Supply Chain Management: Just in Time and Six Sigma

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ANALYSIS
MANAGEMENT
LOGISTICS
SCM
SUPPLY CHAIN
MANAGEMENT
PROFIT
TIME TO
MARKET
PROCUREMENT
DISTRIBUTION
PLAN

Just-in-time System

- Developed by the Toyota Motor Company during the 1950s and 1960
- Inventory management philosophy aimed at reducing waste and redundant inventory by
- Delivering products, components, or materials just when an organization needs.

5 Salient Features of JIT System

1. 3 JIT system principles

available with only efficient supply chains.

- Total quality control - improving efficiency of material processes and quality
- Elimination of waste - effectiveness of processes and operations that add value to the materials
- People involvement - company’s employees are its most valuable resource

2. 6 JIT System Inventory Management Principles

Effective management of inventory throughout the entire supply chain.

- Reduce lot size and increase frequency of orders.
- Reduce buffer inventory.
- Reduce purchasing cost.
- Improve material handling.
- Seek zero inventory.
- Seek reliable suppliers.

Supply chain is a critical factor for making JIT System successful.

3. Implications of JIT System for Logistics Integration

- Principles can be extended throughout the supply chain
- Proven quite successful in simplifying and streamlining
- Transportation becomes an even more vital component
- Warehousing - instead of storage facility.

4. Benefits of JIT System

- Improved inventory turns
- Better customer service
- Decreased warehouse space
- Improved response time
- Productivity improvements
- Greater control between various production stages
- Diminished raw materials
- Lower transportation costs

5. Problems

Not all organisations find it suitable. JIT System has 3 inherent problems:

- Supplier production schedules
- Level production schedules
- Suppliers locations

Six Sigma

- Set of tools and strategies for process improvement
- Seeks to improve the quality of process outputs
- Identifies and removes the causes of defects (errors)
- Minimizes variability in manufacturing and business processes.
- Uses a set of quality management methods, including statistical methods

Six Sigma

- Project follows a defined sequence of steps
- Quantify financial targets
- Maturity of a manufacturing process described by a sigma rating
- Six Sigma Process (SSP) - 99.99966% of the products manufactured are statistically expected to be free of defects (3.4 defects per million).
- Makes decisions of the basis of verifiable data and statistical methods

Lean Six Sigma

- A methodology that combines Six Sigma ideas with lean manufacturing.
- It views lean manufacturing and Six Sigma as complementary disciplines aimed at promoting "business and operational excellence".

DPMO

Sigma	DPMO	Percent Defect (%)	Percent Yield (%)
1	691,462	69	31
2	308,538	31	69
3	66,807	6.7	93.3
4	6,210	0.62	99.38
5	233	0.023	99.977
6	3.4	0.00034	99.99966
7	0.019	0.0000019	99.9999981

Methods

Six Sigma projects follow two project methodologies inspired by Deming's Plan-Do- Check-Act Cycle :

- DMAIC is used for projects aimed at improving an existing business process.
- DMADV is used for projects aimed at creating new product or process designs.

Implementation Roles

- Top management are responsible
- Empower others with the freedom and resources to explore new ideas.
- Champions
- Master Black Belts

Implementation Roles

- Black Belts
- Green Belts
- Application - IBM, GE, Motorola

Conclusion

Six sigma

- positive effect for years.
- Can be a dismal failure if not used correctly.
- Maintains highly efficient production and administrative systems.

JIT

- waste can be eliminated
- can be advantageous or disadvantageous depending on suppliers, skills of workers, willing to take up the change in organisation.

What We Engineers Learn

- Managing Time
- Improving Client Loyalty
- Long term strategic planning
- Improving employee motivation
- Quality
- Increase Productivity
- Flexibility

References

https://searcherp.techtarget.com/definition/supply-chain-management-SCM

https://businesscasestudies.co.uk/managing-the-supply-chain-for-globally-integrated-products/

https://www.phaidoninternational.com/industryinsights/using-six-sigma-to-maximize-supply-chain-efficiency-through-s-and-op-85221152536

Dedicated to:

W. Edwards Deming