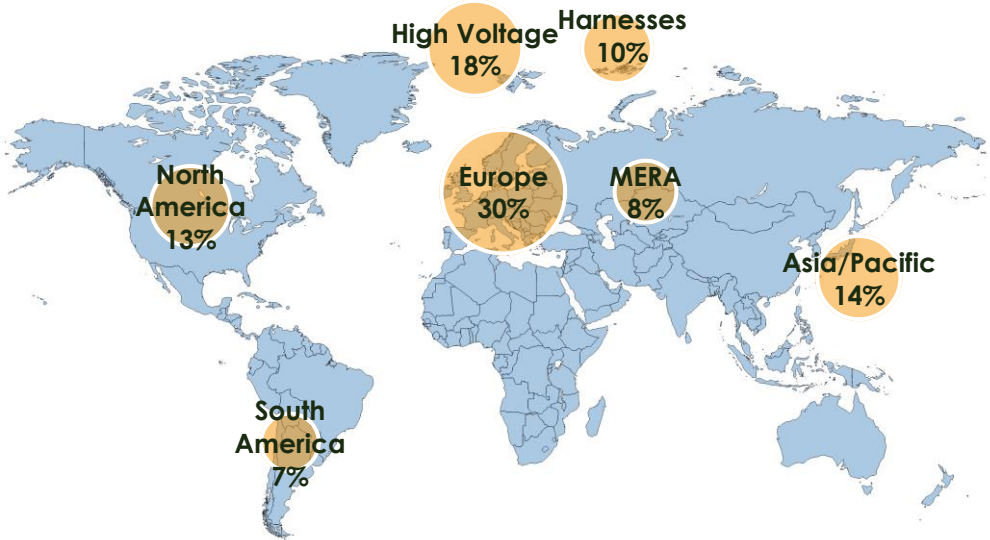


Figure 7. Nexans Business Groups global presence and revenue share[14]

The High Voltage and Underwater Cables Business Group ("HVUC"), is a worldwide business group representing 18% of the group revenue in 2015. Operating three business lines which correspond to a second level of market segments which have been defined by families of products and services which play together to provide the solutions required by its customers.

	<p>SUBMARINE HIGH VOLTAGE</p> <ul style="list-style-type: none"> • Utilities • Renewables (Export cables, Inter array cables) • Oil & Gas
	<p>HYBRID UNDERWATER CABLES</p> <ul style="list-style-type: none"> • Underwater Fiber • Oil & Gas (Umbilicals) • Seismic Acquisition
	<p>LAND HIGH VOLTAGE</p> <ul style="list-style-type: none"> • Buried cables (Utilities, Renewables) • Overhead - power lines (OHL)

Figure 8. The three Business Lines belonging to the HVUC Business Group[14]

The HVUC business group organizational structure corresponds to a full turn-key business model, where projects are delivered to the customer as a completed product. A turnkey cabling system is a complete system including all cabling components sold, designed, manufactured and installed to satisfy specific customer requirements.

The Magnitude of Risk in HV projects

By definition, a “full turnkey” business model like the one for the high voltage cable industry puts, for any product or service, all the risk on the side of the manufacturer. assuming the entire responsibility for the full project[15].

Additionally, considering the scale of the projects, so much in terms of dimensions as in terms of challenges and costs, the resulting intrinsic risk is very high. The quantification model for risks assessment, proposed by the methodology FMEA, can be very useful to clearly show the dimension of the risk level inherent to this industry.

The Failure Modes and Effects Analysis approach (“FMEA”) is a systematic methodology used for failure analysis which defines the concept of Risk Priority Number (“RPN”) as a tool to characterize and prioritize risks by using the product of three rating scales, Severity rating, Occurrence rating, and Detection rating, as follows[16]:

$$RPN = O * S * D$$

Occurrence rating “O” is defined as a measure of failure frequency, the severity rating “S” is a measure of failure seriousness (i.e. the effects of the failure), and the detection rating corresponds to how difficult it is to detect the failure before it reaches the customer.

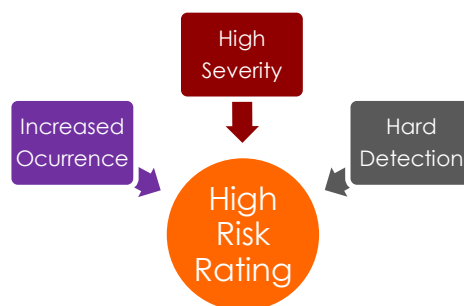


Figure 9. The three factors for a High Risk Rated Product [source: author]

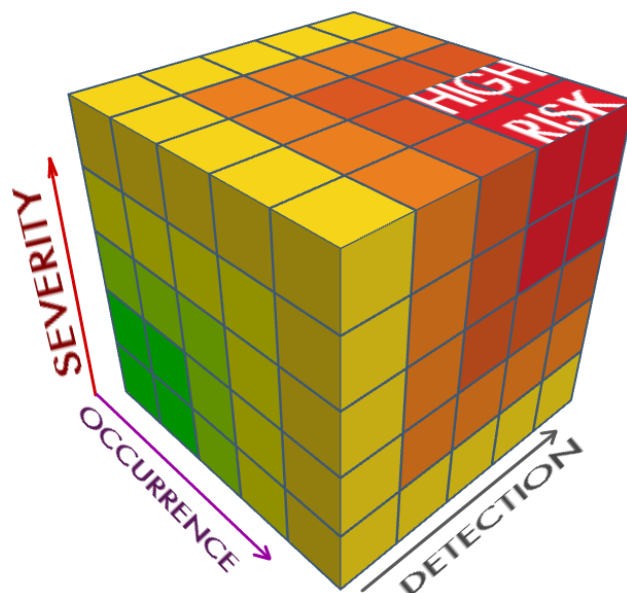


Figure 10. 3-dimensional risk characterization matrix [source: author]

Applying this to the case of the High voltage cable industry it is possible to highlight several specific conditions which would make the assessed risk naturally high for any HV project:

Occurrence due to redesigns and modifications

The first characteristic is the frequency of re-design and design modifications processes present on this kind of projects, each HV project is highly customized in order to fit as suitably as possible each customer project limitations and requirements, this implies that along the project lifecycle, the possibilities of needing re-designs or design modifications is quite elevated, which in turn increases the opportunities (i.e. the occurrence) to produce defaults associated with each major or minor modification performed on the original design.

This creates by definition an environment where the occurrence for risk is naturally increased by the process.

Defaults consequences severity

The second specific condition for HV projects is the costs and dimensions of the HV cabling projects, typical HV projects like the Skagerrak 4 shown earlier on this document are very expensive, with contracts values in the tens of millions of Euros for each project, which for the case of the Skagerrak 4 project represents a contract over 80 million euros for the 137

km of cabling made by Nexans [17].

Further to these figures, according to the Agency for the Cooperation of Energy Regulators, the mean value per installed km for subsea cables is estimated at 909,910 euros, while for underground cables the estimation was between 695,704 €/km and 4,905,681 €/km depending on the voltage/rating of the cable [18].

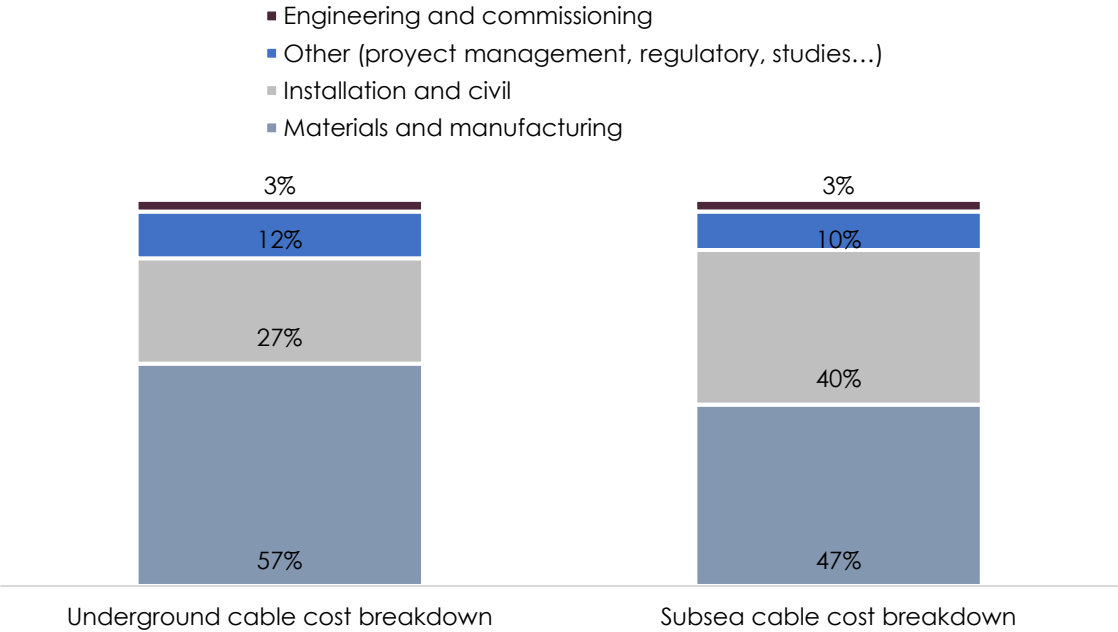


Figure 11. Cost breakdown for Land and Submarine cabling projects [17].

Consequently, defaults in HV projects have considerable financial consequences, an interesting example would be the estimated cost of scraping of a 3 km non-conform section of subsea cable, detected in tests before installation, as follows:

$$\begin{aligned}
 & \text{Mean cable cost per km} * \text{kms scraped} * \text{materials and manufacturing part of the cost} \\
 & = 909,910 \frac{\text{€}}{\text{km}} * 3 \text{ km} * 47 \% \\
 & \approx 1,282,973 \text{ €}
 \end{aligned}$$

Which just from a financial point of view accounts for very large consequences, even without considering the very concerning risks for human health and safety that a faulty cabling system could represent in case of an electrical breakdown.

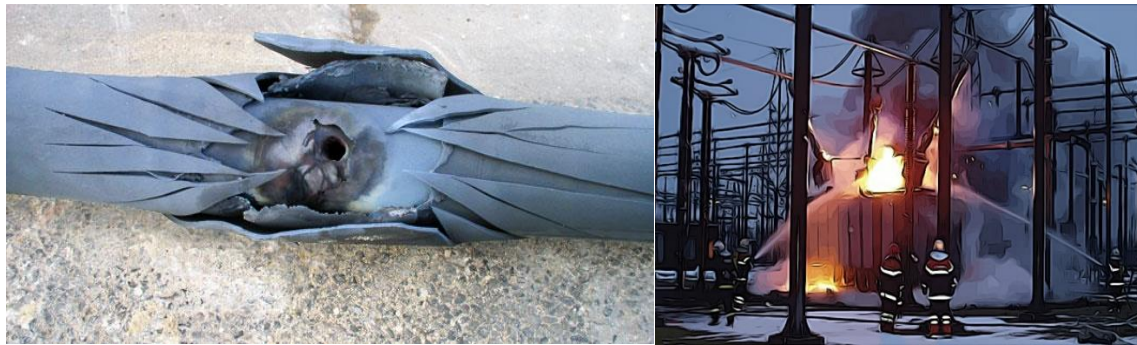


Figure 12. Electrical breakdowns extreme consequences examples[19] [source: author]

Special processes hard-to-detect defaults

High intrinsic risk of non-detection associated to the nature of the high voltage cables manufacturing processes is the third characteristic present in the high voltage cabling projects risk rating, high voltage cable manufacturing processes can be considered as “special processes” a type of processes that was originally defined in the ISO 9001:1994 standard which includes any manufacturing process where the resulting output cannot be verified (i.e. directly monitored and measured) during production and consequently, defaults become apparent only after the output product has been produced, delivered or put into service [20]. This is defined in the standards EN9100/AS9100 section 7.5.2, ISO 9001:2008 section 7.5.2 and the more recent ISO 9001:2015 section 8.5.1-f.

Today the ISO9001:2008 and further ISO9001:2015 versions of the standard have renamed these processes as “processes requiring validation”, defining them as follows:

... “Validation of Processes for Production and Service Provision The organization shall validate any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement and therefore, deficiencies become apparent only after the product is in use or the service has been delivered[21].”

...

Hence, three conditions reunite, high severity effects of potential defaults, high frequency of projects modifications and redesigns which imply in turn more chances to perform a default and thus high occurrence, and the “special process” nature of the HV cable manufacturing which entails a high non-detection potential. All of which characterize the HV cabling as a high-risk rating business model.

The HV industry needs their products and services to be released smoothly & with no defects, this can be accomplished by establishing an organization where everyone is customer aware and customer proactive.

Many quality risks menace each process in the value chain. And ignoring this risks could mean resources wasted managing cascading problems, and a potential exposure to retarded deadlines, lost contracts, revenue, opportunities and a harmed quality reputation.

Dealing with Risk: A Mindset Matter

The previously described situation requires a robust methodological approach, to face and deal as effectively and efficiently as possible with the stated risks. For the sake of simplifying as much as possible, it is logically conceivable to split this methodological approach in two steps. A first step concerning a deep and comprehensive issue analysis, and a second phase of solution development and implementation where the information collected in the first phase is used as an asset to understand and propose a problem-solving strategy.

For the problem analysis "RCA" phase, many different analysis approaches could be used. Evaluation of different existing strategies and proposal of new ones is key, to avoid mental set, which is the predisposition of using only a familiar single technique or small group of techniques to solve any problem, despite the possibility of using other simpler or more efficient alternatives[22].

One of the simpler and most established techniques to explore cause and effect and analyze problems is the 5 Whys method, developed within the Toyota Corporation by his famous founder Sakichi Toyoda, it became one of the fundamental pillars of what today is known as the Toyota Production System "TPS" [23].

Furthermore, the 5 Whys technique became the fundamental idea behind Kaoru Ishikawa's diagram for root cause analysis, also known as fishbone diagram, which is widely held today as one of the basic tools of quality control and quality assurance.

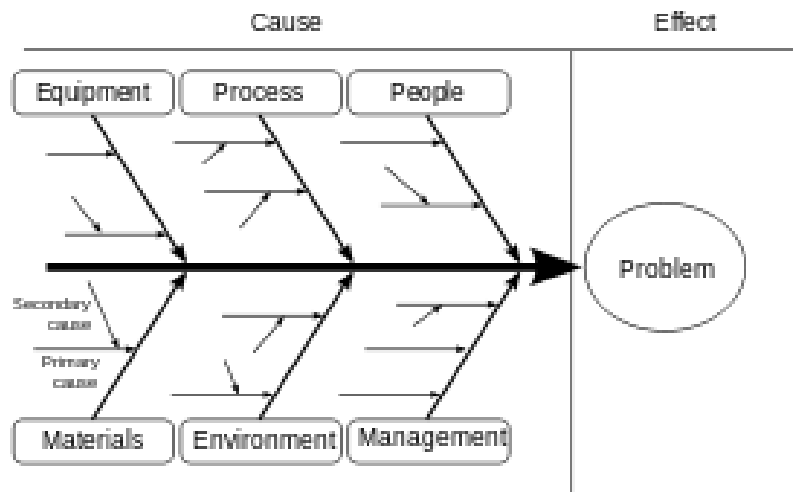


Figure 13. Typical cause-effect fishbone diagram[24]

Every cause analysis diagram is based on cause categories, classifying cause-effect relationships and variables, developing a hierarchy of identified and grouped influential factors known as root causes. 5M's being one of the most used classifications in manufacturing industries.

The original 5M's used in the "TPS" are: material, machine, method, manpower and medium, although sometimes they're expanded up to 8M's to include categories such as maintenance, management or measurement.

Other examples of root cause analysis categories used are the 7P's: product, price, place, promotion, people, process, physical and package from the marketing and communications industry. Or the 5S's: suppliers, systems, surroundings, standards and scope which is usually used in the services industry.

In accordance to the stated organizational situation, a new type of root cause analysis is proposed, one that could be more adapted to the organizational characteristics and priorities of this industry organizations, with the following fishbone diagram categories: Input, Machines, Methods, People, and Mindset.

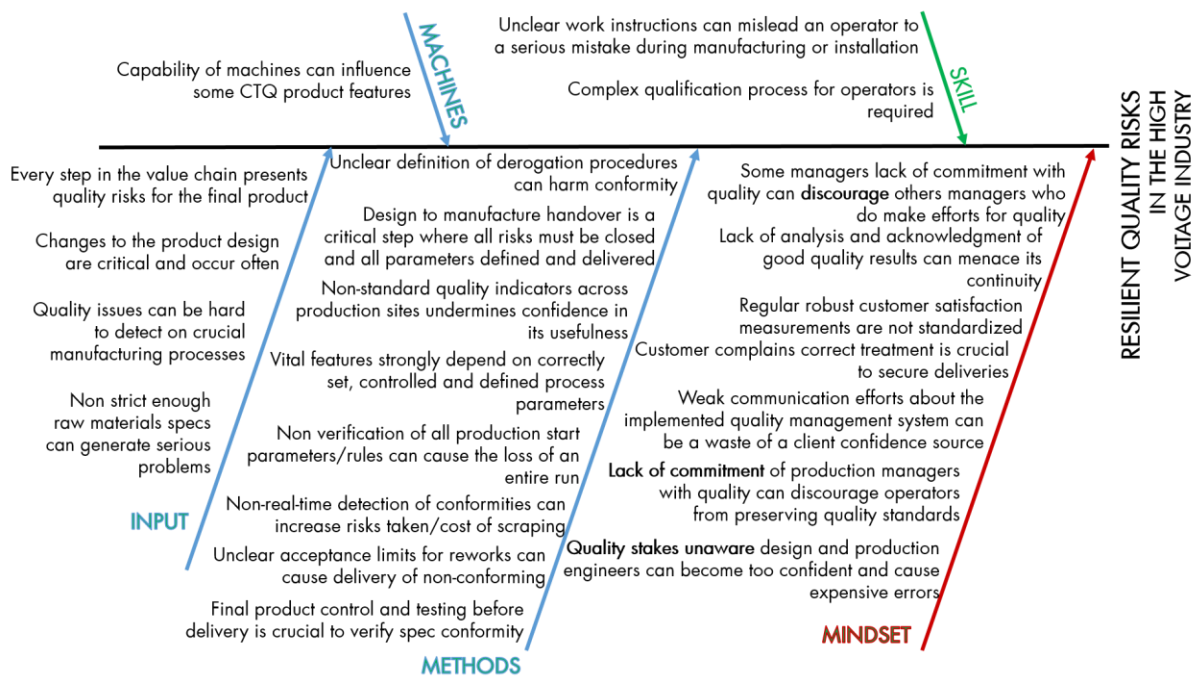


Figure 14. Risks in the HV Industry 5M Analysis [source: author]

From this performed analysis, we can establish two top groups of risks, Methods and Mindset, with some risks of the Methods part having even a small degree of Mindset component too.

Additionally, what we have inferred from this analysis is that organization must work in three fronts, the first can be defined as the “Process Definition” group, where standards and procedures must be defined and established across the value chain for controlling the risks, this first part is the base for a quality product and it regroups solutions for the blue arms on the 5M analysis.

A second front can be defined as People's Skills, operators, engineers and manager's qualification is crucial for the implementation of the methods previously defined, both from a technical qualification point of view (core & trade competencies) and from a problem-solving point of view (quality methods for analysis and treatment). Because if they do not clearly understand the proposed technical or problem solving procedures, it's going to be difficult for them to put them in practice at every step of the value chain.

But these two fronts of work are not sufficient by themselves, because an organization can perform huge efforts in terms of defining its processes, diagnosing the risks, investigating root causes and defining and organizing a comprehensive set of standards and procedures that will keep the process from deriving out of the performance limits, an organization can also perform trainings, seminars and workshops, hiring the best qualified professionals in every field and despite all of that, the risks can still be present and threatening for the short-term performance and long-term sustainability of the organization.

To alleviate this situation, a third set of improvement actions is needed, the mindset-building oriented actions, they are important to treat the risks coming from the beliefs and culture of the people in the organization, because an organization can define and publish the best possible set of procedures, having the best training and qualification programs, and if people do not feel compelled to follow, to abide by the standard, all the qualification and method-definition work will be wasted.

In the 5M analysis developed, the Mindset risks are one of the most numerous groups, along with Methods, if we consider that different quality tools, methods and standards are already existing and implemented across many industries, then the strongest problem will be to find or define an effective mindset improvement process, this is, a change management process focused on organizational culture improvement.

CHAPTER II: 7-steps to a Quality Mindset

Having established that the main root causes for the present quality risks are a matter of having the right mindset across to deliver quality products, which represents a cultural state of the organization, the solution approach will be focused on the human and the transformation process needed to create and develop a mature quality mindset in the mentalities of decision makers, plant managers, engineers and so on. This process can be defined as a Top Down change management methodology.

Among other existing change management approaches like the well-known Plan, Do, Check, Act cycle from the professor Edward Deming[25], the one proposed by the professor John P. Kotter in 1995 is one of, if not the most popular. Many different authors have quoted and discussed this approach to prove or criticize its model (according to google scholar data, his work has been cited by over 6500 other publications).

In the model proposed by his book, professor John P. Kotter proposed a series of 8 steps deemed applicable for any enterprise or organization having trouble to adapt to changes or establishing lasting modifications to its culture, routines and ways of working.

The steps proposed are the following[26]:

- (1) establish a sense of urgency about the need to achieve change – people will not change if they cannot see the need to do so;
- (2) create a guiding coalition – assemble a group with power energy and influence in the organization to lead the change;
- (3) develop a vision and strategy – create a vision of what the change is about, tell people why the change is needed and how it will be achieved;
- (4) communicate the change vision – tell people, in every possible way and at every opportunity, about the why, what and how of the changes;
- (5) empower broad-based action – involve people in the change effort, get people to think about the changes and how to achieve them rather than thinking about why they do not like the changes and how to stop them;
- (6) generate short-term wins – seeing the changes happening and working and recognizing the work being done by people towards achieving the change is critical;
- (7) consolidate gains and produce more change – create momentum for change by building on successes in the change, invigorate people through the changes, develop people as change agents;

(8) anchor new approaches in the corporate culture – this is critical to long-term success and institutionalizing the changes. Failure to do so may mean that changes achieved through hard work and effort slip away with people's tendency to revert to the old and comfortable ways of doing things.

In this case, a new approach for change is proposed, one adapted for the specific purpose of establishing a quality mindset in an organization in a top down manner, this type of approach can be, as the one developed by professor Kotter, implemented in any kind of organization which finds itself in a position where a mindset transformation is needed, to put quality into practice when the organizational culture is subjected to new or persistent quality risks.

The SM4Q approach comprises seven phases, primarily conceived as a top down step by step process, it has however some degree of bottom-up feedback as a crucial part on some of its phases. The main characteristics for each step on this approach are further explained and developed on this chapter, as well as the main differences and resemblances with other approaches such as Kotter's 8-step model and Deming's PDCA.

Nonetheless, before starting any organizational change, it is necessary a first phase to clearly state and show why a change is needed. Men and woman in any organization have working routines and established procedures, with power positions and settled relationships, representing a non-negligible inertia resistance for any change process, especially one that is not properly justified and demonstrated as urgent.

In the case of the seven-step approach stated in this chapter, this preliminary phase of change urgency demonstration that in Kotter's model is called: "establishing a sense of urgency about the need to achieve" it's considered as already developed on the first chapter of this work.

Position Stakeholders

This phase can be compared to "create a guiding coalition" only that more complete as it keeps in mind both groups of supportive and resistant stakeholders along with their level of influence. This helps anticipate the negative response to the change process and formulate possible actions to convince and demonstrate the importance of cultural change to resistant people.

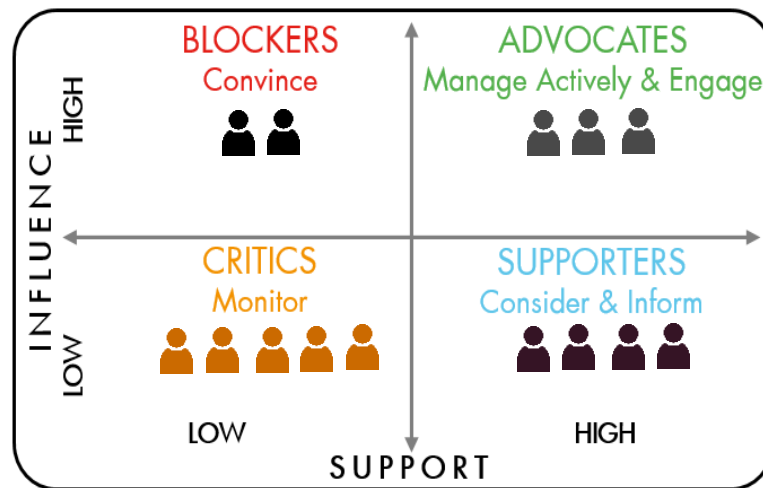


Figure 15. Stakeholders mapping [source: author]

The three main stages defined for this phase are the following:

- Identify transformation allies, potential coalition members and change agents.
- Assemble a powerful and knowledgeable enough coalition (Quality Board).
- Recognize dissenters as probable sources of resistance, monitor and prepare for their reactions.

State Commitment to Change



Figure 16. Top management commitment to lead change [source: author]

The ISO9001 standard devotes an entire chapter to leadership, and more specifically

about the importance of its commitment with the quality management system, as well as its central role bearing the quality policy of the organization [21].

Top management commitment is a crucial step for any quality assurance endeavor. Furthermore, some studies and research have shown that organizations with high top management commitment are more resilient to variations on input variables such as customer focus and supplier quality, manufacturing higher quality products despite these variations while organizations with low management commitment are more exposed to external situations producing lower quality product when there are negative variations[27].



Figure 17. The Quality policy statement as a symbol of commitment [source: author]

A declaration from top management with a description of what the organization wants to achieve for its clients it's the key deliverable for this first step, it should contain as well a set of defined organizational core values, stating the main beliefs and attitudes which the organization wish to establish in its culture across all employees, and finally but very important, a list of key broad objectives for main areas of the organization along with general strategies to achieve, measure and review the accomplishment of these objectives.

Consequently, the corresponding main stages for this phase are:

- Define the set of organizational values that is essential to adopt for quality improvement.

- Specify the main attitudes which the organization wants to establish in its culture
- Outline broad improvement objectives for the whole organization along with a strategy to measure, review and achieve the change.
- Declare top management commitment with the implementation of these key quality objectives (Quality Policy).

Define Shared Priorities

In this step the idea is to invite key representatives from different business divisions, functions and levels to brainstorm, define, classify and develop through discussions, a set of crucial requirements which will allow to solve the most impactful, recurrent and costly issues on the organization.



Figure 18. Priorities definition workgroups [source: author]

It begins with the “quality board” assembled reaching out across the entire organization, looking for people willing to change the status quo by committing to work towards the new defined vision, these volunteers can be chosen among the people already known by the members of the quality board who they consider are more eager for change and who have the best understanding and experience on how the company and their business division currently works and where are the most important struggles that negatively influence quality of delivered products and services.

More directly, the main steps for this phase of the change plan are the following:

- Enlist experienced and product-aware managers from main value-adding processes among the identified supporters of change.
- Create mixed (division and region) teams to work on main different strategic areas of change.

Per Team:

- Brainstorm, discuss and share experiences and lessons from past quality issues and risks.
- Sort by impact situations (potentially) causing quality issues.
- Specify key concrete objectives to improve quality in each change area.



Figure 19. Actual example of an organized set of priorities developed [source: author]

The final deliverable of this process should be an organized set of stated priorities, built through discussion and agreement, kept as simple as possible to avoid creating a never-ending list of requirements that nobody will read by its own initiative.

This deliverable will be the input for further discussion and development with the whole group of middle managers required for the transformation process, including those who are already been identified as resistant to change.

Launch the Mindset Change



Figure 20. Change launch, making it official [source: author]

Use a corporate event to inform all the industrial sites managers and midlevel executives about the changes coming, work with them in workshops to review the set of urgent requirements to get their feedback and thinking about the pertinence and the perceived degree of positive or negative impact that these new requirements might have for their day to day work in each business division.

Then, the following steps outline the main activities required to complete this phase:

- Schedule a special event to get all concerned managers together and isolated from everyday tasks, this will allow them to concentrate on the job at hand, the urgency of change presentation.
- Present the change process officially, recalling its urgency and the strong commitment of the whole organization with it. This must be done with a display of a solid top management devotion to the process, presenting it along the quality board.
- Introduce the teams work to all managers, thoroughly explaining every specified objective.
- Gather all their feedback while keeping in mind the resistance biasing some statements.



Figure 21. Real example of a change presentation workshop performed [source: author]

As the photo suggests, the main objective for this step will be accomplished if every single middle manager has participated to the workshop of seeing, reading, getting explanations, holding, understanding and asking questions about each set of priorities developed, and then at the end of this interiorization process giving back their feedback about the pertinence of the presented priorities.

Map Present State vs. Wanted State

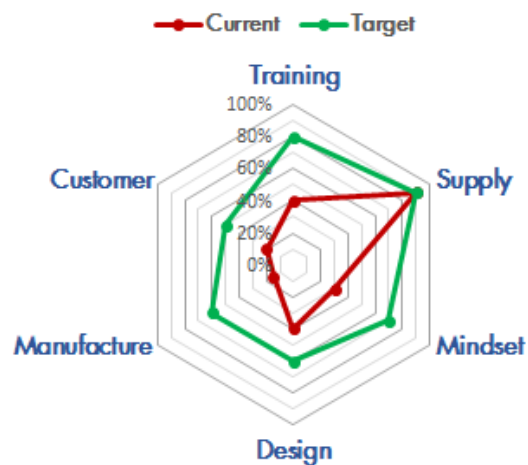


Figure 22. Current vs. Goal status mapping [source: author]

- Obtaining middle managers detailed and stated commitment to change is the

main goal of this phase, this can be achieved by following these steps:

- Update the specific objectives with the change coalition according to the gathered feedback.
- Request all concerned middle managers to map, their current dept. status in respect to the updated set of specific objectives. Analyze all current status received.
- Remind managers about the organization indisputable commitment with change and encourage them to assemble local teams and lead change.
- Ask managers for objective targets mapping for the next year with their teams.

Require and Supervise Action Plans



Figure 23. Active and supporting supervision [source: author]

- Request a complete gap analysis with prioritized current versus target objectives from each manager.
- Require detailed action plans from each manager. Including actions, owners, metrics, milestones and required resources to bridge gaps within the years' time.
- Supervise data and defined metrics regarding the expected results for each leader action plan.
- Meet regularly to discuss milestones completion and help them overcome issues.

Support the Change



Figure 24. Top-down support for bottom-up change actions [source: author]

- Communicate achievements using all available tools to demonstrate the importance of efforts and convince skeptics.
- Improve and update processes and procedures to better suit the new establishing mindset improving flows and responsiveness.
- Strengthen formation processes by responding to skill issues and recurrently weak qualifications detected by managers.
- Reward constructive initiatives from local managers and their teams, putting in place a system of bonuses and recognition for quality mindset sourced improvement and achievements.

CHAPTER III Engaged Change Leaders Forging a Quality-Wise Organizational Culture

For perspectives, a yearly feedback cycle must be performed, where past year results are gathered both for positive and negative impacts, analyzed to make clear the cause-effect relations between executed actions and results.

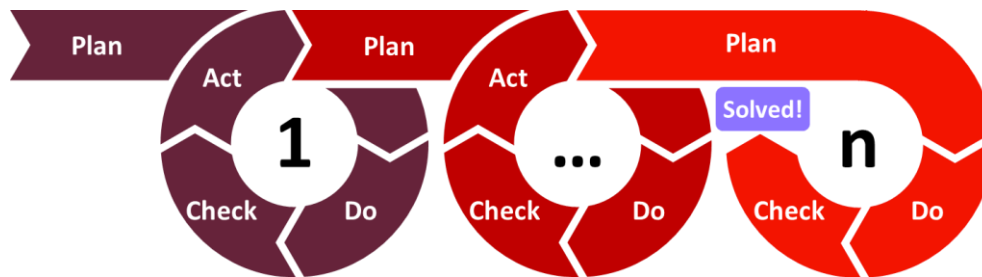


Figure 25. Inscribing change in a finite number of PDCA continuous improvement cycles[28].

Lessons learnt and punctual adjustments to priorities are presented along next steps. Commitment with change is reassured and demonstrated by presenting all good results obtained last year.

This is done yearly until the mindset change is achieved and settled. Until all specified priorities are adopted and become a part of the organization's culture: "The Way We Do Things Here."

The final goal of this change process is to produce a collective mind for the organization, set in mode: "deliver quality to customers through minding all the process risks."

A Consolidated Set of Improvement Priorities



Figure 26. A broadly supported set of improvement priorities [source: author]

Self-assessment capable and built collectively with the contribution of transverse teams and the wide feedback from all managers that will later execute the improvement actions.

Middle Managers Leading Change Teams



Figure 27. Empowered middle managers leading the change [source: author]

Each value-adding process manager becomes the leading agent for transformation. Engaging himself and his team with detailed next-year goals. Developing a detailed action plan to achieve the vision including material and immaterial resources needed.

Quality Management Board Supporting Change

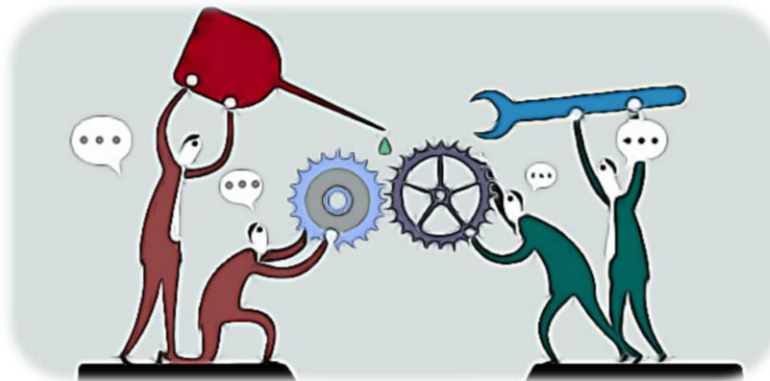


Figure 28. Quality finding its natural supporting function [source: author]

A central coalition for change (the Quality Bard) leads and coordinates the whole process from the highest level of the organization (decision power). Becoming a supplier of change support resources for every change leader and its team, while analyzing their results to improve the whole change process.

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