

## ATT: Engineering Manager / Head of Projects

### RE: USING QUALITY AS A CATALYST FOR PROGRESS

**To whom it may concern**, Architects Integrating Industry (Ai2SA) hope to prove to you why it is beneficial to consider applying Project Management Principles to Manage Industrial Systems/Automation Projects. Savings of between **5% – 8%** have been realized this is including the management fee.

#### Preamble

The Project Management Body of Knowledge (PMBOK) is a process based guide, which describes work being accomplished by processes. Processes overlap and interact throughout the project as well through various phases. As per WIKIPEDIA, Processes are described in terms of:

1. Inputs (Documents, Plans, Designs etc)
2. Tools and Techniques (Mechanisms applied to inputs)
3. Outputs (Documents, Plans, Designs etc)

The Guide recognizes 47 processes that fall into five basic process groups and ten knowledge areas that are typical of most projects, most of the time.

#### PMBOK Process Groups

1. Initiating
2. Planning
3. Executing
4. Monitoring and Controlling
5. Closing

From experience in Managing of Automation of Industrial Systems at Ai2SA we focus on the following knowledge areas to ensure the successful completion of a project (ie. IN TIME, IN BUDGET, etc):

1. Project **Stake Holder** Management
2. Project **Scope** Management
3. Project **Communication** Management (Information)
4. Project **Risk** Management
5. Project **Cost** Management
6. Project **Time** Management
7. Project **Quality** Management

As per Wikipedia, PMBOK identifies 10 knowledge areas namely: 1. Project Integration Management, 2. Project Scope Management, 3. Project Time Management, 4. Project Quality Management, 5.

Project Cost Management, 6. Project Human Resource Management, 7. Project Communications Management, 8. Project Risk Management, 9. Project Procurement Management and Project Stakeholder Management. *The knowledge areas we have excluded are not deemed less important but are still included in the seven knowledge areas highlighted above.*



## FOCUS ON QUALITY MANAGEMENT

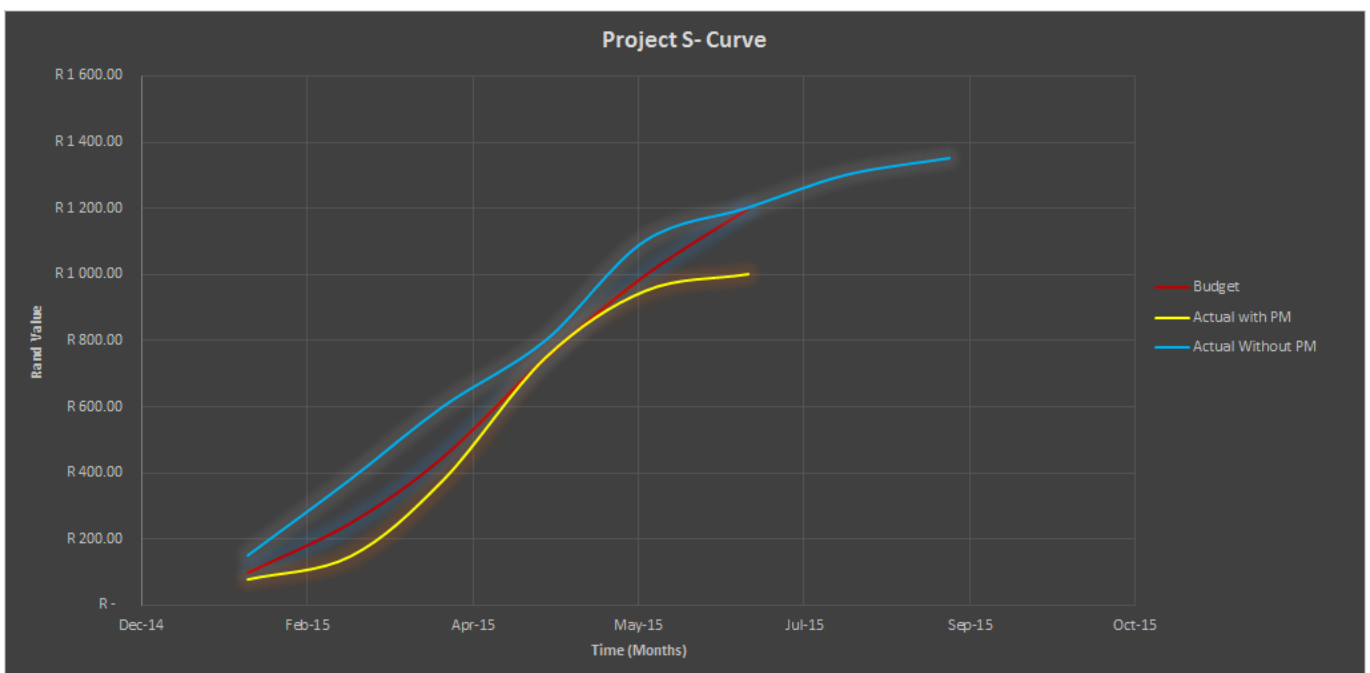
When researching the origin of QUALITY ([www.wikipedia.com](http://www.wikipedia.com)) it is evident that the topic has evolved rapidly from that of the ancient craftsmen's limited guarantee of "Let the buyer be aware" to today where using statistical analysis we typically predict defects per million.

As a result of increased mass production requiring consistent quality in the last 80 years, various systems or methodologies have been developed that encompass all spheres of the manufacturing value chain. This ranges from business process re-engineering to project management and the quality requirements of "the product" being manufactured. This has brought its own acronyms i.e. SPC, TQM, Six Sigma, CI, QMS, etc...

Regardless of the system used there are common concepts relating to quality.

1st QUALITY ASSURANCE (QA) means that the product / solution should SPECIFY some form of UP FRONT QUANTIFIED GUARANTEE. 2nd depending on the type of product "produced" it is common to perform QUALITY CONTROL (QC) AUDITS against the aforementioned specification criteria by only checking CRITICAL CONTROL POINTS or RANDOM SAMPLES.

From experience in Project Managing Industrial/Automation Projects, Project Managers from the customer's side lack capacity (technical and project experience) due to skills shortage or due to significant growth. This lack in capacity results in Project Delay and Unforeseen Variation Orders. This results in the Project being delivered OUT of Budget and OUT of Time and NOT in Quality.



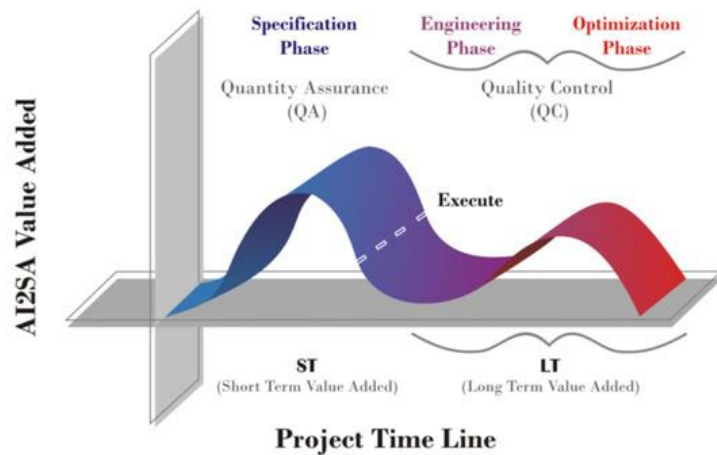
## HOW DOES AI2SA ADD VALUE BY EXPLOITING QUALITY AS A CATALYST?

By developing SPECIFICATIONS that encompass both scope and required QUALITY prior to the award of "systems" projects, and subsequently measuring conformance to these specifications during execution and using compliance as a requirement for payment.

Traditionally payment would be based on the completion of milestones (Design Specification, Factory Acceptance Test etc.) with no cognizance taken of the requirements specified in the Quality Control Plan (QCP).

Traditionally a client would witness a test without the required test criteria and procedures been specified leaving both parties exposed to risks such as technical incorrectness, variation orders or delayed time lines.

From the graph it is evident that the most value is added due to upfront specification and these translate to short term savings such as a possible reduction in the contracted price. The long term value is derived by using quality to drive both progress and performance. If there is no base line specification the project manager has a frustrating task ahead. By focusing on the “**GOLDEN THREAD**” and implementing the correct hold points for payment risk is mitigated and results improve significantly and client satisfaction is significantly improved.



Some examples of project checklist (e.g. Project Initiation) to assist in managing Projects:

| Assessment Questions                                                                                                                                                          | Project Management Deliverable                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>1. Initiation Process</b>                                                                                                                                                  |                                                                                 |
| Has a project manager been assigned?                                                                                                                                          |                                                                                 |
| Has the project manager allocation agreement been completed and agreed by the Project Manager?                                                                                | Project Manager Allocation form                                                 |
| Has the project been registered on SAP?                                                                                                                                       | Project Registration Form                                                       |
| Have the assumptions and constraints been identified and documented?                                                                                                          | Assumptions Log; Constraints Log                                                |
| Have the stakeholders been identified, and the interest in the project defined?                                                                                               | Stakeholders Record                                                             |
| Have the project external dependencies been identified and logged?                                                                                                            | Dependencies Log                                                                |
| Have the resource requirement assumptions made during business case and programme planning been reviewed?                                                                     | High level resource requirements plan; Project infrastructure requirements plan |
| Has the initial budget (developed during business case development and programme planning) been reviewed and have variances been approved through the Change Control process? | Project baseline budget                                                         |
| Does the Project Management Plan accurately reflect the project mandate as defined in the business case?                                                                      |                                                                                 |
| Does the project charter form a firm basis on which to plan this project?                                                                                                     |                                                                                 |
| Has the Project Charter been completed and signed off by the business?                                                                                                        | Project Charter                                                                 |
| Does the project MRI reflect correctly all Project Management deliverables to date?                                                                                           | Project Charter                                                                 |

Finally, some project references listing Projects that Ai2SA has Managed:

| # | Industry(s)/Sector(s)/Type(s)                       | Category          | Region        |
|---|-----------------------------------------------------|-------------------|---------------|
| 1 | Refinery                                            | Refining          | Gauteng       |
| 2 | Chrome Mining, Smelting and Pelletizing & Sintering | Mining & Smelting | Gauteng       |
| 3 | Platinum Mine                                       | Mining & Smelting | North West    |
| 4 | Manganese Mine                                      | Mining & Smelting | Northern Cape |
| 5 | Glass Manufacturing Plant                           | Glass             | Gauteng       |
| 6 | Chrome Processing Plant                             | Mining & Smelting | North West    |
| 7 | Drinking Water Treatment Plant                      | Water             | Free State    |
| 8 | Nuclear Pharmaceutical                              | Nuclear           | North West    |

Please feel free to contact the author should you require additional clarity re enclosed. We are vendor independent insuring objectivity and all our experience is based on 1st principles ensuring that best practices are adhered to.

Thank you kindly and kind regards,

**Petrus Klopper**  
Managing Director