A Quality Improvement methodology which provides framework to management for better analytics and decision making in improving the products, services and processes based on collection, analysis and manipulation of in-depth DATA by process improvement teams in organizations.
Six Sigma as a Business Strategy

Increase Sales

Profit
- Indirect
- Direct

$\{10-20\%\}$

Increase Sigma

Profit
- NON-Value Added Processes
- Value Added Processes

$\{30-50\%\}$

MARKETING Strategy

QUALITY Strategy

7 Types of Wastes & NVA Activities

7 Wastes of Lean

- Inventory
- Waiting
- Defects
- Overproduction
- Motion
- Transportation
- Over-processing
1. SIX SIGMA BEST PRACTICE

Food Company
Pakistan

2013 Started
3 Plants
95% Management TRAINED

SAVING
$12.6M
Rs1.3b

LEAN SIX SIGMA PROGRAM OVERVIEW

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CI Organization

SS Steering Group (Strategic)  CI LEAD  DEPT’L CI LEADS

CI MASTER PLAN
2014-2019

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015-16</th>
<th>2017+</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROLL OUT</td>
<td>TRAINING (25%)</td>
<td>TRAINING 2015 ~ 50%</td>
<td>TRAINING &gt;90%</td>
</tr>
<tr>
<td></td>
<td>200 WB</td>
<td>2016 ~ 75%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25 YB</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12 GB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESTABLISH</td>
<td>ACTIVE PROJECTS 12 @ 3 Plants</td>
<td>ACTIVE PROJECTS 30 @ 3 Plants</td>
<td>ACTIVE PROJECTS 45 @ 3 Plants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THE WAY WE WORK</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Annual Training goals & Actual Performance

Savings & Projects

LSS Projects Completed

2013 2014 2015 2016 2017
## Results

- **SAVING $ 12.6 Million**
- First Pass Compliance raised from 92% to 98.5% +
- 15% Improvement in Yield
- 10% Increase in plant energy and utilities efficiencies
- Excellence in Planning, Maintenance and Warehouse Inventory Management

---

## SIX SIGMA BEST PRACTICE

Telecom Company
Pakistan
Journey to Excellence

- Process Standardization
  - ISO9001 QMS
- Performance Measurement
  - KPIs & Dashboards
- Process Improvement
  - Kaizen, QITs Six Sigma

Excellence

- Management Training Programs
- YELLOW BELTS (2013)
  - 125
- GREEN BELTS (2014-17)
  - 54
- BLACK BELTS (2015-17)
  - 18
RESULTS

Customer Experience
Reduction in:
• NSS, IN & VAS complaints
• Short code/USDS Dialing complaints
• Billing System Errors

Financial Savings
Rs330 M
$ 3 M

Process Improvement
• Call Set up Time
• Change Management Time
• Site Commercial Launch Time
• Monthly RF Expansion Rate
• Media Commissioning of E1s

Wastes (Lean)
• RF Expansion delays
• Change Management time of config. management activities

Implementation Challenges
1. Coordinating with LSS Teams
2. Converting improvement in Financial figures
3. Experience based rather than data based decisions by LSS
4. Delays in approvals, execution and validation of projects
5. Sustainability of solutions

Resolution of Challenges
1. Technical Approval Committee (TAC) formed and strengthened for quick approvals, review & validations
2. Demand for data and validation became the key criteria for LSS
3. Cultural focus through wider training, Quality Newsletter and Rewards
4. Improved Project Management in QA Dept for LSS Teams
Example Projects

- Reduction in Monthly SMS Outage Time
- Reduction in Average Maintenance Cost per Site
- Reduction in monthly fluctuation count of radio sites
- Improvement in International Call Success Rate
- Reduction in monthly incidents of Service Manager
- Reduction in media commissioning delay of 3G sites
- Increase in monthly RF Expansion Rate
- Reduction in Service Disruptive Faults of IN&VAS Operations
- Reduction in Core (NSS, IN and VAS) Complaints
- Reduction in Post-Production Deployment Failures
- Reduction in Percentage of Monthly VAS Failures
- Reduction in DG outages at BTS sites

Some Key Implementation Points for Leadership

Lean 6 sigma DMACG
Output vs Outcome

Value = Quality
Cost

Organization

QUALITY & VALUE
OF OUTPUT

PRODUCT / SERVICE

Output vs Outcome

Two Types of Outcomes

Effectiveness
(Quality)

Outcome

Efficiency
(Productivity)
Outcomes: Quality vs Productivity

<table>
<thead>
<tr>
<th>Productivity</th>
<th>LOW</th>
<th>MED</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW Quality</td>
<td>MED</td>
<td>MED</td>
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<td>MED Quality</td>
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</tr>
<tr>
<td>HIGH Quality</td>
<td>MED</td>
<td>MED</td>
<td>HIGH</td>
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</table>

EXAMPLE: Quality Dashboard
Data Driven Leadership

<table>
<thead>
<tr>
<th>Department A</th>
<th>KPI 1</th>
<th>KPI 2</th>
<th>KPI 3</th>
<th>KPI 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department B</td>
<td>KPI 1</td>
<td>KPI 2</td>
<td>KPI 3</td>
<td>KPI 4</td>
</tr>
</tbody>
</table>

Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec
Six Sigma
ISO & Quality Awards

ISO 9000

QUALITY AWARDS

Six Sigma

Kaizen Ideas

Quality Circles
Quality Improvement Teams

Six Sigma Project Teams

3 Improvement Platforms

SIMPLE IMPROVEMENTS

MEDIUM IMPROVEMENTS

BREAKTHROUGH IMPROVEMENT COMPLEX PROBLEMS (SYSTEMS)
Breakthrough vs Continual Improvement

```
<table>
<thead>
<tr>
<th>Year</th>
<th>Breakthrough</th>
<th>Continual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
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<td>4</td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td></td>
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</table>
```

SIX SIGMA METHODOLOGY — DMAIC

```
Define - Measure - Analyze - Improve - Control

LEAN 6σ

PIQC
```
The Approach behind DMAIC

Lean Six Sigma Tools
Continuous Improvement Hierarchy

SIX SIGMA PROJECT TEAMS

CEO

HODs

Mgrs

Sup

Six Sigma Program Management

Development

SIX SIGMA PROGRAM

Deployment

Sustainability (Continuity)
Six Sigma as a Project or Program

**Project**
- **Event**
  - Phase I: Design
  - Phase II: Deployment

**Program**
- **Repeated Events (Culture)**
  - Phase III: Regular Implementation

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Email for any Clarification
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