**Plan**

**Do**

**Check**

**Act**

**Inputs**

Process

**Outputs**

- Measure
- Set point (Metrics)
- Compare & decide

- Feedback & correct
<table>
<thead>
<tr>
<th>Product</th>
<th>Existing Product</th>
<th>New Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Market</td>
<td>Market penetration</td>
<td>New product development</td>
</tr>
<tr>
<td>New Market</td>
<td>Market development</td>
<td>Diversification</td>
</tr>
</tbody>
</table>

- Operations Management
- Entrepreneurial Management/Project Management
PROJECT SUPPLY CHAIN BUILDING BLOCKS

SUPPLIER

Procurement and Supplier Focus

.resource and time Management

Building and Installation

Hand-over and Closure

Customer Focus and Stakeholders

Regular Reviews

Supply Management

POST CONTRACT

PRE CONTRACT

Project Delivery Chain

Project Planning Chain

Quality and Performance Management

Systems and procedures
Stakeholder Map

- Power

Keep informed (Task team)

Key Player (Project team)

Minimal Effort (Other employees)

Keep Satisfied (Steering team)
Based on: Turner (1999)
Project Life Cycle
PRINCE 2

Based on: PRINCE2 (2002)
From customer

- Customer’s quality expectations
- Acceptance criteria
- Project & product description

Project response

- Quality management strategy
  - Product description
  - Quality register
  - Product
  - Quality & approval records
  - Acceptance records

Quality components

- Quality criteria & tolerances
- Quality methods
- Quality responsibilities

Quality planning

Quality control
Perform Quality Assurance

Plan Quality

Perform Quality Assurance

Perform Quality Control

Planning Process Group

Executing Process Group

Monitoring Process Group
Goals and Methods Matrix

Goals well defined

<table>
<thead>
<tr>
<th>Methods well defined</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Type 1 Projects Engineering</td>
<td>Type 3 Projects Systems development</td>
</tr>
<tr>
<td>No</td>
<td>Type 2 Projects Product Development</td>
<td>Type 4 Projects Research &amp; Development</td>
</tr>
</tbody>
</table>

Source: Turner & Cochrane (1993)
Organisation well defined
Methods well defined
Goals well defined
Yes
Yes
No

Goals relate to ‘Product Quality’
Methods relate to ‘Process Quality’
Organisation relates to ‘Organisation Quality’
INNOVATION & LEARNING

PROJECT MANAGEMENT

Project Objectives (14%)
- Leadership (8%)
- People (7%)
- Resources (7%)

Processes (14%)

PROJECT RESULTS

Customer Results (18%)
- People Results (8%)
- Other Parties Results (6%)

Key Performance and Project Results (18%)

(8%)
(7%)
(7%)
(14%)
(14%)
(6%)
Measure
Define
Organise
Implement
Closure

Project Life Cycle

DMAIC
Define
Measure
Analyse
Improve
Control
Statement of Requirements

Execution plan for Design, Manufacture and Assembly

Supplier Quality Plan

Drawings & Specifications

Strategy for Certification of Work

Inspection and Test Plan

Inspection and Test Records

T5 Assurance Records

Certificate of Confidence
Decide Level of Engagement

Level 3 Engagement
- Requires additional budget
- QMT resources deployed full time
- Level 2 engagement activities

Level 2 Engagement
- Top 30 Projects
- Assurance of safety Critical Assets Procedure
- Quality KPI Reporting
- Risk focused audit quality standards
- Gateway Decisions or Readiness for key construction events

Level 1 Engagement
- All other Projects (circa 300)
- Assurance of safety Critical Assets Procedure
- Statistical audit sample of product/process compliance

Commercial Contracts
Business Risk
Engineering Criticality Assessment Results
Supplier Performance Data

Quality Management Executive

Statistical audit sample of product/process compliance

Business Risk
Commercial Contracts
Engineering Criticality Assessment Results
Supplier Performance Data
KEY PERFORMANCE INDICATORS (KPIs)

5

KEY MEASURES

10

PERFORMANCE DATA

37
Programme Quality Management Profile

- Inspection & Test plans Agreed: 99%
- Supervisors RFT Trained: 99%
- Samples/Benchmarks Agreed: 99%
- Inspections Meeting Benchmark & Quality Standards: 87%
- Checks Showing Work is Protected: 86%
- NCR's Closed: 99%
- Team Certificates of Compliance Issued: 99%
- Handovers accepted: 100%
- O & M Manuals Accepted: 66%
- Maintenance Workplans Accepted: 100%
Costing Info

Total Cost Of N.C.R's = £86,245
Average Cost Of N.C.R's = £546
Current N.C.R / Project Cost = 0.15%

Responsibility & Analysis

Category of Work

Reason for Non-Conformance

[Charts and data visualizations are described here as text]
Figure 5: Aspects of Balanced Scorecard

"To achieve our vision, how will we sustain our ability to change and improve?"

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Measures</th>
<th>Targets</th>
<th>Initiatives</th>
</tr>
</thead>
</table>

"LEARNING AND GROWTH"

"To succeed financially, how should we appear to our shareholders?"

<table>
<thead>
<tr>
<th>Objectives</th>
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<th>Targets</th>
<th>Initiatives</th>
</tr>
</thead>
</table>

"FINANCIAL"

"To satisfy our shareholders and customers, what business process must we excel at?"

<table>
<thead>
<tr>
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<th>Targets</th>
<th>Initiatives</th>
</tr>
</thead>
</table>

"CUSTOMER"

"To achieve our vision, how should we appear to our customers?"

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Measures</th>
<th>Targets</th>
<th>Initiatives</th>
</tr>
</thead>
</table>

"INTERNAL BUSINESS PROCESS"

"Vision and Strategy"

"Handover Agreed & Work Complete"

"Verifications Planned & Work Supervised"

"Compliance Assured"

"Inspected & Protected"

NB: T5 KPIs are shown in bold italics
1. Stakeholders Engagement for Commitment
2. Create a Culture That values Quality
3. Integrated Communications Campaign
4. Implement Best Practice Quality
Plan 12 month audit programme

Monthly Audit Co-ordination Meeting

Issue Audit Execution Briefs

Execute Audits

Prepare CARs and Audit Reports

Undertake corrective and preventive actions

Are actions on CAR completed?

Verify, sign off and close

Yes

No
Project Board Objectives

Allocate budget and set up Quality Org

Develop Quality Plan
Set up KPIs

Provide induction And review supplier readiness

Establish audit programme

Quality Forum, Six Sigma and Continuous learning

Periodic self assessment

Client Quality Team processes

Supplie processes

Ready to start report

Audit reports

Corrective Action Requests

Monthly Quality KPI Reports

Client’s Quality Requirements

Supplier Self Certification

Based on BAA Quality Systems (Courtesy: Chris Little)

2. Establish Project Success Criteria and Key Performance Indicators

3. Ensure the Induction of the Quality Management Plan

4. Manage Regular Quality Forums

5. Consider Operational Excellence Concepts

6. Perform Quality Audits

7. Establish Regular Self-assessment