

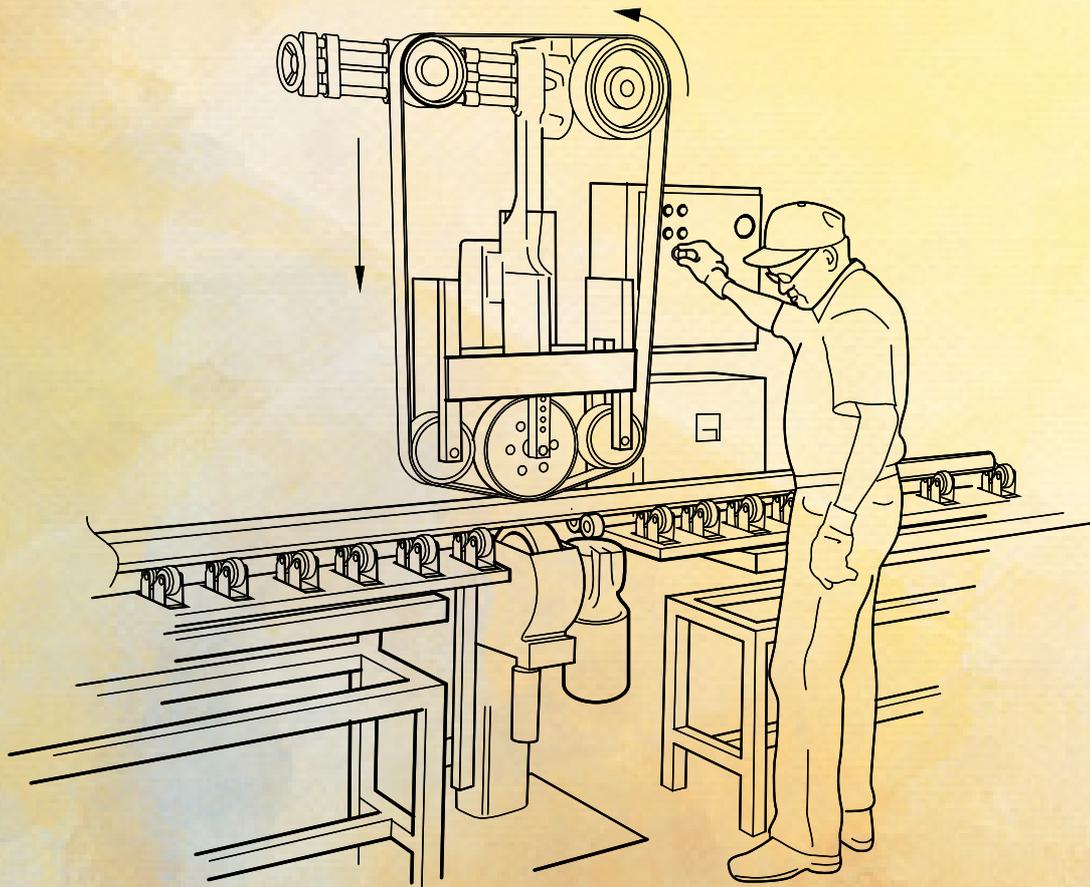


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NEWSLETTER

LEAN OPERATIONS AND SYSTEMS



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SCHOOL OF BUSINESS AND MANAGEMENT

EDITOR'S NOTE

Welcome to the 70th edition of Sigma!

In this issue, we dive into our students' enriching Summer Internship Project (SIP) experiences, unveiling how they have applied LOS principles to transform real-world scenarios, from optimizing retail operations to enhancing efficiency.

Our thought-provoking articles explore the future of manufacturing in the context of the Internet of Things and the indispensable role of technology in Lean Operations and Systems. We also delve into warehouse operations, a pivotal aspect of Lean, and offer a refreshing blend of wellness and joy through poetry and photography. A section on our club activities features a talk on machine learning, a panel discussion on digital transformation, and a corporate interface session. We hope you find this edition inspiring and insightful.

We, Team Oasys, express our profound gratitude to our Dean, Dr. Jain Mathew, and the entire leadership team, the Head of Specialization, Dr. Ramakrishnan N, Faculty Coordinator Dr. Saibal Kumar Saha, faculty members of the specialization, and all those who have contributed in developing this edition of the newsletter. It's our pleasure to share informative and engaging content. We eagerly look forward to continuing this journey.

Warm regards,

Team OASYS

Lean Operations and Systems Specialization

School of Business and Management

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LEAN MANUFACTURING AND THE INTERNET OF THINGS-THE FUTURE OF THE MANUFACTURING SECTOR



Ritty K Cherian

2228042



The Internet of Things (IoT) is emerging as a pivotal force for the manufacturing industry's future, where it transforms the system more efficiently, responsively, and intelligently. Lean manufacturing (LM) focuses on maximizing productivity while reducing waste. Combining technological advancements like IoT and lean concepts can help achieve a more efficient and streamlined process. IoT devices can offer manufacturers real-time data on essential functions, which can be effectively used to identify points of inefficiencies and waste. This identification can help strategize possible ways to reduce or eliminate them.

One of the possible questions is whether IoT will take over the manufacturing sector completely. The answer is quite controversial, as some believe integrating IoT with manufacturing helps leverage the system's full advantage, which allows the business to achieve heights. In contrast, some highlight that technological advancements can happen but cannot completely overtake the industry; they can only transform the traditional way of doing things. The right combination of technological transformations can enhance the existing system in the future.

Researchers point out that implementing modern technologies with lean manufacturing will provide more of a digitalized version of LM. This digitalized LM mainly provides advantages like fewer defects, predictive maintenance, and employee safety, whereas digital twin helps integrate more complex processes or workflows. That said, technological advancements are happening faster, and more technological changes are taking a hand in every sector, so the future remains uncertain. However, proper knowledge and the right mindset will help correctly bridge the gap, achieving the lean objectives and reducing human interventions.

IMPORTANCE OF TECHNOLOGY IN LEAN OPERATIONS & SYSTEMS



Bhavishya Goyal

2227907

Technology has become increasingly important in the operations field in recent years. Automation, real-time data, and customer experience are three of the most significant trends driving the use of technology in operations.

Automation is the use of technology to carry out operations with the least amount of human involvement. Processes can be automated to streamline the operations, reduce cost and become more efficient. For example, robots can be used to perform repetitive tasks in manufacturing, while software can be used to automate customer service and other administrative tasks.

Real-time data is essential for businesses to make quick and informed decisions. Technology can help companies collect and analyze data in real time, which can then be used to make better inventory levels, production schedules, and customer service decisions.

Customer experience is also playing an increasingly important role in operations. In today's competitive business climate, companies who offer a seamless and personalised client experience are more likely to be successful. Businesses can utilise technology to collect data on their clients, which can then be used to personalise the way they interact with customers.

Here are some specific examples of how technology is being used in operations:

Robotics is used in manufacturing to automate welding, painting, and assembly tasks. Artificial intelligence is being utilised to enhance operational decision-making. For example, AI can predict demand, optimize inventory levels, and identify potential risks. Big data analytics collects and analyzes large amounts of data from operations. This data can be used to identify trends, improve efficiency, and make better decisions. Accessing and sharing data and apps becomes simpler for organisations with the advent of cloud computing. This could enhance communication and operational effectiveness.

These are just a few examples of how technology is used in operations. We anticipate seeing even more cutting-edge ways to employ technology to enhance processes as it continues to develop.

WAREHOUSE OPERATIONS



Veron Rodriques

2228265

Efficient warehouse operations are critical for organizations in today's fast-paced and competitive industry. A well-managed warehouse may benefit customer happiness, order accuracy, inventory management, and profitability. This article examines essential ideas and best practices for optimizing warehouse operations to increase productivity and success.

- **Optimization of Layout:** Efficient warehouse operations begin with a well-designed layout. Businesses may reduce picking times and needless movement by organizing storage rooms, picking zones, and loading docks logically and systematically. Implementing a layout that supports the flow of products and corresponds with day-to-day operations may boost productivity dramatically.

- **Inventory Control:** Accurate inventory control is critical for efficient warehouse operations. Modern inventory monitoring technologies like barcode scanning or radio frequency identification (RFID) allow real-time stock level visibility, eliminate mistakes, and optimize order fulfillment. Regular inventory audits and cycle counts aid in the detection of irregularities and the maintenance of correct records.

- **Warehouse Management Systems (WMS):** A solid Warehouse Management System (WMS) is critical for effective operations. WMS software gives you complete control over your inventory, order fulfillment, and resource allocation. It improves overall operational efficiency and customer happiness by optimizing picking routes, consolidating orders, and tracking performance indicators.

Conclusion:

Optimizing the supply chain and satisfying customer needs requires efficient warehouse operations. Businesses may increase productivity, decrease costs, and improve overall operational efficiency by introducing layout optimization, sophisticated inventory management, automation and robots, warehouse management systems, cross-docking, and staff training and safety measures. Adopting these methods and technology will position warehouses for success in today's volatile and competitive business environment.

UNVEILING THE WORLD OF RETAIL OPERATIONS AT DECATHLON



Surbhi Saurav

2227561

During my summer internship at Decathlon Pune, I had the opportunity to work as a retail operations intern, and it turned out to be an incredibly transformative experience. It provided me with a comprehensive understanding of the intricate workings of the retail industry. Throughout my internship, I had the chance to delve into various aspects of the job, ranging from Customer Relationship Management (CRM) to handling critical operational tasks such as stock management, delivery coordination, and cash management. This article aims to highlight my valuable experiences and the significance of teamwork in achieving success in the dynamic world of retail.

Warehouse and Stock Management:

Most of my internship focused on learning about warehouse management and inventory tracking. As I worked on organizing and stocking products in the warehouse, I understood the significance of efficient inventory control. It became clear that proper stock management is crucial for ensuring that products are readily available to customers and that their shopping experience is smooth and hassle-free.

Delivery and Transportation Coordination:

I got the chance to work directly with logistics staff as a key member of the retail operations team to ensure the efficient coordination of deliveries and transportation. Precision and excellent communication were needed for product tracking and management. Through this experience, I had a profound awareness of the crucial part that supply chain management plays in promptly meeting client expectations.

Cash Management:

Another significant responsibility during my internship was cash management related to CRM. In this role, I familiarized myself with point-of-sale (POS) systems and handled customer transactions accurately and professionally. This exposure sharpened my organizational skills and taught me the importance of exceptional customer service, particularly in financial transactions.

UNVEILING THE WORLD OF RETAIL OPERATIONS

The Power of CRM:

CRM emerged as a vital component in retail operations that piqued my interest. I had the opportunity to contribute to CRM activities and understand their impact on fostering customer satisfaction and loyalty. By leveraging CRM systems, I gained insights into customer preferences and behavior, enabling the team to tailor their approach and deliver personalized experiences. This exposure underscored the significance of forging lasting connections with customers and gave me a glimpse into the broader marketing strategies employed by Decathlon.

The Value of Teamwork:

Throughout my internship, the support and guidance from my teammates played a pivotal role in my growth and success. They generously shared their knowledge and expertise, helping me navigate challenges and develop my skills. The collaborative environment fostered a strong camaraderie, making the entire experience enjoyable and fulfilling. Together, we tackled the demands of the fast-paced retail industry, relying on each other's strengths to achieve shared objectives. In a very short time, I made so many friends.

Embracing Challenges and Personal Growth:

Undeniably, the retail industry presents its fair share of challenges. However, my internship experience taught me the importance of embracing these challenges as opportunities for personal and professional growth. The demanding nature of the work instilled in me a resilient work ethic and the ability to adapt swiftly to changing circumstances. The mantra "No pain, no gain" became a guiding principle that motivated me to persevere and excel in my responsibilities.

LOGISTICS OPERATIONS AT FACT



S J Arundhathi
Devi

2227969

I started my internship in “The Fertilisers and Chemicals Travancore Limited (FACT)” on 15th May 2023 as an intern in the logistics department. I had a great experience working with the managers and assisting staff with expertise. In FACT, the logistics department is working under the marketing division. The marketing division's General Manager (GM) had assigned me to the logistics department.

My primary interaction was with the Assistant General Manager (AGM) of Logistics, and the GM of the marketing division. They helped and guided me through the logistics work handled by the department.

My daily task consists of generating STO in the SAP for facilitating the dispatch of finished products from the plant to the different warehouses and depots scattered across south India and some parts of north India.

I also had the opportunity to interact with various FACT transport contractors and understand the issues and problems they faced. The month I joined was when the company was restarting its import after a two-year gap. Hence, I was also able to assist the import and export officer of FACT and understand the constraints and opportunities in this initiation.

Towards the last few weeks of my internship, I was transferred to the technical process department, where I did a new project concerning the effluent treatment facility. There, I interacted with various technicians and managers and assisted them in formulating a new plan for standardizing the use of lime in effluent treatment per metric ton.

Overall, I dealt with two different areas connected to operations, which was very eye-opening and exciting. My key takeaway from this internship is the experience I gained from working closely with industry experts and the network I created there.

This experience helped me understand the direction I need to direct my efforts and streams to follow. I want to thank all those who supported and helped me through this wonderful experience.

OPERATIONAL EFFICIENCY IMPROVEMENT AT APOLLO TYRES LTD.



Anjana RS

2228006

Apollo Tyres is a prominent global tyre manufacturer known for its rich history and strong presence in the automotive industry. Since its establishment in 1972, the company has become a significant player in the tyre manufacturing sector, recognized for its unwavering commitment to quality, innovation, and customer satisfaction. Headquartered in Gurgaon, India, Apollo Tyres has expanded its reach worldwide, operating in multiple countries across Europe, Asia, Africa, and the Americas. Their state-of-the-art manufacturing facilities incorporate advanced technologies, enabling the production of top-notch tyres that meet the diverse requirements of customers.

With an extensive product portfolio catering to cars, SUVs, trucks, buses, and two-wheelers, Apollo Tyres offers a comprehensive range of high-performance, safe, and durable tyres for various road and weather conditions. During my internship at Apollo Tyres, I had a Great learning experience, particularly in the quality department. My project addressed Off-Highway Tyres' low First Time Right (FTR) yield. The primary cause of the quality issues in Off-Highway Tyres was related to problems in various other processes. These issues in other production areas directly impacted the FTR yield. The project focused on identifying and addressing these underlying problems to improve the overall quality of the tyres. To achieve this, I implemented the Six Sigma DMAIC methodology, which stands for Define, Measure, Analyse, Improve, and Control. This approach allowed me to analyze the production processes and identify areas for improvement systematically. Throughout the project, I gained in-depth knowledge about quality control methodologies, statistical analysis techniques, and root cause analysis. I collaborated closely with the quality team in analyzing data, identifying bottlenecks, and implementing corrective actions to optimize the FTR yield. While collaborating with the Finished Goods Store (FGS), I focused on a detailed analysis of tube and flap requirements for the tires, aligning them with the demand indicated by tickets. This alignment involved scrutinizing the demand patterns from these tickets and actively managing and organizing the inventory of tubes and flaps.

OPERATIONAL EFFICIENCY IMPROVEMENT AT APOLLO TYRES LTD.

By delving into this demand data, I aimed to optimize stock levels to ensure a seamless fulfillment process for orders. This analysis allowed me to discern meaningful trends and patterns in the demand for tubes and flaps. I strived to balance maintaining adequate stock levels and aligning them with the demand to minimize delays and mitigate the risk of stockouts. This collaboration provided me with invaluable insights into inventory management and demand analysis. It allowed me to gain hands-on experience in data analysis, demand forecasting, and the strategic decision-making required for smooth operations and customer satisfaction. Furthermore, this experience significantly expanded my comprehension of the entire tyre manufacturing process and underscored the critical importance of efficient warehousing practices in meeting customer demands.

I also participated in cross-functional team meetings and conversations, dealing with experts from various departments like human resources, manufacturing, and FGS. This internship gave me a thorough understanding of the tyre production process and taught me the value of teamwork and communication in achieving quality goals.

I also had the honour of obtaining direction and mentoring from seasoned experts in the quality department throughout the internship. Their knowledge and assistance enabled me to overcome difficult obstacles, improve my problem-solving abilities, and learn about industry best practices. Thanks to this practical exposure, I could put my academic knowledge to use and gain a deeper understanding of the quality management methods used in the tyre manufacturing business.

IMPROVING EFFICIENCY AT JOYSHREE POWEROL PVT. LTD.

**Sagarva Srivastava****2228043**

As an MBA intern at Joyshree Powerol Private Limited, an Original Equipment Manufacturer (OEM) for Mahindra Powerol diesel generator (DG) set manufacturer, I improved their production efficiency in two months. The first week of the internship helped me get introduced to and explore different departments. Flowcharts and swimlane diagrams were created to map out their processes end-to-end. Efficiency metrics for the CNC, punching, bending, welding, and other departments by Value Stream Mapping (VSM) and machine uptime were calculated.

Real-time and the previous month's production data were collected, and root-cause analyses were performed to identify the reasons behind the most significant production inefficiencies.

A set of solutions that included Kanban boards, quality checkpoints, and protocols for monitoring by supervisors in every department to reduce idle time were identified using fishbone diagrams and five why analysis.

Week four was spent on analyzing data on the quality of the products to identify recurring defects that could be reduced through statistical process control. The percentage of defects a welder makes in welding a fuel tank was analyzed, and the ways in which the quality can be improved were determined.

Beyond production, a change in the layout design for the warehouse for a better flow of materials was suggested. 5S was implemented in the alternator storage area. A new shelving system was modeled in CAD and analyzed in Ansys, an engineering simulation software, for structural integrity. In just two months, an impact was made through data-driven analysis and collaboration across departments. My engineering skills and a continuous improvement approach helped me identify many improvement opportunities. I increased the production from 212 DG sets to 282 DG sets in June by implementing Kanban boards in both the production and powder coating departments. This internship was a great demonstration of how industrial engineers can create manufacturing excellence.

OPTIMIZING PROCUREMENT AT HOMELANE

**Esha Kumari****2228019**

When I started my summer internship in the procurement department at HomeLane, a leading home interior company, I was eager to learn about the supply chain processes and help drive optimization to attain efficiency. The fast-paced but very effective summer internship enabled me to gain hands-on experience while delivering impactful process improvements.

In the first week, I mapped out their just-in-time procurement workflows and identified non-value-adding steps through cross-functional meetings. Analyzing inventory management helped me pinpoint pressing issues like no standard method for inventory reordering and maintaining their minimum stock levels.

These issues warranted improvement measures and formed the core issues that were addressed during the internship.

Week 2 was an immersive education into inventory calculations, vendor relationships, and factory/warehouse operations. I audited their formulae for minimum stock levels and reorder points. This helped me identify gaps. Visiting the factory floor provided eye-opening insights that drove my subsequent lean management recommendations.

Towards the end of my internship, I was tackling the optimization of the supply chain in processes like import processes, and a Kanban board was also for their inventory visualization. Cost-benefit analysis of on-site versus factory assembly leveraged my analytical skills. My vendor management recommendations to mitigate risks were well-received by the leadership.

Throughout my project work, I synchronized classroom concepts with real-world practices. Collaborating cross-functionally, overcoming data challenges, and aligning my analysis to business needs were invaluable lessons. Presenting the findings shaped my communication skills.

This internship empowered me to drive process improvements at scale while rapidly developing my procurement acumen. I'm proud of the impact I delivered over the summer and grateful for the transformative learning experience. My expanded skillset will enable me to reach great heights in the supply chain area.

POEM

MENTAL HARMONIES: EMBRACING INNER WELLNESS



Surbhi Saurav

2227561

In the depths of the mind, where emotions reside,

There's a silent battle where struggles often hide.

A poem on mental health, let's explore together,

A topic so important, affecting lives forever.

In a world bustling with noise and demands,

Mental health silently slips through our hands.

But let us not be blind to the pain within,
For understanding and support, we must begin.

Mental health, a landscape of highs and lows,

A complex tapestry, the mind's ebb and flow.

Sometimes, it's a storm raging deep inside,
While other times, calm waters gently abide.

Anxiety may tighten its grip like a vice,
Depression may cast its shadow, cold as ice.
Yet there's strength within, waiting to rise,
Seeking solace, healing, under compassionate skies.

Reach out a hand, let empathy be our guide,
Shatter the stigma that mental health must hide.

For within vulnerability, courage takes its flight,

Together, we'll illuminate the darkest night.

Let's foster a world where hearts are free to speak,

A sanctuary where compassion is what we seek.

Support and understanding, foundations we build,

To nurture mental health, every voice fulfilled.

Let's break the chains of silence and shame,

Embrace the wounded, for we're all the same.

In unity and love, we'll mend the broken soul,
Writing a story of resilience, making it whole.

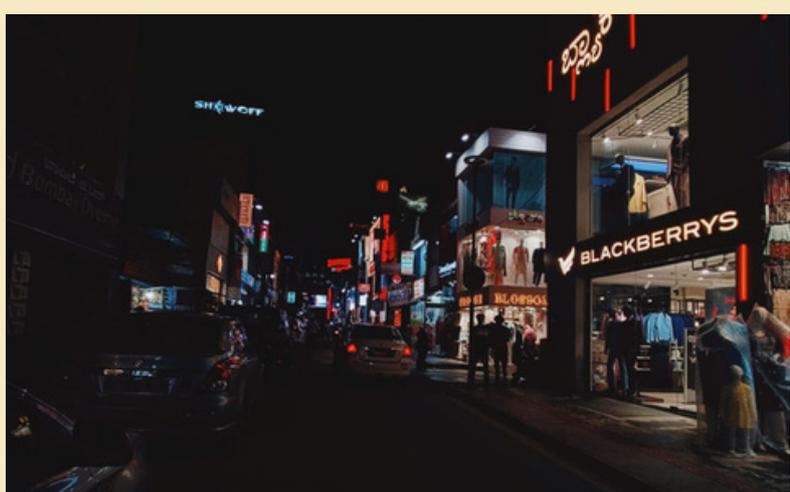
Remember, you're not alone in this endeavor,
Reach out, find solace; your burdens we'll weather.

Mental health matters, let's spread the word,
With love and understanding, its voice will be heard.

PHOTOGRAPHY



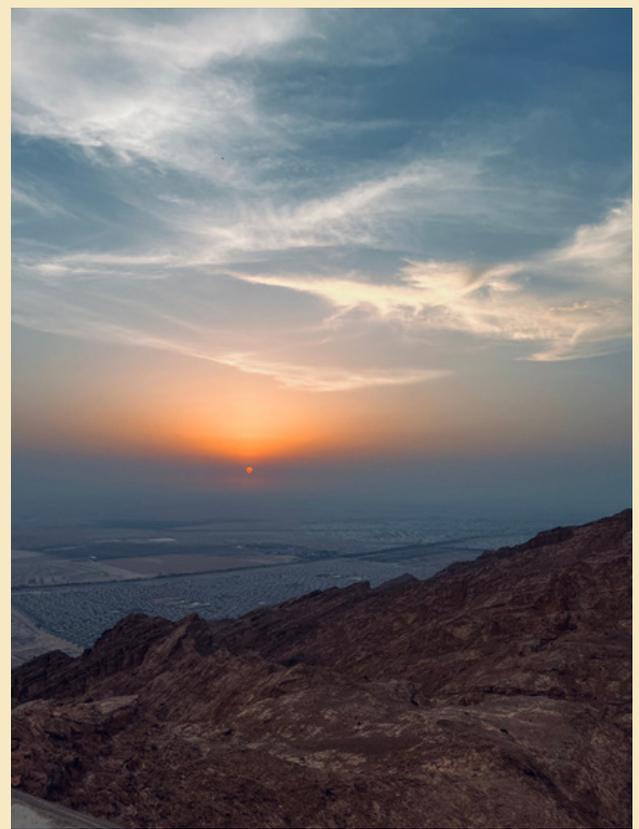
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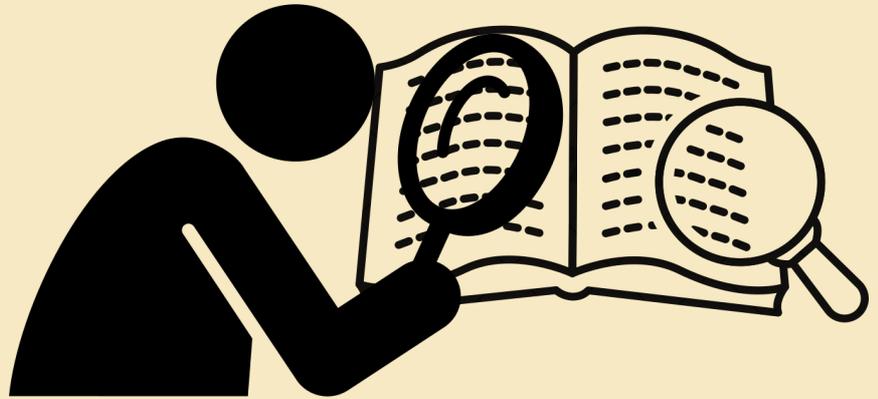
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WORD SEARCH



Abirami Prijith

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Have fun finding out words related to lean operations and systems in our word maze.



T	C	R	S	B	Z	E	W	G	V	I	K	O	M	F	L	J	V	G	Z	N	U	D
S	X	M	W	D	T	O	S	R	A	D	H	I	B	H	D	I	X	A	U	I	P	A
I	N	A	B	C	O	D	M	K	F	B	A	T	O	E	T	E	U	F	K	N	R	T
S	L	C	R	I	T	I	C	A	L	T	O	Q	U	A	L	I	T	Y	X	F	R	C
Y	D	O	U	W	Z	Z	F	V	L	D	P	O	L	L	M	V	U	Y	F	O	J	E
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V	F	M	M	A	E	R	T	S	E	U	L	A	V	R	M	M	H	E	V	W	B	L
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F	O	Z	X	D	V	A	X	L	A	N	O	I	T	C	N	U	F	F	Z	T	S	B

WORD SEARCH

CLUES

1. A ____ ____ refers to all the activities, both value-adding and non-value-adding, required to deliver a product or service to the end customer.
2. Total time it takes to complete a process or deliver a product or service, starting from the initiation of the process to its final completion.
3. A supply chain phenomenon describing how small fluctuations in demand at the retail level can cause progressively larger fluctuations in demand at the wholesale, distributor, manufacturer and raw material supplier levels.
4. ____ involve an approach to quality management whereby groups of employees meet regularly to identify potential improvements and resolve quality issues.
5. ____ = Customer value - Supply chain cost
6. The ____ provides a structured and systematic way to investigate problems and identify their root causes.
7. Type of flows in supply chain - ____, Product and Funds.
8. Levels of strategy - Corporate, Business, ____ and Operational level strategy.
9. Branches of strategy (3)
10. A structured way to identify and address potential problems, or failures and their resulting effects on the system or process before an adverse event occurs.
11. ____ provides a clear and concise overview of a process, helping stakeholders understand the key elements involved and their interactions
12. VOC to CTQ - Full form of both acronyms.
13. A document that clarifies which individuals or groups are responsible for a project's successful completion, and the roles that each will play throughout the project.

CLUB ACTIVITY**PANEL DISCUSSION ON DIGITAL TRANSFORMATION IN OPERATIONS**

A panel discussion ensued with six students participating as panel members and moderator on the topic digital transformation in operations. The panel members shared their ideas and thoughts on the current trends in digital transformation with respect to operations. Various examples were drawn from different industries using different technologies in operations. Also, various challenges in adopting and integrating digital technologies in business's process. Success and failure stories were shared and discussed. This was followed by a question and answer session.



CLUB ACTIVITY EFFILOGIX

The EffiLogix club activity helped students understand the concept of logistics through a game. This gamified version helped the student teams to coordinate and work to design effective logistics within the given constraints. This activity also enabled peer learning and the logistics designs were analysed and critiqued post completion of the activity.



CLUB ACTIVITY
A SPECIAL TALK ON EXPLORING THE POWER OF MACHINE LEARNING ALGORITHM

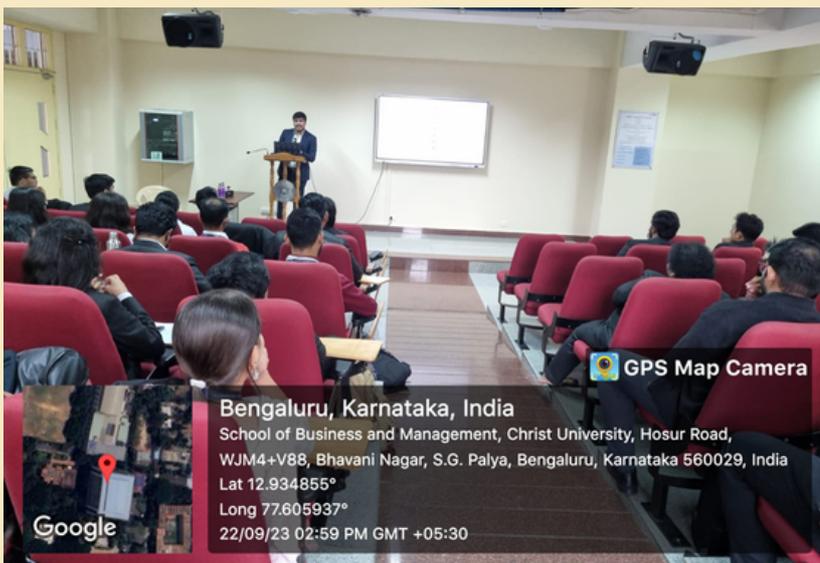
A special talk on machine learning by one of the students highlighted the importance of machine learning algorithms in transforming business process especially related to operations and project management. The presentation also captured the essence of integrating machine learning algorithms in business processes to enhance effectiveness and efficiency of the businesses.



CLUB ACTIVITY

CORPORATE INTERFACE ON “GLOBAL SHIFTS: INDIA’S IMPERATIVE AND GAMING PARADOX”

The guest speaker for this session was Mr. Lakshya Singh, a Christ University alumnus who is currently holding the position of Deputy Manager for E-sports division for U2opia Mobile company. This session focused on how geopolitics has shaped businesses worldwide throughout our dynamic history and how the gaming sector is gaining increased traction among investors. The students were able to understand how the gaming industry is currently making waves with respect to investments and market development. Also, various job opportunities were discussed for this sector. The event was followed by an interesting question and answer session.



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