

55th EOQ Congress
World Quality Congress
Budapest, Hungary - June 20-23, 2011

"Navigating Global Quality in a New Era"



June 22, 2011 (Wednesday) 55th EOQ Congress

CONCURRENT SESSIONS
KEMPINSKI HOTEL CORVINUS

Wednesday 8:30 – 12:30
Erzsébet tér 7-8, Budapest V.

REGINA BALLROOM II.

Wednesday 11:00 – 12:30

20.1. QM in Transition and Emerging Economies

Session Chair: *Marcos Bertin, Bertin Quality Consulting, Argentina*

12.00 Quality Way: The Perfect Way to Survive and Grow

Mohammad Farshad Kavehpisheh, ATEC Consultant Engineers, Iran

Kavehpisheh, Mohammad Farshad (Iran)

BSc. in Electrical Engineering. Now he is Member of the Board of Directors, ATEC Consulting Engineers. In that position he is a Project Manager of Imam Khomeini International Airport (design and supervision) as well as of a 900,000 square meter tourism and commercial complex in Mashhad. In addition to the company international liaisons he is responsible for the review and modification of Project Management Methodology and Quality Management in projects in ATEC. He had a lot of oral presentations at APQO (Asia and Pacific Quality Organization) and ANQ (Asian Network for Quality) Congresses.

Quality Way: The Perfect Way to Survive and Grow.

By: Mohammad Farshad Kavehpisheh

ATEC Consultant Engineers

Mf-kavehpisheh@atec-ir.com

Abstract:

Global economic crisis, socio-political situation, less projects and more competitions, these are disappointing news that business owners are hearing for quite some times now. Developing countries have been affected with a delay but much more paralyzing impact depending on their specific economic structure and configuration.

For a design and engineering consulting company (more or less same as other businesses) the problem was not mainly decrease in benefits and the financial issues but the survival of the organization and the whole business. As a service provider and specifically a project-based company, needs projects to go on. New markets, new clients, more projects from old clients, lowering the costs, increasing efficiency and improvement in organizational performance, all should be parts of the strategic plan. What would be the best way to overcome the obstacles and successfully face the challenges? More effective marketing, improvement in public relations, more budget cuts, these are usual solutions but are they enough? Are they sufficiently effective in today's highly competitive, fast- changing and complex working environment? It's true that the conventional initiatives become more and more ineffective and new approaches are required.

As a design and engineering consulting company, ATEC Consulting Engineers is based on its people. More than 350 architects, engineers and draftsmen who are doing what they were doing, and in the same way, for quite a long period of time. The company was established 20 years ago and is evaluated to be at the highest level of design and engineering industry in the country ever since. The long background of the firm has resulted in strong and rather rigid corporate culture, working trends and procedure. Although being its strengths, this is where the difficulties start.

To make people believe higher quality essentially requires change in paradigms and culture of the organization. To institutionalize the quality philosophy and to draw attentions to consider quality of services in everything we do and to make quality working as a habit and as a way of life, were the challenges we faced. We needed to show the working teams and the project groups that by having quality as the main ingredient of the work, they not only make the best of their time at work and enjoy a meaningful working life but also help the company to play its role in the society, gain trust and satisfaction of the existing clients and enable it in finding new clients and improve its market share.

The paper tries to explain how ATEC Consultant Engineers challenged the cultural change and paradigm shift of the organization for improving service quality and the overall performance to meet the strategic objectives of the company and guarantee its sustainable survival in today's business complex working environment.

KEYWORDS: Economical crisis, Consulting Engineering Co., Cost of Poor Quality, Motivation, Paradigm Shift.

1- **Introduction:**

Every now and then, an incident occurs that changes our lifestyle, business or world we live in. This situation, regardless of being a natural disaster, revolutionary changes in technology, a social revolution or an economical situation, have a similar effect on thinking man. It makes them look inside, search for their roots and seek the way out. And the wise man, explores the ways to compensate and reinforce himself to be prepared for the next one. Looking at those incidents from this point of view, they seem to be a cause of development. Having in mind that “The only wrong thing about failure, is if you don’t learn from it.”, makes them a blessing. How many times have we found out that our way of doing things has a flaw, as result of a bad event? A fault that would have been never found in the normal situations.

The global economical crisis, in its avalanche like rush was one of those incidents. It made every business holder think and look inside. What went wrong? What could I have done before to prevent this? What could I have done before, to prevent or at least decrease the harmful consequences? How should I become ready for the next disaster?

Perhaps there isn’t any unique and definite answer for any of these questions. But we have thought of and tried to experience in our company, is it possible to use “increase in the level of quality” of our services and deliverables as an immunizing element.

Here we will try to give an analytic picture of:

- What is quality in a design and engineering company?
- What are the challenges in increasing the level of quality?
- What are some practical solutions?
- And finally, what good did it do?

To start, and in order to understand the situation better, we would have to know the company, how big it is and what it does?

2- **About the company:**

ATEC Consultants Engineering Company established in 1980 with about 20 people. Now, it is one of the top five Iranian consultant companies in architectural and urban planning field, with about 180 employees in main office and the same number of employees at different sites and local offices. The company’s last year’s turnover was 24000000 \$ in design and supervision. It is a multidisciplinary consulting company and almost all the design and engineering job required for a construction could be done internally. The main job of the company is design and supervision on construction of various kinds of architectural projects such as administrative, commercial, and

educational buildings and urban planning projects such as residential complexes, townships, and Airports as well. Almost 90% of the projects are huge nationwide effective projects with a governmental company or organization as the main client.

The main job of the company is done by the people, not machines or material. Working with people with this kind of long term backgrounds is the challenge that we are going to talk about.

In a company like this, it's really difficult to change something that has been going on for years. When you are facing a production or industrial company, a big part of change is applying to the equipment, machinery and production procedures. This kind of change and modification is usually costly and somehow time consuming but otherwise very much achievable if you have the necessary resources. In a consulting company, all you face is people.

As a strategic decision, the company started to increase the share of "private sector projects" in its project portfolio. This decision brought several new challenges to the attention of the management. Things to change in order to make the plan work, and providing the means to comply with the new demands afterwards. And one of the main issues was new aspects of quality.

Quality Management in a design and engineering company is somehow different from a mass production unit. In a production line, the best you can achieve is to make sure the last product that comes out of your production line in a working shift or in a whole product of a certain order, is exactly the same as the first one. The dimensions, specification and how it looks. Ask an architect and he would tell you that what a big crime it is to have two separate buildings designed alike!

3- The problem: Economic Crisis.

The company was doing very well in last few years. The number and value of projects were increasing by more than 20% each year. That means fast development, considering the lifecycle of the company and the situation of the market. Without any serious marketing plan or activity, the company was invited frequently to participate in big projects and tenders for them. We could insist and stay on our rates and still be awarded with a good number of projects each month. Records show that in the fiscal year of 2008 – 2009, the company has signed 26 new design contracts. This kind of development means more employments, need for more working space and in one word, more costs.

In a situation like this, suddenly something happened. Governmental organizations and companies, as the main client of the firm, stopped many projects and did not initiate much of new ones. Consequently the competition becomes much tenser. In a developing country like ours, the main concern of the government is to maintain a certain level of welfare for majority of people. That means much less projects for companies like us,

when the resources become more limited. The income decreases dramatically. Some highlights of these circumstances and the consequences are as follows:

- ✓ Number of new projects and tenders drop off noticeably.
- ✓ Competitors offer lower prices, so fewer jobs or less income for the same jobs are predictable.
- ✓ The existing contracts don't pay on time.
- ✓ Cost of projects remain almost the same at the same time.
- ✓ The companies expenses, including personnel payments and overheads remain approximately the same.

And everybody knows what less income and same (or even more expenses) means. Bankruptcy.

In general, when you have very limited resources, but still certain needs, you become more alert and precise with what you are going to purchase. You become more selective. Could we count on that? At first glance, some other solutions and approaches to the problem seem more effective. Cutting the expenses (laying off the employees) can always be the first choice. Public relation and marketing activities are amongst first choices as usual. But could we really count on the desire of the investors and the clients to buy the best quality with the money that they have? This seems obvious in the first look, but there are some preventing issues too. Better quality probably means more costs and therefore, more expensive services. In the whole world, the battle (and balance) between price and quality has always been a real issue, unfortunately in our country, most of the times price prevails.

But does higher quality necessarily means higher costs? Is there any way to increase the quality and don't increase the price? Let's find out more about the definition and means of achieving quality in our line of work.

4- Quality for a design and engineering firm.

What is quality in general? Can we eat it?

There are so many definitions of quality and ways of defining it. As Crosby would say: "Conformance to requirements" or Juran's "Fitness for Use" definition would cover a big part of what we need to know about the quality in our services. Assuming that we could find out by any means that how what we are designing is going to be used and assuming that the user knows exactly what he wants and what he needs, the specification and customers' orders would pretty much define the quality in our job. But there are surely other stakeholders to satisfy too. So let's talk about the quality and how it is going to be found and incorporated in a Consulting Engineers works.

Let us go back to the basic question: What is quality? Can we eat it?

In fact the answer to this question is yes. We can eat, drink, breath and live Quality. Would you ever dare to eat a food product if you did not trust the quality of the work

done by the producer, the accuracy of the storage and transportation system and all other rings of the production chain? Would you drink the water if you did not know (or at least think you know) there is a quality management system in the manufacturing company? Would you ever dare to step out of your house in the morning if you did not trust the quality of the brake parts of the vehicles that are moving in the streets of your town?

In a very simple (and yet dangerous) way, quality is what the client wants. And if we substitute “wants” with needs, maybe we reach even a better definition, believing that the customer may not be completely aware of what he needs. And what would be the best way of designing and construction if what he needs more attention and specification from the consultant’s side. When talking about designing a building, you could simply say it should be architecturally beautiful. What kind of criteria it this definition would provide for the design team? Although it could be a real request by a client, it could be interpreted into several characteristics and concepts. A few more specific characteristics of a quality design for a building is listed below:

- ✓ How does the building affect the people using it every day?
- ✓ How is the building architecture coping with the city aesthetic look.
- ✓ What is the (psychological) effect of the building architecture on the people crossing it and seeing it every day?
- ✓ What is the level of comfort the building provides for the people using it?
- ✓ What is the level of safety the building provides for the people using it?
- ✓ How much energy it consumes and what portion of it is going to waste?
- ✓ How would the material used to construct the building harm the environment? (during the operation and use of the building and after that)
- ✓ What possible harms has manufacturing of the material we use in the building done to environment?
- ✓ What level of flexibility in use has been incorporated into the design?
- ✓ Is design in accordance with the budget and time schedule of the building construction?

And many things similar. In a few words, one should be able to design a building (or any other type of development) in a way to be beautiful, working, appropriate for the location of construction, add values to the city (area), environmental friendly and possible to be built within the requested time and budget limits.

All those elements and characteristics could significantly be affected by the design and engineering team of the project. If someone is to do something, he should:

- 1- Feel responsible of doing it.**
- 2- Have the ability and resources to fulfill the task**
- 3- Has proper motivation to struggle through it.**

Therefore, we have to make sure that people know their responsibilities properly, have the knowledge and skill to do it and are willing to take their responsibility seriously.

5- Moving Towards Quality Working.

For a company such as ATEC, people are the main asset of the company and the job is mainly done by them. Therefore to make sure everybody believe and follow the quality way of doing things, we have to try and change any other culture that has been there. And with a company with the background and long record, as ATEC, this shift of paradigm and modification in corporate culture would not be easy. Here are some of the most challenging elements there is:

- **Long time experience of Key People.**

- As a company that had been working for 30 years, average years of experience of the board, project managers, shareholders and head designers was more than 25. Considering that all of these people are architects and engineers, and the fact that they've been doing what they were doing for such a long time, shows the difficulty of implementing new methods that would directly affect the way they work.
- Beside the fact that it is harder to get used to new things as people become more experienced, they were fully occupied with their responsibilities in the projects and organization and had very little time to develop new skills. These all caused them to think and worry that if the organization moves towards transformation and renewal, they would lose their position in the company. Younger people will learn faster and new ones will eventually com. Sacrifices were inevitable both from company's and personnel's perspectives.

- **The Old Methods Have Had Good Results.**

- When a company is working on the highest level of the society, shows a yearly growth of 25% and is always short listed for major design projects nationwide, why change anything? Even though you don't know exactly how much you are spending on each project and why most of the projects are delayed, who cares when the financial department shows profit at the end of the year and nobody's complaining about delays? These ideas, although based on a truth, are very dangerous. Probably what is said earlier about how a crisis could be a blessing is very meaningful here.

- **Upgrades and Changes Cost.**

Managers of the company were the owners. More than 65% of the company share belongs to members of the board of directors. This makes the decision makers to be the ones who are paying for the process. They have to be convinced that they would benefit from the changes.

So how should we prepare these people to move towards the quality thinking? How can we make quality (as it should be) the habit and a way of living? In this situation there are many reasons that one should consider. Reasons that are to be taught and believed in. They should have both personal and organizational aspects. Something such as these:

- ✚ When someone is spending time to do something, why not make the best of it?
- ✚ Quality adds meaning to life; why not enjoy a more meaningful life?
- ✚ When the quality of deliverables is improved, company would gain the trust and satisfaction of the existing clients. We should not forget that finding new clients and customers normally costs more than trying to keep the existing ones satisfied.
- ✚ The company could have greater chance of finding new market and new clients.
- ✚ To establish the companies name as a brand, having a stable high quality of product, is fundamental.
- ✚ Both personnel and the company play their role and fulfill their responsibility in the society.
- ✚ What we are designing now is going to be built inside our living environment (the city, countryside or at least somewhere inside the country or in the globe). The constructions little by little affect the way of our living. It is direct responsibility of the designers to form the urban life of the people in the best way they possibly could. The people who may be their closest family and the loved ones.

6- Quality to Rescue.

So, the situation is hopelessly disastrous. Many companies start to downgrade already. The thought of depending on improve in quality as a way of compensation seems very risky and presumptuous. Improve in quality seems:

- To take time.
- Needs significant amount of resources.
- Require shift in paradigm of people.
- Make the services and products more costly and hence expensive.
- Prolongs the projects time duration (provide delays).
- Needs more skillful and therefore expensive people.

These points seem to be a fact of business. But if not anything else, one very important concept would support the idea. The concept of *Cost of Poor Quality*.

The path of creating a new building, more or less goes through the following milestones everywhere:

Definition of the project (building), ———> feasibility studies ———> concept and preliminary design, ———> detailed design—> construction documents—> tendering and selecting the contractor ———>construction and supervision ———>commissioning and operation.

Design and engineering job is present almost all the way through the whole process. But let's just focus the errors during the design part. Let's assume due to lack of effective quality management system, a number of errors enter the design. If we were extremely lucky, we could detect the error in the next stages of the design. In the best case, we would have to go back, correct the error, do everything that is a successor of that mistake again and issue the report or drawing again. This would at least double the cost of that part of the design. These faults are usually detected by the auditing/approving team, who are usually assigned by the client. So along with the cost of duplication of work, we might lose the trust of the client in case of frequent mistakes and eventually next potential projects. And that's another cost.

If an error is detected during the construction period, it might result in destruction of something that is already built, which means a huge loss in time and money. And if not detected until the construction is final, sometimes you would have to look at something inappropriate in your creation forever.

So, in our business poor quality means you might lose money, time, the client's trust, potential projects and reputation and value of your brand. Some of those could not be compensated for years and the overall loss would be huge.

On the other hand, improve in quality of services; most of the time is not based on use of better quality material (as it is usually the case in manufacturing industries). So potentially you won't have to pay more for the production and the final deliverable would not be more costly by itself. The costs of management might increase a little bit by implementing a more advanced QM system. The expenses of training the personnel and implementing new methods of work are a onetime investment and usually not much.

Very simple adjustments and modifications in the working methods and trends, with a minimum time and cost spent, would bring enormous results. Modifications such as:

- Attention to identification of stakeholders, specially final users of the building.
- Using a better project organization.
- Improving the communication and coordination between various departments.

- Defining the proper check points.
- Using more advanced and accurate software and technology.
- Motivating the design team to pay attention to all the quality aspects of the service.

These seemingly simple modifications would result in huge difference in the quality of the design and engineering services. Use of the design documents will consequently reduce the construction costs and hence the overall cost of the project. This would be an excellent marketing concept for the rainy days of economic crisis.

Remember that in the situation of limited resources, people would look for;

- Reduced overall costs.
- More flexible design
- More efficient design work.
- More cost effective buildings
- On time and on budget projects.

This is the winning point for quality oriented organizations and a key surviving factor in hard times.