NEWSLETTER

Arête

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April 2022

Arête Vol 51

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!

Chairman's desk

Dear reader,

Welcome to a new edition of Arete! In this edition, we feature a case study based on *Layout Re-Design and Productivity Improvement* at pen manufacturing Company in India. In the Knowledge nugget section, we present a piece on "Capital Linearity". We have also shared my playlist on the subject "Enigma of Lean" for the benefit of all our subscribers.

A subject close to my heart and one which brings out the concept of an individual's 'personal equity', I have recorded a series of videos on **Pragmatic Leadership**, where I have explained some excerpts from my publication of the same title . The link to the playlist has been shared.

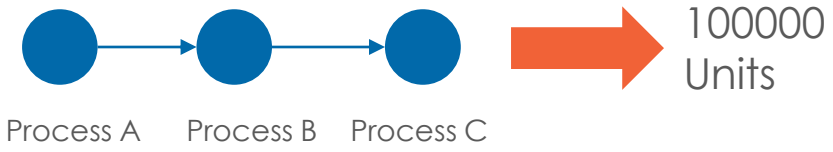
SSA is organizing a certification course on *Reducing Rejection and Rework by application of Six Sigma* as part of its Profit Leadership series on 21st and 22nd April 2022. I'm proud to announce that SSA is the Knowledge Partner at the prestigious *Oman Economic Review Manufacturing Summit & Awards* which will be held on 25th May 2022. SSA will also conduct a workshop at the event. In the Useful resources section, we have shared an Excel template on *Communication Plan* which is a very important and helpful tool in managing projects.

Wish you a happy reading and, as always, I welcome your feedback!

Knowledge Nugget: Capital Linearity

What is Capital Linearity ?

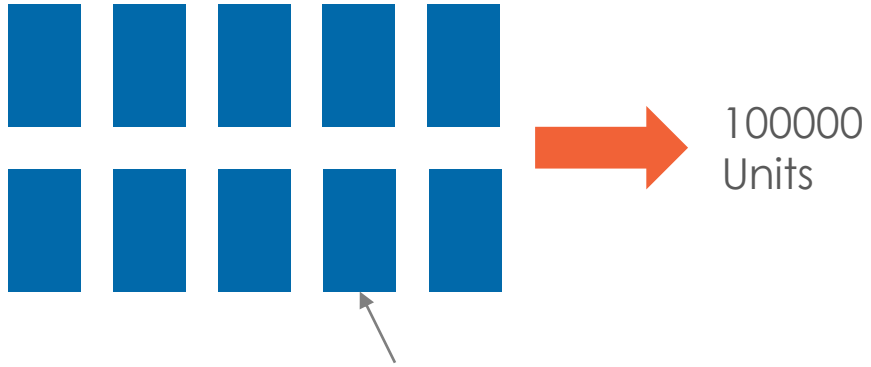
- A philosophy for designing and buying production machinery so that small amounts of capacity can be added or subtracted as demand changes.
- In this way, the amount of capital needed per part produced can be very nearly level (linear).



Each machine has a capacity of 100,000

Capital Linearity Example

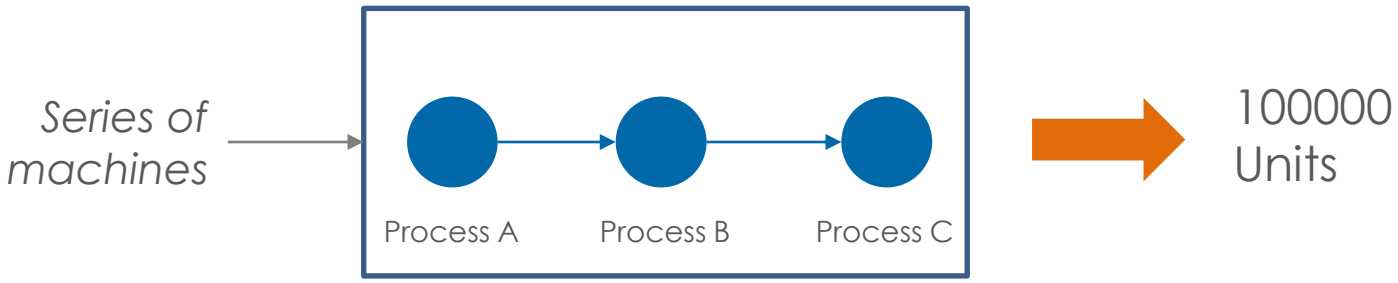
- For a capacity of 100,000 units of annual output, a manufacturer might purchase a series of machines, each with an annual capacity of 100,000 units, and link them in one continuous flow production line (first alternative)
- Alternatively, the manufacturer might buy 10 sets of smaller machines to install in 10 cells, with each cell having annual capacity of 10,000 units (second alternative).



Each box represents a cell which has a series of machines (like the above example), but of smaller capacity (1/10th, in the above example)

Knowledge Nugget: Capital Linearity

- If the forecast of 100,000 units proves to be correct, the single line with 100,000 units might be the most capital efficient. But if real demand is different, which is most likely, the second alternative offers distinct advantages.



- Whenever demand goes beyond 100,000 units, the manufacturer can add either another line with 100,000 units of capacity or just the required number of cells, each with 10,000 units of capacity, to satisfy the higher demand.

Change in demand can be manage in second alternative

Knowledge Nugget: Capital Linearity

- By adding cells, the capital investment per unit of output would vary only slightly with changing demand. It would be very nearly linear.
- Whenever the real demand is less than 100,000 units, a more serious problem arises. The first alternative makes it almost impossible to decrease capacity and maintain efficiency at the current level.

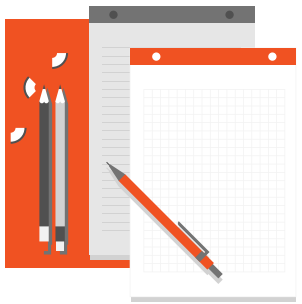
- The second alternative allows the manufacturer to subtract capacity by shutting down as many cells as required.

Case Study: Layout Re-Design and Productivity Improvement

Situation:
ABC is a pen manufacturing company based in India. ABC is looking to redesign their production floor. The requirement is to free up space in ASSEMBLY FUNCTION and capacity which will allow for future growth in new product segments / growth in existing segments They don't have a proper space utilization for upcoming machines. ABC has partnered with SSA in its Lean Transformation journey.

Actions Taken:
- Current-state process mapping
- Time and motion study, Kaizen Improvement
- Solution identification and implementation

Objectives:
- To redesign the layout
- To improve productivity



Situation – Deep Dive

- ABC is a Pen manufacturing company based in India and was facing severe space constraints in the assembly section of its shopfloor.
- Approximately 37% of the area on the shopfloor was occupied by Packing, WIP and FG materials, leaving limited space for operations
- This became a challenge and prevented them from expanding their production capability by bringing in new machines. Also, the productivity of the packaging operations was affected by the current arrangement of operations
- The material was also not stored systematically, which leads to a lot of time spent in search and retrieval on the shopfloor

Actions Taken – Deep Dive

- Following was the approach taken in order to optimize the space utilization on the shopfloor

Space Optimization = f (Resource Optimization,

Material Storage Optimization,

Flow Creation)

Time and motion study and line balancing

5S and WIP inventory control

Using lean principles to setup the layout

Actions Taken – Deep Dive

Time and motion study and line balancing:
For most of the major manual assembly and packing lines, time and motion analysis was done and kaizens were identified to improve productivity.

This exercise gave the optimal headcount for a balanced operation

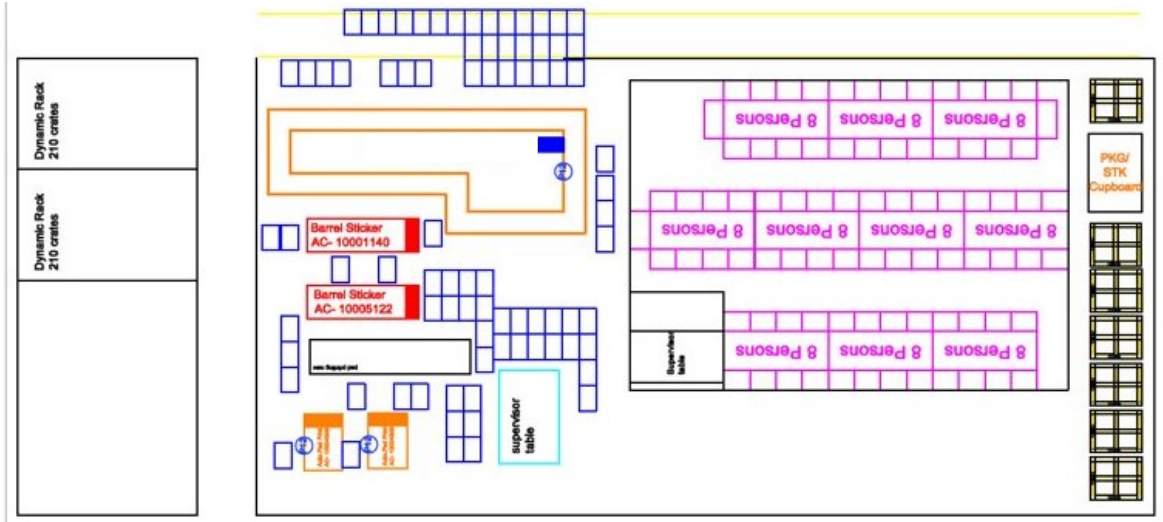
Operation Elements	Cycle Time (s)	PFD	Operators required	Rounded
Cap placing in Fixture	1.10	14%	3.93	4
Clip Placing in Fixture	1.58	14%	5.64	6
Clip Fitting	0.55	14%	1.96	2
Cap QC	1.00	14%	3.56	4
QC	3.19	14%	11.36	12
Bulk				**28**
Rework				**2**
Hanger making and taping	0.79	14%	2.81	3
Hanger Filling	1.64	14%	5.85	6
Inner Making + Inner fill & weigh + Inner Taping + Outer making, Filling & taping	0.42	14%	1.51	2
Packing				**11**
			Total	**41**

Cycle time data for visibly fastest operator

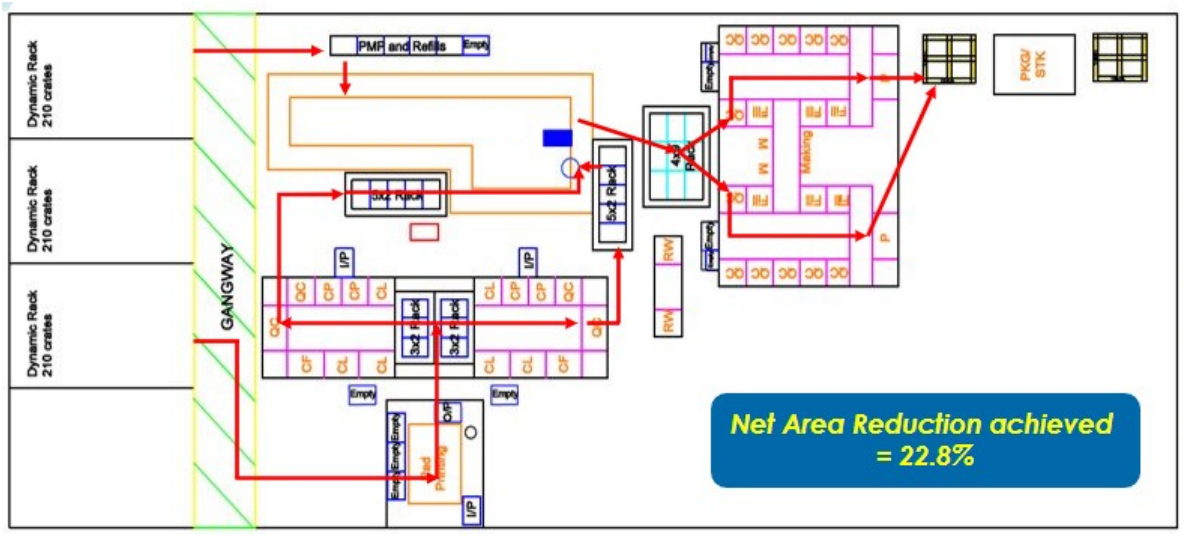
Actions Taken – Deep Dive

Material storage optimization:
The material storage on the shopfloor was controlled using the CONWIP principle. A week's worth of inventory was planned to be kept between he moulding section and the assembly section in the stores and only a day's worth of inventory was to be kept on the shopfloor

Flow creation:
Putting together the lean principles along with optimized head count and material storage, an ideal layout was created and demonstrated for a major product family. The demonstration gave a net reduction of 22.8% in area without any loss in productivity



Current layout

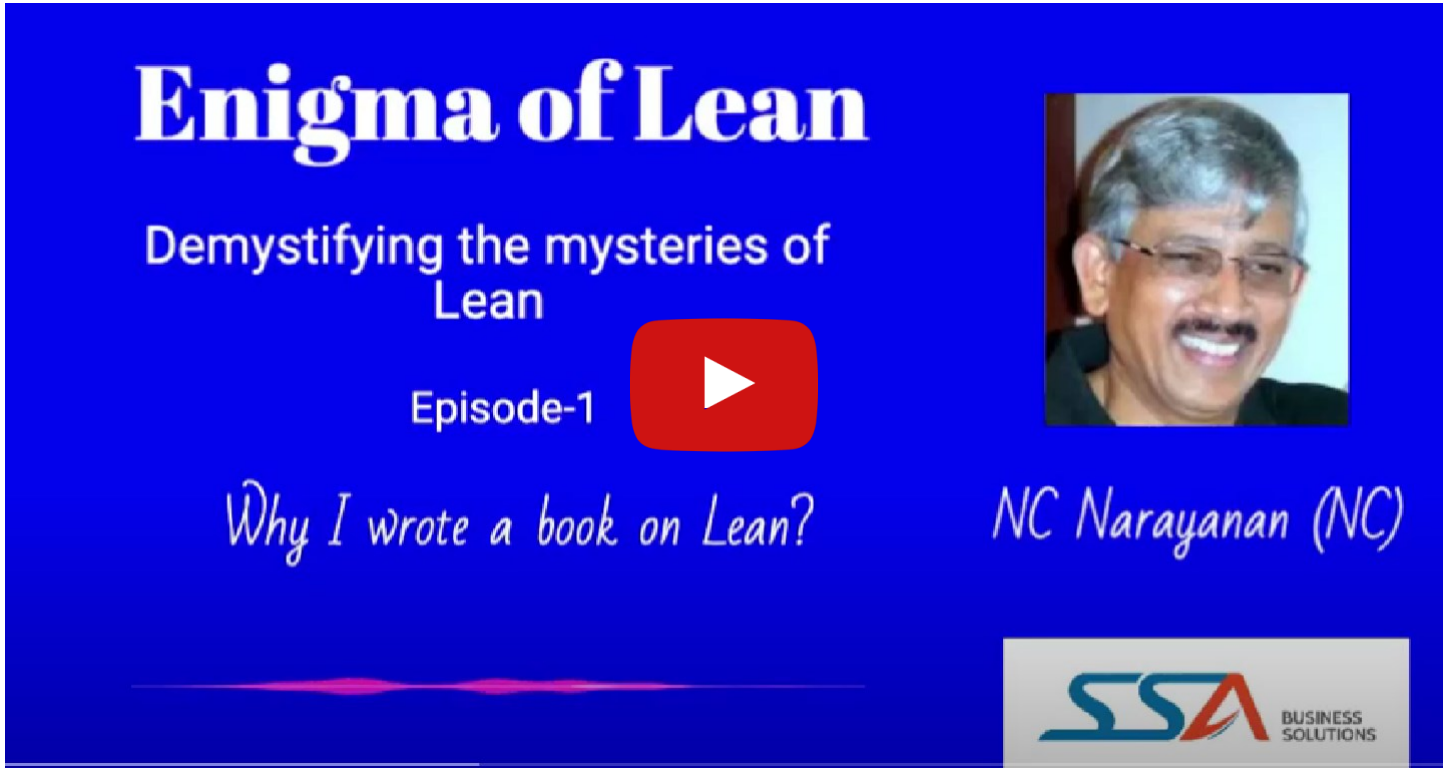


To be layout

Benefits

- ***After the success of demonstrator line, 3 iterations of global layout were presented to the team!***
- ***Following were the potential benefits achievable:***
  - Daily production capacity is **increased by 68-71%** in the 3 iteration for the layout due to the cell type layout is created for each assembly line.
  - Head count seating capacity is **increased by the 20-36%**
  - Productivity (Pens/person/day) is increased from **1312 to 1613** considering every packaging.

Knowledge Nugget: Enigma of Lean series



NC Narayanan, Founder Chairman – SSA Group of Companies, in his Enigma of Lean series, explains how Lean can be used as a vehicle for transforming the entire organization to achieve a competitive edge.

Pragmatic Leadership Series

NC Narayanan, Founder Chairman – SSA Group of Companies, in his Pragmatic Leadership series, explains how Pragmatic Leadership can unleash a *Leader* within the Individual which can benefit the organization at various levels.

Upcoming Events

PROFIT LEADERSHIP CERTIFICATION PROGRAM

7 COURSE SERIES

SSA BUSINESS SOLUTIONS

LEARN ABOUT DRIVING PROFITS IN THE ORGANIZATION THROUGH OUR BELOW UPCOMING COURSES

3	Reducing Rejection and Rework by application of Six Sigma **UPCOMING** **Objective**: To learn the tools & techniques for applying Six Sigma technique for zero defect manufacturing	21st & 22nd April 2022
4	Manufacturing Cost Optimization through Lean **Objective**: Manufacturing cost optimization and capacity enhancement through Lean manufacturing system without major CAPEX	26th & 27th May 2022
5	Material Cost Optimization through Design & throughput accounting **Objective**: To learn the tools & techniques for applying to optimize Material cost to improve Material to Sales Ratio (MS Ratio)	23rd & 24th June 2022
6	Growth & Profitability through New Product Introduction (NPI) **Objective**: To prepare industries for achieving growth through "Make-In-India" opportunities by developing first time right new products with the shortest lead time with optimum cost.	28th & 29th July 2022
7	Working Capital Optimization through Demand Driven MRP (DDMRP) system, Design & Implementation **Objective**: To learn the difference between the traditional planning systems and the principal difference between MRP & DDMRP to help the SCM professionals decide their strategy for embracing DDMRP systems	25th & 26th August 2022

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Upcoming Events

Upcoming Events

SSA is proud to announce that it is the Knowledge Partner at OER Manufacturing Summit & Awards which will be held on 25th May 2022 at Al Bustan Palace, Oman.

Upcoming Events

"Workshop on Digital & Smart Manufacturing" at OER Summit – conducted by SSA

- ✓ Industries world-wide are embracing connected and Smart Manufacturing practices
- ✓ The adoption of such practices involves developing a customized roadmap and executing it in phases
- ✓ This workshop will explore emerging trends in this space as well as practical considerations for adoption

Session Objectives:

- Awareness on emerging themes in Smart Manufacturing
- Learn diagnostic tools to assess readiness and opportunity areas for Smart Manufacturing
- Take back practical tools for developing a roadmap for Smart Manufacturing

Contents:

- Overview of Smart Manufacturing
- Case studies of companies
- Breakout activity on diagnostic tools
- Developing high level themes
- Discussion & close-out

Useful Resources

In this edition, we share an Excel template on **Communication Plan**

A very critical tool in Project Management, the communication plan is defined by Project Managers in the "Project Initiation" or "Define" stage. It is an outline of how critical and on-going project information will be communicated to key stakeholders.

Needless to say, engaging the right stakeholders at critical stages is paramount to the success of a project. Effective communication ensure that stakeholders are engaged, and they are in a better position to dispense their support.

The figure below demonstrates how to use the communication plan template. We hope you find it useful!

COMMUNICATION PLAN					
Project Title	Improve time taken for cost estimation				
Communication	Target Audience	Content	Frequency	Delivery Method	Responsible
Kick-off meeting	All project stakeholders	Introduction to project, expectation setting	TBD, one time	Meeting, presentation, project charter	Project Manager
Steering Committee Review	Steering committee, project manager, project lead, others stakeholders (as required)	Review status, performance, issues	Fortnightly	Meeting	Project Manager
Status report	All project stakeholders	Current progress, issues, risks	Fortnightly, 24 hours before Steering Committee Review	Report via E-mail	Project Manager

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