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May 16, 2015

[Ref. number]

Marc Arnecke, PMP

## [Project Name]

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*[Sub-Project, phase, etc.]*

### Project Process Improvement Plan

The project process improvement plan is a component of the project management plan. It details the steps for analyzing processes to identify activities that enhance their value.



[Project Name]

Project Process Improvement Plan

## REVISIONS AND DISTRIBUTION

Revision	Release date	Distributed to*											
		Client	Consultant	JV Main office(s)	All project mgmt. dept.	Sub-contractors	Suppliers						
Rev. 0 (draft)	29/10/2013												

\*) Detailed distribution lists shall be prepared for each distribution event. Further details as per the project communication plan

## Amendments

The Project Process Improvement Plan from time to time may require updates. Any amendment to this plan shall be **informed to the change control board by use of the change request form and approved by the project change control board** prior to distribution. Only revised parts of the plan will be distributed along with the approval and shall be accompanied by instructions how to implement the changes.

The initial page numbering system **(to be added upon initial approval)** will be a normal continuous numbering displayed in the lower right corner of each page. In the event that pages have to be added, characters shall be added to the number. In case entire pages are deleted, the corresponding page shall be replaced by a blank page stating “page removed”.

Each added/changed page shall have the revision number and date of approval displayed on the bottom of the page.



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## PROJECT SPONSOR APPROVAL

<b>Prepared by:</b>	<b>Reviewed by:</b>	<b>Approved by Proj. Sponsor:</b>
Place, dd/mm/yyyy	Place, dd/mm/yyyy	Place, dd/mm/yyyy
Marc Arnecke, PMP Designation	Name Designation	Name Designation



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## REFERENCES

1. Structured Process Improvement for Construction Enterprises (SPICE) Level 3 – Salford Centre for Research and Innovation (SCRI), University of Salford
2. A Guide to the Project Management Body of Knowledge (PMBOK® Guide)—Fifth Edition – Project Management Institute
3. Construction Extension to the PMBOK® Guide—Third Edition – Project Management Institute



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### **PROCESS IMPROVEMENT APPROACH**

Construction projects often experience rising legal cost related to cost overruns and delays in an increasingly competitive market. One way to avoid cost-overruns and to remain competitive is the application of total quality management (TQM) methods.

The key aim of this plan is to continuously investigate issues and level-by-level develop a system and processes to avoid repetition of earlier issues and establish a management structure to facilitate process improvement at an organizational level.

The targets followed by this document are:

- 1) Increase awareness of processes that could enhance organisational competencies.
- 2) Identify processes that need organizational improvement.
- 3) Facilitate discussions to allow people sharing their experiences inside and outside their functional boundaries.
- 4) Prioritize processes to achieve continuous improvement.

Potentially existing process errors shall be determined and corrective action to be taken accordingly wherever possible before the error effects in any way.

This plan is more but not only concerned with the project quality rather than product quality.

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### **Technical Approach**

The technical approach is to codify knowledge from people's experiences, lessons learned and from good practices etc. and to transfer it to other people. The technical approach usually is concerned with processes which easily can be described and can be repeated over and over again, like changing a bulb.

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### **Cultural Approach**

In addition, there are also processes that deal generally with problems that cannot always be handled as a matter of routine.

It therefore in each particular case has to be determined which of the two approaches is the more advantageous and also in line with the organizations strategies.



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## Other Project Plans

This project communication management plan forms part of the overall project management plan. Further project plans to be read in conjunction to this project quality management plan are:

- a) Project Management Plan,
- b) Project Scope Management Plan,
- c) Project Requirements Management Plan,
- d) Project Schedule Management Plan,
- e) Project Cost Management Plan,
- f) Project Quality Management Plan,
- g) *(this Process Improvement Plan),*
- h) Project Human Resource Management Plan,
- i) Project Communication Management Plan,
- j) Project Risk Management Plan,
- k) Project Procurement Management Plan,
- l) Project Stakeholder Management Plan,
- m) Project Financial Management Plan,
- n) Project Health and Safety Management Plan,
- o) Project Environmental Management Plan,
- p) Project Claim Management Plan.





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### MISSION → STRATEGY → POLICY

#### Company Mission

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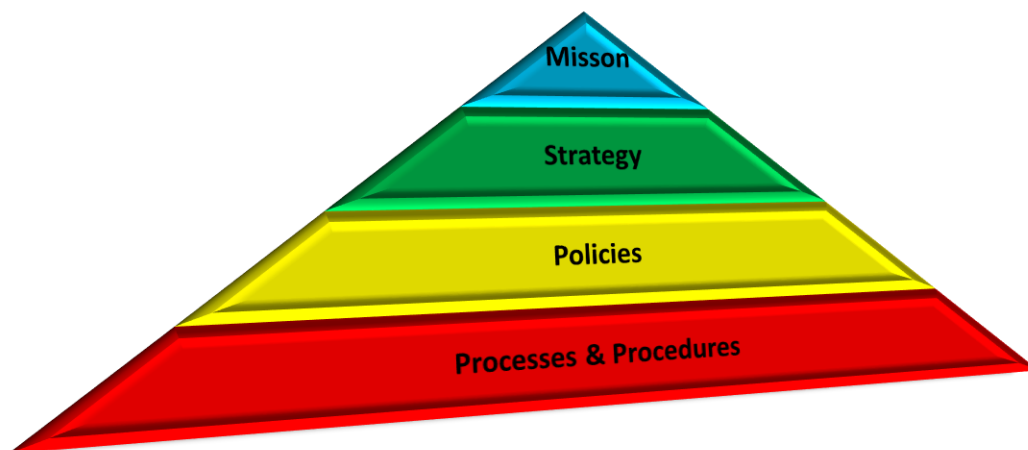
#### Company Strategy

xxx

#### Policies

Policies, processes and procedures are developed and written to help staff and management to run the organization. They are an integral part of the operation and as necessary shall be handed to new staffs upon joining the project team. Briefing shall be conducted if required. Updates shall be communicated regularly and will be made accessible to the concerned staffs. All policies, processes and procedures shall be written in easy to understand unambiguous language. Abbreviations, unnecessary technical details and similar wordings must be explained if they cannot be avoided. It cannot be assumed that everybody is familiar with technical terms.

Contradicting policies, processes and procedures as well as redundancies must be avoided.



#### What is a Process?

A process in the context of this plan shall mean any activity or group of activities that takes an input adds value to it and provides output to an internal or external customer. Processes use an organization's resource to provide definitive results. (Harrington, 1991)

- Processes involve activities,



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- Processes involve more than one person of different organizational departments or equipment doing things,
- Processes are groups of collaborative activities,
- Processes intend to achieve something and produce some result.

Processes are undertaken to satisfy the needs of external customers and internal customers.

An external customer typically is the client for whom the project is undertaken and to whom the final product of the project will be delivered.

An internal customer can be any staff or department that receives the output of a process for his/her further use, development etc.

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### Different Types of Processes

- a) Core processes concentrate on satisfying the client (external customer).
  - b) Support processes concentrate to satisfy internal customers.
  - c) Management processes concern themselves with managing core and support processes.
- 

### Focus

According to the Total Quality Management (TQM) concept developed by Dr. W. Edwards Deming 85% of problems in an organization are system related and only 15% of problems are related to the work output of individuals. The focus of process improvement therefore is on management processes.

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### Benefits of Processes

Processes are organizational assets and once developed and established they

- Increase productivity due to avoidance of “starting from scratch”,
- Avoid repetition of earlier mistakes,
- Reduce financial losses related to missing control, respective reduce cost of reworks,
- Eliminate redundancies,
- Streamline the organization,
- Enhance control in many aspects,
- Decrease wasted resources,
- ...

Processes create value.



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### Result of Process Absence

To achieve a process discipline, which is shared and accepted by the whole organization, processes need to be established in the organization. Without establishing processes every individual would just follow his/her own way of doing something. Absence of established processes is likely to result into ad-hoc or even chaotic execution of activities and will cause conflict and stress on the project.

Absence of processes may result in various kinds of losses – anywhere from financial loss to loss of opportunity and damaged reputation.

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### Processes versus Procedures

Processes and procedures can be distinguished from one another. While processes are a set of activities and can be cross-departmental, procedures are more detailed and are not cross-departmental. Procedures also include activities (or sets of activities respective processes), but also information how to perform this activity, when, etc.

Processes often can be provided by higher management levels, without constraining the expertise of the specialized responsible department in view of how something is to be done.

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### Procedure Manuals

Department managers write down their procedures and catalogize them in their procedure manual, which they make available to new staffs.



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## PROJECT MANAGEMENT PROCESSES

### Common Project Management Processes

According to the Project Management Institute PMBOK 5<sup>th</sup> edition (ANSI/PMI 08-001-2012) the following common processes (should) exist in any project.

Common Project Management Areas	Process Groups				
	Initiating	Planning	Executing	Monitoring & Controlling	Closing
<b>Integration</b>	- Develop Project Charter	- Develop Project Mgmt. Plan	- Direct and Manage Project Works	- Monitor and Control Project Works - Perform Integrated Change control	- Close Project or Phase
<b>Scope</b>		- Plan Scope Mgmt. - Collect Requirements - Define Scope - Create WBS		- Validate Scope - Control Scope	
<b>Time</b>		- Plan Schedule Mgmt. - Define Activities - Sequence Activities - Estimate Activity Resources - Estimate Activity Durations - Develop Schedule		- Control Schedule	
<b>Cost</b>		- Plan Cost Mgmt. - Estimate Cost - Determine Budget		- Control Cost	
<b>Quality</b>		- Plan Quality Mgmt.	- Perform Quality Assurance	- Control Quality	
<b>Human Resource</b>		- Plan HR Mgmt.	- Acquire Project Team - Develop Project Team		



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Common Project Management Areas	Process Groups				
	Initiating	Planning	Executing	Monitoring & Controlling	Closing
			- Manage Project Team		
Communication		- Plan Communication Mgmt.	- Manage Communication	- Control Communication	
Risk		- Plan Risk Mgmt. - Identify Risk - Perform Qualitative Risk Analysis - Perform Quantitative Risk Analysis - Plan Risk Response		- Control Risk	
Procurement		- Plan Procurement Mgmt.	- Conduct Procurement	- Control Procurement	- Close Procurement
Stakeholder	- Identify Stakeholders	- Plan Stakeholder Mgmt.	- Manage Stakeholder Engagement	- Control Stakeholder Engagement	

### Typical additional Processes in Construction Management

Additional process groups typical for construction projects according to PMBOK extension for Construction projects are:

Construction typical Project Mgmt. Areas	Process Groups				
	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Finance		- Plan Financial Mgmt.		- Control Finance	- Close Financial Administration and Records
Health & Safety		- Plan Safety Mgmt.	- Perform Safety Assurance	- Control Safety	
Environment		- Plan Environmental Mgmt.	- Perform Environmental Assurance	- Control Environment	
Claim		- Identify Claim		- Control Claim	- Claim Resolution



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Construction typical Project Mgmt. Areas	Process Groups				
	Initiating	Planning	Executing	Monitoring & Controlling	Closing
		- Quantify Claim		Prevention	

### Key Processes

A year 2000 study by the University of Salford confirmed that management processes account for approx. 85% of the issues during the project life cycle. Management processes therefore shall be the main focus of process review and improvement.

Out of the entirety of management processes the key areas to focus on shall be:

- Collect requirements,
- Scheduling,
- Sub-contracting/Procurement,
- Change control,
- Health & Safety Management,
- Risk Management,
- Team coordination.

Especially in construction projects it can be very difficult to improve processes. On the one hand construction projects are - like any project - of a temporary nature; on the other hand they are often realized by multi-organizational action. The knowledge and experience of all participating enterprises must be coordinated and priorities have to be set and decisions to be taken where different views exist without re-inventing the wheel.

### Process Improvement Steps

#### Step 1 - Current process status assessment

- What business need is fulfilled by this process?
- What is the goal to update this process?
- How is the task currently done?
- What is its current level?
- Who are the acting people or roles?
- Where are the current processes defined, and who is authorized to approve changes?
- What are the boundaries?
- What other processes will be affected?
- What are the process enablers?



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**Step 2 - Current process status analysis**

- What can be maintained?
- What can be adjusted?
- What needs to be replaced?

**Step 3 - Definition of the desired target condition**

- Where shall the new process be determined?
- Who shall be the acting persons or roles?
- What shall be the list of activities in the future?
- What are the new process boundaries? (may consequently result into adjustment of affecting and affected processes)

**Step 4 - Check**

- Is the goal of this process update met?
- Is the process understandable?
- Is it executable?

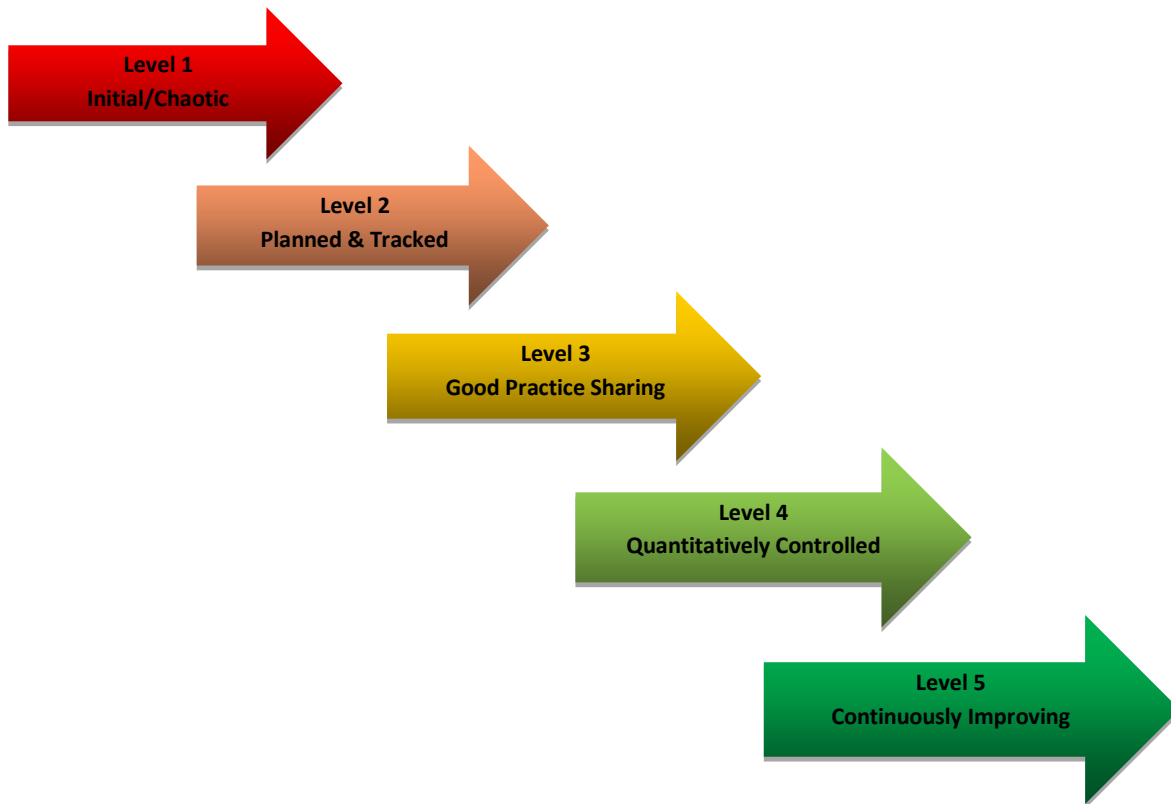
Is any of this 3 questions answered “no”, consequently the process has to be started over beginning from step 1.



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### STEPS OF IMPROVEMENT



#### Level 1 – Initial or Chaotic

Level 1 is the basic entry level and has no key processes. Irrespective of the size of project or performing organization there is virtually no focus on processes and predictability of project result is poor. Often commitments are made that staff or supply chains cannot meet. This may result into crisis. Usually staffs tend to abandon planned procedures and instead try whatever it takes to get a certain job done. That often leads to compromises on quality.

#### Level 2 - Planned & Tracked

At this level a certain degree of predictability exists. Usually organizations have established policies and procedures for the major processes. This allows organizations to repeat successful earlier practices. Process planning is introduced before the start of a project and during project life cycle processes are evaluated and improved. An effective process can be described as on that is practiced, documented, enforced, trained and able to improve.

At level 2 realistic commitments are made to the client and supply chain based on earlier project results and the current project requirements.

At this stage processes are planned, tracked and enforced on every project. However, processes across different projects may differ.





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### Level 3 - Good Practice Sharing

At level 3 organizational visibility of processes exist and management has good insight into progress. Quality and functionality of the project is well tracked. At this level good practices are shared across the performing organization.

The processes for all activities are documented and integrated into organization and all projects use an approved, tailored version of the organization's standard processes. Consequently organizations develop the capability to capture and share good practices.

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### Level 4 - Quantitatively Controlled

The discipline established throughout the organization at level 3 lays the foundation for objective measurement of the product and processes at level 4. Consequently projects are able to reduce variations in process performance so that they will fall within acceptable boundaries. Meaningful variations can be distinguished from random variations. The risks involved in moving up the learning curve are manageable.

The organization will have a program that measures productivity and quality for important construction process activities across all projects. This program forms an objective basis for measuring the product, the project, and the degree of client satisfaction as well as the level of harmony across the supply chain.

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### Level 5 - Continuously Improving

Level 5 organizations can identify weaknesses and strengthen processes before any problem emerges, and can do so in a collaborative manner. Data on the effectiveness of the processes is used to perform cost benefit analysis of any new technology and proposed changes in the organization's processes.

This high level of understanding allows organizations to consider large-scale changes to their processes and innovations that exploit good practice in business management are identified and adopted throughout the organization.

Project teams across the supply chain analyze defects to determine their root cause and construction processes are adjusted to prevent repetition of known errors. Lessons learned are recorded and communicated to other projects.

An organization at level 5 can measure the effectiveness of processes to identify strengths and weaknesses in a pro-active manner and thus enables continuous improvement.



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### QUALITY IMPROVEMENT TOOLS

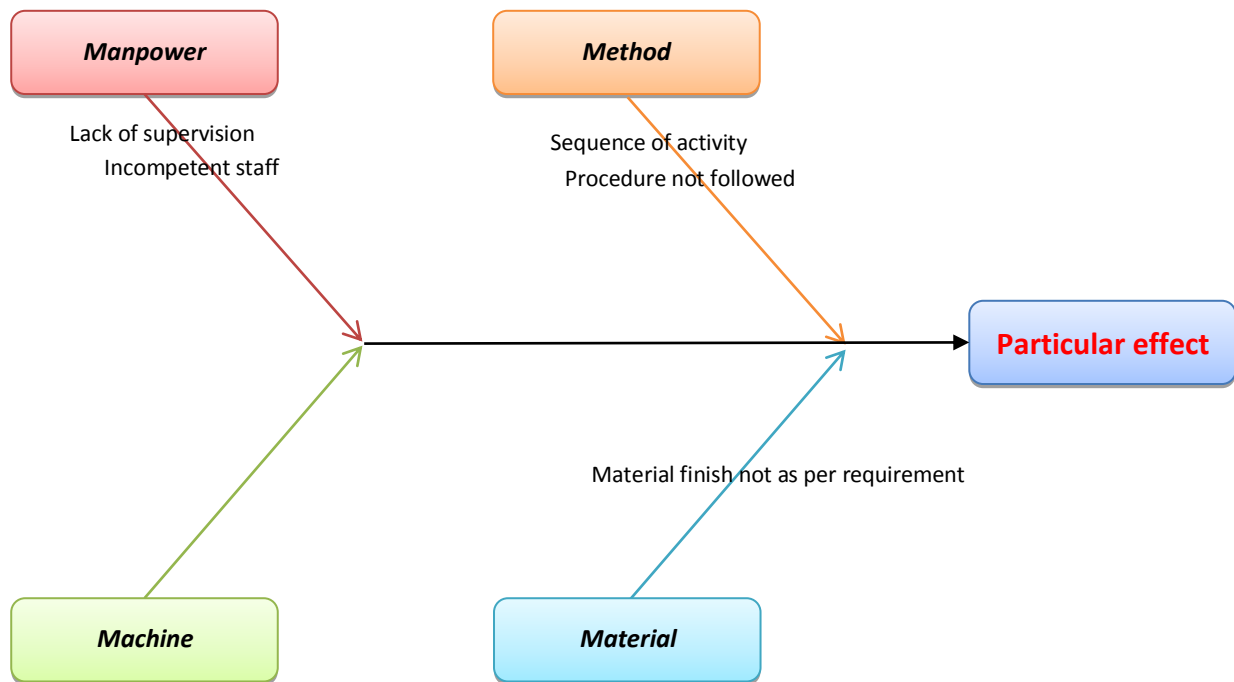
#### Continues Improvement (Kaizen)

Continually improving through small changes is used to eliminate waste output (no matter what kind) by combining the collective talent of every employee of the company.

The continuous improvement of processes is based on several small steps as depicted below.

#### Cause and Effect Analysis

Cause and effect analysis will be performed through cause and effect diagrams, also called fishbone diagram or Ishikawa diagram. It is used to identify and organize all potential or real causes that result in a particular effect.



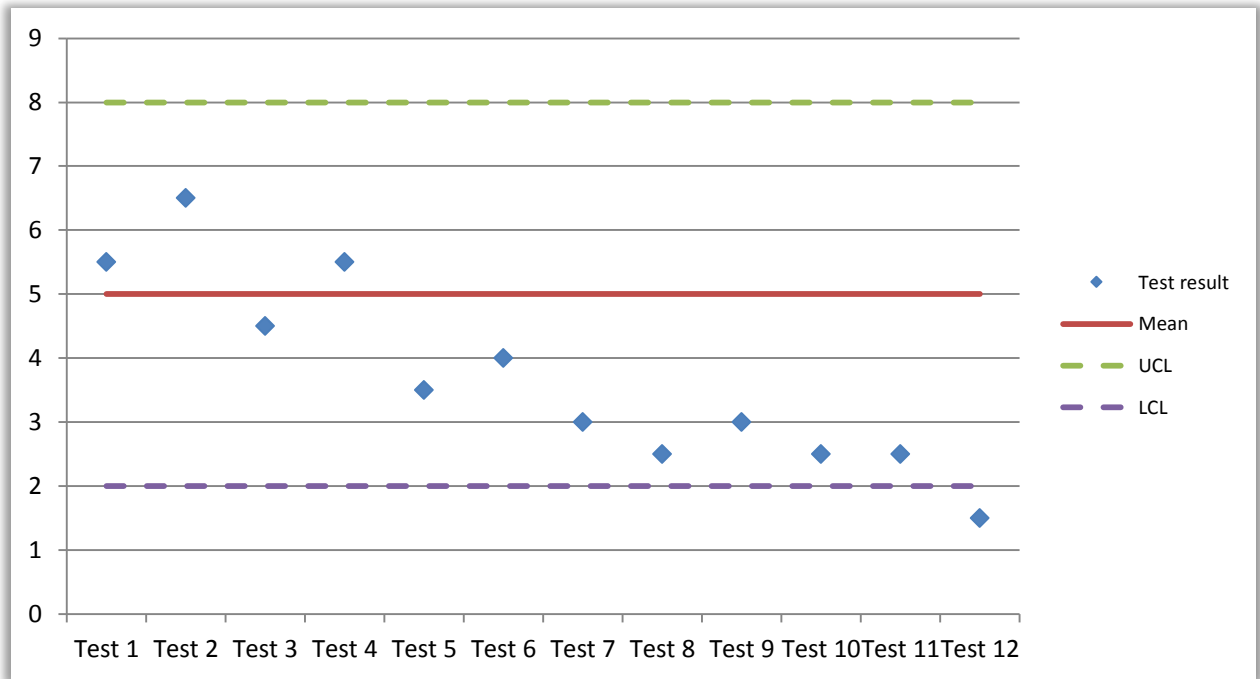
#### Control Chart

The control chart is a fundamental tool of statistical process control. It is a graph used to analyze how testing results behave over time and to show whether test results are stable or being affected by a special cause of variation and creating an out-of-control condition. It shows how results vary between predicted limits.



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A process is considered out of control if:

- A Data point exceeds either the upper control limit (UCL) or the lower control limit (LCL).
- Seven consecutive plot points are above the mean or seven consecutive plot points are below the mean.



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## **ACRONYMS AND ABBREVIATIONS**

COO	Certificate of Origin
DC	Document control
IR	Inspection Register
ITR	Inspection and Test Request
LCL	Lower Control Limit
PQP	Project Quality Plan
QA	Quality Assurance
QC	Quality Control
QCS	Qatar Construction Standard 2007
RFI	Request For Information
SOW	Scope of works
UCL	Upper Control Limit



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## **DEFINITIONS**

**Kaizen Theory** Apply continuous small improvements to reduce costs and ensure consistency.



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**LIST OF APPENDIXES**

Doc. No.	Name