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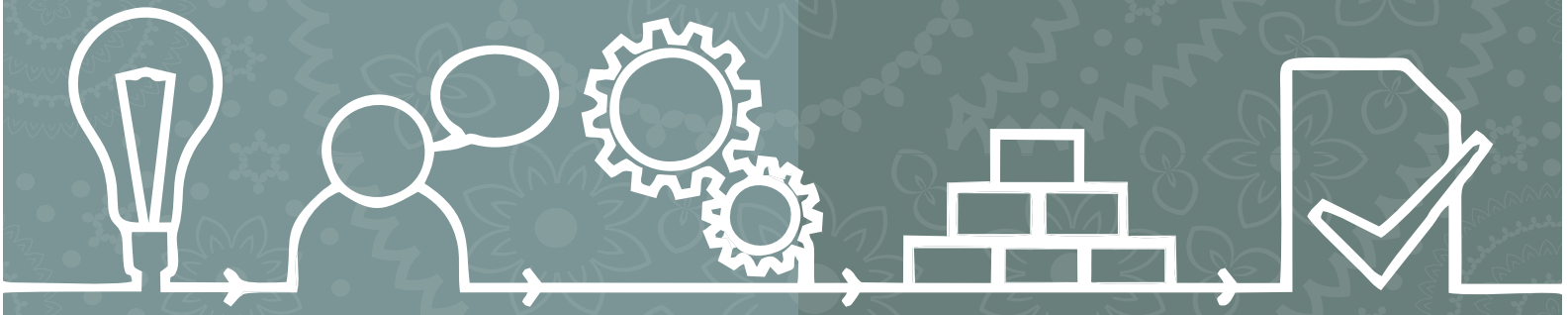
INSTITUTE *of* MANAGEMENT

SIGMA NEWSLETTER



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GOLDEN JUBILEE ISSUE

An initiative by
Lean Operations and Systems Specialization

FOREWORD

Foreword by
Fr. Thomas T V, Director, Institute of Management, Christ University.

It gives me immense pleasure to congratulate Team SIGMA, for bringing out the 50th issue of the SIGMA e-newsletter published by Lean Operations and Systems specialization. Congratulations to the Head of Lean Operations & Systems specialization, Prof. R.A. Dakshina Murthy, faculty members and students for their support and cooperation in bringing out a newsletter which is very informative and enlightening. The newsletter captures the latest developments in the area of Operations and Systems management. I wish the specialization to continue the good work regarding the newsletter and wish the team great success in all its future endeavors.

Foreword by
Dr. Suniti Phadke, Dean, Institute of Management, Christ University.

I am very happy to note that the Lean Operations & Systems specialization is bringing out the 50th edition of the SIGMA e-newsletter and I would like to congratulate all the SIGMA team members, faculty members and every student of this specialization. I wish them all the best for continuing the good work started. My special appreciation to Prof. N. Ramakrishnan, the faculty coordinator for the SIGMA newsletter for completing this great milestone.

Foreword by
Prof. Sudhindra S, Associate Dean, Institute of Management, Christ University.

SIGMA newsletter, an initiative by the students and faculty of Lean Operations & Systems specialization, reflects the current trends and captures the latest developments in Operations and Systems area. On the occasion of the release of the 50th edition of the SIGMA newsletter, I congratulate the entire SIGMA team, faculty and students of LOS and trust that they will continue this good work and attain greater success.

Foreword by
Prof. Shrikanth Rao Head of the Department, Institute of Management, Christ University.

The SIGMA e-newsletter acts as a good bridge between the curriculum and the outside world scenario bringing in the latest and current trends in the area of Operations and Systems Management. On the occasion of the release of the 50th edition of SIGMA e-newsletter, I congratulate the SIGMA team members, faculty members and students of Lean Operations & Systems specialization for their relentless work and carrying on the legacy created by their senior batch students 6 years ago.

Foreword by
Prof. R A Dakshina Murthy, Head of Lean Operations & Systems Specialization.

A short rewind reminds me that it is in the year 2010 that the first batch of LOS students initiated a newsletter for LOS and that first leap has made us gather today releasing the Golden Jubilee edition of SIGMA e-newsletter. Every edition of this newsletter updated the knowledge of students of LOS through interesting and well written articles. I am privileged and extremely happy to be part of this feel-good journey of SIGMA e-newsletter and I heart fully thank and congratulate all the previous batches as well as present batch students of LOS and the faculty members of LOS for reaching this milestone. It is a privilege for me to thank all the contributors, readers and the faculty coordinators who have constantly supported this endeavor. I take this as a proud moment for LOS students and faculty members releasing the Golden Jubilee version of the SIGMA e-newsletter.

Activities

CORPORATE EXPOSURE

For every student the theory that is learnt in classes come alive when they are linked to the real life experiences of Industrial Gurus who have decades of industrial experience. 'OASYS club of Lean Operations and Systems specialization' conducts activities which bring about the classroom pedagogy to life. The activities range from workshops to corporate interfaces where in the corporate interfaces play a major role in shaping up the ideas as to how he or she would analyze, identify and react to a situation described by the speaker. Sometimes these talks lead to an idea for a new venture, sometimes an idea towards a better solution. A variety of Corporate speakers ranging from Start-Up Founders to Industry experienced giants are invited to these sessions helping the students in exposing themselves to various fields and gain knowledge and wisdom from these corporate powerhouses. We would like to present to you snippets of such amazing thought provoking sessions to you.

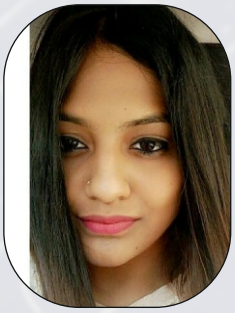
Mr. Pramod of P.K.S. Consultancy, spoke on the topic "Opportunities in Consulting firms for MBA Graduates". He elaborated on the three facets of operations which are people, processes and technology. He also stressed the importance of being action oriented. He gave relevant advice concerning internships and live projects and urged the audience to see the "Bigger Picture" while working on SIP's. Later on he moved on to the main topic which was consultation. He identified the stages in consolation which are as follows: Entry -> Diagnosis->Action Planning-> Implementation -> Termination.

Prof. P.J.Mathews who is the Associate Director, InnoServ Solutions Pvt.Ltd, Pune, India based currently in Dubai, UAE has an industrial experience in Logistics for ove 28 years and has given various insights regarding the industry. He focused on how logistics have been changing the way of life and how it has become an integral part of our life. With growing needs there comes a need to improve upon the way you transport the goods and that is what was the beginning of a new era of logistics, the 3rd Party Logistics (3P.L.). His examples of 3P.L. included DHL, DHFL and GATI etc. He also focused on the need to adopt the new 3P.L. concept rather too quickly by the companies. This is a booming field in the logistics sector of the industry. E-Businesses are heavily relying on 3P.L. He concluded the session by explaining the advantage of 3PL over traditional logistics techniques. The session was in fact an interactive one which has now developed a new mind set in budding aspirants.

Mr. Srikant Rao , CEO of Absolute Business Solutions, to come and invite students of first year LOS to join their firm for the live project and internship. He spoke about the opportunities presented by the small and medium scale companies rather than a large scale established firm especially for a fresher who has the thirst to learn and enhance their skills. He discussed the kind of challenges and opportunities presented by the clients he is associated with and how that will help an intern in the long run. He also gave a brief about how one should select their company for internship and guided the students with their queries.

Prof K.Venkataraman who came for a Corporate Interface session is presently serving as a Sr. Professor in Manipal Global Education Services Limited, a sister institution of Manipal University since 2011. He is engaged in programme design, session planning, customising to clients' needs and delivery in areas of Banking, Finance and Insurance besides Law. Prof K.Venkataraman spoke about the legal and ethical issues in banking sector especially in allotment of loans and credit card issuing to the customer by describing about the quality including risks and benefit that they possess. He took various examples including Kingfisher and kept the entire session alive by making it interactive. He spoke about how the loans are evaluated and wrong evaluations lead to bad debts. The discussion ended with a note on cross-selling and overseas customers role in ethical issues, reputation and profit.

My experience at Lavasa



By Joanna Sneha Ellis

Excited, we were to embark on this journey to Lavasa for the Six Sigma Green belt certification course. What was this new place, a planned smart city on a hill? The entire Main campus LOS family accompanied by Prof. Dakshina Murthy and Prof.Arcot, were ready to take on this challenge and learn as much as we could. On arriving at Lavasa, its beauty was surreal. Nestled in Dasave was this mini-Italy. Clean air and a noise free environment was the perfect setting for a learning experience. KPMG had an excellent curriculum set out and our sister campus had many fun activities planned. The classes broadened our knowledge on quality management and what it was like in the industry. Many new concepts were taught and it was a very enriching experience. Lean Operations is the way to go be it in business or our personal lives. Less is more.

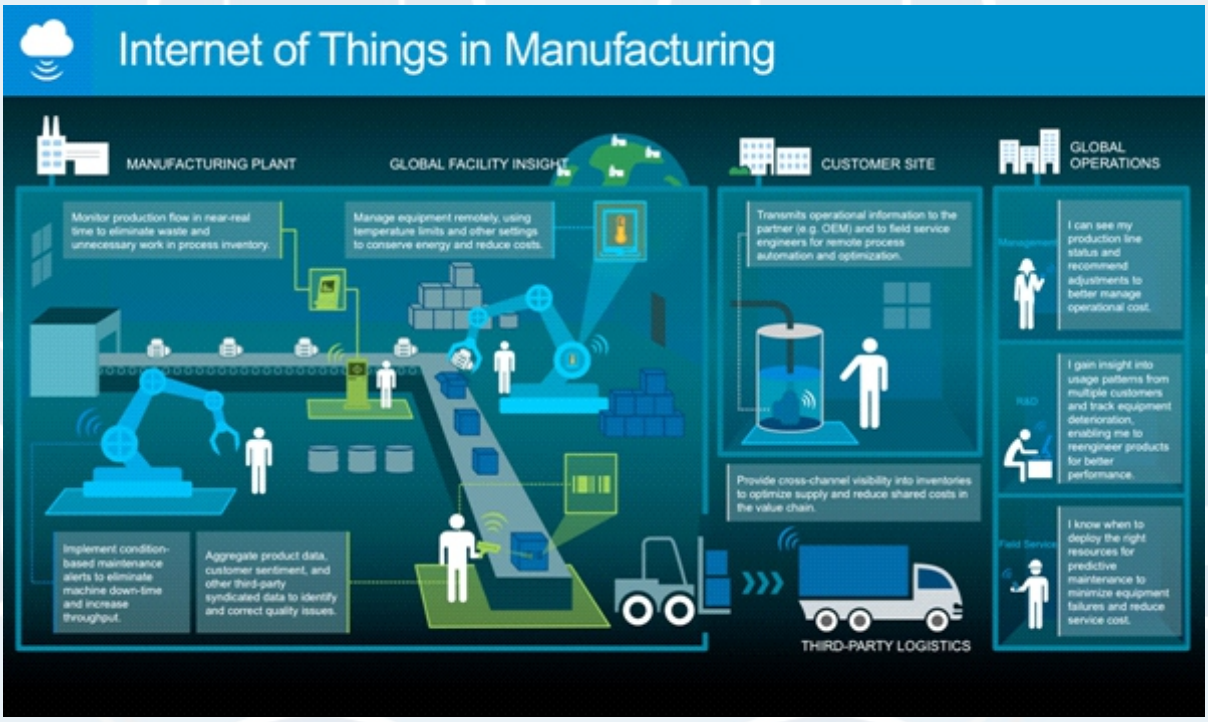

BROOKLYN


FANTOM

Articles

THE ZERO-INVENTORY MANUFACTURING SUPPLY CHAIN WITH IOT

By Feby C Varghese



Now here's a question. Assume that manufacturing supply chains are 100% reliable, and deliver to manufacturers exactly the raw materials and components that they require, when they require them. In such a scenario, how much raw material and component inventory would manufacturers need to hold? In theory, pretty much zero. Because why would you hold inventory, if supply chains could flexibly deliver precisely what you need, when you need it? That's certainly the guiding principle behind 'Just in Time' and 'lean manufacturing', for sure.

Manufacturing supply chains hate uncertainty

If all that sounds a bit radical, consider why manufacturers actually hold raw material and component inventory. Late delivery from suppliers, due to suppliers' scheduling and capacity limitations, for instance, transport delays, while shipped goods are enroute between the supplier and the manufacturer. Various natural disasters or potential business interruptions—fire, earthquake, flooding, and so on. To all these things, manufacturing supply chains are vulnerable. And that's not all that's uncertain, of course. Also uncertain is the level of demand that manufacturers place on their supply chains for the raw materials and components that they need. Forecasting limitations, irregular ordering patterns, and spikes in demand caused by weather, seasonality, and other such impacts on supply chains. Roll it all together, and an inventory of raw materials and components acts as a buffer against such uncertainties, keeping factory floors productive.

Manufacturing supply chains and the Internet of Things

All of which sets the scene for what could well be the biggest impact on manufacturers' approach to supply chain management since 'Just in Time' and 'lean manufacturing' innovations in thinking, remember, that now go back 50 and 25 years respectively. Namely, the Internet of Things (IoT), and the introduction into supply chains of millions or billions of internet-connected intelligent devices. Analyst firm Gartner Group, for instance, has forecast a thirty-fold increase in such internet-connected physical devices by 2020, predicting that this will "significantly alter how supply chains operate." Gartner observes that the size of the Internet of Things is likely to reach 26 billion installed units by 2020, up from 0.9 billion just five years ago; transforming both the amount of information available to supply chain managers, and how their individual supply chains work—both upstream and downstream.

The upstream manufacturing supply chain

So how exactly will it all work? Let's consider the upstream manufacturing supply chain first. Fairly obviously, internet-connected intelligent devices, located at strategic points within the supply chain, can do an awful lot to eliminate the uncertainty that drives raw material and component inventories. Communicating directly with stock replenishment systems and Vendor Managed Inventory systems, such devices can make complete real-time visibility into inventory levels and consumption rates a practical reality. So too with transport links, where exactly is our consignment? Not only is it possible for trucks, aircraft and ships to constantly transmit real-time location status and predicted time of arrival, but individual consignments—shipping containers and pallets, for instance—can also keep in touch, in real time. Yet again, the result is to eliminate a lot of the uncertainty within manufacturing supply chains—and with it, a lot of the inventory buffers, too.

The downstream manufacturing supply chain

And that's not all; because one manufacturer's upstream manufacturing supply chain is another manufacturer's downstream manufacturing supply chain. Meaning that it's not just manufacturers' raw material and component inventories which benefit, but other manufacturers' finished goods inventories, too. And even better, that forthcoming explosion in internet-connected intelligent devices is already driving new business models, again helping manufacturers to cut the amount of inventory held within their supply chains. The concept of 'servitization', for instance, sees customers paying for equipment on a usage basis, rather than through outright capital purchase. Again, it's those internet-connected intelligent devices that enable the equipment in question to 'call home', triggering invoices, and issuing alerts when consumables need topping-up or replacing.

Why Lean Manufacturing?

By Joanne Titus

A lot of us have heard about lean principles and implementation of them in industries. The question here is, do we actually understand on why it has to be implemented? It is heard that the implementation of these principles is time consuming and incurs a huge cost to the organization. In-spite of all this, organization do take at-most care in implementing them in their operation. Ever thought why?

Let me define what Lean is. Lean manufacturing or lean production is a systematic method for the elimination of waste ("Muda") within a manufacturing system. Lean also takes into account waste created through overburden ("Muri") and waste created through unevenness in workload ("Mura"). It originated from Toyota Production System (TPS), one of the most successful automotive manufacturers in the nation. The implementation of Lean prevents and eliminates waste from your processes, which has a direct impact on the cost. Now coming to the concept of waste, it is generally anything other than the minimum amount of equipment, parts, materials and working time which is absolutely essential to add value to the product or service. They can be mainly classified as: Transport, Inventory, Motion, Waiting, Over-processing, Overproduction, and Defects.Implementation of Lean improves or eliminates the production of these wastes in any industry.

Gaining satisfied customers has always been a major task for all organizations. The main principle adopted by Lean manufacturing units is to identify value as perceived by the customer. This means that if you can provide your customer what they want every time, then the satisfaction level is ensured. Lean typically improves development, process breakdowns, performance, fewer defects and increases the business. The financial aspect to this, at the long run, is gaining the satisfaction, and thus preventing retention, which in turn ensures more business and profit in the future.The major problem here is that it is not as simple as it sounds. In this case, one size doesn't fit all. It cannot be implemented overnight too. It requires commitment and involvement by everyone in the organization.

As Deming once said; “It is not necessary to change, survival is not mandatory”. You can stay as you are and hope that no one out there makes change as better and cheaper products that meet your customers' needs in a better way or you can take up the initiative and implement something new which provides value to the customers along with meeting the company's goals. However we are now in a global market, someone out there is looking for your share of the market and working out how to win it from you, will you just sit back and give it to them? Your competitors will improve, they will evolve, they may even revolutionize your industry, you need to be there first or you will lose your business. To meet up with this, you have to be in front of them. Improve in a higher pace. It is not enough to just make improvements when a crisis hits, you need to have a program of continual business improvement to ensure that your business will thrive, not just struggle to survive. Implementing Lean and maintaining it well will ensure that you gain a competitive advantage and attain the heights you deserve.

Agile Methodology

By Mrigakhee Borpuzari

Agile Methodology is a substitute for the traditional project management approach, mostly used in software development. It helps groups and teams to act in case of any unpredictability and it runs through incremental, iterative time slots called as Sprint. A sprint can vary from two weeks to four weeks. Agile methodologies are alternative to waterfall or any sequential development strategies.

Another important aspect in a project adopting Agile is Scrum. Agile is a response to the failure of the dominant software development project management paradigms (including waterfall) and borrows many principles from lean manufacturing. One of the methods that could be implemented in Agile in Scrum. Scrum is a simple set of roles, responsibilities, and meetings that never change. By removing unnecessary unpredictability, we're better able to cope with the necessary unpredictability of continuous discovery and learning.Scrum emphasizes decision making from real-world results rather than speculation. The product is kept in a potentially shippable (properly integrated and tested) state at all times. At the end of each sprint, stakeholders and team members meet to see a demonstrated potentially shippable product increment and plan its next steps.

Scrum has three roles: Product Owner, Scrum Master, and Team.

- **Product Owner:** The Product Owner should be a person with vision, authority, and availability. The Product Owner is responsible for continuously communicating the vision and priorities to the development team.It's sometimes hard for Product Owners to strike the right balance of involvement. Because Scrum values self-organization among teams, a Product Owner must fight the urge to micro-manage. At the same time, Product Owners must be available to answer questions from the team.
- **Scrum Master:** The Scrum Master acts as a facilitator for the Product Owner and the team. The Scrum Master does not manage the team. The Scrum Master works to remove any road-blocks that are obstructing the team from achieving its sprint goals. This helps the team remain creative and productive while making sure its successes are visible to the Product Owner.
- **Team:** The development team is responsible for self-organizing work. A Scrum development team contains about seven fully dedicated members (officially 3-9). Each sprint, the team is responsible for determining how it will accomplish the work to be completed. The team has autonomy and responsibility to meet the goals of the sprint.

Agile development methodology provides opportunities to assess the direction of a project throughout the development lifecycle.In waterfall, development teams only have one chance to get each aspect of a project right. In an agile paradigm, every aspect of development — requirements, design, etc. — is continually revisited throughout the lifecycle. When a team stops and re-evaluates the direction of a project every two weeks, there's always time to steer it in another direction.

The results of this “inspect-and-adapt” approach to development greatly reduce both development costs and time to market, because teams can develop software at the same time they're gathering requirements. Agile development methodology helps companies build the right product. Instead of committing to market a piece of software that hasn't even been written yet, agile empowers teams to continuously re-plan their release to optimize its value throughout development, allowing them to be as competitive as possible in the marketplace. Development using an agile methodology preserves a product's critical market relevance and ensures a team's work doesn't wind up on a shelf, never released.

Operations Management as an important element for a company

By Athira Kumar

Operations management is a fundamental part of any organization. Not all these CEOs studied operations in school; only some of them did. Many majored in finance, marketing, information systems, or engineering and ended up in operations at some point in their careers. Even if you don't want to be a CEO or ever work in operations, you'll probably have to work with operations people during your career. These are the impact of operations on various business functions:

Engineering: Engineers are notoriously great with numbers and focus. That doesn't always translate to being great with operations. Operations analysis is both quantitative and intuitive, and engineers without operations training can — and do! — waste millions of dollars when tasked to oversee operations.

Finance: Corporate finance folks exercise oversight over budgets, so having some operations knowledge can help this team make good decisions

Information technology (IT): A big part of IT within some companies is to automate operations. Some knowledge of operations may help IT professionals to more effectively partner with operations management people to truly create competitive advantage by improving processes while they automate.

Marketing: When the marketing folks come up with a new product idea or promotions concept, they need to talk to operations to find out whether it can be produced profitably.

Lean Manufacturing Is a Form of Ethics in Operations Management

Principle 1: Respect Value
Principle 2: Respect for People
Principle 3: Respect for Time
Principle 4: Respect for Workplace
Principle 5: Respect for Problems

The strategic role that operations management plays in successful organizational performance can be seen as more organizations move towards managing their operations from a value chain perspective which means the entire series of organizational work activities that add value at each step beginning with the processing of raw materials and ending with the finished product.
We understand when we coordinate both lean and operations together in an organization it would lead to the road for success.

Use of Nanotechnology in Manufacturing

By Rajkamal Mazumdar

Nanotechnology and nanoscience involve the ability to see and control individual atoms and molecules. At nanoscale, matter has a unique composition i.e. in aspect of physical, chemical and biological structure that enables new applications. Different nanostructured materials depict different behavior like some are stronger or have different magnetic properties; some are better at conducting heat and electricity, or may become more chemically reactive, reflect light better, or change color as their size or structure is altered. A nanometer has been compared to 1/80,000th diameter of a human hair, a million times smaller than the length of an ant.

Impact of nanotechnology has been compared to the invention of electricity.

Current and future applications in manufacturing

Nanocomposites: It is a multiphase solid material where one of the phases has one, two or three dimensions of less than 100 nm. Example: car parts, golf clubs.

Nanocrystals: It is a material particle having at least one dimension smaller than 100 nm and composed of atoms in either a single or poly-crystalline arrangement. Example: antimicrobial dressing.

Nanoparticles: Particles between 1 and 100 nanometres in size. In nanotechnology, a particle is defined as a small object that behaves as a whole unit with respect to its transport and properties. Particles are further classified according to diameter. Example: strain resistant khakis, sunscreen and skin cream to absorb light, rocket propellants, synthetic bone.

Nanostructured materials: Tungsten-carbide-cobalt composite powder to make a sintered alloy as hard as diamond for cutting tools, drill bits, jet engine parts.

Nanoclays and Nanocomposites: Nanoparticles of layered mineral silicates. Depending on chemical composition and nanoparticle morphology, nanoclays are organized into several classes such as montmorillonite, bentonite, kaolinite, hectorite, and halloysite.Example: packaging-thinner material, lighter weight, greater shelf life.

Nanoclays and Nanocomposites: Nanoparticles of layered mineral silicates. Depending on chemical composition and nanoparticle morphology, nanoclays are organized into several classes such as montmorillonite, bentonite, kaolinite, hectorite, and halloysite. Example: packaging-thinner material, lighter weight, greater shelf life.

Nanotubes: Nanotubes are members of the fullerene structural family. Their name is derived from their long, hollow structure with the walls formed by one-atom-thick sheets of carbon, called graphene. Example: nanotube based screens for TVs and computers.

Nanocatalysts: It is a substance or material with catalytic properties that has at least one

Nanoscale dimension, either externally or in terms of internal structures.
Example: liquefy coal and turn into gas.

Nanofilters: filter capable of filtering out the smallest particles- water or sterilization of medical serums

Risks of Nanotechnology

- The fibers and particles produced by nanotech can become airborne, and research has shown that inhaling airborne nanoparticles could be as harmful as inhaling asbestos.

- The bacteriostatic silver nanoparticles used in socks to reduce foot odor are released in the wash and enter the waste water stream. This may destroy the beneficial bacteria that are critical to natural ecosystems, farms, and waste treatment processes.

Studies on the risks of nanotechnology continue and scientific community has instructed to handle nanotech carefully. But regulations have not been imposed due to fears of stifling innovation.

Conclusion:

Nanotechnology offers the ability to build large numbers of products that are incredibly powerful by today's standards. This possibility creates both opportunity and risk. The problem of minimizing the risk is not simple; excessive restriction creates black markets, which in this context implies unrestricted nanofabrication. Selecting the proper level of restriction is likely to pose a difficult challenge.

KAIZEN

By Tanmay Kumar

KAIZEN means improvement. Moreover, KAIZEN means continuing improvement in personal life, home life, social life, and working life. When applied to the workplace KAIZEN means continuing improvement involving everyone - managers and workers alike.

KAIZEN is a culture of sustained continuous improvement focusing on eliminating waste in all systems and processes of an organization. The KAIZEN strategy begins and ends with people. With KAIZEN, an involved leadership guides people to continuously improve their ability to meet expectations of high quality, low cost, and on-time delivery. KAIZEN transforms companies into 'Superior Global Competitors'

The Five Ss

Sort (Seiri): Sort out & separate that which is needed & not needed in the area.

Straighten (Seiton): Arrange items that are needed so that they are ready & easy to use. Clearly identify locations for all items so that anyone can find them & return them once the task is completed.

Shine (Seiso): Clean the workplace & equipment on a regular basis in order to maintain standards & identify defects.

Standardize (Seiketsu): Revisit the first three of the 5S on a frequent basis and confirm the condition of the Gemba using standard procedures.

Sustain (Shitsuke): Keep to the rules to maintain the standard & continue to improve every day.

JIDOKA

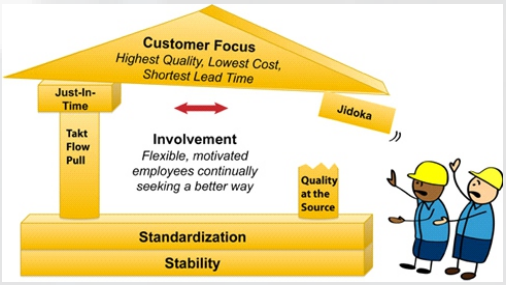
By Anand S Kumar

Jidoka is the often forgotten pillar of the Toyota Production system and lean manufacturing yet it is one of the most important principles of lean that can help you achieve true excellence. Jidoka is about quality at source, or built in quality; no company can survive without excellent quality of product and service and jidoka is the route through which this is achieved.

Principles of Jidoka:

The principle of Jidoka can be broken down into a few simple steps;

1. Discover an abnormality
2. STOP
3. Fix the immediate problem
4. Investigate and correct root cause



Jidoka; Line Stop

Every individual in a lean company such as Toyota has the authority, in fact the requirement to stop the process should they discover an abnormality, this is the way that defects and problems are highlighted and actions are taken. This is a step that many western companies fail to make as they fear a loss in productivity due to lines being constantly stopped for "minor" problems.

This fear however undermines one of the most important tools of Lean Manufacturing; Jidoka. Through Jidoka we don't just stop the process, we highlight the problem, correct it and then tackle root cause to prevent the problem ever happening again.

Through an initially painful series of line stops we start to remove problems from our process. Within a short period of time the number of line stops begin to reduce as problems are removed, and productivity begins to improve as root causes of problems are removed.

Within companies such as Toyota line stop is a way of life, if an operator detects a problem they pull a cord or push a button to stop the production line at the end of that production cycle. This lights up an Andon board which alerts the team leader or supervisor who will immediately rush over to help solve the problem. If it can be easily corrected then they do so and restart the line, otherwise they call in whatever support is required to solve the problem.

Jidoka Problem Solving

Many machines produced today have incorporated autonomation ideals in their design as they are seen now very much as being common sense, and with today's technology are inexpensive and simple to incorporate into a machines design. Where we tend to fail is not having the problem highlighted but in taking action to correct the problem and solve root cause.

It is important that we not only give our operators and supervisory staff the authority and responsibility to stop production when they find a problem but that we also train everyone in appropriate problem solving tools to enable us to remove the root cause of the problem. We then need to ensure that any process documentation is updated to incorporate the changes and that we communicate those changes across similar processes and products.

Careers for Operations Management MBA Graduates

By Jeby C Benzy

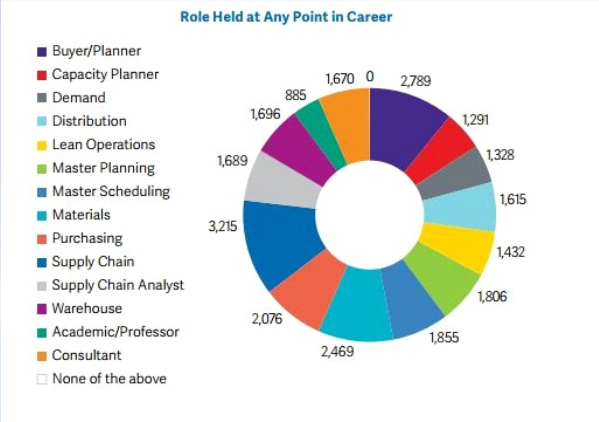
A graduate of an MBA in Operational Management program has many career options at their disposal. However, some of the most common include: supply chain management, logistics planning, inventory control management, or business consultation.

Few famous roles are:

Supply Chain Manager

Consultant

Logistic and Inventory control manager



A step up is Operations Analyst. This role could require you to identify process improvement opportunities, develop analytical models and support process improvement programs. Bump ahead to Operations Manager and you find yourself providing product and systems support, distribution chain planning, hiring and training employees, plus managing staff.

Respondents indicated that the top five skills, traits and accomplishments responsible for promotion are:

- General level of experience。
- Track record of performance or accomplishments。
- Demonstrated proficiency in a specific area。
- High professional standards in all work areas maintained。
- Commitment to the organization and the customer

At the Operations Director level you will oversee a number of Operations Managers, each overseeing their specific area. You will be making large scale recommendations on creating efficiencies and solving serious production or internal traffic problems. As a Vice President, Operations, you'll have earned yourself a seat on your employer's Executive Committee. You'll be expected to comment on a wide range of issues affecting your organization. Your boss will likely be at the President level so your wide knowledge of organizational mechanics will be relied upon frequently.

However Operations specialists can keep an organization running lean and fast. They produce cost savings and smooth out the day to day flows of work in each department. In some ways they are the unsung heroes behind an organization's ongoing performance. Not a bad way to contribute if you're a “can do” person, so long as you don't long for the limelight.

Conclusion:

Career mobility is a trend for operations management and supply chain professionals. There is no set linear path or place in the supply chain for each job title. Many professionals shifted throughout the supply chain as their careers progressed. This demonstrates the importance of acquiring knowledge and competencies throughout the end-to-end supply chain. One way to accomplish this is through a combination of education and certification. While there is not a set path for supply chain and operations management professionals, defining career goals and obtaining training, education and certifications are important milestones that help accelerate any career path.

Tesla Gigafactory

By Jayanth Shekhar

In 2014, Tesla CEO Elon Musk announced that the company is going to build a factory to manufacture Lithium-Ion batteries to power its cars. The facility, situated near Reno, Nevada, USA is spread across 1000 acres of land and factory size is more than the size of 180 football grounds.Why do they call a factory as “Gigafactory”, because it's not going to be the biggest Lithium-Ion factory in the world, it's actually bigger than sum of all Lithium-Ion factories in the world. If you add up all of other factories production capability in 2014, the Gigafactory's production will be bigger than that in 2020. The production capability will be 50 gigawatt hours of Li-Ion battery packs. On completion it will also be world's second largest building by volume after the Boeing's plant in Washington.

The company has spent around $16 million on foundations alone to make it earthquake-proof. Also company is making sure it looks good, fits in with the surroundings and works with the environment.Factory is of a shape of a diamondand aligned to the true north,so that all the equipment can easily be mapped with the GPS as well solar panels on the roof will also be aligned properly. This factory will produce its own energy as well, it is a combination of geo-thermal, wind and solar and it will be a self-contained factory. Everything in this factory will be recycled and it produces zero waste. At the full production capacity, oil free electric cars powered by the batteries produced in this factory will save around 600 Million Litres of oil per year.

The project cost is around $5 Billion and the cost of Lithium-Ion batteries produced in this factory would be 30% less compared to other batteries. It will employ more than 6000 people and will supply batteries to more than 500,000 tesla cars per year. Tesla bought additional 1800 acres of adjacent land to make the factory even bigger in future.The aim of this factory is to remove the bottleneck that tesla has in introducing the mass market electric car i.e., shortage of battery packs. With the production at full capacity Tesla will be leveraging the economies of scale so that an affordable electric car can be introduced in the market.

Real Time Examples of Kaizen in Indian Industries

By S. S. Srinivas Charan

Kaizen is the practice of continuous improvement. Kaizen was originally introduced to the west by Masaaki Imai in his book Kaizen: The key to Japan's competitive success in 1986. Today Kaizen is recognized worldwide as an important pillar of an organization's long-term competitive strategy.

Examples of KAIZEN in Indian Industry

1 Maruti Udyog

Manufacturing facility of Maruti Udyog includes 7 process shops, 5 assembly lines, around 1,700 robots and 3 stages of inspection. It usually takes just 12 hours to make one car. And they make one car every 12 seconds. It is manufacturing excellence quite at another level. The magnitude becomes clear when you realize that Kaizen has created a 'zero-compromise' quality culture not just for one car or two, but for over 1 million cars they manufacture every year.

Maruti Suzuki India is trying to ensure that its workers walk around less on the shop floor. The country's largest car manufacturer has found that every little stroll away from the assembly-line costs both time and money. To tackle this challenge, the New Delhi-headquartered company turned to the Japanese management practice of Kaizen, which had helped in the reconstruction of that country after World War II. Simply translated, it means change for the better. Kaizen's 'One Operator, One Step Reduction' initiative helped Maruti reduce 21,500 steps from worker walks in FY13.

“This was achieved by providing belt pouches to workers (to keep spare parts), introducing 'synchronized trolleys' (with parts moving along the line) and moving certain racks closer to the line,” said Gandhi. However, he said that there was no way to “quantify the financial gains from this practice”. Other Kaizen practices offer measurable financial gains. For instance, the 'Employees Feedback Initiative'. The company received 397,000 suggestions under the scheme, and their implementation resulted in savings of Rs. 350cr in FY13. In the year-ago period, the savings under this practice added up to Rs. 294cr. Under its 'Quality Circle Activity' program, the company halted the manufacturing line for an hour on the first Wednesday of every month. It then encouraged workers and supervisors to brainstorm over issues such as defects and rewarded employees with the best suggestions.

Implementation of Kaizen practices also led to recurring savings in scrap elimination (Rs 26.6lakh), tractor trips (Rs 1lakh), reduction in labour (15%), and the amount of water used to wash cars (50 per cent less).

2 TVS Motors at Mysore

At TVS motors company, the kaizen movement is in place and there is a great motivational environment of appreciation letters, awards, Kaizen cake cutting, cash rewards and incentives and even for promotions there is a grade points given to “implemented and useful kaizen suggestions” for improvement, innovation and transformation of process.

In this survey organization many Kaizen are generated and are implemented and company has reaped the benefits of the same. The Kaizen are generated some times individually or some times in a team of two or sometimes through a quality circle.

In this company it is observed that the small Kaizen's have helped to redefine their production processes and solving their production and quality problems on day to day basis. Kaizen is active on continuous basis.

So in this company - the Kaizen have worked wonders in bringing people together usefully, creatively and fruitfully for both company and themselves and have improved employee relationships. It has improved employer - employee relationship and also manager-supervisors and workers relationship in a great way. The Kaizen has made effect in the organization change and culture in the survey company. The Kaizen movement has brought an environment of trust and loyalty in the hearts of employees in particular workers.

As Kaizen is the contribution from any employee ranging from GM to security staff, it has brought an air of equality and dignity to every cadre of employee. Many Kaizen have helped the company to avoid wastages and increase their financial profits.

3 Toyota Kirloskar

The reason why seven people are needed to carry the cars out of the building instead of just one instead of one is because of that step and the bad quality pavement right outside. They fixed the problem (with very low costs) and from then on our monthly shipments were less costly and, who knows – we might have avoided some nasty accident which we were just asking for with the uneven pavement. This is how the era of Kaizen began in our company. From that point forward our production plant was not run with 3 heads and 60+ hands, but with 30+ heads and at least one extra pair of hands that no longer avoided getting dirty – yes the Toyota System totally improved the performance.

Toyota benchmarks itself on efficiency. It trains recruits in 'muscle memory', so that their hands work with unfailing precision. For instance, a new recruit graduates to the next level of training only after he masters the art of picking up exactly five pairs of nuts and bolts from a box. The result: an Etios, Etios Liva or Corolla rolls off the assembly line in Toyota's Plant No. 2 in Bidadi, Karnataka, every 119 seconds, and an Innova or Fortuner in Plant No. 1 every 162 seconds. In 16.5 hours of operation in a day, the two plants produce a total of 744 vehicles.

"Both our Bidadi plants have reached an efficiency of 95 per cent, which is the highest level," says Hiroshi Nakagawa, Managing Director of Toyota Kirloskar Motor. This matches the efficiency level in Japan, he adds. After a plant reaches peak efficiency, the management reduces the number of workers slightly, so that the efficiency ratio falls. Then it introduces kaizen (continuous improvement) to return to the earlier level.

Toyota India ranks number one globally in the shipping quality audit, an annual exercise carried out at Toyota facilities worldwide. The audit focuses on the quality of vehicles before they are dispatched to market.

4 Biocon

Biocon Limited (BSE: 532523) is an Indian biopharmaceutical company based in Bangalore, India. The Company manufactures generic active pharmaceutical ingredients (APIs) that are sold in the developed markets of the United States and Europe. It also manufactures biosimilar Insulins, which are sold in India as branded formulations and in both bulk and formulation forms. In research services, Syngene International Limited (Syngene) is engaged in the business of custom research in drug discovery while the other fully owned subsidiary Clinigene International Limited (Clinigene) is in the clinical development space. In December 2009, Biocon acquired the Active Pharma Ingredients (API) undertaking from IDL Speciality Chemicals Ltd., a subsidiary of Gulf Oil Corporation Limited. It has successfully adapted the kaizen method for continous improvement.

Results

Control Point	Before Kaizen	Target to improve	After Kaizen % Improved
Productivity / Manpower for Vial packing	Average =1154 164/Person/hour	Average =1500 (30 %) 215/Person/hour	Average = 1519 **(31.6%)** 217/Person/hour
Productivity / Manpower on PFS packing	Average =182	Average =236 (30 %)	Average = 350 (92%) **(Almost double)**
Number of line Workers FOR PFS PACKING	17	14	12 **(29%)**
Rejection level for last 30 batches	537	80	85% reduction
5 s audit score	30%	80%	56%

Key: PFS= pre filled syringe

5 Bajaj

The implementation of kaizen in Bajaj is done by Kulkarni engineers and as follows:-

The UNIDO-ACMA Programme enabled the company to achieve higher productivity, improve the quality fits products and enhance its overall business performance through greater employee involvement. Reaching a productivity level of 700% was the result of a joint effort between the operators and the design engineers. Major impacts were achieved through operation clubbing i.e. two to three operations were covered in one single stroke of the press. Furthermore, design innovations played a pivotal role in achieving these results. Operator-driven improvements carried out in the tooling and production process became habitual work practices and Kaizen is now part and parcel of the company's problem solving processes.

Other benefits encompass better space utilization, overall tidiness on the shop floor and higher turnover with no increase in expenditure. As a result of these improvements, significant financial and business results were achieved, such as:

- Net sales increased from INR 26.6 million to INR 40.3 million.
- The company was able to develop 95 new components and add 40 new customers.
- The output of parts increased from2.5 million to 5.5 million per month.
- The company was awarded the “Gold Quality Award 2008” from Endurance Technologies, a longstanding customer.

IMPROVEMENTS			
	Before	After	Change(%)
Productivity (production/man-hour)	330	2168	+700
Absenteeism in %	6.1	4.8	+20
Customer complaints in number	12	3	+75
OEE in %	71	75	+6
Customer return PPM	6,348	65	+989
VAPCO (Ratio)	2.35	5.61	+100
WIP INR million	0.65	0.33	+50
New Customer added in numbers			40
New Product added in numbers			95
Tangible savings in operating costs (USD / year)			120,000

6 Tata Motors

Kaizen, a technique to increase productivity at reduced cost through improvement suggestions brought forward by employees. Awards were handed over to employees for the best performers in different categories, such as best kaizen, best operator, best supervisor or best attendance. The CEO directly interacted with employees at these award ceremonies and provided them with updates on the overall progress made by the company under the UNIDO-ACMA programme.

In addition, monthly review meetings (MRM) were organized jointly with other companies from the same region that were assisted by the same counselor under the UNIDO-ACMA programme. The approach followed in these meetings foresaw that all participating companies would visit each others' plants, jointly appraise progress made and provide feedback on opportunities for improvement. These visits were crucial in sharing best practices across the spectrum so that they could be replicated in other firms of the same cluster. MRMs have also proven to a great motivational tool as the interaction amongst peers fostered an environment of friendly competition Special Kaizen project presentations were conducted by different zones to share initiatives.

IMPROVEMENTS			
	Before	After	Change (%)
Productivity (Production/man-hour)	12.5	17	+36
Scrap Yard sq m	99.68	25.10	+75
Absenteeism in %	9.1	6.3	+30
Customer Complaints in numbers	5	2	+60
Accident severity ratio	5,959.62	0	+100
OEE in %	38.8	67	+73
New Customer added			8
New products added			12
Tangible savings in operating costs (US$ / year)			18,000

That had improved quality and reduced rejections both, in-house and on the side of the customers. These meetings resulted in the creation of kaizen database which was regularly referred to by employees whenever they were faced with a quality related issue or challenge. Kaizen is now an integral part of the problem solving process and employees are encouraged to voice their opinions in a constructive manner.

Kaizen in the industry is the continuous improvement is a key goal for healthy company. Kaizen is a philosophy that needs the involvement of all people in the company. Emphasis should be placed on reduction in throughput time, addition of workstation to meet the Takt time, and elimination of unnecessary operations, activities and workstation. This helps in continuous improvement in performance.

By S. S. Srinivas Charan

What Successful Project Managers Do

By James B Paul

In today's dynamic and competitive business environment, it is necessary for business organizations to innovate and come up with products and services that satisfy the customer's needs and thus reduce customer attrition rate. Project management plays an important role in addressing this demanding need in the business environment. Traditional approaches to project management emphasize long-term planning and a focus on stability to manage risk. But as the complexity of the environment increase drastically and has been increasing exponentially, today's project managers often combines traditional approaches with "Agile" methods to get more flexibility and thus better results

Despite strong planning and risk-management processes, a project manager may encounter, on a near-daily basis, events such as the failure of workers to show up at a site, financial crisis of a key vendor, a contradiction in the guidelines provided by two engineering consultants or changes in customers' requirements. All these problems have to be addressed seriously and diplomatically by project managers to achieve the heights of business success.

THE FOUR ROLES OF PROJECT MANAGER

1.Develop collaboration

The progress of every project depends upon the success of people involved in it. As every individual in a project represent different disciplines and associated to different parties, the amalgamation among them primarily decide the success of the project. It is the responsibility of the project manager to ensure the collaboration among the members in a project and thus make sure the success of the project.

Studies analysed the outcomes of three Mars exploration missions initiated by NASA's Jet Propulsion Laboratory: Pathfinder, Climate Orbiter and Polar Lander. Although all three projects were conducted under the same guiding principles, were of comparable scope and shared many elements (even some of the same team members), Pathfinder was a success, whereas the other two missions failed

It has been found that the primary cause for that is the level of collaboration existed in each projects. The Pathfinder team developed trusting relationships within a culture of openness Developing collaboration is driven by intention. It should happen at the initial stage of the project. The two prime activities are selecting the right individuals and to develop trust and interdependence.

2. Integrate Planning and Review With Learning

Rolling wave approach to planning helps the project managers to face volatile circumstances.

One key difference between the traditional planning approach and rolling wave approach is that in traditional planning both short term and long term plans are prepared in great detail while in rolling wave approach the planning is done for the evident works and subsequent planning is done once the work progress In the rolling wave approach, the team always learn from the mistakes to face unexpected incidents in future.The method implemented by a project manager at NASA's Goddard Space Flight Centre, is an example for this approach. The existing review process in the centre had fulfilled upper management's need to control its operations, but it didn't address the necessity of team learning.

Therefore, the process was modified to give the team the best input for identifying problems and the best advice for solving them by developing a review process that provided feedback from independent, supportive experts and inspired joint problem solving rather than just reporting. Integrate planning and review learning is a periodic process that is driven by intention. The main activities have to be done to fulfil this role is, by developing stable short-term plans and flexible long-term plans and conduct learning-based project reviews.

3. Prevent Major Disruptions

As the complexity of business environment is increasing and the allocations of resources to face the aching needs are least, the project manager should take actions to prevent major disruptions through occasional assessments. Thinking out of the box help mangers to anticipate and realize the solutions to the few major problems that can occur.

Joint Air-to-Surface Standoff Missile, or JASSM, project was aborted as a result of cost overrun of more than 2 billion dollars. To cope up with situation the project manager of that project decided to talk with the suppliers and finally agreed with one of the suppliers named Lockheed Martin whochanged its approach dramatically. The supplier agreed to stick on to the basic performance specification by making changes in the material used. This led the company to ink contract with a baseball bat manufacturer who was open-minded, who knew how to weave carbon fibre but haven't made a single product outside that .This incident led to the successful completion of JASSM project.

4. Maintain Forward Momentum

Unexpected events that happen during the execution of a project can tamper many interdependent tasks. The quickness to response to this will reduce the impact on a projects as the window to take action is less.A project manager should respond as quickly as possible to maintain momentum .It is a continuous process that is it should happen from the beginning till the end of a project by practicing hands-on engagement frequent face-to-face communication with the members and frequent moving about and inspecting the work progress. Corrective measures can be taken quickly if these activities are done.

The JAASM projectexplained above is an example for, how a project can be carried forward from the brink of failure to a successful one if a forward momentum can be maintained at every point of a project. Leonard R. Sayles and Margaret K. Chandler wrote in their 1971 book Managing Large Systems, “In working to maintain a forward momentum, the manager seeks to avoid stalemates”.

The four roles discussed in the article described that successful project managers should follow the traditional approach which is primary driven by intention and stresses on information and the agile approach that is driven by events and stresses more on people and action. They have to be peopleoriented for developing collaboration. Integrating planning and review with learning requires them to be information oriented. Preventing major disruptions requires them to be action-oriented. Finally to maintain forward momentum, which is pursued throughout a project, requires them to adopt all three orientations.

PROJECT RISK MANAGEMENT

Risk is inevitable in any organization while undertaking projects. However it is the responsibility of project manager to minimize it. There cannot be a risk-free project because it has many events that impact the project.

What actually is a Project Risk..?

Project Risk is the uncertain event that when occurs have an effect on the project's objective.

Organisations have Risk management as a part of project management which doesn't focus on eliminating the risk involved but identifying and assessing the risks to the project and managing those risks to minimize the impact on the project. When risk management practices were applied to projects, they appeared to be positively related to the success of the project. The risk management approach influenced project schedules and cost goals but exerted less influence on project product quality. Good risk management increases the likelihood of a successful project.

Once the risk has been identified, project managers need to come up with a mitigation plan or any other solution to counter attack the risk.

Risk Management…A Continuous Process

Once the Project Team identifies all of the possible risks that might jeopardize the success of the project, they must choose those which are the most likely to occur. They would base their judgment upon past experience regarding the likelihood of occurrence, gut feel, lessons learned, historical data, etc. Early in the project there is more at risk then as the project moves towards its close. Risk management should therefore be done early on in the life cycle of the project as well as on an on-going basis.

Types of Risks

There are two types of risks. Positive risk and Negative risk. Negative risks are unwanted and can cause serious problems to the project, positive risks, on the other hand, are opportunities and are desired by both the Project Manager and the stakeholders, they may positively affect

the project, such as increasing the ROI or finishing the project ahead of time.

Figure 2 Risks to business

Considering all the above risks Known risks are events that have been identified and analysed for which advanced planning is possible. Other risks are unknown or unforeseen. Known negative risks have to be managed and accounted for in the risk management plan. However, positive risks are managed in order to take advantage out of them.

Framework for effective compliance

How are your various functions working together to address compliance risk?

Conclusion

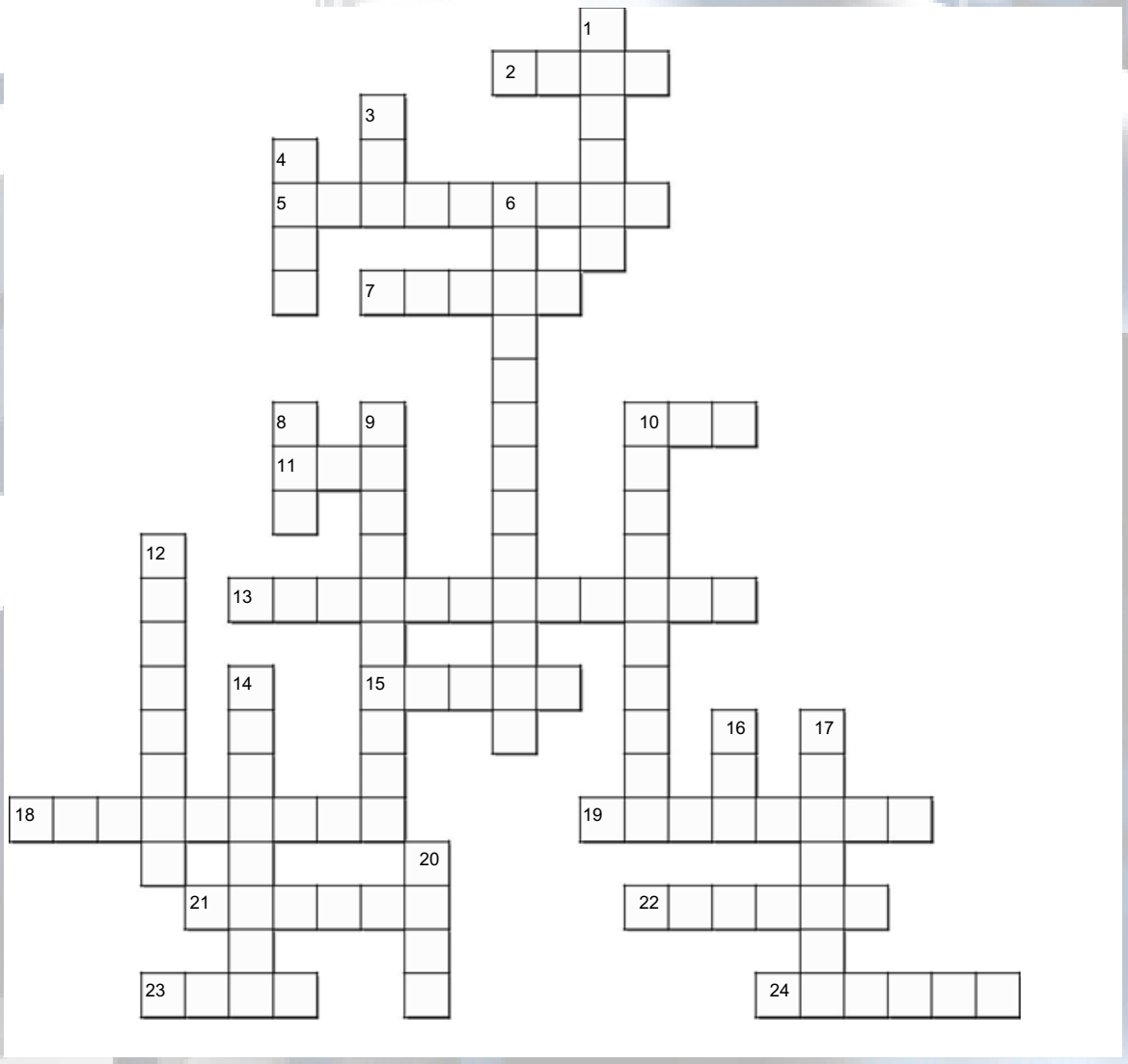
Any organization will not be able to fully eliminate or eradicate risks. Every project engagement will have its own set of risks to be dealt with. A certain degree of risk will be involved when undertaking a project. The risk management process should not be compromised at any point, if ignored can lead to detrimental effects.

The entire management team of the organization should be aware of the project risk management methodologies and techniques. Frequent risk assessments at each and every stage of a project is the best way to minimize the damage that could occur from risks.

By Naga Sravani Sree Goudu

Visit of Academic Advisory Board members to IBM Lab in City campus - Oct 9, 2015'

CrossWord



Across

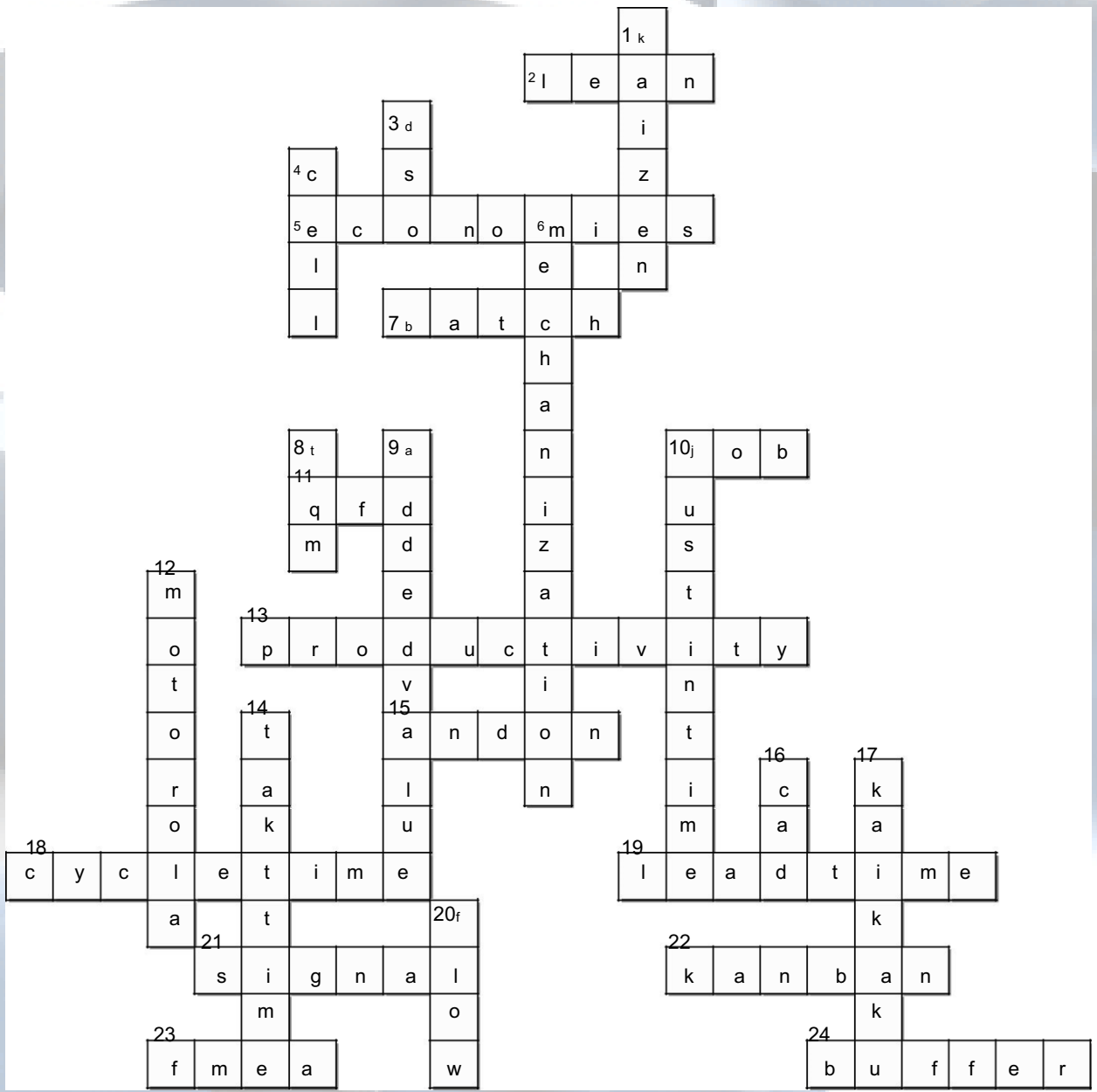
2. Production Techniques used by business to cut down waste
5. Benefits of producing on large scale.
7. Method where quantity of a product made at one time.
10. Production method where single product is made at a time.
11. Method for translating need of customers into design requirements (acronym)
13. Output measured against input
15. Lights to indicate operation status
18. The amount of Clock Time
19. Margin of time between the date stock received and the date when sold.
21. Don't make or move anything without it
22. System of ordering used alongside JIT production.
23. A structured approach to identifying the areas and ways in which a process or system can fail
24. ____ stock is held in excess of cycle stock because of uncertainty of demand

Down

1. Continuous improvement.
3. Measure of cash outstanding to business (acronym)
4. Production method where the production line is divided into separate units.
6. Production done by machines but operated by people
8. Total Quality Management.
9. Difference between the cost of inputs and final selling price.
10. method eliminating the need to hold stock.
12. First to advocate Six Sigma
14. tool to translate customer demands in to time units (Two Words)
16. Computer aided designing.
17. Don't make or move anything without it
20. Method where large quantities of a product are produced.

CrossWord

Solution



By Sumit Das

NEWSLETTER TEAM

POCs & ARTICLE COLLECTION

HARSHEET KUMAR 1527913
NANDHINI M R 1527743

EDITING

HIMANSHU 1528010
RAJKAMAL 1528021

DESIGNING

REMI 1527849
PREETHA 1527847

PROOF READING

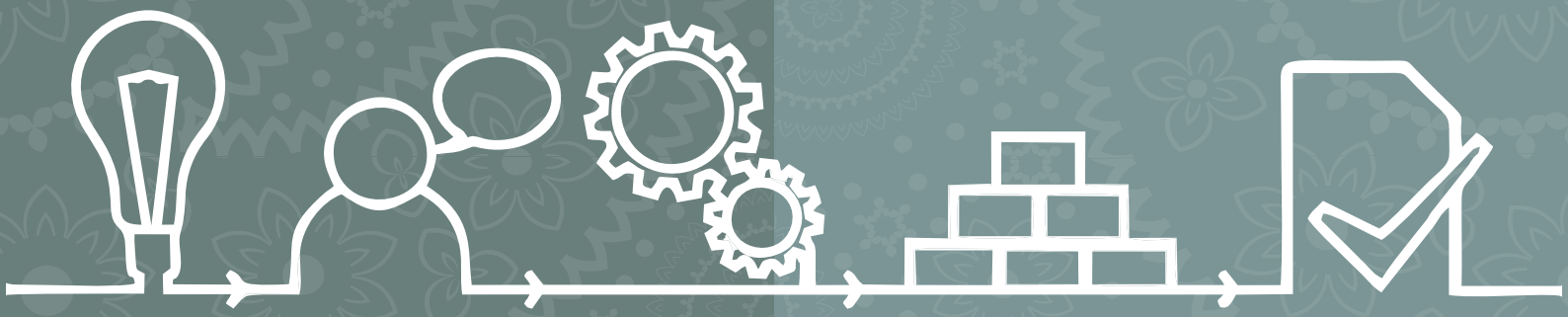
APARNA CHANDRIKA 1527559
ABHISHEK AVI 1527501

FUN ARTICLES CREATION

MATHEW SAMUEL 1528018
AJAI RAJU 1528102

Faculty
Lean Operations and Systems

Prof.Dakshina Murthy R A - Head Of Specialization
Prof.Sudhindra S - Associate Dean
Prof. Arcot Purna Prasad - Associate Professor
Dr Ashok Kumar T A - Assistant Professor
Prof. Fernandes Joseph Marcellus - Professor
Prof. Georgy P Kurien - Associate Professor
Prof. Ramakrishnan N - Associate Professor
Prof. Lakshmi Prasad V N - Associate Professor
Prof. Lakshmi Shankar Iyer - Assistant Professor
Prof.Padmanabh B - Assistant Professor



Student Coordinators
LOS

Sebastian Thomas Kanichai
Joanne Titus Poovakulam

Student Coordinators
Sigma Newsletter

Harsheet Kumar R
Nandhini Mahalingam

Sigma Newsletter Designed by : Sadhvik Rajaram Kolinjavadi

Institute of Management
Christ University
Hosur Road
Bengaluru 560029
www.christuniversity.in