

SUPPLY CHAIN MANAGEMENT



► **WeChat**

Prachi Tiwari

AVP- Digital Transformation and Lean
Management

JP Morgan Chase & Co.

PGDM- Ebiz(2015-17)

MESSAGE FROM THE DIRECTOR

Dear Readers,

It gives me great pride to introduce SAMVAD's edition every month. Our SAMVAD team's efforts seem to be paying off, and our readers seem to be hooked onto our magazine. At WeSchool, we try to acquire as much knowledge as possible and share it with everyone.



Prof. Dr. Uday Salunkhe
Group Director

As we begin a new journey with 2023, I sincerely hope that SAMVAD will reach new heights with the unmatched enthusiasm and talent of the entire team.

Here at WeSchool, we believe in the concept of AAA: Acquire Apply and Assimilate. The knowledge you have acquired over the last couple of months will be applied somewhere down the line. When you carry out a process repeatedly, it becomes ingrained in you and eventually tends to come out effortlessly. This is when you have assimilated all the knowledge that you have gathered.

At WeSchool, we aspire to be the best and unique, and we expect nothing but the extraordinary from all those who join our college. From the point of view of our magazine, we look forward to having more readers and having more contributions from our new readers.

SAMVAD is a platform to share and acquire knowledge and develop ourselves into integrative managers. Our earnest desire is to disseminate our knowledge and experience with not only WeSchool students but also the society at large.

Prof. Dr. Uday Salunkhe,
Group Director

ABOUT US



OUR VISION

“To nurture thought leaders and practitioners through inventive education.”

CORE VALUES

Breakthrough Thinking and Breakthrough Execution

Result Oriented, Process Driven Work Ethic

We Link and Care

Passion

“The illiterate of this century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn.” -Alvin Toffler.

At WeSchool, we are deeply inspired by the words of this great American writer and futurist. Undoubtedly, being convinced of the need for a radical change in management education, we decided to tread the path that led to the corporate revolution.

Emerging unarticulated needs and realities require a new approach in both thought and action. Cross-disciplinary learning, discovering, scrutinizing, prototyping, learning to create and destroy the mind's eye needs to be nurtured differently.

WeSchool has chosen the ‘design thinking’ approach towards management education. All our efforts and manifestations, as a result, stem from the integration of design thinking into management education. We dream of creating an environment conducive to experiential learning.

FROM THE EDITOR'S DESK

Dear Readers,

Welcome to the **153rd** Issue of **Samvad**!

SAMVAD is a platform for “Inspiring Futuristic Ideas”, we constantly strive to provide thought-provoking articles that add value to your management education.

We have an audacious goal of becoming one of the most coveted business magazines for B-school students across the country. To help this dream become a reality, we invite articles from all management domains, giving a holistic view and bridging the gap between industry veterans and students through our WeChat section.

In this issue of SAMVAD, we explore ‘Supply Chain Management’ which is one of the most important aspects in the business and what makes almost every product around us possible. Check out the exclusive interview of Prachi Tiwari, AVP - Digital Transformation & Lean Management at J.P. Morgan & Chase and also an alumnus of PGDM Ebiz 2015-2017.

In today’s globalized economy, supply chain management (SCM) is revolutionizing how businesses optimize operations, reduce costs, and enhance efficiency. By integrating logistics, procurement, production, and distribution, SCM ensures seamless movement of goods and services, driving competitiveness and customer satisfaction. According to a McKinsey report, 57% of companies have increased supply chain investments post-pandemic to mitigate disruptions and enhance resilience.

SCM has witnessed significant advancements worldwide, with the global market projected to reach \$41.7 billion by 2028, as per Grand View Research. Leading companies like Amazon, Apple, and Walmart have set industry benchmarks by leveraging AI, automation, and real-time analytics to streamline operations. In Europe and North America, digital twin technology and blockchain are enhancing transparency and efficiency, while emerging markets like India and Southeast Asia are witnessing rapid supply chain transformation fueled by e-commerce growth.

FROM THE EDITOR'S DESK

India's supply chain sector is one of the fastest-growing globally, expected to reach \$500 billion by 2030, according to an IBEF report. Government initiatives such as the National Logistics Policy (NLP) and the Make in India program are boosting infrastructure development and digitization. The logistics industry, which accounts for 14% of India's GDP, is undergoing a digital shift, with 75% of companies adopting AI-driven demand forecasting and IoT-based tracking, as per a Deloitte study. Additionally, the rise of Quick Commerce has driven investments in last-mile delivery solutions, enhancing speed and efficiency. The adoption of warehouse automation, robotics, and predictive analytics is also contributing to faster and more cost-effective supply chain operations.

Despite its rapid growth, SCM faces challenges such as geopolitical disruptions, supply chain bottlenecks, and sustainability concerns. The COVID-19 pandemic exposed vulnerabilities in global supply chains, leading companies to rethink their strategies by implementing regionalized production and multi-sourcing approaches. Governments and businesses are investing in resilient supply chains by diversifying sourcing, increasing local manufacturing, and adopting circular economy practices. The integration of green logistics, electric fleets, and smart warehousing solutions is helping industries align with global sustainability goals.

Another emerging trend in SCM is the rise of supply chain visibility and traceability, driven by blockchain and IoT technologies. Companies are prioritizing end-to-end transparency to prevent fraud, reduce inefficiencies, and improve compliance with regulatory standards. Moreover, the shift towards sustainable supply chains is gaining momentum, with many businesses committing to net-zero emissions and reducing waste through eco-friendly packaging and sustainable sourcing.

Supply chain management continues to be a critical pillar of business success, reshaping industries through technology and innovation. By leveraging AI, automation, and data-driven strategies, SCM is set to create more agile, resilient, and sustainable supply networks, ensuring long-term global economic growth. As businesses navigate evolving consumer

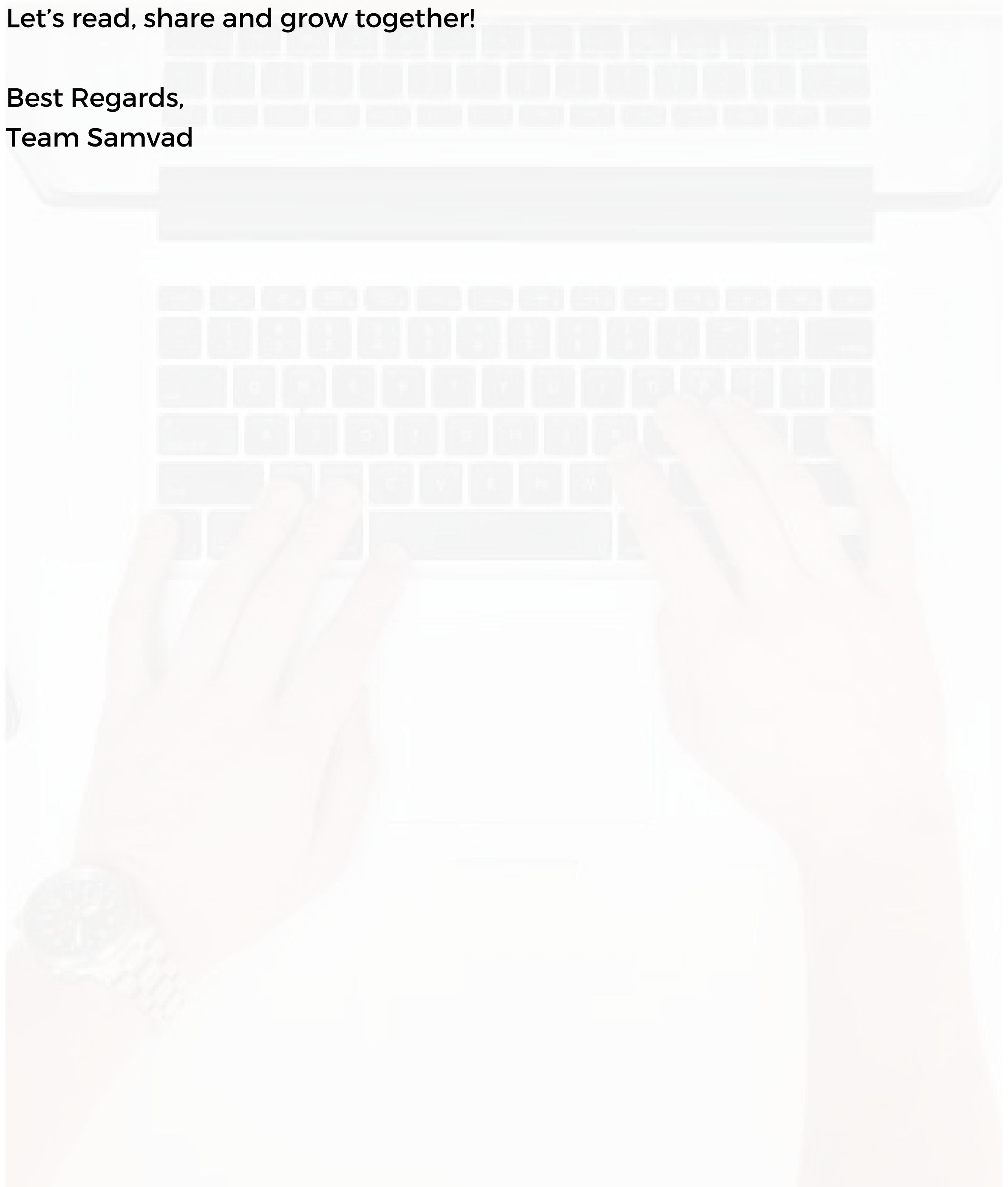
FROM THE EDITOR'S DESK

demands, environmental concerns, and technological advancements, supply chain excellence will remain a key differentiator in the competitive marketplace.

We hope you have a great time reading SAMVAD!

Let's read, share and grow together!

Best Regards,
Team Samvad



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Prachi Tiwari

AVP- Digital Transformation and Lean Management
JP Morgan Chase & Co.
PGDM- Ebiz(2015-17)

Could you walk us through your career journey, starting from your time at WeSchool to your current role at JP Morgan Chase? How did your experiences in lean management and digital transformation shape your career path?

My career journey has been an exciting blend of challenging projects and diverse roles that have shaped me both professionally and personally. Like many MBA students in their first year, I faced the common dilemma of choosing the right stream—balancing research on market trends, career paths, and placement opportunities. However, I knew deep down that I was a "process person," thanks to my four years of experience in IT consulting before pursuing my MBA.

The turning point for me came when I met Dr. Gondhalekar, who became my mentor. Under his guidance, I developed a strong interest in operations and Lean Management. I had the privilege of working on both summer and winter internships at a jewelry manufacturing company,

where I experienced firsthand the challenges of the manufacturing sector. Dr. G's excellence and vision have always been an inspiration, and I continue to aspire to achieve that level of expertise in my career.

During my time as an e-business student at WeSchool, I worked on a year-long GCL project focused on "Shared Infrastructure in MSME." This open-ended problem statement taught me the value of design thinking and the importance of brainstorming to create innovative solutions from scratch. It was during this project that I began to understand how digitizing supply chains can drive efficiency— a concept that has been foundational to my career.

What stands out about WeSchool is its forward-thinking curriculum. Concepts like VUCA, which I first heard from our Chairman on Day 1, were not just theoretical but practical lessons that prepared me for real-world complexities. Looking back, I feel truly blessed to have been part of an institution that nurtured my growth so

Since completing my MBA, I have worked across industries such as Manufacturing, Procurement, and Banking as a Process Improvement Leader. Banking, especially, is at the forefront of technological advancements, and my current role at J.P. Morgan Chase allows me to be at the intersection of process excellence and innovation. I'm grateful for the diverse opportunities that have shaped my understanding of Lean Management, digital transformation, and their applications across sectors.

How does process flow mapping and bottleneck identification contribute to creating a leaner supply chain?

Process flow mapping and bottleneck identification are foundational tools for building lean, efficient supply chains. Together, they provide a comprehensive view of workflows and highlight inefficiencies, enabling targeted improvements that drive value and reduce waste.

The Power of Process Flow Mapping

Process flow mapping visually represents workflows, allowing stakeholders to see how materials, information, and resources move through the supply chain. This clarity helps identify redundancies, delays, and areas for standardization.

I vividly recall a project during my summer internship where I created an

end-to-end process mapping guide for one of my previous organizations which was a manufacturing. This exercise revealed critical areas for improvement and even inspired technological advancements. It reinforced a fundamental Lean principle: standardize before improving. Without a standardized process, identifying meaningful improvements becomes impossible.

Whether in manufacturing, banking, or any other sector, process flow mapping has been a constant tool in my career, helping deliver even the most complex projects. Lean principles, emphasize that process flow mapping not only standardizes workflows but also empowers employees. It fosters ownership and collaboration, creating a culture of continuous improvement.

Identifying Bottlenecks:

The Hidden Constraints A bottleneck is any point in the process where flow slows, causing delays upstream and downstream. Identifying these constraints is crucial for optimizing throughput and minimizing waste. By addressing bottlenecks, businesses can prioritize improvements that yield the highest impact while enhancing capacity and resilience.

For example, in the banking sector, document verification steps in KYC or loan approval workflows often create

bottlenecks. By automating these steps with tools like RPA (Robotic Process Automation), processing times can be significantly reduced, improving service levels.

This approach isn't isolated. When combined, process flow mapping and bottleneck identification generate actionable insights that transform supply chains, ensuring smoother operations and better value delivery.

Key Lean Principles in Action:

- 1. Eliminating Waste:** Mapping processes helps remove non-value-adding activities, such as duplicate approvals or excessive documentation.
- 2. Continuous Flow:** Addressing bottlenecks ensures uninterrupted movement of materials and information.
- 3. Just-in-Time (JIT) Delivery:** Clear workflow visibility improves synchronization between production and delivery, reducing inventory costs.

Example: Global Supply Chain

In a global supply chain, delays in shipping documentation often create bottlenecks during port clearance. Process mapping can reveal inefficiencies, while digitizing documentation resolves delays and reduces lead times. This is a challenge I encountered during my time in the jewellery industry, where process mapping highlighted the need for digital transformation to optimize operations.

A lean supply chain isn't about removing complexity—it's about managing it effectively.

Process flow mapping provides the roadmap, while bottleneck identification pinpoints obstacles. Together, these tools turn reactive, fragmented supply chains into proactive, streamlined operations that prioritize customer satisfaction.

How do you see Lean Management principles being effectively integrated into modern supply chain processes? Can you share an example?

Lean management principles focus on eliminating waste, optimizing processes, and delivering maximum value to customers. In today's dynamic market landscape, these principles are increasingly integrated with advanced technologies, agile frameworks, and data-driven strategies to meet evolving demands. Let me break this down through key Lean principles and examples:

- 1. Elimination of Waste (Muda):** IoT and analytics pinpoint waste in areas like overproduction and excess inventory. Example: Predictive analytics aligns inventory with demand, while IoT sensors optimize logistics and reduce idle resources.
- 2. Continuous Improvement (Kaizen):** Automation and real-time monitoring foster incremental improvements. Example: Implementing RPA for repetitive tasks enhances efficiency and allows employees to focus on strategic initiatives.
- 3. Just-in-Time (JIT) Delivery:** Technologies like AI and blockchain ensure timely, accurate delivery of goods. Example: Blockchain improves transparency, streamlining coordination and reducing inventory costs.
- 4. Respect for People:** Process Flow Mapping and other lean tools empower

employees to drive innovation and process improvement. Example: Toyota integrates IoT-powered Kanban systems and employee training for automated yet human-driven supply chains.

Would like to share the case study about Toyota's modern supply chain evolution:

Toyota, the pioneer of lean management, continues to lead by integrating advanced technologies into its global supply chain:

- Digital Twins: Toyota uses digital twin technology to simulate supply chain operations, identifying inefficiencies without disrupting real-world processes.
- Modern Kanban Systems: IoT-powered Kanban systems automate inventory replenishment in real-time.
- Sustainability Initiatives: By applying lean principles, Toyota has reduced packaging waste and streamlined logistics, significantly cutting its environmental impact.

Key Technologies Enhancing Lean Supply Chains:

1. IoT and Sensors: Enable real-time monitoring to identify and reduce inefficiencies.
2. RPA (Robotic Process Automation): Automates tasks such as order verification and inventory updates, minimizing human error.
3. Blockchain: Ensures transparency and builds trust among supply chain stakeholders.
4. Process Mining and Decision Modelling: Analyze workflows to uncover inefficiencies and optimize decision-making.

Integrating lean management principles into modern supply chains requires blending traditional practices with cutting-edge technologies. Whether through IoT, RPA, or blockchain, the focus remains on continuous improvement, waste elimination, and delivering exceptional value to customers. Lean management, when paired with technological innovation, creates resilient, agile, and customer-focused supply chains.

What are the emerging trends in digital technologies (e.g., AI, IoT, blockchain) that are reshaping the future of supply chain management? How can organizations leverage these technologies to gain a competitive advantage?

The integration of digital technologies like AI, IoT, and blockchain is revolutionizing supply chain management (SCM). These innovations not only enhance visibility, efficiency, and security but also allow organizations to adapt to dynamic market demands and gain a competitive edge. Given my background in process transformation, decision modelling, lean management, and RPA implementation, these trends resonate deeply with modern business challenges.

1. AI powers demand forecasting, predictive maintenance, and tools like ChatGPT, enabling smarter decisions and reducing costs.
2. IoT offers real-time asset tracking, smart warehousing, and fleet optimization, improving transparency and reliability.
3. Blockchain ensures traceability, fraud prevention, and smart contracts, fostering trust and accountability.

How Organizations can Leverage this Technology:

To gain a competitive advantage, organizations should adopt an integrated approach:

- **Build a Digital Ecosystem:** Combine AI, IoT, and blockchain to create interconnected supply chains with predictive capabilities and real-time data sharing.
- **Upskill Teams:** Train employees to work with digital tools, fostering a culture of innovation and adaptability.
- **Leverage Decision Modeling and RPA:** Use RPA to automate repetitive tasks and decision modeling to optimize complex supply chain scenarios.

The adoption of AI, IoT, and blockchain is not just about technology—it's about rethinking how supply chains operate. By integrating these tools into lean management frameworks and decision modelling processes, businesses can build resilient, customer-focused supply chains that thrive in an unpredictable world.

A notable example of digital technologies enhancing supply chain management in the U.S. banking sector like JPMorgan Chase has leveraged blockchain technology to enhance supply chain efficiency. Through its proprietary blockchain platform, Onyx, the bank supports real-time information sharing and secure digital transactions. Integrating digital ledger technology has also helped JPMorgan reduce operational bottlenecks while improving transaction accuracy. They are using RPA, Machine Learning to improve the customer experience.

How do you see the interplay of sustainability and digital transformation in shaping the future of supply chain management?

Sustainability and digital transformation are converging to redefine supply chains, focusing on efficiency, transparency, and environmental impact. In global banking, for example, digital tools like blockchain and AI are optimizing paper-heavy processes such as KYC and compliance, significantly reducing resource usage.

At JPMC, we've implemented RPA and data-driven decision-making to streamline operations, cutting waste and energy consumption. These efforts not only enhance operational efficiency but also align with sustainability goals, proving that technology-driven supply chains can be both profitable and eco-friendly.

This synergy between sustainability and digital transformation is the future of resilient, responsible supply chains.

From your experience in the industry, what advice would you give to students aspiring to build a successful career in supply chain management?

Building a successful career in supply chain management (SCM) requires a strong foundation, adaptability, and a commitment to continuous learning. Here's my advice for aspiring professionals:

1. **Master the Fundamentals** Understand core SCM principles and tools like Six Sigma, Lean Management, and process mapping. These are essential for tackling real-world challenges.

2. Embrace Technology Stay ahead by familiarizing yourself with emerging tools such as Process Mining, RPA, decision modeling, and AI. Technology is key to modern supply chain efficiency.

3. Sharpen Problem-Solving Skills Develop your ability to analyze and resolve supply chain issues through case studies and simulations. Data-driven decision-making is highly valued.

4. Gain Practical Exposure Internships and industry visits are invaluable for bridging theory and practice. Real-world experience builds confidence and deepens understanding.

5. Build Soft Skills Effective communication, teamwork, and negotiation are critical for coordinating with diverse stakeholders. Hone these skills through group projects and competitions.

6. Focus on Sustainability Learn about sustainable practices like green logistics and circular supply chains to align with industry priorities.

7. Pursue Certifications Certifications like APICS or Lean Six Sigma validate your expertise and give you a competitive edge.

8. Network and Learn Continuously Build professional relationships through events and mentorships. Stay updated on industry trends through courses and webinars.

Embrace new technologies, think critically, and commit to continuous improvement for long-term success in this dynamic field.

One of the best lessons I've learned is to always view processes from the customer's perspective. A customer-centric approach not only creates value but also drives profitability. With experience in lean management, RPA, and process transformation, I've seen how combining operational insights with technology creates resilient and efficient supply chains.

Role of Technology in Modernizing Supply Chain Operations: Incorporation of Tech Solutions for Optimization



Winner

Kaivalya Dharmadhikari
PGDM Retail Management
WeSchool, Mumbai



India's supply chain landscape is changing at a rapid pace, driven by digital transformation, government policies, and private-sector innovations. E-commerce, increasing global trade, and shifting consumer expectations have all led to the necessity of technology in making supply chains more efficient, transparent, and resilient. Let's take a look at how India is modernizing its supply chain ecosystem, the role of government initiatives, and how private enterprises are leveraging technology to drive efficiency.

Current Market Scenario: The Time for Change

India's logistics sector, known for inefficiencies and delays, is witnessing a sea change. With e-commerce giants like Amazon, Flipkart, and Reliance Retail reaching out to more and more consumers, the expectations of consumers have increased. Today, customers want same-day deliveries, real-time tracking, and seamless returns. Supply chain optimization is no longer an option but a necessity.

Companies are investing more in automated warehouses, AI-driven inventory management, and predictive analytics to cope with demand fluctuations and avoid delays. Robotics and IoT are making warehouse operations more efficient, and cloud-based platforms are enabling businesses to track and manage shipments in real-time. There is a need for a technology-driven agile supply chain that can respond to pandemics, geopolitical tensions, and fluctuating raw material costs.

Government Policies Driving Digital Transformation

Recognizing the value of an effective supply chain as a driver for economic growth, the Indian government has launched numerous initiatives to develop modern logistics systems and integrate technologies:

1. National Logistics Policy (NLP) - Launched with the objective of reducing logistics costs from 13-14 percent of GDP to 8 percent, NLP encourages digital solutions such as e-logistics platforms, unified tracking systems, and automation in customs

clearance. This will help establish a seamless logistics network driven by technology.

2. Gati Shakti Scheme – This scheme is aimed at infrastructure development and focuses on integrating roads, railways, ports, and airports to reduce transportation time and costs. Digital planning tools ensure better coordination between different sectors.

3. E-Way Bill and FASTag Implementation – The introduction of electronic toll collection (FASTag) and digital documentation (e-Way Bill) has improved supply chain transparency and reduced paperwork, making goods movement faster and more cost-effective.

4. Foreign Direct Investment (FDI) Liberalization – By easing restrictions in sectors like warehousing, contract manufacturing, and logistics, the government has encouraged global players to invest in modernizing Indian supply chains.

These policies lay the foundation for a digitally enabled, globally competitive supply chain system that can support India's growth in manufacturing, exports, and e-commerce.

How Private Companies Are Leading the Change

While the government sets a strategic direction, private enterprise is taking actual steps to revolutionize supply chain management.

1. E-commerce and Retail Titans: The Pressure for Speed & Automation
Amazon & Flipkart have revolutionized warehousing through AI-based demand forecasting, automated sorting systems, and real-time shipment tracking.

Reliance Retail is investing in hyperlocal delivery networks, drone-based last-mile solutions, and digital payment integrations to make shopping seamless.

2. Manufacturing & FMCG: Smart Factories & Data-Driven Logistics

Tata Group & ITC are integrating IoT enabled sensors and robotics in their manufacturing plants to have shorter lead times, and optimize inventories.

Hindustan Unilever & Nestlé utilize big data analytics to ensure timely restocking of products, and minimize supply chain disruptions.

3. Automobile & Heavy Industries: AI-Powered Supply Chains

Mahindra & Mahindra and Maruti Suzuki are using blockchain-based supplier networks to increase visibility and efficiency in the auto part delivery chain.

L&T is implementing digital twin technology to enhance complex processes in large infrastructure projects' supply chains.

These companies are not only improving efficiency but are also setting new industry benchmarks for supply chain innovation.

Challenges in the Modernization Journey

There are several obstacles India's supply chain ecosystem still needs to overcome to modernize thoroughly, despite rapid progress:

1. **Infrastructure Gaps-** While metro cities boast of very modern logistics hub, rural and semi-urban areas are bedevilled with poor road connectivity and outdated warehouses. This has to be addressed.
2. **Regulatory Complexity-** Ever-changing tax policies, customs rule, and the compliance requirements continue to slow tech adoption in the logistics sector. A more streamlined framework is urgently needed.
3. **Cybersecurity Risks** – With the adoption of cloud-based logistics and AI-driven automation, the risk of data breaches, hacking, and cyber threats increases. Secure digital infrastructure is critical.
4. **Skilled Workforce Shortage** – The shift from manual supply chains to AI-driven processes requires a trained workforce. Upskilling programs in AI, robotics, and supply chain analytics are required to keep pace with technology.

Growing Trends: The Future of Supply Chain in India

Even more advanced tech integration is expected during the next phase of supply chain modernization:

1. **Blockchain for Transparency** – Companies like IBM and Microsoft have developed blockchain-based supply chain solutions that will potentially

prevent fraud, track shipments safely, and ensure regulation compliance.

2. **Demand Forecasting** – But demand forecasting using predictive AI models will help organizations better manage their inventory, with minimal wastage and product availability at the right times.
3. **IoT for Real-Time Monitoring:** IoT-enabled smart sensors will offer live tracking of perishable goods while ensuring quality and safety in food and pharma logistics.
4. **Green & Sustainable Logistics** – Companies will focus on EV-based delivery fleets, solar-powered warehouses, and carbon-neutral supply chains to reduce environmental impact.
5. **5G Connectivity** – With 5G connectivity, robotics, and data analytics shaping the future, India's supply chain sector is on the cusp of a tech-driven revolution.

Conclusion: The Road Ahead for India's Supply Chain Ecosystem

It is not merely a question of faster deliveries, but a way to build a smarter, data-driven, and sustainable system for India. NLP, Gati Shakti, and digital infrastructure development are all setting the stage at the government level, while Amazon, Flipkart, Tata, and Reliance are bringing in cutting-edge solutions to the private sector.

However, to attain a fully integrated, tech-powered supply chain, bridging infrastructure gaps, ensuring regulatory ease, and investing in skilled manpower are the most crucial steps. The right balance of policy support,

corporate investment, and emerging technologies will propel India to the top ranks of supply chain innovation worldwide.

ROLE OF TECHNOLOGY IN MODERNIZING SUPPLY CHAIN OPERATIONS:

Integrating Tech Solutions to Optimize Supply Chain Processes



Runner Up

Vasu Sharma

PGDM Retail Management
(2023-2025)

WeSchool, Mumbai



In an era where efficiency and agility define the success of businesses, technology has emerged as a game-changer in modern supply chain operations. Traditional supply chain models, often plagued by inefficiencies, lack of visibility, and manual processes, are rapidly being replaced by tech-driven solutions that enhance speed, accuracy, and resilience. Companies across industries are leveraging advanced technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), blockchain, and automation to streamline operations and improve supply chain performance.

One of the most significant advancements in supply chain technology is the integration of Artificial Intelligence and Machine Learning (ML). AI-driven predictive analytics enables businesses to forecast demand accurately, reducing overproduction and minimizing wastage. Companies like Amazon and Walmart use AI algorithms to analyze customer behavior, optimize inventory levels, and ensure products are available when and

where they are needed. AI-powered chatbots and virtual assistants also play a crucial role in customer service by providing real-time order tracking and automated responses, enhancing customer satisfaction.

Another revolutionary development is the Internet of Things (IoT), which connects various supply chain components through smart sensors and devices. IoT enhances real-time tracking of goods in transit, providing businesses with greater visibility into their supply chain networks. Smart warehouses equipped with IoT-enabled devices monitor temperature-sensitive products, ensuring compliance with quality standards. Companies in the pharmaceutical and perishable goods industries heavily rely on IoT to maintain the integrity of their supply chain by preventing spoilage and ensuring timely deliveries.

Blockchain technology is also transforming supply chain operations by providing a secure and transparent platform for tracking transactions and

product movements. This decentralized ledger system minimizes fraud, reduces paperwork, and enhances traceability across the supply chain. For example, IBM's Food Trust blockchain network allows retailers and consumers to trace the journey of food products from farm to table, ensuring authenticity and quality. By leveraging blockchain, businesses can mitigate risks associated with counterfeit goods and improve regulatory compliance.

Robotic Process Automation (RPA) and Autonomous Vehicles are further revolutionizing logistics and warehouse management. Automated guided vehicles (AGVs) and drones are being deployed in warehouses to transport goods efficiently, reducing human intervention and operational costs. E-commerce giants such as Alibaba and Amazon have implemented robotic warehouses where AI-powered robots handle sorting, packaging, and dispatching, significantly improving order fulfillment rates. Autonomous delivery vehicles and drones are also being explored as potential solutions to enhance last-mile delivery efficiency, particularly in urban and remote areas.

The rise of cloud computing and big data analytics has also played a crucial role in supply chain optimization. Cloud-based supply chain management (SCM) systems enable companies to collaborate seamlessly with suppliers, distributors, and logistics providers, ensuring real-time data sharing and

decision-making. Big data analytics, on the other hand, processes vast amounts of information to identify patterns, optimize routes, and predict disruptions. During the COVID-19 pandemic, big data analytics helped businesses adapt to sudden shifts in consumer demand, ensuring that essential goods were distributed effectively.

Additionally, digital twins—virtual replicas of physical supply chain assets—are gaining popularity for their ability to simulate different scenarios and optimize operations. By creating a digital twin of their supply chain, businesses can assess the impact of potential disruptions, evaluate performance, and make informed strategic decisions. This technology is particularly useful in industries with complex supply networks, such as automotive and aerospace manufacturing.

Despite the numerous benefits of technology in supply chain operations, challenges such as cybersecurity threats, high implementation costs, and the need for workforce upskilling remain. Companies must invest in cybersecurity measures to protect sensitive data from cyberattacks and ensure compliance with data protection regulations. Additionally, transitioning from traditional supply chain models to tech-driven solutions requires significant financial investments, making it crucial for

businesses to evaluate the return on investment before adoption.

As businesses continue to navigate an increasingly dynamic global market, embracing technological innovations in supply chain management is no longer an option but a necessity. By integrating AI, IoT, blockchain, automation, and cloud computing, companies can build resilient, efficient, and customer-centric supply chains. As we move towards a future where digital transformation dictates market success, organizations that proactively adopt and adapt to these technologies will gain a competitive edge in the evolving landscape of supply chain management.

Role of Technology in Modernizing Supply Chain Operations



National Finalist

Yash Nandwani

Retail Management (23-25)

WeSchool, Mumbai



In today's rapidly evolving business environment, supply chains have emerged as the backbone of global trade and commerce. Efficient and effective supply chain management is critical for organizations aiming to compete in an increasingly globalized marketplace. However, with rising customer expectations, growing complexity, and frequent disruptions, traditional supply chain methods are no longer sufficient. This has led to a paradigm shift toward the integration of technology, which has proven to be a game-changer in modernizing supply chain operations. By leveraging advanced technological solutions, businesses can streamline processes, reduce costs, and enhance agility, enabling them to stay ahead in competitive markets.

The Evolving Role of Technology in Supply Chains

Technology has transitioned from being a mere enabler to a core driver of supply chain transformation. Over the past decade, a suite of advanced technologies such as Artificial

Intelligence (AI), Internet of Things (IoT), Blockchain, and Robotics has revolutionized the way supply chains are designed, managed, and optimized. These technologies facilitate real-time visibility, predictive analytics, and automation, offering businesses an unprecedented level of control and efficiency.

Key Technological Innovations in Supply Chain Management

1. Artificial Intelligence and Machine Learning

AI and Machine Learning (ML) play a pivotal role in enhancing decision-making capabilities within supply chains. By analyzing vast datasets, AI enables companies to forecast demand, optimize inventory levels, and improve supplier relationships. Predictive analytics powered by AI helps anticipate potential disruptions, allowing businesses to implement proactive measures.

For example, companies like Amazon use AI-powered algorithms to manage inventory dynamically, ensuring that popular products are always in stock

while minimizing overstock and storage costs (Srinivasan, 2021).

2. Internet of Things (IoT)

IoT devices have brought unparalleled connectivity to supply chains. IoT-enabled sensors and devices provide real-time tracking of goods in transit, offering visibility into the location, condition, and status of shipments. This real-time data helps reduce delays, prevent theft, and monitor product quality, particularly for perishable goods. An example is Maersk, which uses IoT sensors in shipping containers to monitor temperature and humidity, ensuring the safe transportation of perishable goods (Deloitte, 2020).

3. Blockchain Technology

Blockchain is redefining transparency and trust in supply chain operations. By providing an immutable ledger of transactions, blockchain ensures traceability and accountability across the supply chain. This is particularly critical in industries like pharmaceuticals and food, where regulatory compliance and quality assurance are paramount. For instance, Walmart leverages blockchain technology to trace the origin of food products within seconds, enabling swift responses to contamination issues (Kshetri, 2018).

4. Robotics and Automation

Automation and robotics have streamlined repetitive tasks in supply chain operations, enhancing efficiency and reducing human errors. In warehouses, autonomous robots manage picking, packing, and sorting tasks with greater speed and accuracy.

Automated guided vehicles (AGVs) are widely used for material handling, reducing reliance on manual labor.

A notable example is DHL, which uses collaborative robots in its warehouses to improve order-picking accuracy and efficiency (McKinsey & Company, 2022).

5. Big Data and Analytics

Big Data enables organizations to gain actionable insights into their supply chain processes. By analyzing data from multiple sources—such as customer behavior, market trends, and supplier performance—companies can identify inefficiencies and uncover opportunities for improvement.

Retail giants like Target and Walmart utilize big data analytics to optimize inventory levels and enhance customer satisfaction (Harvard Business Review, 2021).

6. Cloud Computing

Cloud computing has become a cornerstone for modern supply chain management by enabling seamless collaboration across geographies. Cloud-based platforms allow businesses to share information in real-time, improving coordination among suppliers, manufacturers, and distributors.

Companies like Unilever and Procter & Gamble rely on cloud-based supply chain management systems to streamline global operations (PwC, 2022).

7. Digital Twins

Digital twins, virtual replicas of physical assets and processes, have gained prominence in supply chain

optimization. By simulating supply chain scenarios, digital twins help businesses identify bottlenecks, test solutions, and make informed decisions. For example, Siemens employs digital twin technology to optimize its production processes and improve supply chain efficiency (Gartner, 2023).

Benefits of Technology Integration in Supply Chain Operations

The integration of technology into supply chain operations offers several tangible and intangible benefits:

- 1.Enhanced Visibility and Transparency
 - a.Real-time tracking and monitoring of shipments ensure complete visibility, reducing the risk of delays and losses.
- 2.Improved Efficiency and Productivity
 - a.Automation of repetitive tasks and optimization of processes lead to significant time and cost savings.
- 3.Better Decision-Making
 - a.Advanced analytics and predictive insights empower organizations to make data-driven decisions.
- 4.Increased Agility and Flexibility
 - a.Technology enables supply chains to respond quickly to market changes and disruptions.
- 5.Sustainability
 - a.IoT and analytics help reduce waste, optimize energy consumption, and improve sustainability in supply chains.

Challenges in Adopting Technology

Despite its transformative potential, the adoption of technology in supply chain operations is not without challenges:

- High Initial Investment
 - Implementing advanced technologies often requires substantial financial investment, which can be a barrier for small and medium-sized enterprises (SMEs).
- Data Security Concerns
 - The use of interconnected devices and cloud platforms raises concerns about data breaches and cyberattacks.
- Complex Integration
 - Integrating new technologies with legacy systems can be complex and time-consuming.
- Skill Gap
 - The lack of skilled personnel to manage and operate advanced technologies can hinder adoption.

Case Studies: Technology Transforming Supply Chains

1. Amazon

Amazon’s supply chain is a testament to the power of technology. By leveraging AI, robotics, and IoT, Amazon has created one of the most efficient supply chains globally. Its AI-driven forecasting models predict demand with high accuracy, while robots in fulfillment centers ensure speedy order processing (Srinivasan, 2021).

2. Zara

Zara uses data analytics to align production with customer demand, minimizing overproduction and stockouts. The company's RFID technology ensures real-time inventory tracking, enabling rapid replenishment of popular items (Harvard Business Review, 2021).

3. DHL

DHL's adoption of robotics, IoT, and blockchain has streamlined its logistics operations. The company uses IoT-enabled sensors to monitor the condition of goods in transit, ensuring quality and reliability (McKinsey & Company, 2022).

The Future of Technology in Supply Chains

The future of supply chain management will be shaped by emerging technologies such as 5G, quantum computing, and autonomous vehicles. These innovations will further enhance connectivity, processing power, and automation, making supply chains smarter and more resilient. Additionally, the focus on sustainability will drive the adoption of green technologies, such as electric vehicles and renewable energy solutions.

MULTIPLE IIM PAPER CONFERENCES

Amrita Shil

1.First of all, congratulations on winning. How do you feel about it?

Thank you so much! I feel really great about this achievement. It's always rewarding to see hard work pay off, and winning this has been an incredibly motivating experience. The competition was tough, and there were so many talented participants, so securing this win makes it even more special. It has boosted my confidence and encouraged me to keep pushing myself to learn and improve. Overall, I'm really grateful for the opportunity and excited for what's ahead!

2.Could you brief us about this competition? What were the hurdles you faced and how did you overcome them?

Some of the conferences required offline presentation while the other were online. Most of them were international research conference with scholars across the globe were presenting virtually. The major hurdle was managing all the deadlines of multiple conferences such as registration, paper submission, arranging travel booking, fulfilling all college research department processes requirements etc all by myself.

3. Competing in such high level competitions requires an edge over others. What steps did you take to distinguish yourself from other participants?

To stand out in a high-level competition, I focused on working both harder and smarter. Hard work was essential in terms of putting in the necessary time to refine my skills, conduct thorough research, and ensure I had a strong grasp of the subject matter. However, working smarter meant strategizing my approach—understanding the competition's structure, analyzing past trends, and identifying key areas where I could gain an advantage. I also sought guidance from mentors, stayed updated with industry trends, and practiced efficient time management to maximize

productivity. Combining these efforts helped me stay ahead and perform at my best.

4. What were your key learnings and takeaways?

Most of the conferences primarily revolved around AI and data analytics, either directly or indirectly, highlighting the growing significance of these fields in shaping the future of various industries. The discussions emphasized how AI-driven solutions and data-driven decision-making are becoming essential across sectors, pushing businesses and researchers to explore new advancements. As the industry evolves at a rapid pace, the key takeaway from these conferences was the need to constantly think, innovate, and adapt. Staying relevant in this dynamic environment requires not only keeping up with emerging trends but also contributing to research and development that can drive meaningful progress.

5. It's always difficult managing time between academics, personal life, and other opportunities. How did you manage your time?

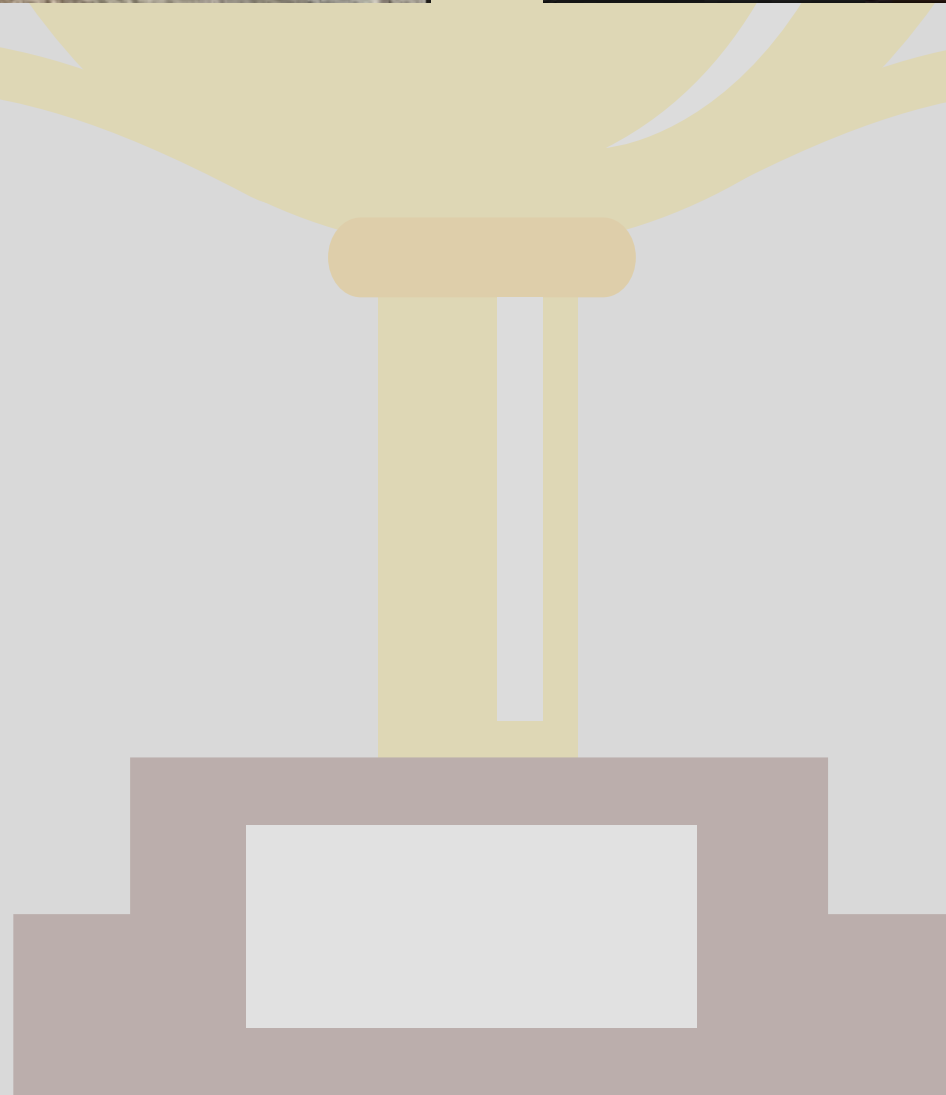
Time management was definitely a challenge, but I made a conscious effort to cut down on unnecessary activities and focus on my priorities. I started by identifying tasks that didn't add much value to my academic or personal growth and minimized the time spent on them. Setting clear goals and following a structured schedule helped me allocate time effectively between studies, personal commitments, and other opportunities. I also used productivity techniques like time blocking and prioritization to ensure I was making the most of my day. Staying disciplined and maintaining a balance allowed me to manage everything without feeling overwhelmed.

6. What guidance or recommendations would you offer to fellow students to ace such high value platform?

My biggest recommendation would be to manage time effectively. High-value platforms demand consistent effort, and balancing academics, preparation, and personal commitments is key.

WeAchievers

Prioritizing tasks, setting clear goals, and sticking to a well-structured schedule can make a huge difference. It's also important to stay updated with industry trends, seek mentorship, and continuously improve through practice and feedback. Avoiding distractions and focusing on meaningful activities will help maximize productivity. Lastly, maintaining a learning mindset and adapting to challenges will give you an edge over others in such competitive environments.



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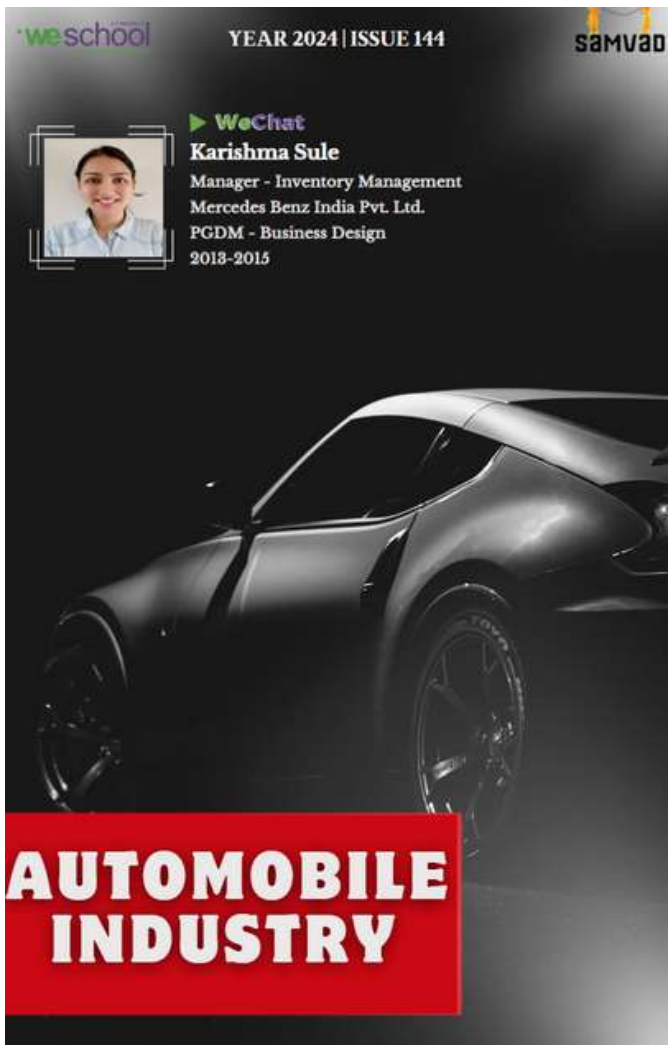
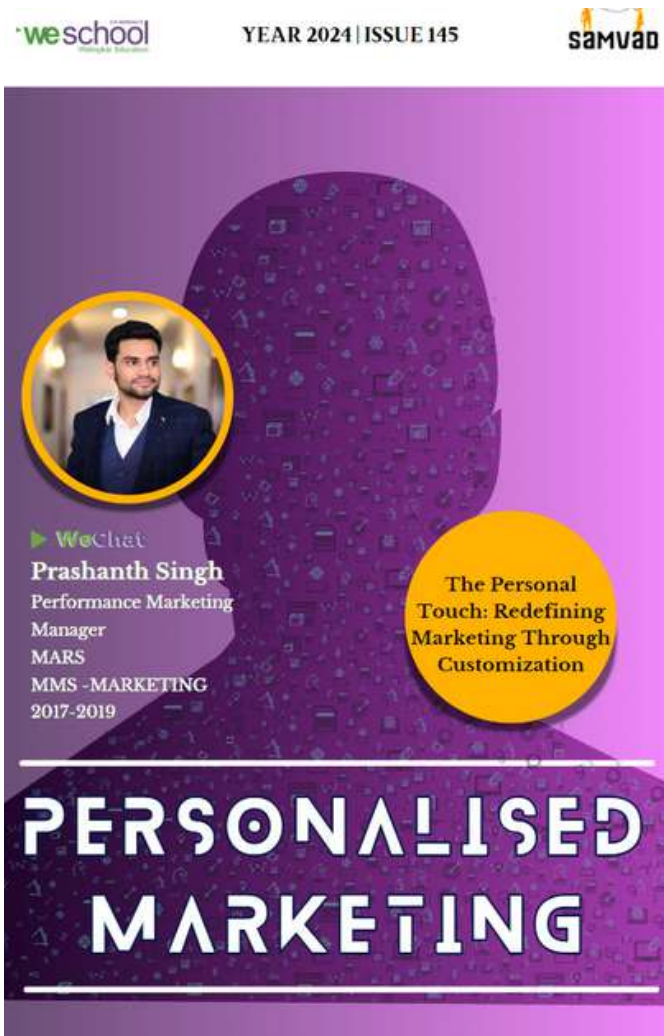
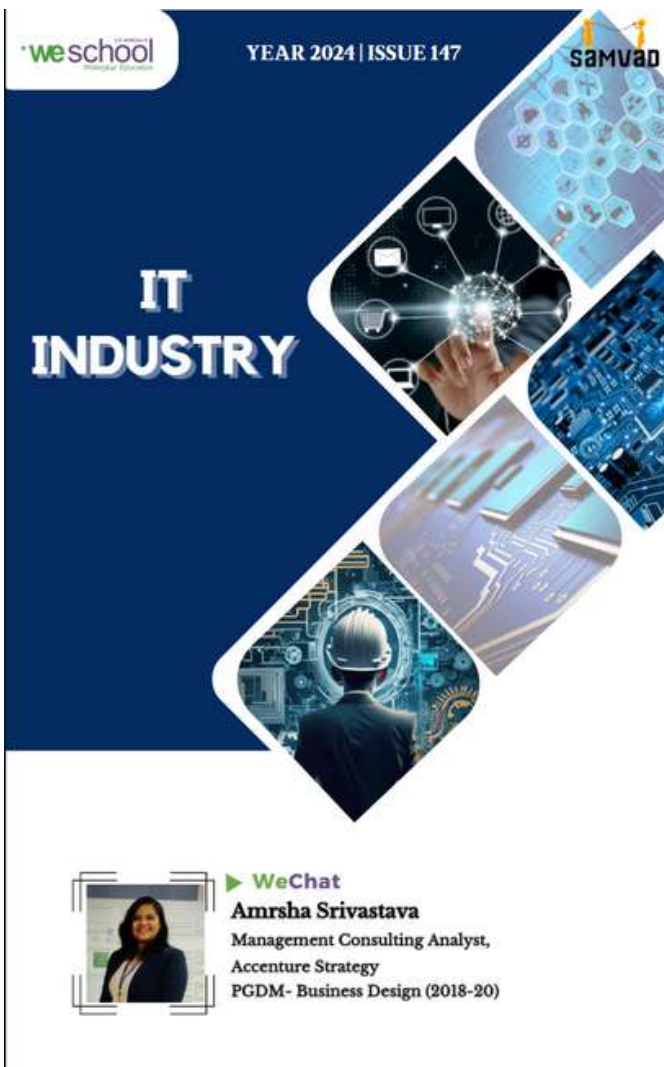
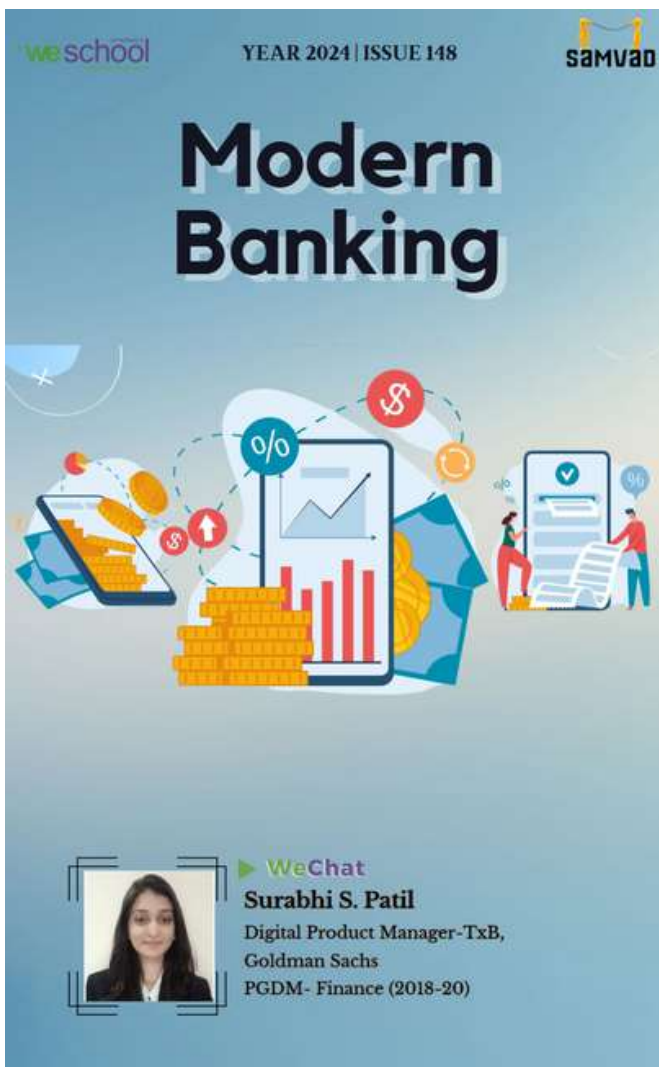
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