



THE EFFECTIVENESS OF CONTINUOUS IMPROVEMENT AND THE UTILIZATION OF
BENCHMARKING METHODS IN THE GREEK DAIRY INDUSTRY'S ENDEAVOR TO
ACHIEVE "WORLD CLASS" STATUS

By

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DEDICATION

This unique endeavor is dedicated to my parents Stylianos and Vassiliki as a simple but large *thank you* for all their sacrifices and efforts to properly raise and transfer me all the valuable principles to become a useful member of our society.

In addition, my brother Antony and his beautiful wife Lemonia deserve my appreciation and respect for their support during the program.

A very true thank you is what I can give you:

THANK YOU ALL

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VITA

Georgios S. Ekonomou studied Agricultural Engineering at the Technological Educational Institute of Thessaloniki, in the School of Agricultural Technology in the Department of Animal Production. His precise academic title is: Animal Production Technology. He obtained certifications and attended seminars regarding computer literacy. He has conducted a dissertation (construction of beef fattening unit) and projects (swine production) regarding animal production technology as a prerequisite for his degree and he has obtained a certificate of proficiency in English (University of Michigan, USA).

He first worked in a large company engaged with veterinary medicines, forage supply and stock farm equipment (private sector). He then worked in Agricultural Cooperatives Unions (private sector) dealing with the crop of many agricultural crops. He has also worked for the Citizen Services Centre of Lamia (a large town in central Greece) in the field of informatics and communication under the program "Information Society". He is currently working for an organization that is supervised by the Ministry of Agricultural Development and Food regarding the qualitative and quantitative control of agricultural products that are financially subsidized by the European Community.

Since October 2005, he has attended the postgraduate program with the title Master of Science of Project Management conducted by the City University of Washington State and the Technological Educational Institute of Piraeus.

Additionally, he intends to apply for work positions in the dairy industry.

ABSTRACT

Georgios S. Ekonomou

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The effectiveness of continuous improvement and the utilization of benchmarking methods in the Greek dairy industry's endeavor to achieve "World Class" status.

One of the important sectors in the complex world of industry is the dairy industry. *Continuous improvement* brings to the surface inadequacies and combats the dysfunctions that prevent the Greek dairy companies from becoming more effective and creative. It upgrades the parts of the system and helps to develop a constructive and focused business attitude. It sheds light on the missing parts of the puzzle for the Greek dairy industries to make a successful shift into world class performance. .

Benchmarking is a valuable tool by which the performance of the organization can be measured and compared. It allows Greek dairy manufacturers to conceive where the potential disadvantages concerning performance lie while at the same time it proposes the desirable operating improvements.

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CHAPTER 1

Introduction

Nature of the Study

The modern food industry is characterized by the expansion of knowledge and other significant technological advancements. It is inevitably characterized by the fierce competition among multinational organizations. Greek dairy organizations, trying to act as a vital part of the food industry in the global market, should directly encounter the need to perform more flexibly and responsively by dependably adopting methods and perspectives that will allow them to expand their capacity, boost their productivity and gain an advantageous position among the best in the specific sector.

The current business trend in the dairy field is to decisively and profitably confront the volatile market conditions without experiencing the *vision loss* of becoming a company with a spotless reputation that offers high quality products.

Greek dairy industries largely support dairy projects. The food market leaves wide margins for dairy manufacturers to carry out projects and fulfill the nutrient needs of consumers. Low fat dairy products, advanced milk production, the selection of new dairy farmers that will supply the industry with the appropriate milk quantity, the utilization of pure and natural materials in milk production, the establishment and maintenance of a quality system regarding controls for the quality of the milk and milk products are strong indicators of the inclination of the Greek dairy industries to improve the efficiency of the processes involved in the dairy projects undertaken.

By bearing these aspects in mind they depict maturity, modern and disciplined attitude, effectiveness and a business environment that is open and friendly to new challenges. Commercial opportunities will be exploited in a simpler and faster way without losing the quality and the proper use of the milk and other dairy products. Dairy projects contribute to

the creation of advanced milk products that promote a healthy daily nutrition for all ages and, consequently, increase the trust that is shown by consumers. .

To this effort, project quality management and more precisely continuous improvement and its major tool of benchmarking is the focus of this study. Continuous improvement processes reveal the approach of managing dairy projects in an optimized fashion by effectively confronting deficiencies and avoiding discrepancies.

It helps the business to acquire the required confidence to proceed smoothly. Benchmarking projects and teams foster an appropriate business setting and reinforce the efforts of the organization to precisely localize its business position and define the desired market share it wishes to hold by collecting and analyzing data and measuring and comparing its performance against the best in the “dairy market”.

This study aims to present how benchmarking methods can be used by the Greek dairy industries with a view of enhancing the current position and concurrently enabling them to find areas and business interest for further expansion and innovation. Dairy projects conducted by the strong competitors that the Greek companies confront and the processes that the competitors encompass in their project plans should comprise a set of benchmarking targets of the Greek dairy organizations. Practices, procedures and metrics that are used must be focused on the Greek dairy industry in a decent manner.

The importance of becoming better and better in the international market in the sense of remaining competitive by creating quality products facilitates the desire of Greek dairy companies to set long-term targets and have a successful transition to world class status.

Needs Assessment

The need to conduct such research is supported by the necessity and the steps that the Greek dairy industries must take in order to achieve their expansion and acquire a more

competitive business character. Continuous improvement strategy ought to be put into place. Benchmarking projects should be carried out. The organization will set new goals for increasing its effectiveness. It will vigorously struggle for reassessing and restructuring processes and procedures that it already implements.

Through the *interaction* and the *interdependency* among quality dairy products, continuous improvement and benchmarking methods dairy companies will achieve to become world class status organizations. The establishment of a job environment that will broadly facilitate doable and executable plans for changes and innovative business perspectives will be achieved in a thorough and trustworthy mode.

The stakeholders for this study are composed of the dairy producers, the consumers of the dairy products, politicians and state officials as well as other companies and organizations with common business interests.

Dairy producers greatly influence the quality of consumer dairy products. Dairy industries constantly seek producers whose ability for producing quality milk will assist their efforts to create high quality products which earn the satisfaction and the preference of the consumers.

Consumers play a significant role in the viability and reputation of a dairy industry. If Greek dairy industries manage to meet consumer expectations then their efforts for being distinguished in their professional field will be successfully accomplished by gaining an increased number of consumers. Consumers will have the opportunity to safely taste products with even more nutrient value (milk quality improvement).

Organizations with common business interests through competition will provide a decent and valid business environment for a company's improvement and development.

Politicians and state officials should foster an encouraging business environment and vigorously enable the endeavor of Greek dairy industries to become “World Class” because this undertaking will definitely enhance to a great extent the Greek agricultural economy.

This study will additionally address the points below in favor of the Greek dairy industries to make the leap and place their business among the best in the specific domain:

1. The definition of what continuous improvement in the real world of dairy industries means and the integration of such aspect into the processes of the Greek dairy industries
2. The definition and the implementation of the benchmarking methods in the field of Greek dairy industries and the purpose of perceiving its concept
3. The explanation and the meaning of World Class dairy companies and the role that such companies play in the global market of the food industry
4. The bond and the connection among quality dairy products, continuous improvement, benchmarking methods, and World Class dairy companies

Purpose of the study

The purpose of this study is to shed light on the way that a Greek dairy company can apply and execute continuous improvement processes in correlation with the implementation of benchmarking methods to achieve its expansion, growth and development goals in the market.

Furthermore this study will discuss thoroughly the effects and the potential changes that the need for continuous improvement will create for the existing processes within the companies.

Relation to the Program of Study

As mentioned in the nature of study section, dairy companies put the best of their efforts in attempting projects. Dairy projects are a fundamental and essential part of the job for dairy industries in order to be able to compete in the continuously changing market “arena”. For instance, dairy projects can be considered the launch of a new line of low fat milk products (soft drinks) without losing the appropriate nutrient substances (R&D department is involved in such projects), the creation of niche milk products with the guarantee of certified organizations, or the selection of a dairy farm in a specific geographical location that provides the dairy industry with high milk yields that must fulfill specific standards that signify the desired quality of the milk as a raw material (maintain a valid, credible and competitive supply chain) , before entering the gate of the industry. All these products might have unique taste, be available to several types with different characteristics, created and launched under a different brand and have special composition comparing to similar products from other dairy competitors.

Moreover, major dairy projects are the construction and function of modern dairy units that are used so as to gather the milk production from the various dairy farms (livestock farms) that operate in a specific region, the funding of projects to genetically improve the milk production or the utilization of new and sophisticated techniques and technology in milk processing. The successful completion of such projects sets the base and generates the anticipation to undertake more complex or innovative dairy projects aiming at the international market and attracting the interest of people with different needs and preferences in milk consumption.

Such projects involve processes that need to be developed and improved so as to timely, costly and effectively (by performing at exceptional levels) stay reconciled concerning the scope of the dairy projects, employ the needed resources (technical and human) and,

finally, make the firm's name popular in the daily speech of the customers and acknowledgeable in the eyes of the consumers. Greek dairy industries must pay serious attention to the above constraints when they carry out such projects. By managing to upgrade, fix and update the processes involved in the dairy projects we satisfy the need of the organization (which operates as a system) to closely approach the targets for continuously improving its performance and operations.

“Conceptually, continuous improvement depends upon many projects in series. As one project is completed, the need for another project is identified. Improvement occurs incrementally as each succeeding project is completed” (Winchell, 1991, p.131¹). As a direct consequence, the mission and goals of the organization through the advanced and improved execution of such projects will be achieved. Greek dairy industry's venture to achieve world class status by applying continuous improvement concepts and utilizing benchmarking methods puts aside the traditional management approaches.

Project management applied from initiation to termination of the dairy projects offers the opportunity to advantageously manage and supervise the dairy projects, achieve the requested by the clients quality and gain their satisfaction and contentment. As far as the project quality management is concerned, “It implements the quality management system through the policy, procedures and processes of quality planning, quality assurance and quality control, with continuous process improvement activities throughout, as appropriate” (PMBOK[®] Guide, 2004, p.179).

Crucial aspects to this attempt are the desire to continuously improve the processes involved and perceive the routes that the goals for development and growth inflict.

¹ William Winchell is a Visiting Associate Professor and Program Coordinator for Purdue University. His industrial experience includes 32 years with General Motors Corporation in process and production engineering. He is an internationally recognized authority on quality. Mr. Winchell is a certified Manufacturing Engineer, a Registered Professional Engineer and a member of the Bar in Michigan and New York. He is a senior member of the society of the manufacturing engineers.

Benchmarking methods seem that can enviably serve such goals and powerfully support the efforts to acquire global recognition and fame. Benchmarking methods somehow act like a pathfinder of the most gainful courses to approach the objectives set.

When dairy projects are put into practice the final result proves if the project has been completed successfully. The processes involved should be scrutinized from the beginning and ensure that the end result will fulfill the project requirements and customer (consumer) expectations. “The concept of continuous improvement in quality goes beyond the traditional definition of quality as conformance to requirements – *to total customer satisfaction*” (Barkley & Saylor, 2001, p. 147).

The main concept is to create lasting and enduring results. It really takes long time to accomplish such task. It is a lifelong journey. Dairy projects should achieve improved processes and superior performance. Dairy projects and project management approach positively influence the efforts of the organization to achieve continuous improvement. They ought to deeply fulfill the endless need for further organizational development and improvement.

It is vital to execute such dairy projects that are in direct connection and tight with the organizational goals and targets. Organizational efficiency will be attained. Different market forces will inevitably be experienced, different competitors will certainly come up, different customer demands will be confronted and different needs for creating consumer goods will be faced during the journey of continuous improvement.

As a direct consequence, projects should be organized in programs which must be on the same wavelength with the business plan or strategic planning or simpler with the reasons that permit and support the business to exist and operate in the specific domain.

Conclusively, project management and continuous improvement conception complement one another and enable dairy industries to stay consistent with the market

demands and acquire a viable business character. They are closely connected and inseparable to a considerable level.

In the PM 511 course, which deals with building quality into project processes we can clearly define the meaning and the seriousness of incorporating continuous improvement into the company's project processes from the early start.. As a result, the author will be able to take advantage of valid and useful information to support his arguments and findings.

PM 511 course teaches that continuous improvement process is an appealing and challenging way of clarifying areas that need changes. It is clearly stated that continuous improvement contributes in expediting the efforts to be in alignment with the contemporary business setting and loosely helps to prevent rather than inspect conceivable devastating situations that will impede the increasing rhythm and desire for expansion.

Additionally, in this specific course it is thoroughly explained the content of benchmarking methods. To be more specific, Bruce T. Barkley and James H. Saylor in their book with the title *Customer-Driven project management: Building quality into processes*, mentioned that benchmarking provides a common focus to hold the organization together by measuring areas and analyzing these areas against the best. This targeting of the best reinforces continuous improvement by keeping everyone centered on a long term objective.

In the PM 511 and 512 courses the book by Peter Scholtes provides us with solid ideas and opinions regarding continuous improvement: "When things go wrong, we work together to find the systemic inadequacies and systemic remedies. Throughout the organization we learn to master the methodology of improvement". Systems are composed of set of processes, the organization culture and the strategic goals that are set by the senior management. Dairy industries represent a good example of what system is in the business terminology.

Continuous improvement will greatly assist the efforts to demonstrate a business attitude which is compiled by the perception of recovering potential defective project

procedures and promoting the smooth interrelation among the subparts of the system so as to achieve high performance rates and launch advanced quality products.

It is the intention of the author to research the perspective and the potential of implementing continuous improvement through benchmarking methods in order for Greek dairy projects and industries to:

1. find potential weaknesses of the systems they use
2. measure and analyze the level of performance achieved so far
3. recognize the best concerning the dairy professional field
4. ensure that the milk production has the appropriate nutrient value
5. upgrade the approaches they use in order to create quality products and meet consumers' expectations (and, if possible, exceed them).

All the foregoing factors delineate in a direct and concise manner the worth and the benefits that will be emerged from this study.

Definition of Terms

The following terms are considered critical for the successful completion of this master thesis. If any other business or scientific terms appear then its definition will be given appropriately.

Benchmarking method: A method of measuring your organization against those of recognized leaders or best of class.

Continuous improvement: The never-ending pursuit of excellence.

Chapter 2

Problem Statement

Greek dairy companies with many years of experience in profitable milk production and processing often face problems in applying and implementing properly and efficiently a benchmarking method, resulting in missing the goals for the company's continuous improvement and not being able to achieve "World Class" status.

Rationale

Dairy products provide a large proportion of our daily nutrition. Dairy industries try to convert, smoothly and efficiently, customer expectations into customer requirements and, consequently, into project requirements, by creating quality products. Greek dairy companies have managed to reach top levels of quality and sales in our domestic market. They are preferred by the consumers. Mutual trust has been established between the consumers and the Greek dairy industries.

Nevertheless, there is a significant element that highlights the need for such companies, to seek methods in order to foster a competitive professional environment: *continuous improvement*.

It stimulates the change perspective within the company. When appropriate changes regarding the adopted processes should be experienced. They enhance the viability of the company and allow the proactive rather than the reactive point of view. The matter is to prevent things and not act with delays that may trouble the function of the company. If achieved, then the steady base for changing things will have been set. "Continuous improvement is the only way to survive. This is the proactive approach to change" (Barkley & Saylor, 2001, p. 53).

The necessity for a company to develop plans and to apply appropriate systemic approaches with a view to enhancing its professional perspective and, accordingly, safeguarding its position in the market, demands continuous improvement. Benchmarking highly affects the continuous improvement process. It is a method that “measures one organization against the recognized best performers in a certain industry” (Barkley & Saylor, 2001, p. 317).

Dairy industries wish to satisfy the consumers and achieve success. Benchmarking spotlights the need for well-structured companies to make joint efforts so as to improve their ability to survive in a challenging professional environment. Furthermore, it involves processes to analyze, examine and identify elements that can help them to reach the top of their specific professional field and, without disruptions and dysfunctions, become successful “World Class” dairy companies.

Potential areas that reflect weakness or inefficiency can be safely determined. Such areas need to be upgraded. They must sustain the applicable for the case improvement procedures that should be followed in a thorough and advanced way so as to bring results. It is a complicated set of tasks that utilizes the power of team work and spirit. Persistence, conformance to modern market rules and open minded perceptions (without being immoral and indecent) are strongly required so as to run advantageously dairy benchmarking projects, solidly establish the processes and achieve the targets set for company’s continuous improvement.

Continuous improvement demands changes concerning the processes that limit the progress and the creation of quality products of the dairy industry. Benchmarking sets the level of performance that must be achieved. Changes must be put into practice and alter, modify or cease processes in a wise and beneficial mode. They act on the same wavelength

and underline the significance of moving ahead in approved rates (with a long-term vision for development (improvement) and world class status operational magnitude.

It is vital for such companies to add extra value to their products and exceed the commercial conventional milk products in a continuously changing and competitive environment. The added value ought to be properly interpreted in measurable, quantifiable and comparable business terms that widely define the smooth function of the enterprise and accommodate the operational application on the company's environment in view of entering the world market at an even greater pace and fulfill its mission by becoming stronger and more profitable.

Considering all of the above it would be wise to mention that being competitive does not mean that you are the best in your area of expertise. Competitors may manage to overtake you. As a direct consequence, the need to know who is ahead in this specific "race" among different dairy companies underlines the importance of benchmarking.

All in all, dairy industries must measure the level of the performance achieved, so as to remain competitive in the market. By introducing a quality standard in order to improve performance dairy companies will be positively influenced, so that they can match the best in their professional field, and, if possible, exceed them. Globalization will certainly create the need to become competitive not only in Greece, but also in the global market.

Hypothesis

Continuous improvement through a benchmarking method will greatly assist the efforts of Greek dairy industries to deploy effective and comprehensive business plans and bring together applicable strategies, resulting in expanding their capacity and meeting global market demands.

Chapter 3

Review of literature

The preliminary literature review of this study assisted the efforts of the author to form a concrete conception of the subject area and perceive the basics and essentials elements that should concentrate on.

The literature review encompasses a comprehensive bibliographical research, electronic resources and articles written on the domain of dairy industry. The author was influenced by the information provided by these resources and tried to cooperate and coordinate standpoints and perceptions in an approved and thorough way so as to present all aspects of the subject area of this study. .

The literature review is organized into the following concepts: Continuous improvement and benchmarking methodology

Continuous Improvement:

Books

It is undisputable fact throughout the relevant bibliography that continuous improvement is the only way for dairy companies to remain in the business with a prosperous future regarding their viability and future investments.

The broader meaning of improvement beyond the important issue of creating high quality products directly involves the disposition that must be shown by those who run the organizations for changing the business environment with regard to the way that business people learn, act, behave and operate when projects are put into place.

As a result, notable improvements in quality and the business setting of the company will be achieved. Dairy projects will acquire a dynamic and be implemented in a more organized and structured manner. The company will be aligned with the demands of the

market. It will manage to perform in high levels by gaining the desirable market share and establish a dependable business profile.

Barkley & Saylor (2001) advocate that “ A program or project plan is the key to quality planning, addressing key issues including customer requirements and expectations, project strategy, project goals and measures of success, accepted technical standards and processes, and clarity about the project team and responsibilities” (p.110).

Continuous improvement is a business matter that demands the involvement of all stakeholders. The leadership style performed should facilitate changes that aim at revising and re-evaluating the current situation and set more concrete foundations on which the capability and effectiveness of the improved project process as part of the organizational system will be exploited constantly, judiciously and consistently.

In addition, quality aspects can be controlled by using embedded quality concept. Barkley & Saylor (2001) claim that “embedded quality actually builds “hooks” into the project deliverable itself as a part of the basic design of the product or service” (p.535). What is most important is that quality assurance can be implemented by incorporating quality straightforwardly into the project processes and extensively ensure that project specifications and quality objectives are attainable targets and will be achieved so as to content the customer.

The basic target is to prevent factors that may cause wastes, rework, defects and dysfunctions that endanger the desired quality result of the product and charge extra expenses in taking corrective actions. Customers must be notified and appropriately engaged from the beginning in the project and considered as a crucial stakeholder whose opinion weighs heavily. Embedded quality causes the assurance of quality issues in the deliverables and assists the company to achieve continuous improvement

Bellman (2001) spotlights the Getting Things Done Model (GTD): “That’s what the model is about, making a positive difference in your work world, stepping out to help people move the present reality toward what you all want. This could be called “change” model or a “leadership” model” (p.6). He emphasises the need to become “change agents” even when project people are not in charge.

Commitment and agreement to a common focus, to unified wants and a well- defined and shared vision will capture the interest of the people involved, challenge their willingness to create and produce more and better while it will cause the establishment of a culture in which innovation and eagerness to contribute to something new and advanced will be the dominating spirit.

Furthermore, Bellman (2001) clearly states that “The movement from REALITY towards WANTS is change, and YOU at the center of this model are a leader when you start hooking the three corners together” (p.6).

Craig Cochran² in his book *The continual improvement process: From strategy to the bottom line* highlights the usefulness of determining key measures that denote if the company has reached the target of continuous improvement.

More specifically, he claims that “To receive the full benefit of continual improvement process, an organization must focus on key measures, which are those variables that have the biggest effect on an organization’s survival and competitive position” (Cochran, 2003, p.5).

What is more important in Cochran’s view is that the key measures represent the common focus of all the stakeholders. «Key measures put strategy into language that everyone can understand” (Cochran, 2003, p. 12). Such key measures crop up from the clear definition of the mission that the company has set and the strategy that should be

² Craig Cochran is a project manager with the Center for International Standards & Quality (CISQ), which is part of Georgia Tech’s Economic Development Institute. He is a Certified Quality Manager, Certified Quality Engineer, and Certified Quality Auditor through the American Society for Quality.

comprehensively be defined and thoroughly communicated among the people that are involved in the projects.

Cochran (2003) supports the idea that “mission leads to strategy and strategy leads to key measures” (p.7). If there is a solid and documented mission and a well defined strategy of the company then the key measures will be determined with great precision and accuracy. Key measures will certainly assist the project manager to keep track with the project performance baseline.

The selection of the appropriate key measures in view of having a clear picture of what is going on in the organization is another important issue. When selecting the key measures that truly deserve the concern and the focus of the project people and top management, Cochran suggests that benchmarking methods (be aware of the metrics and the processes that other competitors pay respect), proper documentation and customer perception metrics are some significant issues that the business people should elaborate on them.

Furthermore, in order to avoid confusion and undesirable complex situations when defining and analyzing the key measures those who deal with such process should avoid delays and time consuming methods and manage to avoid potential key measures “analysis paralysis” (Lewis, 2001, p.239) which is highly observed when risk identification is conducted.

On the contrary, “If projects have strategic importance, combined with clear deliverables and due dates, then they easily qualify as key measures” (Cochran, 2003, p.20). Team meetings with representatives of all stakeholders (cross functional teams) should take place and comprehensive reviews of the key measures and its impact on the work flow must be conducted.

“Top managers must decide whether current results indicate a movement toward or away from the ultimate organizational objectives of mission and strategy. The key measures will quickly indicate this” (Cochran, 2003, p.37).

Key measures reflect the performance achieved and imply if it is approved or not. In other words, interpret if the steps that the organization took pushed it forward or essentially kept it at the same place by producing *unsatisfactory progress*. They show the progress of the project work and the weaknesses that inconvenience the well operating status of the scheduled and budgeted project activities.

When is considered appropriate and under the indications that the key measures provide actions should be taken and problem solving processes should be promptly put into place. It is crucial to prevent dysfunctions and potential defects rather than experience their negative effects and make corrections afterwards.

Project management tools and techniques gently offer their services in preventing and overcoming disruptions and delays in successfully completed the dairy projects. Greek dairy industries should trust the application of such approach.

Cochran (2003) clearly states that a project manager should be appointed: “Do assign project managers. All improvement actions that are selected for implementation should be assigned to a project manager. Track progress to completion by inputting actions into the preventive action system or other project management tools” (p.48). A process orientation approach depicts a wide range of opportunities to improve crucial business issues. It asserts that “With process orientation, an organization defines itself as a system of integrated processes rather than a confederation of functional departments” (Cochran, 2003, p.57).

Kerzner (2003) clearly defines the reason and the need for which continuous improvement results in “the exploitation of company’s sustained competitive advantage” (p.749). A lot of organizations have managed to obtain an outstanding position in the market

by effectively implementing project management approach. Thus, they have a competitive advantage comparing to other companies that persist in more traditional managerial approaches. Fierce competition among companies and market uncertainty may create forces that will put at stake the existing competitive advantage. Global market requires companies that have the ability to create high quality products and timely meet the demands of the customers. Hence, the need for continuous improvement should feature largely in the strategic goals of the business. Such need should direct organizations to formulate doable plans and promptly take actions so as to enhance the current position, remain competitive and, simultaneously, improve business aspects that weigh heavily in achieving the goals set.

The volatile market conditions does not leave margins for companies that choose to adopt ineffective methods, unwieldy and time consuming approaches and outdated management and/or leadership styles that impede innovation, openness, changes and improvement. The figures below clearly show the reason and the need for continuous improvement conception (Kerzner, 2003, p. 749):

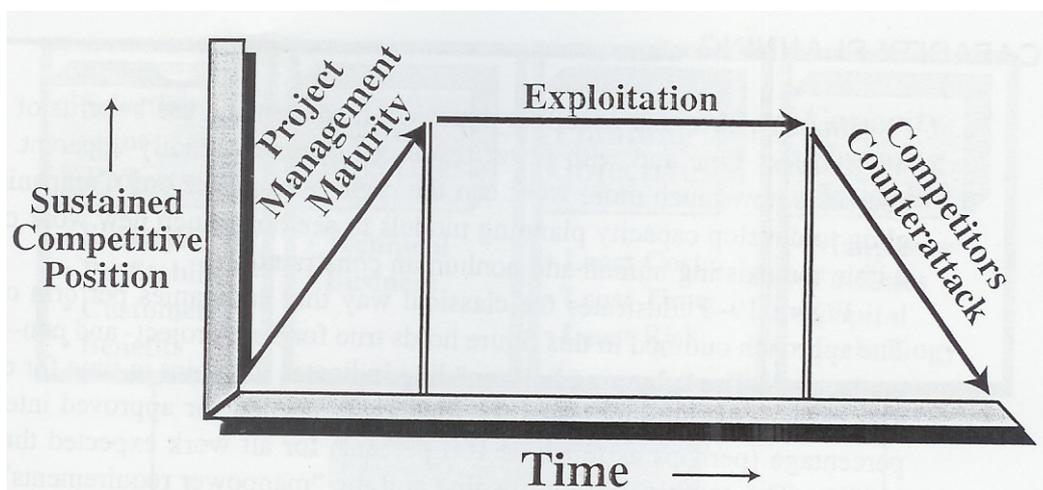


Figure 3 – 1. Why there is a need for continuous improvement

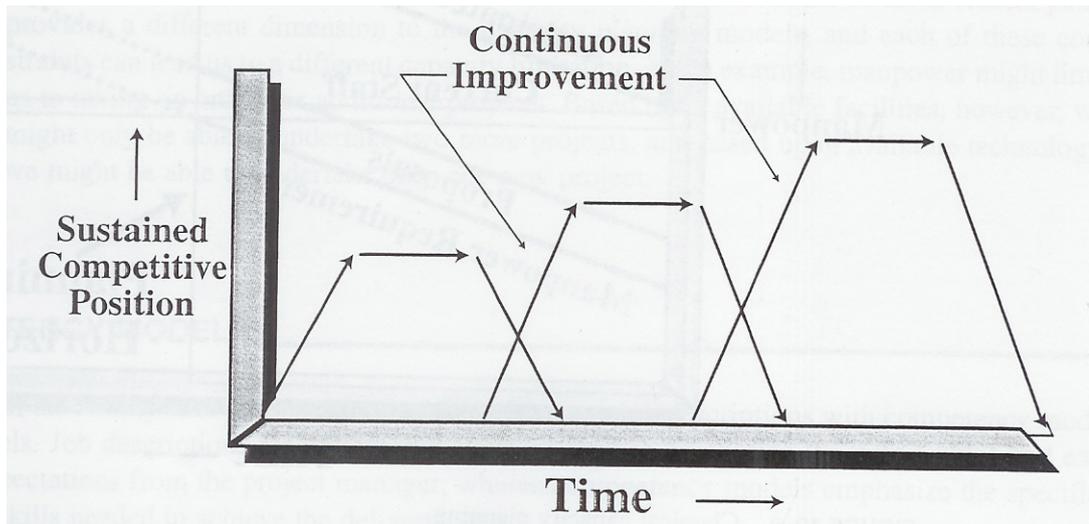


Figure 3 – 2. The need for continuous improvement.

Kerzner (2001) determines quality plan as responsibility of project manager and team “by breaking down the project objectives into a work breakdown structure” (p.773). It is the fundamental step concerning quality aspects that the company should concentrate its efforts

A closely related issue with continuous improvement is the potential to ensure quality. Quality in dairy domain means ensuring the advanced level of the milk production and processing and the maintenance of the nutrient value of the products that are available and accessible to the consumers.

Palmer³ (2005) argues that “There are numerous measures of milk quality that management must clearly understand” (p.151). He provides a series of parameters that affect the milk quality, udder health and clean-in-place sanitation measurements.

Appendix three analytically includes information and indicators that prove if the quality is approved and accepted and if the milk products are appropriate for consumption.

³ Roger Palmer (B.S. IN Mathematics, M.S. IN Animal Genetics, Ph. D. in Dairy Management and Agricultural Economics) is an Associate Professor in the Dairy Science Department at the University of Wisconsin. Dr Palmer is the author of numerous articles for dairy publications, including *Hoard's Dairyman*, *Midwest Dairy Business*, *Dairy Herd management*, *Holstein Science Reports*, and the *Wisconsin Agriculturist*, and several booklets and peer-reviewed scientific articles published in the *Journal of Dairy Science* and the *Professional Animal Scientist*. Dr Palmer has many years of industry experience relating to herd expansion, computerized record keeping, and personnel management issues.

PMBOK Guide® (2004) defines the project quality management and the processes that are compose such concept (p.179):

1. Quality planning-reveals the standards that should be attained by the project and the way that these quality standards will be achieved
2. Perform quality assurance- contains the quality procedures that safeguard that the project involves all the necessary processes to meet project requirements set
3. Perform quality control- directs the controlling and supervising activities to ensure that the quality standards set have been met regarding the final outcome (output) of each crucial process or set of processes.

Effective continuous improvement process requires the adoption of the principles that a learning organization must adopt. The five “learning disciplines are emphasized in the following lines (Senge, 1994, p.6):

1. Personal mastery- learning to exploit and utilize our individual efficiency and mastery to create the desired final outcome and pursuit the targets that the members of the organization have set.
2. Mental models- implicit and tacit convictions that directly affect the perception of the environment we act and form decisions that are made within this specific business setting.
3. Shared vision- creating common future goals of the position we would like to hold and establish actions and process that will enable the efforts to attain the targets set.
Commitment and consensus among team members and effective partnership must be experienced.
4. Team learning- effective communication channels and paths must be formulated to serve efficient and essential exchange of ideas and viewpoints among partners.

Working collectively will help individuals to sharpen their skills and abilities while it facilitates the achievement of large scale goals.

5. **Systems thinking-** it is the view that strongly supports that organizations are acting through the interdependency and interface (interaction) of various and diverse forces and strengths. Dynamics, interrelation and crossing points affect and influence the function and the coordination of the systems that compose the infrastructure of the organization and make them behave, work and act in certain patterns and performance rates. System thinking highly shapes the attitude of the system when changes occur and prepare the infrastructure to respond in an advantageous mode when such changes and innovations take place.

Senge (1994) claims that “To practice a discipline is to be a lifelong learner on a never-ending development path” (p.7). Learning organizations achieve a wide range of strategic goals set if they follow and keep track the “learning disciplines” described above. They can attain targets of “improving quality”, gaining “competitive advantage”, “managing change”, and “satisfying the customers” and of achieving a “committed work force”. (Senge, 1994, pp.9-12).

Market increasing demands somehow inflict through direct or indirect indications the need to become open-minded and innovative. Changes will be experienced one way or another, sooner or later. Organizations must be prepared to deal with such changes in a beneficial manner without losing their mission, direction and reason for existence.

If continuous improvement is one of the business pursuits then three factors should be on the focus (Winchell, 1991, p. 53):

1. **The organization.** The values and the beliefs that direct the organization compose the organizational behavior. Such elements extensively shape the culture of the organization that directly affects its operating status.

2. **The processes involved with the organization.** Processes largely affect the system (organization) that interfaces with the customers (consumers). Identification of the processes that perform at low rates should take place. Winchell (1991) clearly states that “Each process acts as a link in an intricate chain” (p. 59). In addition, Winchell (1991) says that “A popular strategy for improving processes is to evaluate variations in the parameters of the process” (p. 60).

What really matters here is that performance measurements of the processes assist our efforts to pinpoint the sort of the dysfunction and the exact points in the procedures that trouble the well-operating status of the dairy industry and its projects undertaken.

By this strategy we can safely conclude the value of the end outcome of the processes and continuous improvement can be achieved. Cross functional teams ought to be assembled due to the various interrelated processes coming from the different functional areas and the complicated nature of the system as well.

3. **Concerned individuals.** “A human receives input produces the understood output, and changes actions based upon any feedback” (Winchell, 1991, p. 61). The issue here as presented by Winchell is to concentrate our efforts on ways of getting great performance by the task force of the business. Winchell (1991) asserts that “a standard of what is expected for output is needed. The standard should be customer – driven, and supported by the process” (p. 62).

Such issue mirrors the necessity to successfully translate the customer needs into precise project requirements. It is crucial to provide the individuals with guiding principles and ensure that the customer expectations (and, consequently, project expectations) are fully understandable.

In order to achieve continuous improvement there are seven categories that support such effort (Winchell, 1991, p. 63): customer satisfaction, human resource utilization, quality

assurance of products, quality results, leadership, strategic quality plan, information and analysis.

The factors above represent crucial guidelines that help the organization to improve quality and present a reliable business character. They considerably safeguard that the attempts provided by the people within the company will bring results. Their existence acts supportively to what quality experts call continuous improvement.

Winchell also, refers to the Stewart - Deming cycle: plan-do-act-check as the capstone of continuous improvement: the famous and stainless cycle is presented:

Plan stage includes the identification regarding the process that needs to be improved.

Do stage involves data collection and analysis concerning the action that should be taken to fix the process.

Check stage is in direct connection with testing the results of the data analysis conducted in the previous stage and ensuring that the required knowledge background exists regarding the changes in the process.

Finally, the *act* stage supports the implementation of the changes by always paying respect to the tolerance and the capacity of the system. After the act phase the cycle is about to begin again. Improvement will have been achieved if after any repetition of the cycle progress in the process and “move forward” steps have been attained.

The following figure presents the sequence of some crucial events in order to achieve continuous improvement to the organization (Winchell, 1991, p.66):

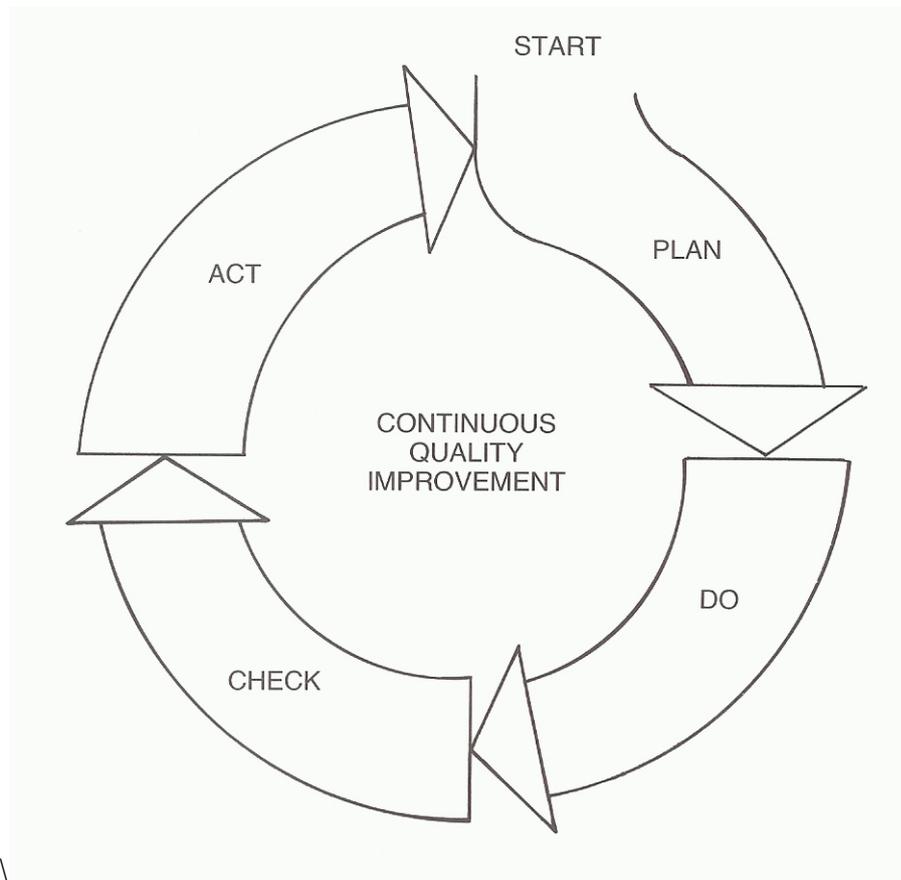


Figure 3 – 3. One approach to improving quality using the Swehart Cycle

Electronic sources

“Tool pack Consulting, Tools to turn information into action. Continuous Improvement - A tool pack guide”, 2001-2005, from http://www.toolpack.com/continuous_improvement.html , demonstrates applicable ways of handling, effectively and efficiently, the need for change in view of becoming better and better.

Continuous improvement requires a good understanding of the current situation that the business experiences regarding performance and the final products that are created, demands commitment and consensus that corrective action must be taken must and stresses the importance of establishing an organizational culture for continuous improvement from top management to the simplest work units that the business exploits.

Moreover, teams with partners that have great command of the process and functions involved must be set. Meaningful discussions should be attained and thorough communication channels ought to be set so as to achieve in a beneficial for all stakeholders exchange of viewpoints and opinions. Each member must know where its role and responsibility lies.

Measurements regarding the performance focusing on all critical aspects that affect the smooth progress of the work must be put into practice. Continuous improvement facilitates changes in the processes. Changes must be fully embraced to all project people. Changes originate the need for restructuring all the processes that delay the work flow or produce incompatible with the project requirements results.

Consequently, measurements concerning key issues must be conducted and key business aspects that affect customer satisfaction (end outcome) and project specifications must be constantly controlled.

The main interest is to achieve improvement via changes that will boost the desire for better performance and deliver better outcomes while they will overcome unproductive practices and procedures that may have been accumulated so far due to ineffective business perceptions.

Continuous improvement accentuates the necessity of coordinating and collaborating the various functions and processes of the organization. Competent efforts and serious attention is highly demanded owing to the various resources, departments and technical issues that must be addressed in order to avoid deviations and variances that cost a lot and provoke disruptions.

Journal Articles

Bhuiyan & Baghel in their article *An overview of continuous improvement: from the past to the present* published in the journal *Management Decision*; Volume: 43, No 5, 2005

General review state clearly that continuous improvement has altered its nature from the past years into a broader and more valuable for the organization meaning. .

The last decades continuous improvement focused on merely improving the quality of the products and reducing potential wastes. The recent years continuous improvement has acquired a more modern and up-to-date perception.

Its current content has been enriched and includes "...comprehensive, systematic methodologies that focus on the entire organization, from top management to the workers on the shop floor". All levels must acquire the dynamic and the culture of continuous improvement.

The authors of the article reflect what modern companies gain from the implementation of continuous improving programs. Each organization should adopt such processes and take advantage of the benefits that continuous improvement brings.

Contemporary tools and techniques must be taken advantage of in a wise manner by always paying respect to the organizational goals, strategic plans and the potential business needs and pursuits that each company deals with. Changes in business areas must take place. It is the way of improving the current situation. Changes demand active participation of all stakeholders.

The journey to excellence is long, hard with many obstacles and traps. But if the desire exists, a common focus will be established and the results will vindicate those that had a clear vision, feasible and viable goals and a strong business attitude to improve the way of doing business and the mode that they perform their ideas and ambitions in their professional field.

Nilsson-Witell, Antoni, & Dahlgard in their article *Continuous improvement in product development, improvement programs and quality principles* revised on May 2004, and published on the International Journal of Quality and Reliability Management vol. 22, No

8, 2005 assert that “continuous improvement can be viewed as a concept based on principles, practices and techniques”.

The authors continue by claiming that “The principles of continuous improvement are a set of underlying assumptions about how to view the organization and its relationship to customers, competitors and suppliers”.

The principles referred by the authors are taking value by the practices that the organization embraces and approves. Practices are activities that are put into place and achieve conformance with the adopted and established principles.

The practices are implemented by using a range of techniques that have been adjusted to the organization’s demands and formulated in a manner that fits the company’s business conceptions.

As a direct result, the authors believe that “Along these lines continuous improvement can be defined as a purposeful and explicit set of principles, practices and techniques adopted to generate ongoing, systematic and cumulative improvement in the processes and output of an organization”.

Quality management in the context of the organization is highly supported by the above definition so as to achieve high rates of performance. The product development must be under the guidance of meticulous quality plans with inputs that through continuous improvement programs regarding the development and the improvement of the processes and procedures used will create outcomes that will fulfil the requirements set and satisfy to a maximum degree the customers. In effect, when the organization deals with continuous improvement the establishment of a project environment assists the company to take full advantage of the implementation of continuous improvement.

Team work, customer satisfaction, completion within budget and on schedule, effective partnerships and commitment to the scope of the projects, are issues that highly

promote the project management approach and keep it on the same wavelength with the organizational mission to fight for advanced performance and a better position in the market that operates.

Benchmarking methods

Books

Ahmad⁴ & Benson⁵ (1999), reprinted in 2002, assert that benchmarking “is an improvement journey where the appropriate processes or techniques are determined by the present position” (p.97).

Benchmarking acts in favor of continuous improvement aiming at upgrading the existing performance of the processes. Hence, the performance of the manufacturing company will be increased..

“One characteristic is that when an operation approaches world-class manufacturing performance, it will become closer to the dynamics of the final customer” (Ahmad & Benson, 1999, p.98”.

World-class status will come closer and more visible while flexibility and adaptation are becoming crucial business issues. World class organizations are those who are open to challenges while they depict decisiveness in achieving the organizational vision and goals set.

The meaning and the steps taken to achieve world class status are illustrated in the following figure (Ahmad & Benson, 1999, p.98):

⁴ Munir Ahmed is Professor and Section Leader of Process Manufacturing and Design at the University of Teeside. He also works with the European Process Industries Competitiveness Centre (EPICC) which was established in 1995 to support the process industries and improve manufacturing performance

⁵ Roger Benson is Chief Engineer at ICI Manufacturing Technology where his responsibility includes benchmarking and assessment. He is also a Visiting Professor to Imperial College, University of Newcastle and University of Teeside. For six years, he has been a judge for the UK Best Factory Award.

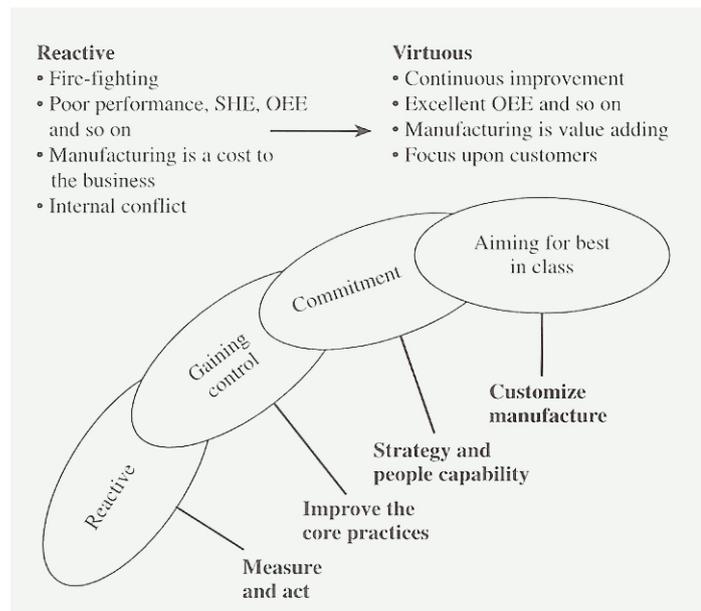


Figure 3 – 4. The journey to world-class manufacturing

Barkley & Saylor (2001), delineate thoroughly the way by which benchmarking methods assist companies to achieve top levels of performance and to become one of the best in their specific professional field (world class status).

“Benchmarking is a method of measuring your organization against the recognized best performers in a certain industry, organization, function, system or process” (Barkley and Saylor, 2001, p.317).

The processes involved in the projects should be pinpointed and defined with great accuracy. The inputs must be totally transmitted through effective processing channels into outputs with great value for the organization. Performance measures must be carried out. The outputs must have the desired quality and meet the customer expectations. Barkley & Saylor (2001) claim that “The benchmark targets improvement of the processes outputs or the performance of the actual process” (p.317).

Teams composed of people that have the appropriate knowledge regarding the involved processes and the dependency (interrelation) among them must be established. As a consequence, such teams will be able to perceive the meaning of the performance

measurements and read between the lines by interpreting properly and precisely the indications provided.

Benchmarking promotes the idea of continuous improvement. The organizations strongly wish to attain higher levels of performance. Through benchmarking continuous improvement perception acquires infrastructure and a disciplined approach. “With the help of benchmarking, this continuous improvement can be planned and implemented to meet the organization’s specific objectives”: (Barkley & Saylor, 2001, p.317).

Benchmarking projects based on team oriented efforts will definitely assist the company to exceed the current performance and reach greater levels. It allows the organization to create robust and meticulous plans so as to define the processes that need to be improved and transform the current weak link (weak point) of the system into a creative subsystem that is dominated by highly developed procedures, creates quality outputs and is characterized by enviable performance.

Camp⁶ (1989) defines benchmarking as “a positive, proactive process to change operations in a structured fashion to achieve superior performance” (p.3). “Benchmarking can be divided into two parts, practices and metrics” (Camp, 1989, p.4). The practices are accurately reflected by the methodology that is used by the organization while the metrics have their roots in the adopted practices and represent “the quantified effect of installing practices” (Camp, 1989, p.4).

Benchmarking strongly demands the understanding of the various practices used by the organizations. Top management commitment and is highly required.

Camp (1989) illustrates the generic approach of benchmarking which every organization should embraces to gain benefits and the effectiveness of such method (p.5).

⁶ Robert C. Camp is an engineering graduate of Cornell University where he also earned a Master’s Degree in Business. He received a Ph. D. from Pennsylvania State University in Logistics and operation Research. He has worked for Motor Oil and DuPont, and for the past 17 years has been with Xerox Corporation in its logistics operation where he started the benchmarking program. Camp has served as adjunct professor of marketing logistics at the Rochester Institute of Technology.

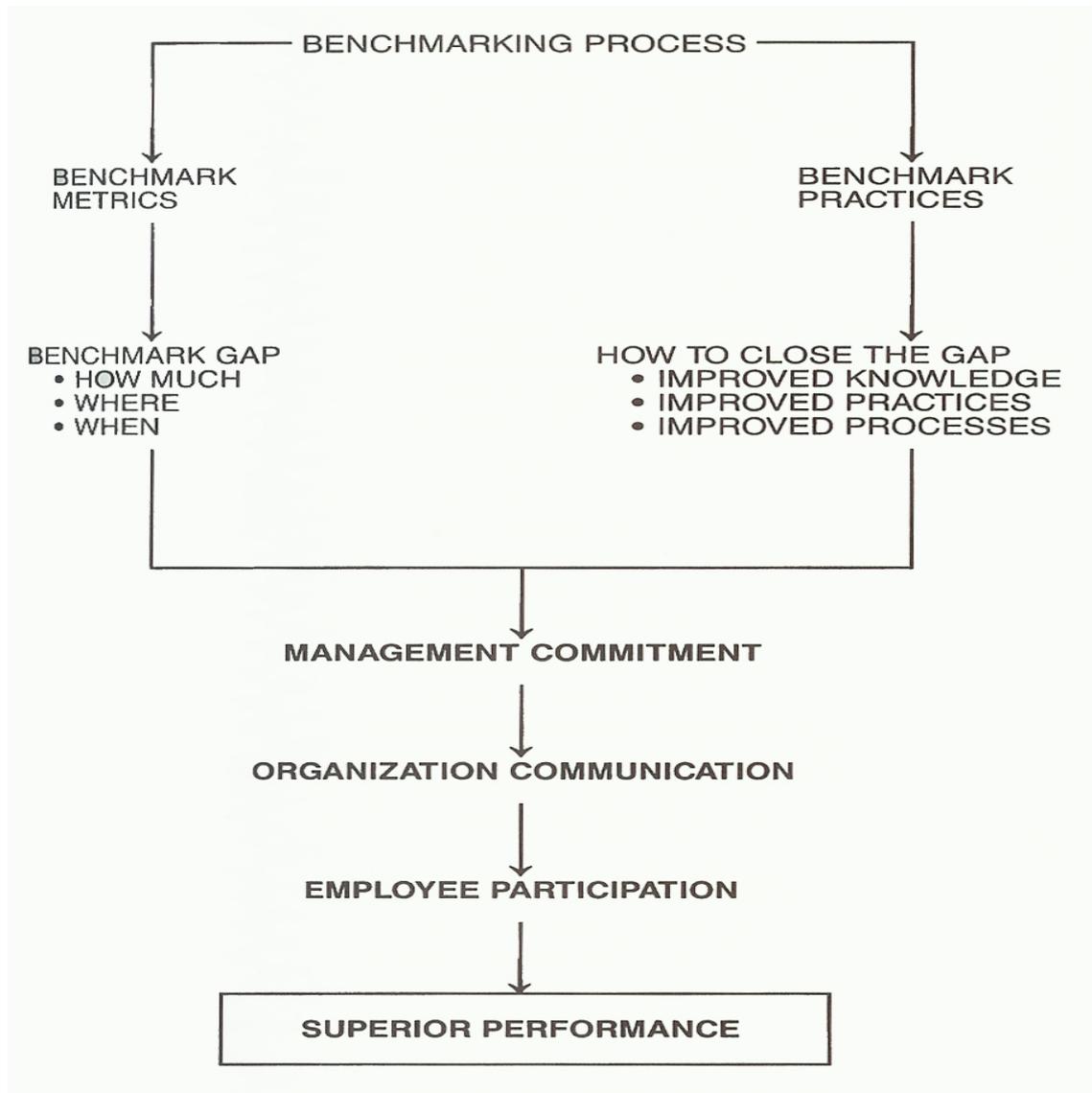


Figure 3 – 5. Generic Benchmarking Process

Such sort of applications reveals potential variances and deviations between the current levels and the desired but not easy to be attained performance rates. The practices must be totally defined, communicated to all levels of the company and team spirit should be built among the people that are responsible for benchmarking.

Commitment concerning the findings and scrupulous study of the results are vital issues. Attention and diligence must be depicted by the team members that have been

designated with such endeavor. Consequently, the needed changes resulting from the benchmarking methodology will be in agreement with the people involved and everyone will be in a position to accept and understand what his/her new role is and where its power and/or influence derives from.

Benchmarking is a methodology that exerts significant and outstanding efforts in finding who the best is and what it takes to be the best. It increases the interest of the companies to achieve the desired performance and present to their performance reports progress that will allow them to be more profitable and focused in detecting new paths to manage the work.

Last but not least, benchmarking “forces constant testing of internal actions against external standards of industry practices” (Camp, 1989, p. 15). The organization recognizes the existing processes used, appropriately benchmarks the best or the leaders of the domain that it operates and then decides on a knowledgeable and methodical basis the corrective actions that it should execute so as to reach the targets set.

Crawford⁷ (2002) argues that “Benchmarking helps to legitimize project cost, schedule, and resource requirements estimates” (p.76). Additionally, “Building a world-class set of processes and methodologies also involves taking advantage of the lessons your own project managers learn while engaged in projects” (Crawford, 2002, p.76). He reflects the usefulness of implementing benchmarking in view of improving project processes and transforming in a credible manner current inadequacies into solid and trustworthy business opportunities for further expansion.

Crawford (2002) illustrates the benchmarking process phases (p.201):

⁷ J. Kent Crawford is CEO and Founder of Project Management Solutions, Inc., Havertown, Pennsylvania. Former president and chair of the Project Management Institute, he is the author or co-author of numerous industry publications and delivers workshops worldwide on project office deployment. A certified project management professional (PMP®), an advisory board member of the Center For Business Practises, and an Honorary Fellow of the Project Management Association of India, he received the B.A. degree in management/accounting from Purdue University, West Lafayette, Indiana.

BENCHMARKING PROCESS PHASES	BENCHMARKING CRITICAL SUCCESS FACTORS
<p>Planning</p> <ul style="list-style-type: none"> • Identify benchmark subject • Identify benchmark partner • Determine data collection method • Collect data <p>Analysis</p> <ul style="list-style-type: none"> • Determine competitive gap • Project future performance <p>Integration</p> <ul style="list-style-type: none"> • Communicate results • Establish functional goals <p>Action</p> <ul style="list-style-type: none"> • Develop action plans • Implement plans • Monitor results • Recalibrate benchmarks 	<p>Planning</p> <ul style="list-style-type: none"> • Active management commitment to benchmarking • Focus on benchmarking first on industry best practices and second on performance metrics <p>Analysis</p> <ul style="list-style-type: none"> • Clear, comprehensive understanding of internal processes as a basis for comparison to industry best practices • Concentration of other recognized leaders against which to benchmark <p>Integration</p> <ul style="list-style-type: none"> • Realization that competition is constantly changing; future needs must be anticipated • Openness to new ideas; creativity and innovativeness in their application to existing processes <p>Action</p> <ul style="list-style-type: none"> • Willingness to share information with benchmark partners • Continuous, institutionalized commitment to benchmarking best practices
<p><i>Adapted from: Business Process Benchmarking. Robert C. Camp, ASQC Quality Press, 1995.</i></p>	

Table 3 – 1. Benchmarking best practice

The connection of project management and benchmarking methodology is clearly supported. Crawford (2002) advocates that “As project management knowledge collection ...becomes more and more of an organizational priority, all levels of project personnel can learn to become receptive learners and skilful benchmarkers who actively practice innovative adaptation and who recognize benchmarking as an essential skill” (p.200).

Moreover, Goodpasture (2002) asserts that “EVA is a financial measure of how project performance, especially after the deliverables become operational, affects earning” (p.12). “EVA measures the economic performance of cash earnings”(Goodpasture, 2002, p.13). The following figure shows the true meaning of EVA:

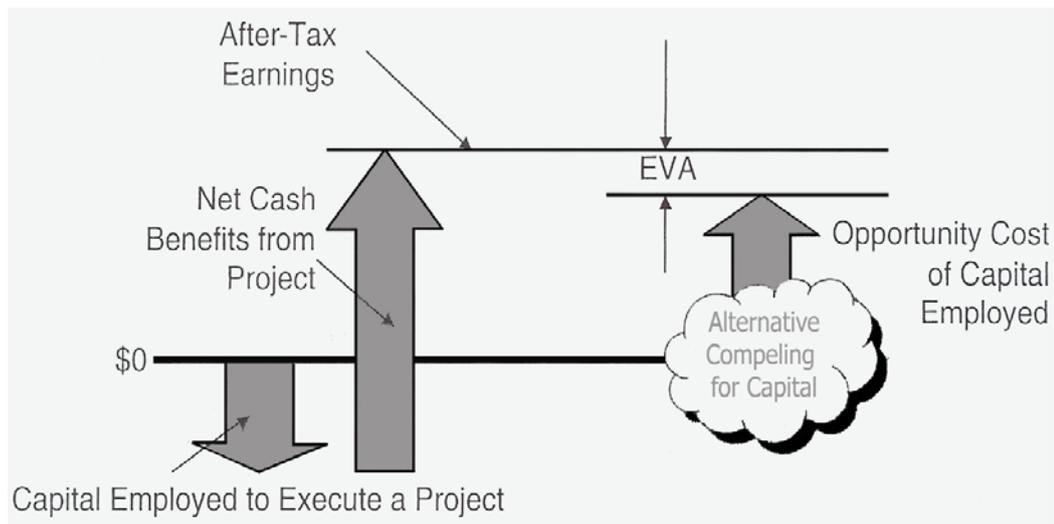


Figure 3 – 6. Economic value add (EVA) is a measure of profitability.

Economic value added indicator denotes if the investment will bring profits to the company. If the investment is not considered profitable (in monetary values) then other money-making projects must be put into place. EVA depicts in a precise mode if the attempted investment will be proved beneficial and advantageous or will inhibit the organization’s endeavor to deploy its financial plans.

It is a measurement conducted by senior management in view of ascertaining the true value of the project, the profits gained and avoiding future risky situations by undertaking a project that might not satisfy the strategic goals set. It extensively helps to stay aligned with the business objectives and targets.

Kerzner (2003) asserts that “the first major step in the planning process after project requirements definition is the development of the work breakdown structure (WBS)” (p.396).

Project planning supports continuous improvement efforts. WBS facilitates the work flow and the tasks as those are demonstrated in the WBS.

Information can be derived regarding cost data, schedule elements and resource allocation that assist the project manager and team to structure and plan the project work in an effective and thorough way.

Kerzner (2003) presents the pure product or projectized structure (p.99). It is the structure that should be erected when companies choose to undertake projects, complete them by using the project management approach and battle the old fashioned perception regarding dominating functional departments that consider projects as a part of the work to be done instead of fundamental powerful tasks that add value to the company and promote its business potential and operational capability.

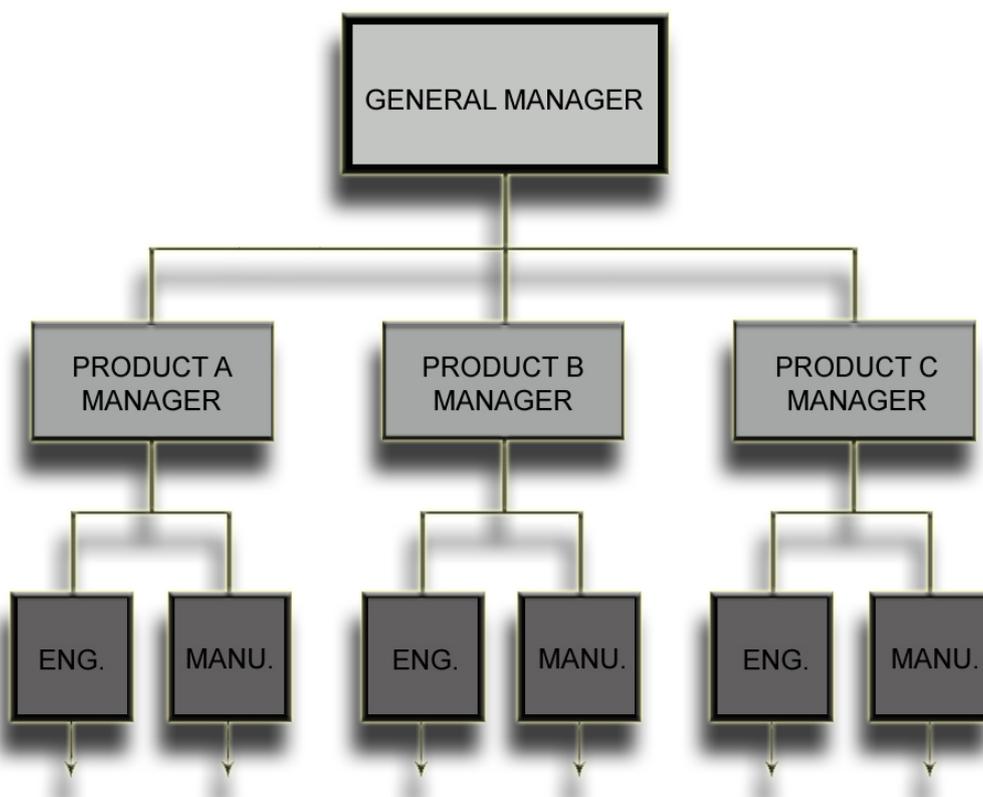


Figure 3-7. The company's projectized structure.

“Benchmarking involves comparing actual or planned projects to generate ideas for improvement and to provide a basis by which to measure performance” (Kerzner, 2004, p.185). It is a valuable input in the quality planning of the business. It is the most compelling tool for achieving continuous improvement and provides the most sound and neat solution in acquiring advanced business traits and attributes (characteristics) that empowers the organization to set higher but achievable goals.

It enhances the company to hold a better market position while it stifles and diminishes conservative and traditional managerial approaches regarding business performance and improvement. .

Mard, Dunne, Osborne & Rigby, Jr (2004) contend that economic value added can be a simple but important benchmark. “Economic value is defined as the company or project creating net operating profit after taxes in excess of its cost of capital” (p.11).

Meredith & Mantel (2003) clearly state that “...the most common approach to project scheduling is the use of network techniques such as PERT and CPM” (p.384). The Program Evaluation and Review Technique (PERT) and the Critical Path Method (CPM) are largely employed to create schedules with pressing deadlines based on estimating duration of activities which are structured in specific order.

They demand a thorough network solving capability to ensure the viability of the project schedule and really have valid direction of the planned work. Activity on Node or Arrows Network (AON or AOA Network) incorporates activities that compose the project work. The total duration of the project can be calculated by using such networks. They are valuable techniques that can be benchmarked and adopted by companies that consider project management and project scheduling aspects of strategic importance and concern and utilize such perspectives as techniques to improve their performance to achieve high rates and continuous improvement.

Furthermore, Gantt chart is a method or tool which offers a maximum help to design a feasible schedule. “The Gantt chart shows planned and actual progress for a number of tasks displayed against a horizontal time scale” (Meredith & Mandel, 2003, p.390). It is a tool that if implemented in creating comprehensive schedules then accepted performance rates will become a reality.

The PMBOK Guide (2004) delineates the significant contribution of benchmarking methods in view of measuring performance, and matching it with the performance of other companies, which are considered “leaders”.

The focal point is to identify the project processes that need to be improved, recognize the best practices that the leaders incorporate into their successful project processes, determine the measurements that should be conducted and interpret objectively the results having adopted the appropriate metrics and finally make the needed modifications and adjustments that the benchmarks propose. Through benchmarking methods targets for superior performance are clearly shown.

Benchmarking is much bigger than solely finding who is the best and just copy the processes and the metrics that it utilizes. It demands thoroughness, diligence and ability to discern the leader’s competitive processes. Changes and modifications must take place. These changes suggest reconsidering and reevaluating the usefulness and effectiveness of the existing project processes in view of installing new procedures that will allow better performance and efficiency.

Clear understanding of the final benchmarks must be achieved. Capability in incorporating the new advanced procedures must be shown. The ultimate purpose is to experience a new business setting in which the new advanced processes fit and comply with the organizational goals and pursuits. It is crucial to maintain desire for benchmarking.

It will allow the company to attain improved project processes. It will maintain projects that perform at high rates. It will support programs that reflect flexibility and innovation. Finally, it will facilitate the efforts of the organization to attain its strategic goal for continuous improvement.

Earned value technique is fundamental for delivering successful projects. It is area to be benchmarked and is related with project progress and performance issues. Rad (2002) argues that “It serves as an equally powerful tool in determining the rate of progress of internal progress of internal projects toward achieving the project’s goals” (p.75). The above excerpt depicts the seriousness of integrating earned value technique in the project monitoring procedures used to keep track with project trade offs and have a clear picture regarding the performance achieved and the progress of the work counting on data that pinpoint the present conditions that the project deals with.

Moreover, Rad (2002) asserts that the resource breakdown structure (RBS) is a valuable tool because “...project manager can depend on this structure to determine the amount of resources at-hand and their estimated cost ...” (p.27).

Projects are narrowly connected with the proper allocation of the resources (human and technical) and its costs for integrating such resources in the project processes has a special interest when budgets are structured and project planning phase is put into practice.

Reider⁸(2000) provides the types of benchmarking methods (p. 29): *Internal Benchmarking* is composed of the identification of the practices in the internal business environment that have reached high level of performance. Such practices are analyzed in a thorough fashion and provide information regarding activities, drivers and best performance.

⁸ Rob Reider, CPA, MBA, PhD, is the President of Reider Associates, a management and organizational consulting firm located in Santa Fe, New Mexico, which he founded in 1976. He has many and varied internal and external benchmarking studies and operational reviews and has trained both internal staff and external consultants in these techniques. Rob is the course author of nine self-study course marketed internationally. He is also the author of the professional managers handbooks titled *The Complete Guide To Operational Auditing*, 1994 and *Operational Review: Maximum Results at Efficient Costs*, 1999.

Drivers can be deemed that are trigger points that put the relevant activities in motion. This specific type “is the first step in benchmarking because it provides the framework to improve internal operations to best practices ...”. It assists the organization to distinguish the most effective and efficient processes that contribute in the creation of the final outcome.

External Benchmarking compares and contrasts the processes used and the relevant achieved performance between the organization that intends to make the leap into a more effective business setting and competitors that are commonly acknowledged as leaders or best in class.

External benchmarking consists of the following kinds:

1. Competitive benchmarking - deals with the immediate competitors of the company. It is mostly engaged with the “strengths and weaknesses of the company’s competitors” (Reider, 2000, p.30). Provides the company with crucial guidelines in order to conceive and structure its own competitive strategy.
2. Industry benchmarking - has a broader meaning and content. It demands the investigation and inspection of creative and productive initiatives that have been taken by organizations in the specific industry. New perceptions, ideas and trends that reflect novelty and improvement are on the focus. The establishment of better parameters concerning performance level will be achieved. Industry benchmarking extends “beyond the typical one to one comparison of competitive benchmarking”. (Reider, 2000, p. 30).
3. Best- in-class benchmarking - “Looks across multiple industries to identify new innovative practices – regardless their source” (Reider, 2000, p.31). The point in such sort of benchmarking is to recognize the best practices that create the best results. It facilitates organizations to detect where opportunities for development and growth lie. It concerns all the systems and subsystems that are involved in the organizations.

“It supports continuous improvement, increased performance levels, and movement towards best practices...” (Reider, 2000, p.31). It is crucial for companies to create robust plans or studies in order to minimize the variations that are defined by implementing benchmarking.

The benchmarking process reveals the benchmarking gap that potentially exists. This gap can be interpreted as “The difference between where the company is and where they would like to be ...” (Reider, 2000, p.31)

At this point it is crucial to be mentioned that many times organizations prefer to conduct both types of benchmarking depending on the current situation they experience and their strategic goals that intent to attain.

At any case the results and the findings of the methods followed ought to bring benefits to the organizations and provide them with knowledge that if implemented in a wise manner it will gratefully help them to achieve expansion and development.

The benchmarking gap indicates the space that must be covered in order to attain the goal for better performance. It is important to have a clear understanding of the present position that the company holds. “The difference between the where the company is and where they would like to be is called *benchmarking gap*” (Reider, 2000, p.31).

Reider (2000) presents the benchmarking process and the benchmarking gap that spells the difference among organizations that struggle to take a better position in the market place (p.32).

The organization should aim at reaching the performance that the benchmarks indicate and then take actions to surpass them always by taking concrete steps and competent efforts in a decent and morally approved manner

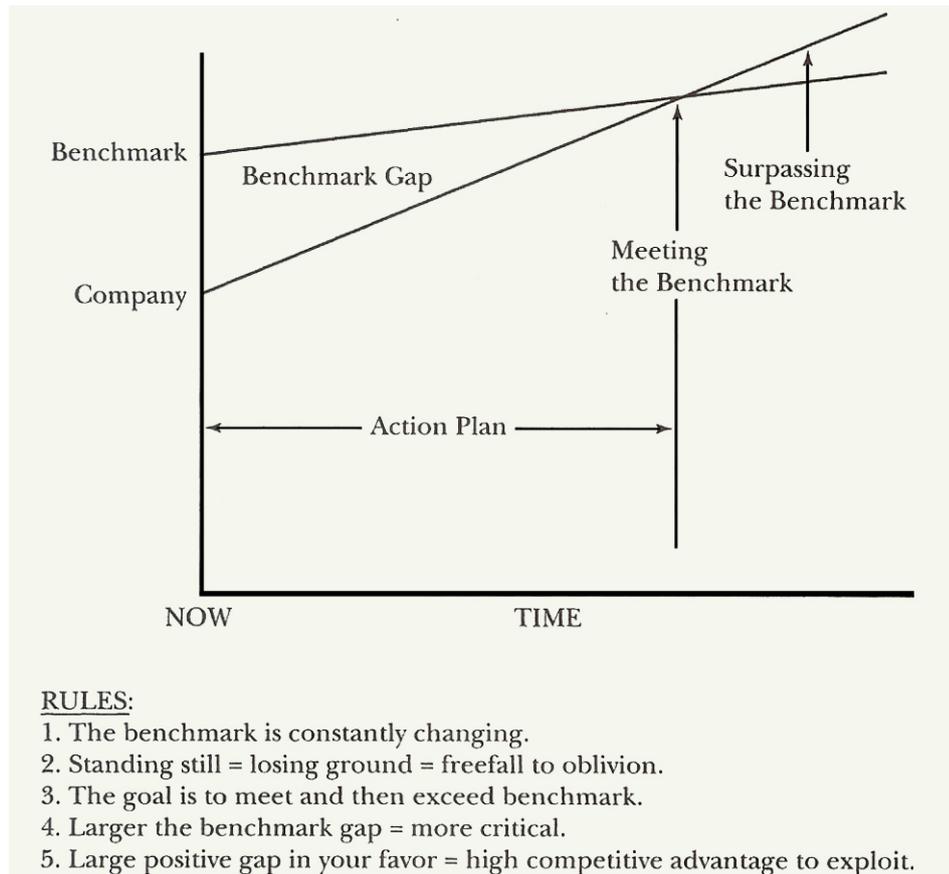


Figure 3 – 8. Benchmarking process and the benchmark gap

If the purpose is to depict professionalism and bring valid results then a benchmarking team must be formulated. Companies should facilitate the establishment of the study team composed of partners that have the capacity to stand equal to the occasion. Skillfulness, communicative traits and managerial efficiency are attributes that greatly support the benchmarking efforts.

Due to the different personalities and characteristics of the team members the selection of the individuals is considered an important issue. External associates may be appointed. Experienced and well-trained experts and specialists can be appointed if the management considers that there is a need to do so. Cooperation and collaboration with employees that work in areas that are in the interest of benchmarking study must be achieved.

“These employees will help to ease the transition from present practices to best practices”

(Reider, 2000, p.167).

The following criteria are essential in selecting the benchmarking team (Reider, 2000, p.167):

1. Special skills and abilities
2. Knowledge of the areas included in the study
3. Mutual respect- within the team and with the organizations participating in the study
4. Communication skills - both oral and written
5. Team orientation – ability to work together as team players
6. Analytical ability - to analyze a situation, identify the problem, causes, and recommended corrective actions
7. Motivation to learn – desire to expand learning and use it for effective problem solving
8. Management skills – project management, working with diverse group, and a multifunctional environment.

The organization that embraces the benchmarking methodology should take into account that “...it is also important to consider the aspect of group (and team) dynamics – that is the manner in which the team must work together” (Reider, 2000, p168). To this effort, a project manager must be appointed.

The team ought to follow the project management approach. “Through the sharing of project management, control by one individual or organization is minimized, the results tend to be shared more effectively, and results are accepted more readily” (Reider, 2000, p168).

Schedules regarding crucial deadlines, expenses, progress reviews and team meetings on a regular basis can be achieved through the implementation of the project management approach. The team should set the benchmark targets in an optimized manner.

Reider (2000) continues by presenting some crucial steps taken from the Strategic Planning Institute Council on Benchmarking (SPI) regarding the implementation of benchmarking findings (pp. 175-177):

1. Define what to benchmark and develop the project scope
2. Document the current process
3. Conduct secondary research and select partners
4. Analyze and tailor findings to current culture

Reider (2000) defines five steps of an effective benchmarking study as part of the external benchmarking implementation schedule (pp. 177-180):

1. Identification, Assignment, and Orientation of Benchmarking Team
2. Internal Company Data Gathering And Analysis
3. External Data Gathering
4. Analysis of Benchmarking Information
5. Implementing Your Recommendations

Zairi ⁹(1998) claims that strategic benchmarking "... is the process by which the vision /mission is established and challenging goals are developed" (p.45). Critical measurements must be conducted, monitoring and controlling procedures must be put into practice in view of attaining the objectives set.

Zairi (1998) continues by asserting that "Prioritization ensures that the focus of benchmarking activity is on the core aspects of the business, the impact from benefits derived is closely linked to strategic intentions, and focusing on the "vital few" resources will not become an issue" (p.49).

⁹ Mahomet Zairi is the SABIC Professor of Best Practice based at the University of Bradford Management Centre. He heads the European Centre for TQM and is the Editor in Chief of five journals including The International Journal of Benchmarking Quality Management and Technology. Professor Zairi is also the Chairman of the European Best Practise Benchmarking Award.

“Benchmarking is not a means of winning at any cost. It is a legitimate, systematic, overt and ethical process of bringing about effective competitiveness” (Zairi, 1998, p.87). The main issue is to achieve superior performance and attain continuous improvement by “learning through sharing” (Zairi, 1998, p.87).

Electronic Sources:

“Benchmarking” from Wikipedia, the free encyclopedia, last modified 1 June 2007 from <http://en.wikipedia.org/wiki/Benchmarking>. This electronic source provides information about the advantages, the procedures that must be followed as well as the cost of benchmarking.

Advantages can be derived from the wise and decent application of the benchmarking method regarding the procedures that are used by the competitors of the company. Such competitors may “enjoy” a better market position. The company should aim at realistic, achievable and practical benchmarks.

Benchmarking demands team-oriented perceptions, clear scope and definition of the targets set, consensus, direction and commitment from all critical stakeholders. As a result, it is expected to be a methodology that demands a large portion of the budget. The most significant costs of benchmarking are:

1. Visit costs – This include hotel rooms, travel costs, meals, token gift, and lost labor time.
2. Time costs – Members of benchmarking team will be investing time in researching problems, finding exceptional companies to study, visits and implementation. This will take them away from their regular tasks for part of each day so additional staff might be required.

3. Benchmarking database costs – Organizations that institutionalize benchmarking into their daily procedures find it useful to create and maintain a database of best practices and the companies associated with each best practice now.

Journal Articles

Cooke – Davies, T., Ibbs, W., Mullaly, M., Pennypacker, J., & Young, J., (PMI, 2004) argue that benchmarking has a strong and stable relationship with project management concerns. In the specific article a viewpoint of Mark E. Mullaly, PMP, president of Interthink Consulting Incorporated is accommodated Mullaly claims that the organization should firstly recognize the benchmarking objectives and then set in a clear manner the benchmark metrics. He asserts that three dimensions are feature largely in the organizational performance of project management based on the contribution of benchmarking in the improvement of the company:

1. Process maturity, which measures the quality and capability of a process
2. Process effectiveness, which deals with how useful and relevant the process is in supporting the specific types of projects that the organization executes
3. Project effectiveness. Examines if the projects keep track with cost and schedule aspects regarding the project baseline and takes into account the project scope and objectives.

Also, in this article Mullaly presents a list of metrics that have merits to be targets for benchmarking: project cost, project schedule performance, return on investment, staffing productivity, project life cycle, post- project reviews, risk management, alignment to strategic business goals and customer satisfaction. Such benchmarks can be adjusted in the needs and demands that the organizations may have.

Before benchmarking the organization must take into consideration the vision that ought to have, the final destination that it intends to reach, the strategic plans and actions that must be taken and a clear perception of the personnel that it has in its work force. Much can be achieved based on team work and team building. It is crucial to be aware of the capabilities and the capacity of the people that are directly and indirectly involved in the projects.

CHAPTER 4

Methodologies and Procedures Used in the Study

The methodology followed in this study is in compliance with the principles of the evaluation thesis.

The main concern of this master thesis is how continuous improvement and benchmarking methods can in an optimized manner serve and support the Greek dairy industries endeavor to become stronger and achieve a respectful business profile worldwide.

Due to the author's relevance with the domain of dairy industry valuable experience has been acquired regarding animal production technology and dairy domain. Such experience helped the author to take concrete steps and make serious efforts in deeply perceiving the concept of continuous improvement and efficiently realizing the usefulness of conducting benchmarking studies so as to support the attempts for organizational growth and development. Meaningful discussions and thorough conversations with people that function in the specific professional field positively affected the attempts for a neatly written thesis.

During the program the author had the opportunity to attend sessions and lectures with advanced scientific contents (always relevant with the project management approach and methodology). As a result, significant knowledge regarding the interests of this master thesis was gained. Crucial scientific paths to properly and correctly apply the acquired knowledge were found.

Information was gathered in order to elaborate on the way that a Greek dairy industry may overcome conventional strategies and find and efficiently exploit methods and techniques so as to become "World Class" status.

This study is built on data which were collected by utilizing the material of a variety of scientific books and articles (accepted by the international scientific community) which

deal with benchmarking methods, as well as with the methods and procedures that dairy companies use (or intend to use) for achieving continuous improvement.

Such literature review enlightened the perspectives of the author and helped him to structure, organize and direct his thoughts so as to yield ideas and engender viewpoints that positively contributed to the creation of this study. The literature review greatly influenced the composition of main concepts that this study is based on.

Fundamental conceptions were derived while such review assisted the author's efforts to probe and explore the deeper meaning of continuous improvement process and benchmarking methods.

Furthermore, the exploitation of valid and dependable electronic sources (internet sources) will assist the effort of the author to present accurate and detailed information so as to reach credible conclusions

Based on the theoretical approach emerged from the literature continuous improvement sets the vision of the companies to acquire further development and growth while benchmarking localizes areas that directly affect the performance rates of the organization in a pretty straightforward manner. The relevance between these two concepts is considerably high while the collective action impacts the organizational effectiveness and the cumulative process efficiency of the company.

Identification of the leaders in the specific domain of dairy industry, adoption of the best practices they use, smooth integration of them by changing current unproductive and ineffective procedures and systems, incorporation of the broad meaning of quality into the process used and the culture of the company and alignment of the above aspects with the organizational strategic goals and objectives for expansion and continuous improvement are vital issues that this thesis is engaged with.

Furthermore, the literature review disclosed valid approaches that if implemented they will add worth and bring benefits to the organization. Appropriate identification of the processes to be benchmarked and determination of the measures to be conducted, are essential aspects that the literature review sheds light on. The organizational performance will and can be compared with standards that are supported by the literature.

Furthermore, the bibliographical support of this master thesis enhances to a large degree the ability to conceive the essence and the nature of the metrics used so as to conduct the appropriate performance measurements and be led in solid and approved comparisons. Such metrics constitute the quantifiable nature and perspective of implementing and performing the methodology of benchmarking.

An interview conducted by the author adds valuable elements concerning what continuous improvement means from the standpoint of a large Greek dairy organization. An executive manager from a Greek dairy manufacturing company discusses the effectiveness of continuous improvement and highlights the benefits that can be derived if it is properly applied.

The practical application and the realistic approach of implementing such aspects in the world of business are some crucial points that are defined in the interview which is the content of Appendix four. This specific interview assisted the author's attempts to perceive and then present how the desire for continuous improvement can be cultivated and raised in a company that holds a significant portion of the dairy market.

This study is structured by following the principles for achieving company's continuous improvement and the procedures to properly benchmark which are spotlighted in the scientific field of Project Quality Management.

CHAPTER 5

Results

The outcomes of the methodology and procedures used in this master thesis are presented in this chapter.

The author through a comprehensive bibliographical research, the wise use of valid web sites and the knowledge provided by the program tried to present a valid study. Also, an interview was provided by an executive of a large Greek dairy industry. As is previously mentioned the main fundamental concepts that direct this study are continuous improvement and benchmarking methods.

The author's professional experience and first degree studies resulted in embracing the way that continuous improvement conceptions act within a dairy organization. The forces that feature in the organizational environment influence (negatively or positively) the efficiency and competence of continuous improvement.

The major parts of the results that this study brought are based on the comprehensive literature review, the instructive articles and the exploitation of electronic resources. Continuous improvement processes are strongly suggested and proposed from the various bibliographical sources.

The results show that management should integrate continuous improvement spirit into the various processes and procedures used to create the final product, outcome or end result

The literature research discloses that continuous improvement targets demand a structured approach regarding the critical key measures that will lead the company to reach safe conclusions and assumptions as far as the progress of the work to be accomplished and the quality objectives and/or standards set are concerned.

What is clearly resulting from such research is that continuous improvement must be established to the “unique endeavors undertaken” and the relevant processes that compose the corresponding efforts.

Moreover, what is worthy of note through the bibliographical research is that continuous improvement is part of the systemic approach that ought to be followed by the organizations.

In fact, each function, activity, process or operation directly affects the performance and the operating status of the subsystems that belong while the subsystems impact the overall function of the organization. The inadequacy and inefficiency of one process may cause dysfunctions and discrepancies to other processes.

The outcomes of the activities attempted put at first site the imperative need of incorporating continuous improvement into the project processes used and the necessity of benchmarking the leaders of the specific domain with clear and decent direction. Project management tools and techniques ought to be exploited in such venture.

Internal and external benchmarking studies should be included and strongly involved in performing the benchmarking methodology. Concrete steps must be taken and competent efforts should be made when experiencing the application of such methodology as the basic tool for achieving continuous improvement.

Another related factual result arisen from the literature is that benchmarking acts in favor of continuous improvement. The data gathering through a comprehensive and meticulous analysis (benchmarking studies) lead to implementation schedules with specific deliverables and due dates.

Major milestones (the accurate compilation of the qualitative and quantitative benchmark list) regarding the various benchmarking studies that the company chooses to perform should be set in a clear manner.

Information derived from the research relate the clear understanding of the current business position, the measurement of the organizational performance and comparisons with the best of the specific domain as fundamental issues that benchmarking methods deal with in a thorough and analytical mode. Such factors extensively contribute to create the following sequence of events based on factual objective results and outcomes that crop up from this study (Figure 5-1).

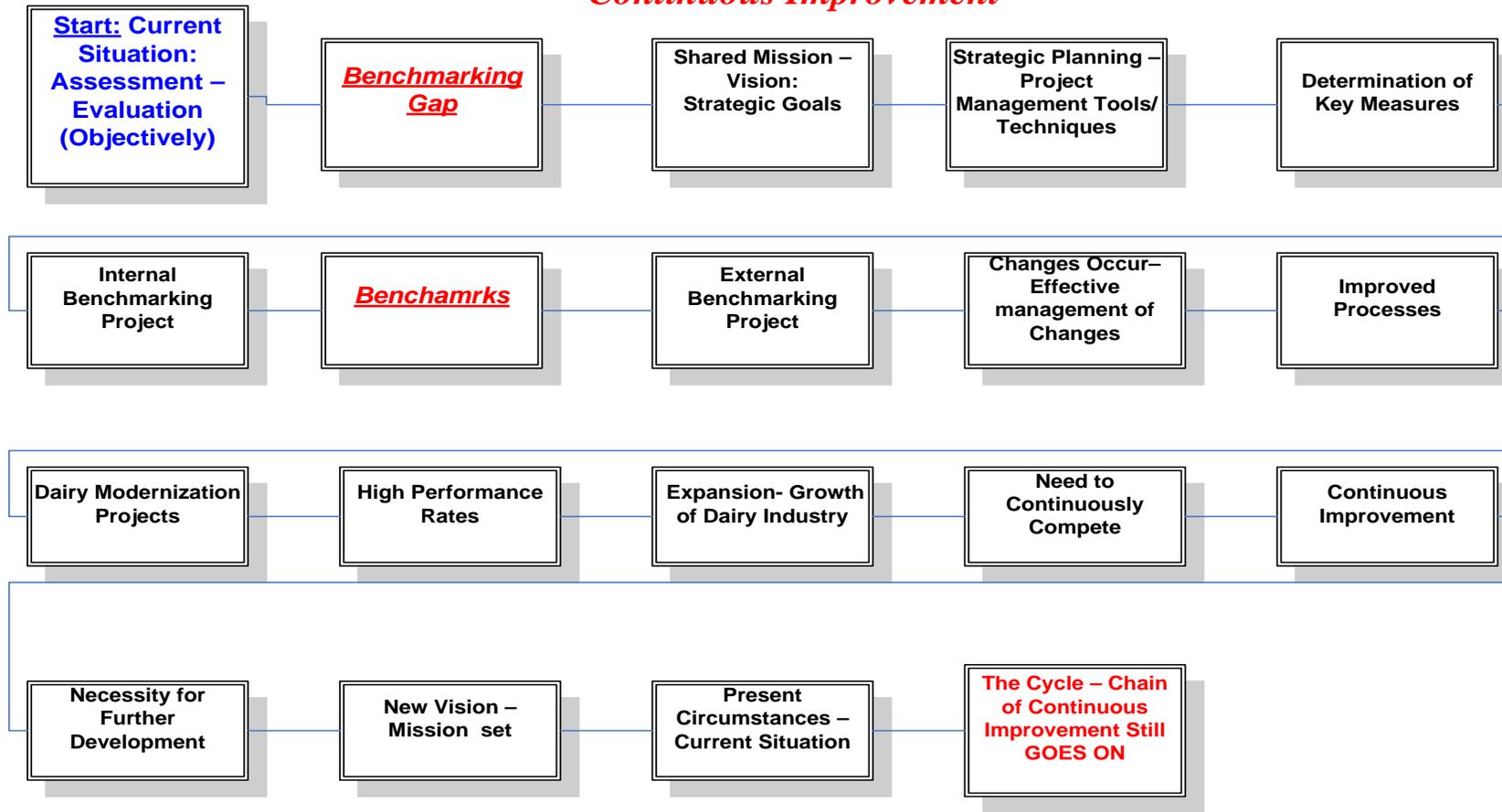
Such figure depicts the final outcomes regarding the progression of events when efforts to, firstly, value the current circumstances and, secondly, benchmark the best in class are put into place.

As a direct result, changes should be attempted and corrective actions must be followed so as to adopt the recommendations of the benchmarking studies and embrace the highlights that such methodology offers. Timeframes and implementation schedule plans ought to be tracked.

The outcome that is arisen from the interview is in direct connection with the principles of continuous improvement. Such interview underlines the value that is added to the company while it spotlights the true meaning of trying to establish continuous improvement into the various processes within the organization. Research clearly shows that continuous improvement and benchmarking are in a constant interaction (Figures 5-2 and 5-3).

Their dependency and interrelation is emphasized through the circular movements that follow when continuous improvement and benchmarking projects govern the venture of the organizations to achieve world class status.

From Benchmarking to Continuous Improvement



The end begins a new, more demanding start to a plausible and believable continuous improvement journey

Figure 5-1. The sequence of events for achieving continuous improvement

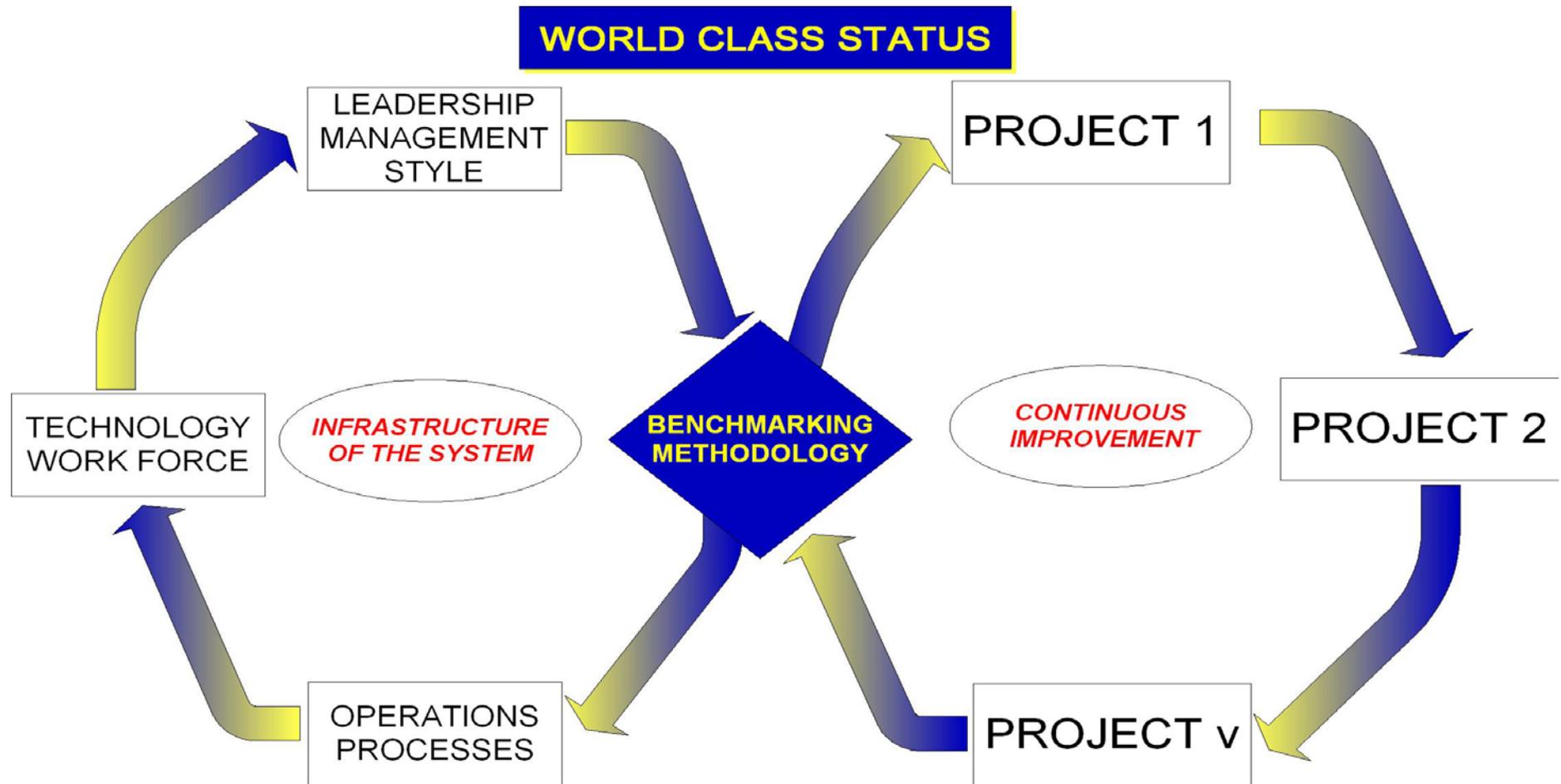


Figure 5-2. Benchmarking and continuous improvement interface

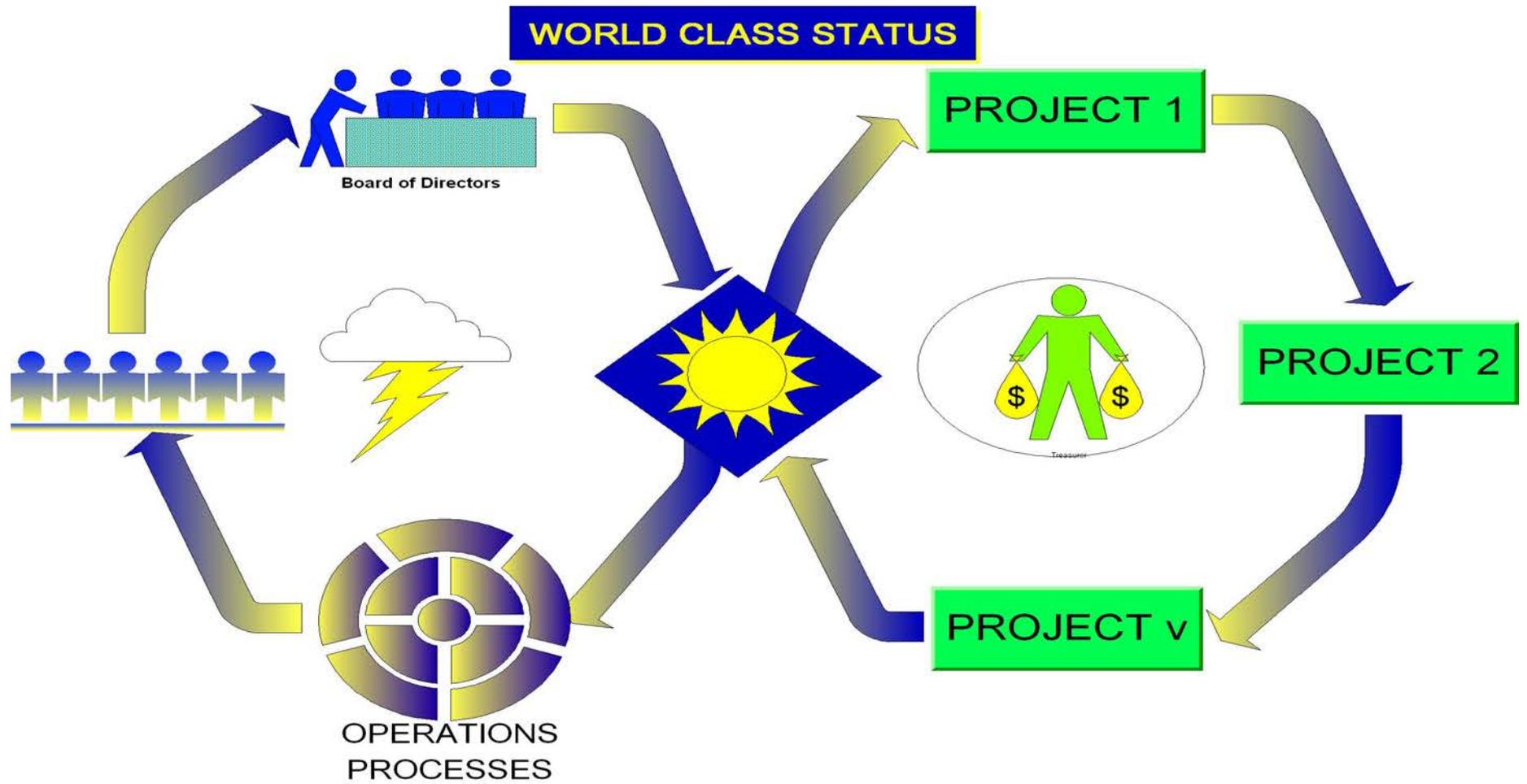


Figure 5-3. Organizational interdependencies

Chapter 6

Discussion, Conclusions and Recommendations

It is widely known that market demands have been increased. Greek dairy companies ought to set a business behavior that will assist their efforts to become appreciable (worldwide) among other tough competitors. They should reconsider and re-evaluate the methodologies followed so far.

They should be engaged with more up-to-date conceptions (by adopting continuous improvement processes in the dairy projects that undertake and benchmark the best in class) and depict adaptiveness instead of displaying a passive and inactive disposition. If applied, such business temperament will positively influence the Greek dairy companies to become better and more productive.

Continuous improvement and benchmarking methods do not comply with tolerance to changes and resistance to innovation. These two powerful elements will extensively affect the intention of the Greek dairy industry to make a successful shift into world class status organizations since they support the attempts to achieve perfection and growth through innovation and advanced levels of productivity.

No one would deny that food market in our modern world demands innovation and the launch of new consuming goods, products or services. A large portion of the market place is possessed by dairy organizations. The most efficient way to stay viable and competitive in the specific domain is to undertake dairy projects as a means of sustaining the current position and set the foundations for future development. Projects generate the need to continuously improve the current status.

Continuous improvement affects a variety of procedures and systems in the organization. Quality still remains the crucial issue but not the unique one that is impacted by or impacts continuous improvement process.

Literature review illustrates that “quality is defined by the customer” (Kerzner, 2003, p.759) and “Quality means customer satisfaction and conformance to specification with budget and time constraints ... is the key effectiveness goal, with cost and schedule serving as measures of efficiency” (Barkley & Saylor, 2001, p.18).

The efforts of the dairy organizations should be focused on ensuring through a structured and disciplined approach the quality issues of the series o products they create while they ought to establish processes and activities that facilitate the achievement of the quality standards that are obliged to attain and, if possible, exceed them.

Quality improvement will be experienced if the processes function at better rates. Its interaction with the other procedures will safely approach advanced levels and the operational application of the business will manage to reach the standards set and satisfy the customer. Customer satisfaction will bring acknowledgement and preference by the consumers.

Consequently, the established competitive advantage will be enhanced and the market forces will inevitably act in favor of such achievement and dynamic. Greek dairy companies will form a noteworthy dynamic and forceful potential to advertise its dependability in moral business terms, acquire even more reputation and increase its capability to do business in the global market.

Allied force to this venture is the conception and implementation of project quality management and the processes that re involved in such concept. Each dairy product serves a scope (the scope of the relevant dairy project) for which it was created, targets a specific group of consumers and aims at fulfilling some basic but critical parameters or criteria before entering the market for consumption.

The genetic level and the animal condition (potential health problems), the nutrient value that the final products must have and the imperative need to maintain and apply milk production and processing methods with the appropriate equipment (milking and feeding

systems) and techniques such as pasteurization are factors that have a strong effect regarding the quality of the dairy products that consumers wish to enjoy.

Dairy projects owe to create deliverables and products that fulfill the milk quality standards set and reach the satisfaction of the customers. Project quality management by enhancing robust and comprehensive quality planning will be in a position to structure the work to be accomplished in reasonable and doable tasks and subtasks, allocate properly resources (human and technical), establish a valid supply chain, manage changes that will not affect the initial t scope of the dairy project and involve the customer directly in the project processes with a view of gaining its total satisfaction.

As a direct consequence, quality assurance is responsible for causing guarantees that all the needed processes have been founded in light of maintaining the quality goals set and avoiding wastes, rework and discrepancies that will bring confusion, conflicts extra expenses and costs and, finally, will create customer's resentment.

Quality control process assists the project manager and team to check the degree of conformance to specifications, supervise if the processing of the products is in compliance with the requirements set and monitors the progress of the work by keeping an eye in achieving the quality standards set from each process by utilizing the appropriate quality tools and techniques such as histograms, pareto analysis, data tables and cause-and-effect analysis (Kerzner, 2003).

The foregoing factors delineate the quality strategy or policy or approach that is emerged from the intention of the dairy industry to be responsive and sensitive in quality issues which play significant role in the preference of the consumers to buy the Greek dairy products while they erect the base on which continuous quality improvement will be developed.

In turn, continuous quality improvement shows and paves the way for reaching constant and continual improvement in aspects that have a broader meaning but are of equal importance for creating and maintaining the desired continuous improvement spirit in the business perspective of the dairy industry.

The nature and the attributes of continuous improvement involve the interaction and interrelation of various systems that compose the overall operation of the organization and impact its performance. The author believes that continuous improvement concept is primarily a strategic goal that comes into view from the desire of senior management to cultivate the spirit of innovation, flexibility and initiative that will assist the individuals and the various work teams to avoid the bad, battle the good and hunt the better.

Continuous improvement is in direct connection with the principles of the learning organization as outlined in the literature review. The creative power of learning organization is tailored with the spirit that upper level management must create within the various units of the organizational system.

The exploitation of the personnel and the team learning are factors that help individuals to acquire knowledge, perceive the picture of the world that is mirrored internally in realistic terms and assumptions (mental model), and decompose their personal mastery and credibility for achieving in a timely and decent manner the shared goals and the unified vision.

Changing the culture of a company requires a top to bottom approach. It is a demanding and time consuming target. It creates long-term objectives and involves all systems of the organization. All these changes should be put in practice with a view of achieving the quality standards we desire, upgrade the way of thinking among the various stakeholders and view the customer as a valuable partner that defines the content of quality (always within internationally accepted scientific standards).

Another factor that interrelates with continuous improvement is the improvement of processes used in the company. Enhancement of the processes used and its capability and efficiency is a vital aspect that leads to process improvement. Tools and techniques that measure the productivity and the effectiveness of the process that the organization chooses to establish assist the proper identification of processes that create rework and wastes and impede the smooth operation of the other parts of the system.

Measurement of performance of each essential process will bring to the surface inadequacies, insufficiencies and system weaknesses. Benchmarking is the answer in realizing the present conditions and measure the performance against the best or the leaders in the specific domain of dairy industry. Processes affect quality. Quality influences the final dairy product that is the tangible thing that the consumer keeps in its hand. As a result customer satisfaction is profoundly depended on the mode and pace that process turn into quality and valuable products the inputs that receive when they start to function.

Project teams, project tools and techniques and appropriate leadership style are aspects that deserve the interest of the people that are involved in the case of continuous improvement. Functional directors ought to facilitate the smooth operation and function of the dairy projects by providing equipment and personnel as appropriate. Project manager ought to be responsible and totally satisfy its role as the head of the project.

Conflict resolution methods, communication plans and project management monitoring techniques are of high importance when projects seem to be the most profitable solution to become better, competitive and respectful firm or brand names in the specific business environment of dairy industry, The balance between the performance of the processes and the quality of the final outcome is sole responsibility of the project manager. Balance is achieved if the functional departments are committed and consensus has been achieved on the project efforts.

Process inputs will perform better, procedures will create better results with advanced quality and the interface with the final or end users of the dairy products will raise the satisfaction of the consumers which in financial project management means more dollars and need to create better, earlier, easier and more rapidly.

What is more, individuals are the part of the system that struggle to spurt its efforts to create more and produce quality outcomes with the means and sources that are available. Training programs, education seminars and creation of team building concerning the common goals and quality objectives are actions to be implemented by those who make decisions and solve problems.

The essence of such actions is to amplify the potential of the work force, increase their efficiency and produceability, upgrade their knowledge background, and eventually, reach the desired performance level by establishing “a standard of what is expected for output” (Winchell, 1991, p.62). Such standard represents the quality objectives that must be attained so as to satisfy and delight the customer by earning its preference for Greek dairy products.

Quality objectives require serious efforts of the individuals while projects with tenacious nature and sound processes must be pursued. For the above reason quality objectives take the characteristics of the project objectives, That is, they must be *smart objectives* (source: Project management the managerial process Clifford E Gray & Eric W Larson Irwin McGraw Hill, 2000, p.26):

Specific, measurable, assignable, realistic and time related quality objectives are directly encompassed in the project quality plan which provides answers in questions such as, what will be measured, how will be measured, when will it be measured, who is responsible to carry out, document and communicate the results of the measurements? The quality objectives and the related standards set must be explained and thoroughly discussed among the project team members so as to achieved full understanding of them.

They should be linked to the general dairy project scope and fit to the capability of the processes that will be used to accomplish the project work within the crucial project constraints. Individuals as vital parts of the venture should be able to perceive the meaning of quality standards and raise queries if unclear or imprecise points exist. Consequently, the measurements conducted will disclose if the individuals are well-trained and skillful to accomplish the assigned work and the measurements will prove their efficiency regarding the project tasks that are involved. Improvement will be reached from the response, performance demonstrated by the individuals and the progress of the work.

Accurate measurements will reveal where the weakness and deficiency lies and locate at a considerable level the current situation of the business. Potential lack of process capability and shortage of the desired technical or knowledge capacity of the project people will be revealed due to the measures concerning areas for further improvement. Appropriate metrics must be used and benchmarking projects should be set forth.

The context of benchmarking composes a set of actions and procedures that must be followed to conduct precise measures and make helpful comparisons that will be proved beneficial in causing improvements.

First and foremost, the evaluation of the current situation will reveal information concerning the true, real business condition that the dairy company experiences. All the business operations and the organizational processes involved should and must be assessed and reviewed in a meticulous and analytical mode. By objectively acquiring an explicit and clear picture of the circumstances that affect the well functioning level of the company, management will be in a position to identify what areas are not performing well or as anticipated and be considered subject for benchmarking.

The most important fact that must be addressed is the determination of the *benchmarking gap*. Benchmarking gap is the deviation or variance that is localized from the current status and the desired business conditions that the company wishes to experience.

Ultimate goal of the dairy organization is to close such gap and put the best of its effort to exceed it. The desired future position that the business wants to hold, largely depends on the vision and mission that has set and the strategy that has adopted in view of reaching specific business goals. Strategy is the vehicle that the company uses so as to make the vision set a reality. Strategy makes obvious and accurately displays the concrete steps, activities and procedures that must be employed so as to achieve the business objectives.

What is more interesting is that in order to set a solid mission and strategy that attain the goals set a shared and well communicated vision (a picture of what the company strives to be and the situation that it likes to experience in the future) should exist. From the shared vision a unified and common focus to pursue the established goals is arisen and a set of activities that the business strategy proposes must be traced.

What is derived from the mission statement and the business plan is the strategic planning. Project management approach offers valuable and significant tools and techniques by which planning is organized, structured, documented and communicated in all benchmarking project team members. Mission and strategy are reconciled with the determination of areas that are crucial in the achievement of the business targets.

Such areas are on the constant focus of the business people since they depict the key measures that enhance the trial of the company to become more creative and competent. Key measures lead the senior management in strategic decision making processes and are considered responsible for determining the position that the company aims to hold in the business setting that operates.

Business terms such as “productivity”, “efficiency”, “utilization”, “revenue”. “profits” “employee turnover”, “hours of training per employee”, “failure rate of key products” and the most important “customer satisfaction index” reflect the content and the worth of the key measures in the company’s struggle to achieve a better position among its competitors and expand its capacity (Cochran, 2003).

Internal benchmarking project suggest studies that elaborate on the most effective and efficient processes that are used within the organization. They suggest the processes that are characterized by exceptional, or at least, approved for the facts of the business rates of productivity, creativity and performance. At the same time it reveals information and data regarding the incompetence, ineffectiveness or uselessness of processes and operations that obstruct the function of other procedures while they cause delays, inconsistency and divergence concerning the final outcome (or end product) and crucial aspects such as quality and customer satisfaction.

Such endeavor may need a considerable amount of time; it requires consensus and proper planning and execution of a benchmarking project with a well defined project scope and precise implementation timeframes. The benchmarking team must reach consensus and ought to be dedicated to what they have set as benchmarking goals. Effective partnership is demanded. Clear orientation and dependability is required. Top management support is fundamental to track benchmarking projects to success.

As a direct consequence, potential areas for further development and improvement through the implementation of corrective actions must be put into practice. Internal benchmarking project provides as a final deliverable benchmarks that can be loosely deemed as subject to external benchmarking projects.

The determination and identification of business perspectives by using decent and credible means of decoding and conceptualizing methods and processes used by the best-in-

class in the specific professional field will inevitably become beneficial and profitable business behavior for organizations that have erected a clear and precise mission statement and a strategic planning in which elucidation and clarification are terms that can be used to characterize such critical issue.

Benchmarks derived from internal benchmarking studies aim at alerting those in charge to identify where chances and margins for further development and profits lie. Robust external benchmarking studies translate the opportunities for improvement into changes that have to be managed in an optimized fashion so as to bring the expected and desired results.

Changes for improving business aspects result in modifying the set of process used in areas which weakness and low level of performance exists, altering the infrastructure of the system regarding the problem solving actions when dysfunctions occur by shaping a business environment in which prevention is the factors that directs all efforts, transforming perceptions regarding opposition or passive behavior to new and innovative perspectives that mark meaningful business application and request flexibility, advocacy to challenging business chances for expansion and desire to perform beyond the conventional and “predictable” (conservative) rates.

Immediate consequences earned from such changes is the attainment of improved processes having used the recommendations and fulfilled the implementation schedule of actions to be taken provided by the discoveries and findings of the external benchmarking project. Improved processes based on measurements and exploitation of metrics that the leaders of the specific professional environment use will enable a thorough work flow and a setting that contains a process directed management approach.

Improved processes highlight the potential to accomplish tasks and deliver projects within schedule and budget baselines. Quality issues are in the interest of a process centered

behavior and customers will find themselves satisfied when the product will fulfill their expectations and meet their needs.

Another crucial issue is that improved processes after benchmarking studies coordinate their outcomes with dairy modernization projects of the relevant organizations resulting in their trial to expand their capacity by having established a competitive business character.

Modernization projects encompass the establishment of advanced procedures regarding the series of process from searching and finding suppliers with appropriate and approved milk yields to the final deliverable which may be a milk product with ingredients that ensure advanced nutrient value and suitable for consumption from all ages.

Dairy modernization projects coupled with benchmarking projects provide the bedrock on which high performance levels and rates speed the recovery of traditional and ineffective practices and expedite the achievement of expansion and growth. They provide the cornerstone of rebuilding the systems of the organization and renovate processes that are fundamental and in the constant use of the organization to accomplish the need to continuously compete. Benchmarking targets follow the course that the market demands inflict.

Improved process should become even more efficient and more able to produce and create outcomes that totally comply with the customer needs as they are formulated by the consumers. Such necessity is spotlighted by the obligation to always be within the players that form the rules in the business of dairy and the market “arena” that dairy industries are fight for a better position and market share.

Continuous improvement is in the center of all the efforts and its content is filled by undertaking projects that serve the duty to become adaptive to a diverse business world in which enterprises struggle for putting forward their best attempts and become more credible

and creative. Inspired from such perception, Greek dairy companies must form their infrastructure and systemic approach in attempting dairy projects that will cause improvements and further development.

As is outlined in Chapter three and derived from the literature once a project fulfills the project objectives and successfully delivers the final product, need and necessity to run another one is the next target that senior management must put ahead. By managing to undertake projects that are aligned with the contemporary trends and market movements Greek dairy industries will accomplish the continuous improvement prerequisites as they are formed and posed by the increasing and changing market demands.

Greek companies will adjust their efforts to avoid reasons that lead to project failures. Clear project scope statement and achievement of the project objectives in creating dairy products that are in compliance with the quality standards set will accommodate Greek organizations to perform a respectful business character, present their business potential, promote their capability and efficiency and become known in the dairy setting worldwide.

Literature research showed that continuous improvement is an ongoing process. Projects support the content of continuous improvement. Project management serves the concept of developing new and innovative products since it ensures a management approach that if properly adopted will lead to exceptional results and performance rates.

Hunting for new opportunities for improvement and struggling for deploying the business efficiency upon innovation and creation of new advanced products direct the efforts to set new vision, document new mission statements, create and edit new strategic business plans and establish goals and project objectives.

The cycle begins again. The current situation should be evaluated; the benchmarking gap must be identified and so forth. Benchmarking projects must be carried out and so forth (Figures 5-1, 5-2, 5-3). The chain of continuous improvement still goes on and project

management still serves and offers with respect to the human nature and business ethics its knowledge background to become better and world class status dairy operators paying respect to the other competitors and starting from a place which is called Greece.

Dairy industries extensively base their existence in carrying out projects. The successful outcome of such dairy projects signals the intention and strong desire of the companies to enhance a “projectized” environment and expand their capacity. Project management methodology drives the efforts of the dairy industries to set a clear vision, implement a well designed project plan and ensure that the end t result will cause the expected value, bring the anticipated benefits and enrich the business portfolio regarding companies adaptive to new customer needs and expectations and flexible to market demands.

Continuous improvement is broadly affected by the conception, selection planning and execution of the dairy projects. The added value from the successful accomplishment of the project work boosts the dynamic of the company to achieve continuous improvement. Continuous improvement is composed of a logical sequence of events or/and a series of facts through logical, realistic, coherent and applicable suppositions that can be translated into disciplines actions to gain superior performance, acknowledgment and expansion.

Benchmarking shapes external, tested and productive processes into internal business tips that reflect confidence that the best choice leading in a promising future has been made. The type of benchmarking adopted depends on the current status, the willingness of the company to compete and how far the business intents to go. Benchmarking helps organizations to increase the metabolism rates of the business by effectively processing and converting inputs into valuable final deliverables.

Benchmarking supports the intentions of the company to determine the most suitable for the case performance level in crucial project processes related with the triple project constraints and the customer satisfaction while it defines areas for further improvement and

elaboration. Comparisons with the advanced processes used by the best -in-class and measurements by exploiting appropriate metrics are put into practice. Consequently, crucial benchmarks can be considered the project cost, schedule and performance (quality) trade offs and the processes used to plan, execute monitor and control such issues.

Project management tools and techniques are widely used in ensuring the project success. Work breakdown structure (WBS) is a valuable tool in properly dividing the scheduled work into tasks and subtasks. Resources taken from the resource breakdown structure (RBS) will be advantageously allocated while technical aspects will be addressed in a timely manner. Project cost estimation can be achieved.

Activity on Node or Arrows Networks can be used to define the sequence of events that must be put forward to reach the project objectives and the milestones of the project work. The precedence of the tasks and crucial timeframes are also included. Start days and days that the work must be finished drive the efforts of the project personnel. Slack times and potential delays must have been pinpointed when the work is under the command of such charts. The duration of the project can be estimated through the Critical Path Method (CPM) Or the Project Evaluation and Review Technique (PERT).

The progress of the work can be monitored by the famous and valuable earned value technique. It estimates the performance that has been achieved and relates it with the actual and scheduled performance that must have been achieved on the date that the control and measurement takes place. It should be conducted on a regular basis by the project control office. It reveals a forecast regarding the schedule and cost (budget) aspects that are directly connected with the performance rates achieved so far. It takes into account the situation at the time of the control and predicts how the work will proceed in the future. Cost performance and schedule indicators are used to define the progress of the work in the future by being concentrated in current data and information.

If the foregoing project trade offs will be treated in an advanced way and be adopted by the dairy industries as key benchmark areas then project management tools and techniques are ready and willing to provide their accuracy and effectiveness in staying reconciled with the project scope. Having performed a robust and doable project plan the strategic goals set will come closer and the project scope will become attainable and feasible. As a direct result, quality objectives which are profoundly included in the content of the project scope, will be achieved and attribute to the business a credible business profile.

One of the most significant parts in delivering a successful project is total customer satisfaction. Reliability and compliance with the project specifications will earn the satisfaction of the customer. Benchmarking the customer satisfaction indicators will add benefits to the business which strongly desires to gain the preference of the consumers and define what delights the customers.

Embedded quality will safeguard that the customer will take an active role in defining quality aspects and project requirements. Involvement from the early start until the end of the project is vital to ensure that customer satisfaction will be arisen from a valuable partnership between the business and the consumers. It is the meeting point that enhances the efficient and constructive interrelationship that affects the smooth progress of the work (for instance, changes regarding the project scope) and that the deliverables reflect the true needs and wants of the consumers.

It is crucial to estimate the benefits that will be derived from a project, a program of projects and, eventually, it is essential to gather the profits and advantages emerged from a sophisticated managerial approach concerning the project portfolio management. If the intention is to examine the facts that happen in the business world around us, then we assume that businesses go after money and money makes business to stay alive. Projects are the final

outputs of investments that are made in view of making monetary profits which lead to a prosperous business perspective.

Benchmarking techniques or methodologies that ensure to a maximum degree the successful outcome of an approved investment will assist the company to make choices that really add value and enhance its business existence. Investments are made to generate profits and bring improvement. Economic added value is used to isolate “good from bad investments” (Goodpasture, 2002, p.12). Crucial metric for the benchmarking projects is EVA. EVA amplifies the business potential and operating efficiency and proves if the projects undertaken will leave margins for profits and if such profits are considered adequate for the business.

The above project parameters (cost, schedule, performance and EVA) can be deemed as metrics for carrying out benchmarking projects where the crucial benchmarks are mirrored in the processes performed and maintained to reach the initial goals set and fulfill the project requirements.

As an immediate result of this study it is recommended that Greek dairy companies ought to establish and adopt project management methodology in directing their business options, and achieving the benefits of continuous improvement.

Since the strong competition among dairy industries has reached high levels, dairy organizations should become responsive and proactive in their operational pursuits. The multiplicity of customer demands, the variety of the products that clients expect to consume, and the wide range of the dairy domain impose the necessity to “stay tuned” and active partners in upgrading and developing the practices used and establish the methodology of project management by, simultaneously, converting the functional way of operating into a projectized way of thinking, acting and performing.

Projects are flourishing in the dairy market. Large companies have adopted the right way to make matters work. Such dairy organizations have adopted the project management methodology. The right way to do business is project management approach and the stable infrastructure that provides instead of undertaking projects on a structure that potentially do not afford such weight or it is not prepared to operate under the commands of projects. The author believes that this subtle and essential issue forms the gap that exists among Greek dairy industries and the bests in the domain of dairy manufacturing.

Projects exceptionally provide a business platform to remain viable, sustain the company's competitiveness, retain the market position and lead the way to improvement and expansion. Project management aptly and practically empowers the organization to read between the lines and take the initiative to alter the way that runs its efforts to produce and create.

Project management methodology through the proper integration of the processes used and the effective manipulation of the project trade offs (time, cost performance) reinforces the endeavors of the company to create quality products, meet project requirements and specifications and satisfy the customer. To this effort, the infrastructure of the organization should have acquired a dynamic which is in compliance with the principles of project management methodology and act supportively in considering and evaluating projects as a substance of value with strong relations and dealings with the success factors such as achievement of project objectives, conformance to project specifications, high rates of performance and customer satisfaction.

The successful transition into a projectized company demands the creation of a thorough and well functioning project office. Projects must be part of a general program which is inseparable part of the project portfolio that the company intends to go after.

Specific responsibilities are assigned to the project office. Projects that have the nature of investments should be under specific orientation and have the capacity to reflect the true needs of the dairy company and represent to a considerable degree the market demands into a well organized and ordered set of processes with proper allocation of resources and clear setting of the final destination that the dairy industry wishes to reach.

Project office should offers guarantees regarding the potentiality that the projects carry and ensures that they are tailored with the company's vision and aligned with the market demands. The strategic project office has two main roles: "...to improve the organization's project management maturity... and link the organization's projects to its strategic plans" (Crawford, 2002, p.231).

Organizations have the attributes and characteristics of systems. Depending on the capacity and the competence some of them have to deal with more complicated and demanding functions. It would be worthless to isolate processes from subsystems and subsystems from organizational systems. Confusion and resentment would be certainly created.

The action and interaction, the dependency and interdependency and the relation and interrelation among the desire to learn, the knowledge acquired so far, the advanced technology used and the appropriate leadership and management style to make firm and beneficial decisions are in a constant interface with the infrastructure of the organization the projects undertaken and the final performance that the organization attains.

As a direct consequence, benchmarking projects aimed at finding benchmarking gaps and emanated from the direction that has its source in the strategic project office will show the margins for improvement and set the levels of performance that must be achieved. In effect, the projects will perform better causing the production of advanced and quality results through well defined, communicated, described, planned, scheduled, budgeted and

documented process. Consequently, the company's goals for growth and continuous improvement will find a stable setting to developed and practiced in real terms.

Last but far from least, project management methodology opens a new, accessible gate to employing managerial approaches which encourage innovation and efficiency while it offers an alluring and interesting way in doing business with high goals and a disciplined style in view of experiencing remarkable improvements

Business should not dream a future of uncertainty and insecurity, where hesitance and indecisiveness govern their choices. They should let the future to invite them in a world where creative spirit and innovation challenge their potential and eagerness for hunting and experiencing continuous improvement and sustainable development. The central premise is that *if you fail to plan, you plan the fail*. Companies must power the point of benchmarking critical areas for improvement and employee continuous improvement into their strategic plans for growth and innovation.

“If the theory does not comply with the facts, then change the facts” (Albert Einstein). In essence, the purpose is to achieve the preferred balance by precisely transforming theory into understandable, explicable, tangible and above all feasible practices that will originate development and discover improvement.

As a last resort of the purpose that this master thesis intents to serve, the author believes that,

Project the dairy and lead the industry.

***Or, just fit the business existence your way by making a prosperous “project glance”
of investment and improvement in the future.***

The above powerful perspective illustrates two choices that depict the same opportunity and lead to the same result. The author's honest belief through his mental model is that consumers via the interface of benchmarking, continuous improvement and project

management integration will find their expectations fulfilled, their needs met and their wants on the centre of the interest of the Greek dairy industries.

That is, “World Class” status Greek dairy industries that highlight openness to opportunities and resistance to stability. Attack to the future with explicit orientation and time will vindicate those that attempt new pursuits that challenger their efficiency.

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Appendix A

Measurements for Achieving Advanced Milk Quality

Roger W. Palmer (2005) in his book *Dairy Modernization* illustrates the most important measures of milk quality that should be precisely identified and realized. The following elements show the milk quality, udder health, and sanitation measures.

Standard plate count (SPC)	The SPC is the total quantity of viable bacteria in a millimeter (ml) of milk. The SPC is a reflection of the sanitation used in milking cows, the effectiveness of system cleaning, and the proper cooling of milk.
Employee influence	The manner in which cows are prepared for milking.
Management influence	The quality of water and the ability of the water heater to produce water of the appropriate temperature.
Laboratory pasteurized count (LPC)	The LPC is a measure of bacteria that survive pasteurization. This group of bacteria has an influence on the flavor and shelf life of dairy products. The general sanitation of the CIP system and the condition of the rubberware can contribute to a high LPC.
Employee influence	The manner in which cows are prepared for milking, as well as attention to the condition of rubber goods and the wash-up.
Management influence	The bacterial quality of the wash water and the choice of detergents and sanitizers.
Coliform count (CC)	The CC measure reflects the extent of fecal bacteria exposure of milk. Coliform bacteria can enter milk as a result of milking dirty, wet cows or may result from coliform growth within the milking system.
Employee influence	Employee hygienic practices have substantial control over the CC. The milking of clean and dry udders will limit exposure.
Management influence	CC problems may be associated with a poor CIP system.
Preliminary incubation count (PI)	The PI count is a measure of bacteria that will grow well at refrigerator temperatures. The PI is controlled by strict cow sanitation and excellent system cleaning.
Employee influence	Udder preparation and sanitation have a positive effect on the PI.
Management influence	The efficacy of the CIP washing system.
Somatic cell count (SCC)	The SCC on bulk tank milk and individual cow milk is a direct measure of the severity of mastitis (udder infection). The incidence and prevalence of the disease in the dairy is subject to a variety of factors. In general, the SCC reflects a subclinical or nonvisible form of the disease.
Employee influence	The manner in which the cows are milked can have a significant influence on the rate of new infections.
Management influence	The condition of the cow bedding environment and the commingling of chronically infected cows with noninfected cows.
Clinical mastitis	A proportion of mastitis infections become severe enough to become clinical. The clinical signs include changes in milk appearance and may include signs of disease in the animal as well. Milk from cows with clinical mastitis cannot legally be included in the commercial supply. It is the milker's responsibility to assure that the disease is detected early and the milk is diverted for discard or noncommercial use.
Employee influence	The employee has an influence on the manner in which cows with clinical mastitis are managed. Effective mitigation of the disease depends on prompt detection and management. A delay of 8–12 hours

	can result in the incorporation of poor quality milk into the commercial milk and may result in greater disease costs.
Management influence	Type of teat dip used, the condition of the cow bedding environment, and the commingling of chronically infected cows with noninfected cows.
Teat and teat-end condition	The condition of teats is a direct reflection of the cow's environment, the use of teat dips, equipment settings, functionality, and upkeep. In addition, milking procedures and how well they are being followed impact teat and teat-end condition.
Employee influence	Adequately covering all of the teats, performing basic equipment checks and maintenance, and following a well-designed milking SOP (standard operating procedure) to the letter.
Management influence	Type of teat dip used, the condition of the cow bedding environment, implementing a well designed milk procedure, and maintaining properly functioning equipment in the milking parlor.
Added water	Milk is routinely tested for added water, using the freezing-point test. Dishonest producers sometimes add water to milk in order to increase the volume. Water may be added accidentally to milk by failure to drain the milking system fully before the milking begins.
Employee influence	During wash-up and sanitation of the milking system, the employee can ensure that all excess water is drained from the system. In the case of farms that have a several-hour period between milkings, standing water in the system may also be associated with elevated bacterial counts.
Antimicrobial drug residues	Most antimicrobial drug residues are not tolerated in milk; a few have legal tolerances, although the levels are extremely low. The type of drug and the manner of its application can greatly influence the potential for milk residues. Regulatory scrutiny has made dairy producers increasingly accountable for eliminating drug residue in milk.
Employee influence	Dairy farm management that instructs the employee to medicate cows for specific problems also must expect that the employee will be able to withhold bad milk from the commercial supply. This employee must know which cows are medicated and how long the milk is to be withheld. Some dairy farm employees are instructed in the use and interpretation of milk residue tests.
Sediment	The sediment in milk is a measure of the general filthiness of cows. This fine debris moves through the farm milk filter and is detected by the milk processor. High sediments may be associated with higher bacteria counts. However, some bedding materials, like river sand, may contain very fine particles that are measured in the sediment evaluation.
Employee influence	The general methods for cow and udder preparation will affect the amount of sediment in the milk.

Appendix B

Interview

Mr Alexandros Sirris as a milk collection manager of Vivartia (one of the most significant Greek dairy industries) presents some personal opinions regarding the deeper meaning of continuous improvement and the way that such aspect can be interpreted in real business applications.

Thorough discussions were experienced and the most important issues that derived from such meetings are depicted in the following text.

CONTINUOUS IMPROVEMENT

The continuous improvement and "protection" of the quality of the produced goods is an obligation, as well as one of the most crucial factors for success in any modern business.

Improving the quality of products requires the so-called "commitment" from the company's management and is made possible by better utilizing human resources, experience and the company's equipment infrastructure.

The implementation of the appropriate procedures and systems is a pre-requisite. Furthermore, every quality assurance system and the involved procedures should be organized with the collaboration of all of the company's employees, under the supervision and guidance of experts.

This is because the decisive factor for success in every quality assurance system is its functionality along with its acceptance by the company's workers.

In any other case, a "heavy" system may actually become a burden on the work load, without offering any of the expected benefits.

By following the basic principle of "prevention rather than therapy" it is extremely important for the system to extend from raw material production all the way to the distribution phase of the final products.

Especially in the food industry, the evaluation, prediction and prevention of potential "dangers" should compose the basis of every successful quality assurance system.

Such a system should include the evaluation and constant inspection of the suppliers, such as evaluating the forage suppliers in the case of the production of milk. It is common knowledge that many of today's nutrition crises are the result of external factors that enter the food chain long before the final product is processed.

Of course, the system includes all of the production procedures, all kinds of quality controls and inspections, equipment maintenance, as well as constant personnel briefing and training.

Especially regarding training, the implementation of common programs (besides the special programs which focus on the immediate job responsibilities of each employee), provides the circumstances for better communication, an understanding of the procedures and the priorities of the other departments, as well as the facilitation of communication among the employees.

The development of personal relationships, as well as the apprehension of the needs and individual intricacies of each department accommodates the "customer - supplier" relationship. In other words, each employee should produce a "Product" (of labor) insofar as it covers his or her needs or the company's customers. Other employees, departments and so forth. are considered customers here.

The lack of resourceful communication between departments leads to reduced efficiency, unneeded effort and often discontent and arguments.

A well-organized successful system will predict, investigate and deter potential dangers, thus reinforcing the safety of the products, increasing customers trust in the company and at the same time limiting the cost of destroying unsuitable raw materials or even final products.

The organization and development of customer relations is also extremely important. Customer relations include much more than advertisement campaigns. It involves telephone support, problem solving, even the investigation and management of complaints, which are often an invaluable indication of the products' success in the market and their acceptance by consumers.

All of the systems and procedures that were mentioned above (threat evaluation, quality control, tracking, continued training, customer telephone support etc.) are necessary tools for the continuous improvement of the employees, their work conditions and the products themselves, all of which benefit the consumers, the company and its employees.