

Digital Opportunities for the Paper, Pulp, and Packaging Industry

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Getting the facts on paper

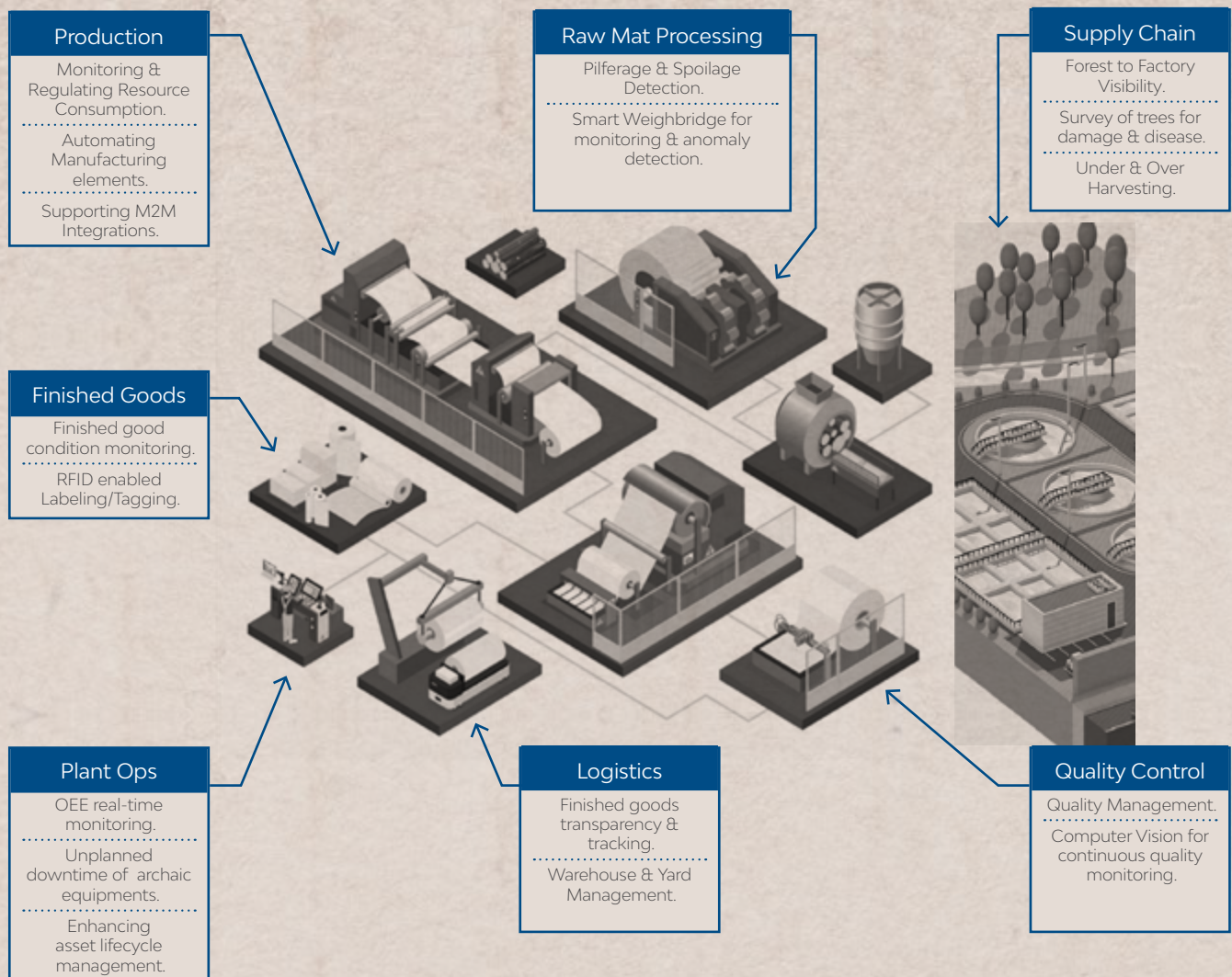
The total sales of the global paper, pulp, and packaging industry in 2019 were estimated at USD 63.3 bn. It is projected to grow to USD 79.6 bn by 2024 at CAGR of roughly 4.7%^[1]. Little has changed over the last 50 to 100 years in the paper manufacturing process. The archaic equipment operating at lower efficiencies and unexpected downtimes has plagued the industry. On one hand, the cost of key raw materials – energy and wood pulp have risen disproportionately over the last half a century, while on the other hand, operational expenses associated with maintenance and unplanned downtime are dominant areas that have hampered efficient functioning of paper mills. In the paper and pulp industry, maintenance cost is as high as 10%^[2] of the sales, although the average per day cost of unplanned downtime is estimated at USD 250,000^[3]. Therefore, the industry has been focusing on increasing efficiency and cost optimization over the last couple of decades.

The other aspects dominating the industry behavior include:

1. The shift from graphic paper to packaging paper.
2. The need to develop nanomaterial that has sector-specific use cases and growth potential.
3. The need to meet industry sustainability goals.

Thus, the 21st century CEO of a paper and pulp products manufacturing company has a unique set of challenges – ‘to operate and grow in an industry, which is witnessing a radical shift in market demand, consumer behavior and regulatory & environment requirements.’

Challenges and Opportunities across the paper and pulp value chain:



The top operational challenges and opportunities in the paper and pulp industry are:

Digitizing O&M across the paper manufacturing value stream:

1. Enhancing supply chain efficiencies:

Many manufacturing organizations across sectors are now investing in building supply chain control towers that would help them to create an autonomous supply chain in the future. The first step in this journey would be to integrate systems, which will build visibility and transparency. Integrating internal processes and connecting with strategic buyers would streamline material flow and harmonise the manufacturing process. The future levels of maturity for the industry would be to reach a point where intelligent agents recommend supply chain actions and actively support decision-making.

Case Study

Log Traceability for Forest Products Manufacturer

Client

Leading food and agri-business supplying food ingredients, feed and fibre, based out of Gabon and the Ministry of Forest, Gabon.

Challenges

1. Ensure 100% traceability of harvested timber in order to comply legally with the law of the land.
2. Eliminate revenue leakages in the supply chain.

LTIMindtree Solution

LTIMindtree proposed an end-to-end solution throughout the journey from point of procurement to sales.

- > Tagging of trees.
- > Logging.
- > Right-sizing of logs.
- > Loading & transporting.
- > Warehousing.
- > Sale of logs.

Business Benefits

- > Creation of a digitized tree inventory.
- > Map of tree information to logs and sub logs.
- > Record of the cut inventory position across the supply chain.
- > Volume calculation and reconciliation.

Case Study

Digital Transformation of Port Operations to Enhance Operational Performance

Client

A leading diversified agri-business in Gabon supplying food ingredients with interests in logistics and infrastructure.

Challenges

1. To increase efficiency in its port business overall.
2. To improve asset and resource utilization.
3. To create centralized visibility of operations to reduce pilferage.

LTIMindtree Solution

LTIMindtree designed the digital transformation roadmap for the organization from scratch, intending to create cost optimization. It included:

- > Retro-fitment of sensors on machines and data collection on cloud to create a unified dashboard.
- > Automated task allocation for better asset utilization.
- > Real-time productivity analysis for better port management.

Business Benefits

- > 1% reduction in unproductive hours.
- > 2% improvement in operational performance.
- > 5% improvement in fuel efficiency.

2. Enhancing O&M efficiencies:

Operations and Maintenance (O&M) improvement is all about coordinating and integrating technology with un-siloed operations. The push for Industry 4.0 and allied technology tools is a key step in this direction. It has been a vital catalyst in enabling organizations to elevate operational effectiveness across industries. Predictive maintenance has been one of the most crucial factors, which has a direct impact on the bottom line.

The industry has a planned downtime of 10 to 14 days in a year and is usually allocated close to a third of the annual maintenance budget ^[4]. However, implementation of predictive maintenance technology could help the industry in the following two ways:

- o Controlling cost over-runs and unplanned maintenance expenses during planned shutdown periods.
- o Limiting unplanned maintenance days during the year.

The industry is also now considering making planned shutdown activities a 'once in 1.5 years phenomenon' to balloon existing savings from predictive maintenance activities.

Automation is also a key lever to enhance operational effectiveness. A systematic process audit or value stream mapping exercise across the complete value chain could result in several automated processes. It would help eliminate redundancies and streamline workflows.

Some of the key areas on the shop floor include:



Integrated
Operations Centre

(Throughput, energy consumption,
defect %, and etc.)



Asset Life Cycle
Management



Operations Digitization
and OEE



Process and
Worker Safety

Visioning the Intelligent Paper Mill of the Future:

The intelligent enterprise is all about enhancing the efficiency of organizations and driving lean principles to develop nimble-footedness. The outcome would be the ability to evolve and transform itself to deliver elevated customer-centric value. At its core, an intelligent enterprise is about revolutionizing performance using state-of-the-art technologies such as Blockchain, AI/ ML, and Analytics to deliver superior performance. The real value of these technologies and the impact they will create depends on how embedded the solutions are to enable business operations/actions and assist in driving improved value.

For the paper and pulp industry, it would mean deploying the above-mentioned technologies strategically to increase efficiency and adopt newer business models to serve customers.

The paper and pulp industry is all set to enter a transformative decade ahead. This shift would mean making unprecedented decisions and crossing several hurdles. However, the successful players would be those that embraced and invested in the intelligent paper mill.

References

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3. Research report titled ‘[How can SMEs adopt a new method to advanced maintenance strategies? A Case study approach](#)’
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About the Author

Mohit Navare is an experienced Digital Transformation Leader with more than 20 years of experience in transforming customer relationships across Fortune 500 companies, responsible for driving implementation of strategic priorities and realizing true digital value through customer experience and business value realization. Having successfully handled various leadership roles in delivery, consulting, competency building and solutioning, he works closely with clients, successfully driving their transformation initiatives.



LTIMindtree is a global technology consulting and digital solutions company that enables enterprises across industries to reimagine business models, accelerate innovation, and maximize growth by harnessing digital technologies. As a digital transformation partner to more than 700+ clients, LTIMindtree brings extensive domain and technology expertise to help drive superior competitive differentiation, customer experiences, and business outcomes in a converging world. Powered by nearly 90,000 talented and entrepreneurial professionals across more than 30 countries, LTIMindtree — a Larsen & Toubro Group company — combines the industry-acclaimed strengths of erstwhile Larsen and Toubro Infotech and Mindtree in solving the most complex business challenges and delivering transformation at scale. For more information, please visit www.ltimindtree.com.

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