Dear reader, we are delighted to bring you yet another edition of Arête. We have endeavoured to make each edition of Arête as fresh and content rich as possible. This time around we have added new case studies and knowledge nuggets, which we’re sure you will find intriguing and enlightening. Please feel free to share your thoughts and views by writing to us at knowledge@ssa-solutions.com.

Happy reading!
Dear Reader,

Welcome to yet another edition of Arête! In this edition, we share an insightful case study from SSA’s experience of a Lean project undertaken at an Interior design and construction company. In the Knowledge nugget section, we have ‘Axiomatic Design’, while the Lean Tip section features ‘Milk Run’. I’m glad to share that SSA has partnered with Demand Driven Institute, USA. A program on ‘Reviewer Qualification’ was successfully conducted by SSA APAC for a leading pharmaceutical name in India.


Wish you a happy reading and, as always, I welcome your feedback!
Knowledge Nugget: Axiomatic Design

What is Axiomatic Design?

Axiomatic design is a systems design methodology using matrix methods to systematically analyze the transformation of customer needs into functional requirements, design parameters, and process variables. Specifically, a set of functional requirements are related to a set of design parameters by a Design Matrix A.

DID YOU KNOW?

Axiomatic Design methodology was developed by Dr. Suh Nam Pyo at MIT, Department of Mechanical Engineering since the 1990s. A series of academic conferences have been held to present current developments of the methodology.
Knowledge Nugget: Axiomatic Design

Whether the design solution is a tangible product, service, software, process or something else, designers typically follow these steps:

▪ Understand their customer’s need
▪ Define the problem they must solve to satisfy these needs
▪ Create and select a solution
▪ Analyse and Optimize the proposed solution
▪ Check the resulting design against the customers needs

Benefits of implementing the Axiomatic Design:

▪ Introduces matrix analysis of the Design Matrix to both assess and mitigate the effects of coupling.
▪ Avoid changes in functional requirement (Fr) throughout the design process
▪ People know what they are discussing
▪ Encourages creativity
▪ Works well for projects where clean-slate approach can be taken
**Case Study: Lean Deployment at an Interior Design and Construction Company**

**Business Case:** ABC Ltd. is one of the leading company in the field of construction, joinery, interior fittings and decorative works. ABC td. had engaged SSA with a broad aim to increase profitability. As a part of first phase, SSA had conducted a thorough diagnostic study of the business and identified various points of profit leakages that can be addressed with implementation of Lean principles.

**Actions Taken:** Based on the diagnostic study, certain opportunities and improvement initiatives were identified across the value chain bringing about the following changes:
- Data based culture
- Streamlined Information flow
- Lean in Manufacturing

**Goals:**
- Improve gross margin
- Reduction in Direct material loss due to rework
- Reduction in Direct labour hours due to rework.
Situation – deep dive

Following issues were identified across the various departments involved in the value chain:

- **Estimation and Sales**
  - No method to track the time taken for quotation submission.
  - Lack of customer specifications & understanding
  - No learning from the actual resource (labour + material) utilization
  - Gap in delivering customer requirements to the team

- **Design**
  - Drawings released to shop floor without client approval
  - No committed site visits before execution of drawing
  - Internal revisions of drawings not captured
  - Long lead time to submit drawings for approval

- **Production Planning**
  - No Robust Project planning

- **Procurement Planning and Stores**
  - No material scheduling
  - No tracking of the difference between pre- & post- contracts rates from suppliers
  - Vendor Management absent
  - Lack of tracking of Excess Material usage

- **Project Execution & Delivery**
  - No tracking of Rework & Stoppages
  - No tracking of Material Movement
  - No QC
  - Discrete Labour Tracking & Planning sheets
  - No tracking of Machine Utilization
Approach

Brown – Paper Mapping
- Identification of Gaps & Key Improvement Areas
- Development of Kaizens with quantifiable KPIs

Root Cause Analysis
- Pin-pointing the main issues affecting the KPIs

Solutions Finding
- Enlisting solutions to improve the issues affecting the KPIs

Solutions Implementation
- Rolling out solutions in forms of data monitoring systems, process changes, infusion of controls & verifiers & regular reviews by Top Management
With an aim to inculcate a data based culture and streamline the information flow, following Process changes and Controls were implemented at the indicated departments:

- For the estimation and sales team formats for Enquiry maintenance, recording the Minutes of Meetings with customers and Contract review meetings were designed to capture all the customer requirements and relay it to the Design and Production team.
- For the design team, a ‘Drawings Register’ format was designed to track status of designs and drawing revisions.
- A production planning template was designed in order to ensure OTDIF and get an overall picture of job completion status.
- Formats were designed and databases were created in order to track procurement orders, their delivery and also the consumption of materials.
Actions Taken on Shop floor:

1. **Labour Scheduling** enabled the following:
   - Combining the Daily Timesheet with the Manhour Planning
   - Tracking of overall Estimated vs Actual Manhours for every project
   - Easier access to the summary of Manhours across various projects

2. **QC Process**
   
   A QC process was put into place in order to identify defects early in the process to reduce reworks after the final stage of Assembly.
Actions Taken on Shop floor:

3. **Machine Utilization**
   - Machine Utilization template was designed to capture the usage hours & the breakdown hours of all the machines in the Shopfloor

4. **Time Tracking of Materials** was introduced to:
   - Monitor the time taken at every stage of the process
   - Identify idle times
   - Identify the stages where time consumed was more than required
   - Select such processes & perform an activity-level analysis of the process

5. **Material Movement Reduction:**
   Layout Changes were made in order to reduce the travel distance for few materials from one process to another
## Benefits Achieved:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Levers</th>
<th>Baseline</th>
<th>SSA’s Actual Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Productivity Improvement</td>
<td>Gross Margin in the year before project = 15.42%</td>
<td>Gross Margin on a sample job during the project = 19.58%</td>
</tr>
<tr>
<td>2</td>
<td>Cost of Material Loss due to Rework</td>
<td>2%</td>
<td>0.4% on Project Revenue</td>
</tr>
<tr>
<td>3</td>
<td>Cost of Labor hours spent due to rework</td>
<td>3%</td>
<td>1.2% on Joinery Revenue</td>
</tr>
</tbody>
</table>
Lean Tip: Milk Run

➢ Milk run is a method to speed the flow of materials between facilities by routing vehicles to make multiple pick-ups and drop-offs at many facilities.

➢ By making frequent pick-ups and drop-offs with milk-run vehicles connecting a number of facilities rather than waiting to accumulate a truckload for direct shipment between two facilities, it is possible to reduce inventories and response times along a value stream.

➢ This reduced inventory leads to additional floor space in the facility.

➢ Milk runs are only for mass consumed parts/components and not suitable for customised parts.
SSA is pleased to announce its partnership with Demand Driven Institute, USA. The DDI is pioneering a revolutionary Demand planning and order fulfilment system that is transforming the way companies run. When done right, the system promised to help achieve dramatic improvement in service levels while maintaining industry leading inventory turns.

We are also glad to announce our partnership with B2Wise as the chosen software partner for DDMRP implementation.
SSA Business Solutions successfully conducted a "Reviewer Qualification Program" for a leading pharmaceutical company based in India. The audience included QA, QC, CQA and production engineers. The program was focused on enhancing various qualities of the reviewers such as behaviour (listening & observing), Technical know-how and Leadership qualities (fearlessness, empathy, etc.) which would consequently enhance their ability to conduct better review of the investigations and documentation done by CAPA investigators.
SSA is proud to announce its 5th edition of Lean Leaders Forum on Transforming Omani Business Profitability.

CXO forum attracts Business Leaders from diverse industries across Oman every year. This event has always addressed & answered queries/issues that remain unanswered in Board room discussion.

How can Lean help?

✓ Transform Business profitability
✓ Develop a result-focused approach & culture
✓ Reduction in Operational Cost
✓ Develop long-term plan for organization

To Register: www.bit.do/Lean-Leaders-Forum2019

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Upcoming Event: "Leaders Forum – Business Transformation 2020 – Thailand"

Chasing The Next Big Thing!

SSA is proud to announce that we are organising a conference in Thailand! An evening designed to uncover the mystery behind building a thriving organisation to take business to the next level.

"Leaders Forum - Business Transformation 2020” – Conference in Thailand

• 28th January 2020, 6pm to 8pm Indochina Time (ICT)
• Venue: Will be announced shortly

Key Speaker:
Mr. NC Narayanan
Founder Chairman, SSA Group of Companies

Key Takeaways:
• Paradigm shift in business goal setting
• Learn the science of new age business transformation practices
• Overcome the fear of change through other success stories
• Create your own 3-year change management roadmap
• Quick fix to make 2020 a successful year

For enquiries, reach us on: kittiphana@ssa-solutions.com