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High-Tech Manufacturers: Ahead in the Lean Journey

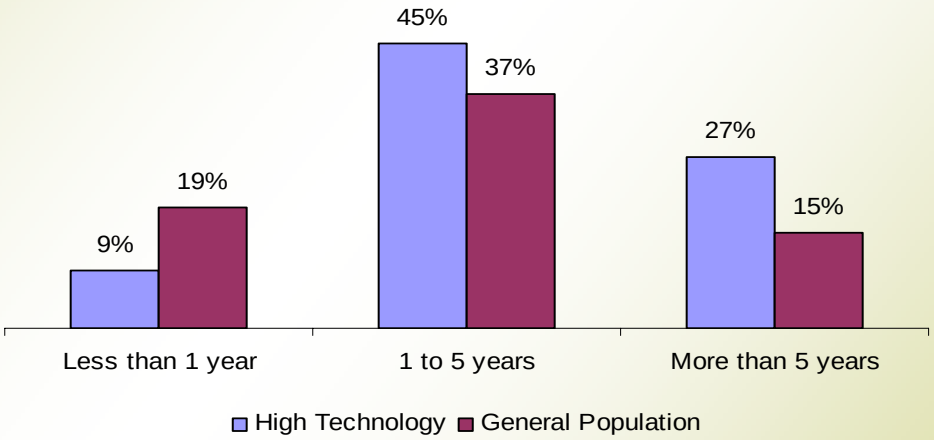
Market Segment

Results from *The Lean Supply Chain Benchmark Report* indicate that manufacturers in the high-tech industry are 81% more likely than the general population to have had a Lean initiative in place for more than 5 years. The early adoption of Lean in this industry is directly reflected by the lead that these manufacturers have taken in technology adoption, which has resulted in greater operational performance.

Analysis

Lean is a philosophy that espouses continuous improvement, the simplification and standardization of business processes, and the elimination of all forms of waste (muda). The main goals for adopting Lean are to deliver what customers want, when they want it, at the lowest cost, and at of the highest quality. Manufacturers that have successfully adopted lean are enjoying strategic and operational benefits ranging from improvement in manufacturing performance, customer responsiveness, to bottom line financial improvements.

Figure 1: Lean Maturity



Source: Aberdeen*Group*, February 2007

Manufacturers in the high-tech industry are well engaged in their Lean initiatives and those more mature companies are already enjoying the benefits of their Lean practices (Figure 1). Only 9% of high-tech manufacturers have had Lean practices in place for less than 1 year. This percentage increases to 45% for manufacturers that have been using Lean for 1 to 5 years, and 27% of manufacturers in this industry have been using Lean for more than 5 years. This means that more than half the high-tech manufacturers are currently well entrenched in the Lean journey.

Announcement

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Lean Technology Adoption

There has been a growing consensus among manufacturers regarding the importance of technology for supporting and scaling the implementation of Lean techniques to improve performance. Automating Lean processes helps manufacturers to integrate shop floor activities directly with enterprise and supply chain, resulting in greater visibility in the manufacturing processes for all the stakeholders, and hence, an increase in responsiveness. This has a direct effect on increasing customer satisfaction, flexibility, and eliminating waste in the processes – which are some of the core foundations of Lean.

This is exactly the process followed by high-tech manufacturers. This industry segment is more likely to use Enterprise Resource Planning (ERP) in the following areas than the general population:

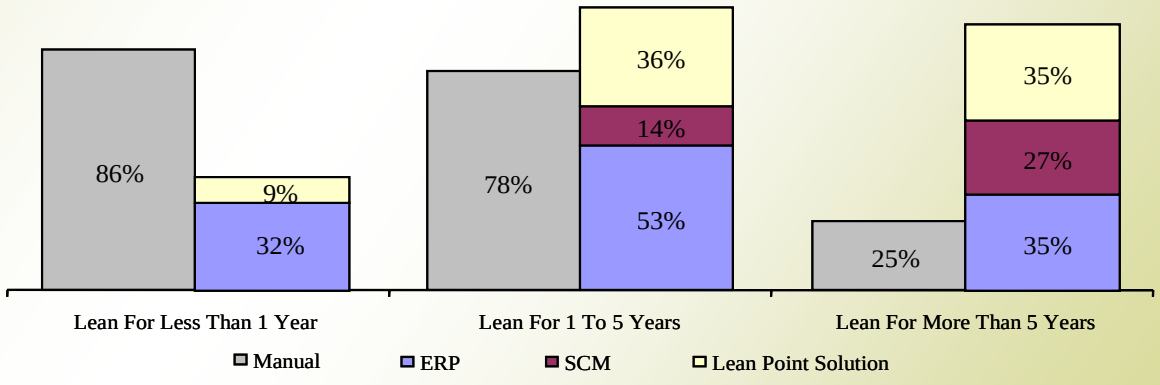
- Supply Integration – 65% more likely
- Supply chain planning – 58% more likely
- Customer integration – 40% more likely

Recommendations for Action

- √ Transition from the use of a manual and/or spreadsheet approach to the use of technology to automate the Lean manufacturing processes.
- √ Extend Lean initiatives beyond the shop floor to the enterprise and the supply chain.
- √ Leverage specialized technology solution to fast forward the Lean initiative and fuel innovation.

While high-tech manufacturers have taken a lead in adopting ERP when compared to their peers in other industry verticals, there is a considerable difference in technology adoption rate among them. The majority of companies that have adopted Lean for less than one year (86%) are still using manual process and spreadsheets to manage Lean initiatives. This significant difference shows that there is a lot of opportunity for high-tech manufacturers that still have to transition away from the use of manual process. Capturing data via pen/pencil and spreadsheets creates a bottleneck in business processes. It becomes difficult to share the manually recorded data and hence hinders the information flow across the shop floor.

Figure 2: Matured High-Tech Manufacturers Demand Customized Solutions



Source: AberdeenGroup, February 2007

Maturity in adopting Lean and technology goes hand in hand for high-tech manufacturers. The data from Figure 2 shows that as high-tech manufacturers move forward in their Lean initiative, they start investing in technology solutions to assist them in manufacturing.

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When examining the types of technology manufacturers utilize for Lean initiatives, an interesting trend came into focus. Manufacturers who have been Lean for 1 to 5 years are more likely to use ERP solutions (53%). But, on the other hand, a large number of manufacturers in this category have started to use Supply Chain Management (SCM) and Lean point solutions. As high-tech manufacturers become more mature in Lean adoption (use for more than 5 years) they start to switch from the exclusive use of ERP to more specific point solutions. The survey recorded a 13% increase (14% versus 27%) in high-tech manufacturers that implemented SCM solutions as they matured in their Lean adoption from less than 5 years to more than 5 years. This data points to the fact that high-tech manufacturers have started to extend Lean initiatives to the supply chain.

Atos Origin

A number of high technology manufacturers have been using e-Kanban and applying it to MES and warehouse management systems to increase visibility into the shop floor activities.

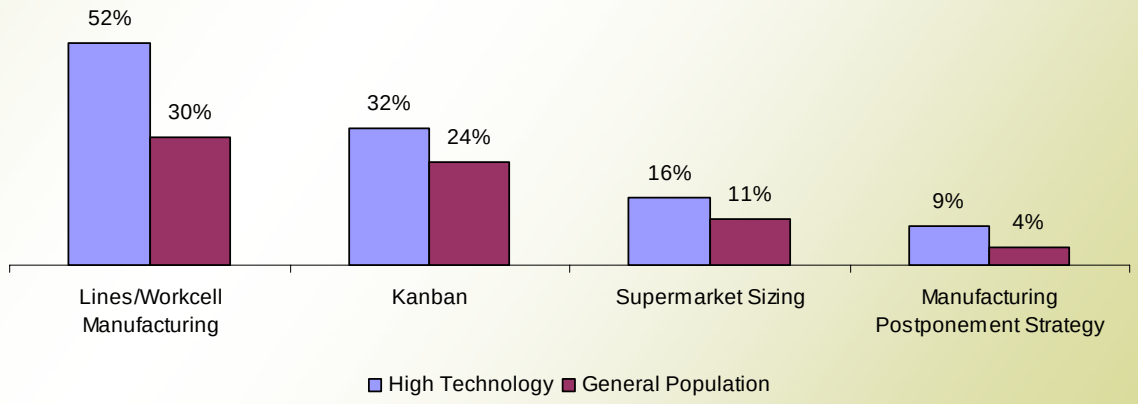
Ralph Gordon, Production Solutions Consulting

The trend observed is that high-tech manufacturers that are recent adopters of Lean, start with the use of pen/pencil or spreadsheet. As they continue along the Lean journey, these companies begin to realize the benefits of using technology to support Lean and, thus, begin to switch to point solutions. As manufacturers grow to be more mature they require solutions that address specific manufacturing issues and therefore move away from the use of generic technology solutions. These manufacturers can still purchase specific solutions from their existing ERP vendors that are more invested in Lean and supply chain. ERP vendors have started to offer and integrate a whole range of products catering to the needs of the market.

Taking a Lead with Lean Tools Adoption

In the current competitive environment, operations and processes are becoming increasingly complex. Top level management is demanding more visibility into the manufacturing processes for themselves and their workforce so that they can exert greater control over operations. In this scenario, manufacturers are moving towards adopting Lean tools to get a tighter grip on their manufacturing processes.

Figure 3: Utilizing Lean Tools



Source: AberdeenGroup, February 2007

High-tech manufacturers lead the race in the Lean tools adoption rate when compared to the general population. They are 33% more likely to use Kanban than manufacturers in other

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verticals. Implementing Kanban helps manufacturers to move from push to pull based manufacturing. Other major advantages of using Kanban include building quality into the process, creating flexibility, higher productivity, freeing up floor space, and reducing the cost of inventory. High-tech manufacturers are also more likely to use other Lean tools such as Workcell manufacturing, Supermarket sizing and Manufacturing Postponement strategy (Figure 3). With a higher adoption rate for Lean tools, high-tech manufacturers are in an ideal position to extend Lean in multiple departments throughout the enterprise and to the supply chain networks of suppliers, customers, and partners.

Operational Performance

Finally, it is important to determine whether the increased adoption in Lean tools and technology has resulted in increased performance in the manufacturing process for high-tech manufacturers. The results in Table 1 show, in all three categories, that high-tech leads the general population.

Table1: Benefits of Embracing Lean

	High Technology	General Population
Order Fill Rate (%)	94%	91%
On-time Delivery (%)	90%	87%
Yield (%)	86%	80%

Source: AberdeenGroup, February 2007

The top two Key Performance Indicators (KPI), order fill rate and on-time delivery, are closely related. The performance difference points toward the effect that automating Lean processes creates on the manufacturing. With the use of Lean tools and technology, high-tech manufacturers are able to achieve on-time delivery for 90% of their orders and also record better operational performance for the order fill rate and the yield. While the absolute performances difference is not much (3% to 6%), the fact remains that after manufacturers reach a higher percentage performance it becomes very difficult to achieve every percentage increase thereafter.

Conclusion

The manufacturers of high technology products have taken a lead in adopting technologies and Lean tools in their manufacturing processes. But, there is still a lot of room for improvement for high-tech manufacturers that are behind the curve in their adoption rates:

- These high-tech manufacturers should get rid of manual approaches of collecting and integrating data, and switch to the use of automation technology (such as ERP, SCM and Lean point solutions).
- The goal for the recent Lean adopters should be to accelerate the learning curve to achieve maturity in less time.
- For high-tech manufacturers that are already ahead of the curve, extend the Lean initiative beyond the shop floor to increase visibility and responsiveness in the manufacturing process.

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Related Research	Upcoming Research
The Lean Supply Chain Benchmark Report, September 2006	*Manufacturing Flexibility*, February 2007
The Lean Benchmark Report: Closing the Reality Gap, March 2006	*Shop Floor Data Integration*, March 2007

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