# 8. QUALITY MANAGEMENT PLAN

Quality management is an element that was introduced since the early stages of project management’s definition, sharing the same status as cost and time (Atkinson, 1999). It is an important aspect in project management where the performance of the product – the Integrated Supply Chain Management System in this scenario – is matching the required quality as mentioned in the project’s scope. For ensuring the quality of the product in development, actions and policies would be undertaken in form of three major processes:

* **Plan Quality Management**;
* **Performing Quality Assurance**; and
* **Performing Quality Control**

And in those three processes, some tools and techniques would be applicable in managing the project’s output quality, where it includes quality metrics, checklists, Pareto Charts, quality control charts, fishbone diagrams, maturity models and many others (Marchewka, 2014).

## 8.1 Plan Quality Management

Planning would be the focus of this process. The content of planning includes **identifying which quality standards** are relevant to the project, and **methods required** to meet those standards. This is done to anticipate situations and prepare appropriate actions to bring out the needed outcome.

To devise a plan to an overall quality management, it is required to have a project management plan, stakeholder register, environmental factors and other available assets to deliver not only a quality management plan, but also quality metrics, checklists and relevant updates to the project’s documentation such as process improvement plan (Kima, et al., 2012).

While producing the deliverables, several tools and techniques could be adapted, in which **cost-benefit analysis** would be among the main methods to determine the capital required to create a system with high enough performance. Since the system in question has already developed by other regions, **benchmarking** techniques are applicable to compare for most suitable practices such as the database design (Cooper, et al., 2010). **Design of experiments** technique is also applicable to produce list of factors for the product in development (Gyung-Jin, 2007).

## 8.2 Perform Quality Assurance

As the project is progressing, quality assurance is required to be performed to ensure all processes of the project can meet the relevant quality standards, in the meantime able to **achieve continuous quality improvement besides satisfying the minimum requirements** (Wandersman, et al., 2012).

While this process requires the input of most outputs from the planning process of quality management such as the quality management plan, process improvement plan and quality metrics, the process should be able to deliver a complete list of change requests, updates on project management plan and its documentation, including required improvements on the available assets (Taylor, 2018).

The deliverables of this process could be created with **quality management and control tools** like from the planning phase, such as leaning and benchmarking to maximizing output efficiency and minimizing waste, while ensure a compete-able quality with potential competitors (Larson & Gray, 2013). **Quality audits** are necessary too to measure how well is the monitoring of the project development matches the standard as per the project requested, identifying any lessons learned that could further improve the project’s output (Taylor, 2018). In the same time, **process analysis** would be conducted to examine the development processes so that in case of sidetracking, the processes could be tailored to align with the project requirements (Vergidis, et al., 2008).

## 8.3 Control Quality

Quality control is a set of procedures that **verifies the quality of the project’s output**, determining that it is reaching the desired standards of the project scopes. This process is a vital aspect to measure the total quality of the project output, while identify any issues that needs to be resolved to meet the requirements set by the project stakeholders (Larson & Gray, 2013).

In this process, all data obtained from the planning and quality assurance processes would be inspected and further analyzed, and delivered not only quality control measurements, but also the validated changes and updates on the project output, along with feedback on work performance and approved change requests. In some occasions, updates on the organizational process assets would be conducted as well (Marchewka, 2014).

For precise data collection on quality control, **statistical sampling** plays an important role to understand the needs and details of features for the product in development (Martinez, et al., 2017). The **7 basic quality tools** that applies the use of storing collected data such as cause-and-effect diagram, flowcharts, to Pareto charts could help in organizing the data for clear input in data analysis (Soković, et al., 2009) to produce precise quality control measurements. However, in most cases a more direct approach, **inspection** on the workplace, would be taken to be able to provide performance feedback immediately. In the meantime, several **reviews on the change requests** would be conducted to determine those that require approval from high-ups such as project sponsors to be proceed.