“This assignment contains portions of material that were originally submitted during the 1501B in MPM344 with Dr. Stephen Volz.”

MPM357-1502B-02 Project Performance and Quality Assurance

Individual Project Phase 5

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# Week 1: Project Outline

## Project Overview

The cities of Brawley and Westmoreland have long enjoyed the benefits of public swimming pools dating back from 1920 and 1840. Since then the facilities have not had any major upgrades, which caused both of the pools to close in 2004 and 2006. These cities are located in the desert and endure long blistering summers; swimming pools can make up for some of the heat.

Opening up new facilities or making a significant amount of upgrades and repairs have been proposed for both cities by the residence. Since the budget only allowed for one swimming center to be built, it was decided that a large facility that could hold residence of both cities. The cities swimming facilities will be built located between the two cities, making it accessible for the two communities.

By building a new facility for the two adjacent cities will bring in a lot of business to the surrounding areas. The projected facility will be have a pool large enough for residence of the two cities. The facility will be equipped with locker rooms for both female and male, showers and restrooms, snack bar, first aid station, faculty office, fitness center and sauna, and family picnic areas for parties.

The purpose for this document is to identify and define how quality management will be met and controlled for the duration of the phases within the project. This Quality Management Integration Plan will provide many opportunities to increase this project’s productivity. Through rigorous study and analyzing data that has been gathered, we will be able to determine what aspects of the projects need to be improved to ensure the quality standards are being met during the duration of the project.

# Week 1: Organizational Readiness for Quality Management

 Brawley and Westmoreland have hired my project management company to oversee that all deadlines and requirements are being met at the highest quality possible. The stakeholders have decided that we implement the ISO 9000 for this project’s quality system. This quality system has been used in every project that has been done for both cities and has had successful project completions.

Brawley and Westmoreland City Council teamed up together to try and figure out a way to build a new facility that will serve both cities. This project will be funded by money procured in the sale of Imperial Valley airport, where the city of Brawley and Westmoreland had been the owners, which came out to be $7.5m. After a close look at the budget, the President of Brawley City Council came to the conclusion that $7.5m will not be sufficient to fund such a big project. Soon after a business case was developed, which helped in the procurement of $3.5m to add to the budget. The business case allowed consisted of donations from businesses around both cities. With the newly added money to the budget, this project was properly funded to start the planning phase.

# Week 1: Quality Systems Analysis

 The three quality systems that I will be discussing are ISO 9000, Organizational Project Management Maturity Model or OPM3, and Six Sigma. I believe that these quality systems have a lot of offer to the development of a project, as well disadvantages. I will be discussing the advantages and disadvantages of all three quality systems.

Advantages of ISO 9000:

1. Increased marketability – Gives businesses that are registered for ISO 9000 credibility to current customers and potential ones as well. Pretty much by employing this quality system proves that providing quality to their clients is a priority. This advantage will secure the retention of current customers and the gain of new ones.
2. Reduced operational expenses – Because the registration of this quality system is so rigorous that it often identifies major and minor shortcomings in different components of an organization or project. By pointing out potential problems within the organization or project, proper steps can be taken to mitigate or eliminate those problems. This in turn can reduce cost by mitigation or elimination.
3. Attractiveness to investors – By employing ISO 9000, securing money for future projects can be easy to do, because the investor will already be confident of his or her investment.
4. Reduction of product-liability risks – This quality system will ensure that any potential for a liability lawsuit be mitigated because of the high quality process that is conducted with this system.

Disadvantages of ISO 9000:

1. Lack of knowledge of the quality system will make registration quite difficult because it will be incomplete and a waste of time.
2. Registration is an expensive process, and more so for smaller companies.
3. Documentation is very important. So all standard operating procedures for the organizations and or project must be up to date and accurate. This quality system relies on the documentation to meet those standards.
4. Registration process is quite lengthy.

 Advantages of OP3:

1. Advance strategic goals – by applying project management principles and practices, providing strategy to individual projects will advance the company’s strategic goals.
2. Understand best practices – provides the knowledge and understanding on what best practices are and how they are implemented.
3. Identify maturity – point out the maturity of current project status and that will determine if improvements need to be made or not.
4. Plan improvement activities – this system practices priority planning, which will result in smart decisions for improvements within the company or project.

Disadvantages of OPM3:

1. This system will only work if executed in a lifecycle process: assessment, improvement, and reassessment. If these steps are not followed the system will fail.
2. This system is inferior to other quality systems that are being used.
3. Online tool survey does not collect the proper information needed to point out maturities throughout the company or project.

Advantages of Six Sigma:

1. This quality system is customer driven
2. Uses the 3.4 per one million rule for product manufacturing
3. This quality system finds how improvements can be made to prevent any issues happening in the future.

Disadvantages of Six Sigma:

1. Can run into bureaucracy because this system is used in all components of the company or project. Because of this one can run into delays and creative control.
2. Because of the 3.4 rule, this can be costly if the rule is broken even by very little defect. This will in turn have the company choose a more expensive direction which will cost a lot of money and affect profit margins.

# Week 2: Quality Dimensions and Criteria

\*\*\*This entry was used in this week’s discussion board\*\*\*

In any project, quality is key in project management, mainly because you want to assure your client that their needs are being met. For this assignment, I will be discussing the article “Competing on the Eight Dimensions of Quality” that was featured in the *Harvard Business Review* between the months of November – December of 1987. Within this article, eight dimensions of quality in a project will be defined and discussed on how they contribute to a successful project. Below are the eight dimensions listed in the article along with each description:

PERFORMANCE: This dimension consists of how the product operates and functions. For instance, in an automobile, performance is measured by how the car accelerates, handles, cruise speed, and how smooth the car drives. For another product, like a television, performance is measured by the sound quality, the picture, and the color. Since this attribute is measurable, it is a lot easier categorize and rank the service and or product objectively.

FEATURES: Just like performance, this attribute can be measured by the quality of the “bells and whistles” of the services and products. Examples of features include: complimentary breakfast in a hotel, automatic color setting for a television, and or cruise control in an automobile. A line between performance and features can be seen as a pretty blurred line.

RELIABILITY: This dimension relates to the probability whether the service or product will meet deadlines or not meet those deadlines. The way this dimension is measured is by time between first failure, time between each events, and the rate of failure per unit time. Durable goods are more relatable to this attribute, because it needs for the product to be in constant use rather than consumption.

CONFORMANCE: This dimension relates to measuring if the client’s requirements are being met. This attribute is closely comparable to quality, since both involve meeting established standards of the product or service. Everything you work with is going to have standard specifications, so this attribute is pretty important and necessary.

DURABILITY: This dimension is related to the usability life of the product in an economical and technical standpoint. Economically, this will consist if the product can be fixed or replaced when product becomes inoperable, what will be most cost effective? Technically, would relate to the amount of times one can use the product until it is deemed inoperable.

SERVICABILITY: This dimension relates to the reparability of the product. This can be measured by courtesy, competence, ease, and speed of repair. This attribute is crucial in the quality of the project, because when a product breaks down, clients appreciate a speedy turn around.

Aesthetics: The last two dimensions are considered to be the most subjective of all eight. This attribute deals with the looks and design of the product. As the saying goes, “easy on the eyes”, is beneficial on a product or service because otherwise customers will get frustrated.

PERCEPTION: This dimension is more relatable to the employees of the company, because this has to do with the reputation of the company. If the company is perceived to be flourishing then the employees will more likely purchase company stocks and invest into the company.

 In conclusion, these dimension all serve an important purpose into the quality of a project. It is important that all attributes are taken seriously and used as required. There are so many parts a project and these dimensions cover all of those parts.

|  |  |  |  |
| --- | --- | --- | --- |
| Quality Dimension | Description of what it is in terms of project | Criteria to measure | Meets or Exceeds Criteria(Yes or No) |
| Performance | The quality of service, no long lines at the doors, no long lines for showers or lockers and or the snack bar | This will be measured by how prompt the service is, the flow of traffic in the facility, how long it takes to get in the pool after you have paid at the entrance.  | N/A |
| Features | Features that will be included once the swimming facility is open to the public.  | This will be measured by comparing the facility to the private facilities in the surrounding areas. For instance, this facility is the only one with a swimming area for young children equipped with slides water guns, etc.  | N/A |
| Reliability | The plumbing and draining systems life in a very hot and humid area.  | This will be measured by how many times the drainage and plumbing have issues and how long the turnaround for the fix takes.  | N/A |
| Conform | Does the facility have amenities no other swimming facilities have?  | This will use somewhat of the features attribute, because this facility is public, it is a lot different from all of the private facilities in the two cities.  | N/A |
| Durability | Does the facility use top of the line equipment? The best staff?  | This will be measured by the life of the equipment and how trained the staff is?  | N/A |
| Serviceability | Will the facility have a regularly scheduled maintenance? | This will be measured by how many times the pool is treated and how thorough the maintenance crew is.  | N/A |
| Aesthetics | Great look and feel of the facility because of high standards | This will be measured on how clean the facility is kept and keeping a family safe environment for children.  | N/A |
| Perception | Great service, cleanliness, exceeding safety standards, reliable. | This will be measure through surveys from those that have attended the facility, those that have heard of the facility, and those that have not heard about the facility.  | N/A |

# Week 3: Quality Process Improvement Tools and Techniques

For this week assignment I was asked to identify which process improvement tool or technique that I will include for my project plan. But before I choose one for my project, I will explain what an improvement tool or technique is exactly. Organizations or companies have used these tools to assist in continuous improvements throughout the company. Choosing a quality improvement tool or technique is an important process because you have to find a tool that meets your company’s needs. These are some quality improvement tools or techniques so just to name a few: kaizen, benchmarking, matrix diagram, check sheets, and 5S. Out of the tools that I have mentioned, I am choosing three of the tools, which are 5S, check sheets, and kaizen.

For the first tool that I have chosen to discuss is the 5S’s. The S’ stand for Sort, Set in Order, Shine, Standardize, and Sustainment. This tool is known worldwide to assist in mitigate wasteful spending and improving productivity. The 5S will help the product manager determine where there is wasteful spending. Thus, making a change of possible vendor or quantity amounts for materials being ordered during the development of the swimming facility. This tool will help the project get organized, by pointing out what works and does not work. Overall, this tool will improve productivity by changing certain components of the project in order to fit more efficiently. Pictured below is a flowchart that all individuals involved will need to have on their person.



For the second improvement tool or technique that I will be implementing in my project is the check sheets. This technique uses prepared structured forms that assist project team members gather and analyze specific data that will help improve the way that project is flowing. This technique will be enforced and implemented by making check sheets mandatory and part of every start and end of day routine. This will allow the project manager determine if there are any areas that need more attention than others. Because this project has so many moving parts, this will call for different check sheets for different stations. For instance, irrigation team will have a different check sheet than the building team. Simply because these teams work differently, but ultimately will have the same outcome. Each check sheet will be labeled by the team and dated, all check sheets will be filled out in the morning and close of business. Below is an example of how a check sheet will look like:

**Check Sheet (Irrigation Team) Date: June 8, 2015**

|  |  |
| --- | --- |
| **Reason** | **Amount** |
| Damaged pipes when received | **5** |
| How many pipes when covered and installed | 0 |
| How many pipes completed and installed | 36 |
| Length of pipe | 10 Feet |

For the final tool that I will be implementing in my project is the Kaizen method. The kaizen approach is a lot like the 5S’ because it assists in improving the overall flow of the project by eliminating wasteful spending and use of materials. By mitigating wastefulness, this will help save a lot of money, money that can be used for other needed improvements. This approach is mostly seen in manufacturing companies, simply because it implemented in the production lines. The kaizen approach will be implemented by training all team members in statistical process control and have the team members use that method on their daily routines.

# Week 4: Quality Performance Monitoring and Control

## Tasks, Effort, and Resources

 The major task that I will implement in my project is the use of a project milestone. By utilizing this type of task the project team and I will be able to see first hand how the project is progressing. The project milestone will consist of three key factors. The key factors are made up of External Deliveries and Dates, Key Deadlines, and Key Dates.

 External Deliveries and Dates pretty much have to do with all the major deliveries and the estimated delivery date they will arrive. This factor is crucial to keep an accurate record in the project milestone because anything that is late will have an adverse impact in the project. Key Deadlines in regards to the project will be when major phases of the project are completed (i.e. laying of the foundation, finishing digging out the area for the pool, etc.). This second factor is crucial because just like the first factor, if anything is delayed, then that pushes back other deadlines. Key Dates consist of the days that meetings with the stakeholders, project team, and client will be taking place. This factor is definitely an important one keep accurate an record, because this is where any possible improvements, changes, or complete removals will be discussed and or approved.

 A Quality Management Team will be my main resource for quality care. The QMT will be managing and monitoring the project milestone, Kaizen, 5S’s, and the check sheets to make sure that they are being done correctly and efficiently. Quality Management Teams are an important resource for this project because this will keep the focus on the quality aspect of the project and therefore keeping everyone on track to a successful completion.

## Budget and Cost of Quality

 This next section, I will be discussing the budget, which is broken down into contingency budget and primary budget. The contingency budget is used to start a contingency plan. Just like any household, you always want to set aside savings for a “rainy day”. 5 to 10 percent of the left over money for the project will be put into the contingency budget, this in turn will be used for anything that needs to be changed or reworked. For the purposes of this assignment, this project will have a budget of a whopping 11 million dollars. 10 percent of the 11 million dollars will be set aside for the contingency budget.

 Cost of quality is made up of four different types of quality costs, which are intangible, failure, appraisal, and prevention costs.

1. Intangible costs – are representations of an assortment of expenses, which can include losses in productivity, decline in employee morale, and customer retention. Intangible costs are not easily measured it is determined by the perceptive state of the company. Many would say that the cause of intangible cost is identifiable, but the costs are hard to predict.
2. Failure cost – is commonly caused by the final product not meeting the consumers/clients requirements or needs. There are two different types of failure cost, which are: Internal and external failure costs. Internal failure costs are the manufacturing issues that the product may have before hitting the public. External failure cost is when the nonconforming product reaches the consumer or customer and does not meet their requirements.
3. Appraisal cost incur when a company pays to test their products in order to check and identify any malfunctions or defects in the product. This is done to keep those products from ever reaching the customer.
4. Prevention costs happen when steps are taken to test products for quality control, thus pointing out any issues with products. This will save a company a lot of money in the long run. It beats having to take products off of the shelves because it is being recalled for a safety hazard and possible future lawsuits.

## Quality Performance Tools and Techniques

 Flowcharting and Benchmarking are the two tools that have been chosen to monitor and control the quality performance of this project. Flowcharting is tracking a process from start to finish and mapping it out in a chart. Benchmarking uses a comparability method to identify which would be best practice or meet industry standards by comparing cost, cycle time, quality, and productivity.

Benchmarking consists of five steps to follow:

1. Identify the problem: By conducting surveys, questionnaires, holding team meetings, getting employee input will be a big step towards pointing out the issues. For this project, the contractors doing the work or those overseeing the work being done would identify problems.
2. Identify similar projects in the area: By identifying similar projects that have been done in the past could potentially save time and money for the project, which is always a plus.
3. Identify major trusted vendors in the area for materials: By consulting with major vendors that are trusted, can help in the prompt delivery of the equipment and materials needed to proceed with the project.
4. Surveying the public: By gathering the input of the surrounding public will help assist in knowing what the general consensus of the publics requirements. This will in turn be beneficial to the success of good business coming to the facility once it opens.
5. Pay a visit: By doing this to other swimming facilities in the surrounding areas, will give you first hand knowledge of what you can expect and also what can improved.

Construction process flowchart:

**PRE-SITE**

**EXCAVATION**

**Payment due as per contract**

**STEEL**

**UNDERGROUND PLUMBING**

**GUNITE**

**Payment due as per contract**

**GRADE AROUND POOL**

**TILE**

**Payment due as per contract**

**STONE WORK**

**DECK**

**EQUIPMENT INSTALL**

**PREP POOL FOR PLASTER**

**INTERIOR FINISH**

**Payment due as per contract**

**START-UP**

**FOLLOW-UP**

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# Week 5: Three Levels of Quality Management

# Week 5: Quality Performance Communication Plan

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