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Contents

Productivity in Logistics and Storage

1. An Overview of Logistics Industry in Singapore

Singapore has become one of the choice locations for manufacturers who are seeking ways to centralise their sourcing and supply chain. Some of the leading logistics companies are using the benefits of Singapore's leaderships in areas such as electronics, chemicals, oil and gas and even healthcare to set up global centers in the country.

In 2014, the logistics industry in Singapore has been performing very positively. However, the Economic Development Board (EDB) believes that it is not the time to rest on their laurels and has made it their mission to help to direct the Logistics industry toward thoughtful and well directed leadership and advanced practices.

Today the logistics sector makes up more than 6 percent of of the GDP in Singapore and employs more than 189 thousand people. The sector continues to grow more than 4 percent per year, but there is still a great deal of work to do to compel further growth.

The logistics and supply chain is now going through an exciting stage of growth and innovation. The rise of the middle classes in Asia has led to a bigger demand for logistics services locally and the trade has increased dramatically. By 2030, the best projection is that there will be more than 33 trillion in intra-Asian trade in logistics.

2. Challenges to the Logistics Industry

The challenges facing the logistics industry today are data management, labour supply, goods volume expansion, goods tracking, customer expectation management and the inability to integrate with operations and systems of other sites and companies.

While the idea of running a warehouse or supply and storage may seem easy and simple, the reality is not. A major problem that affects the industry is the aging market with warehouse labour shortage and increasing labour cost.

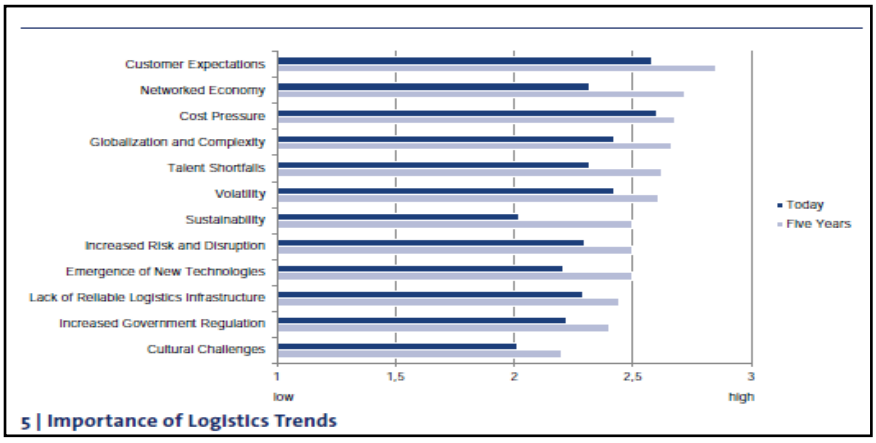

Figure 1: Logisitcs Trends

Source:
http://www.supplychain247.com/paper/trends_and_strategies_in_logistics_and_supply_chain_management/one_network_enterprises

The largest single cost of warehousing and logistics is the staffing. Younger workers shun the jobs in warehousing because they are physically demanding. This shortage of warehouse workers can cause a slowdown in productivity

In addition, there is the massive updating of the same data across every site to assure that the warehousing data is consistent and accurate. The data must also be accessible to everyone at the same time. The volume of goods that warehouses are servicing now has doubled in just the last five years alone. It will continue to grow as more products and services are made available by companies.

Many warehouses are still using manual methods of searching for stock. This increases the need for man hours.

According to Logistics Management 2013, one of the most important aspects of running a warehouse or logistics industry venue effectively and efficiently is the use of Warehouse Management Solutions (WMS). Only about fifty percent of logistics operations are currently using WMS. More need to use it to keep warehouses efficiently operating.

Users of WMS said that they were changing the way in which they used WMS and were depending on it more than they had in the past. Training is needed ensure staff has the ability to use the software.

With increasing new products and services, it is a challenge too to optimize the space and make sure that there is room for everything that is necessary for the customers. New demands are emerging and the supply chains are becoming ever more global in nature. Warehouses are not always able to address the increased expectations of their customers and the rising demands in such a way that they can meet them with less than the necessary amount of storage space in the warehouse.

These challenges require new and innovative solutions that will enable the companies to maintain their warehousing/logistics business without raising the costs and while improving the level of quality. Customers are demanding increased services, increased flexibility and improved visibility. New solutions that will extend the supply chain while accommodating the global customer base are necessary.

3. Key Enablers and Disruptive Technologies in Logistics

3.1 Better Software and Management of Materials

Among the key enablers in the drive to greater productivity in the Singapore Logistics industry is the use of smart warehouse solutions. The use of WMS will allow for better use of time and labour that is available. Benefits include :

- Better visibility of inventory
- Better customer experiences
- Improved stock management
- Faster business decisions
- Lower labour costs
- Improved internal efficiency and communication

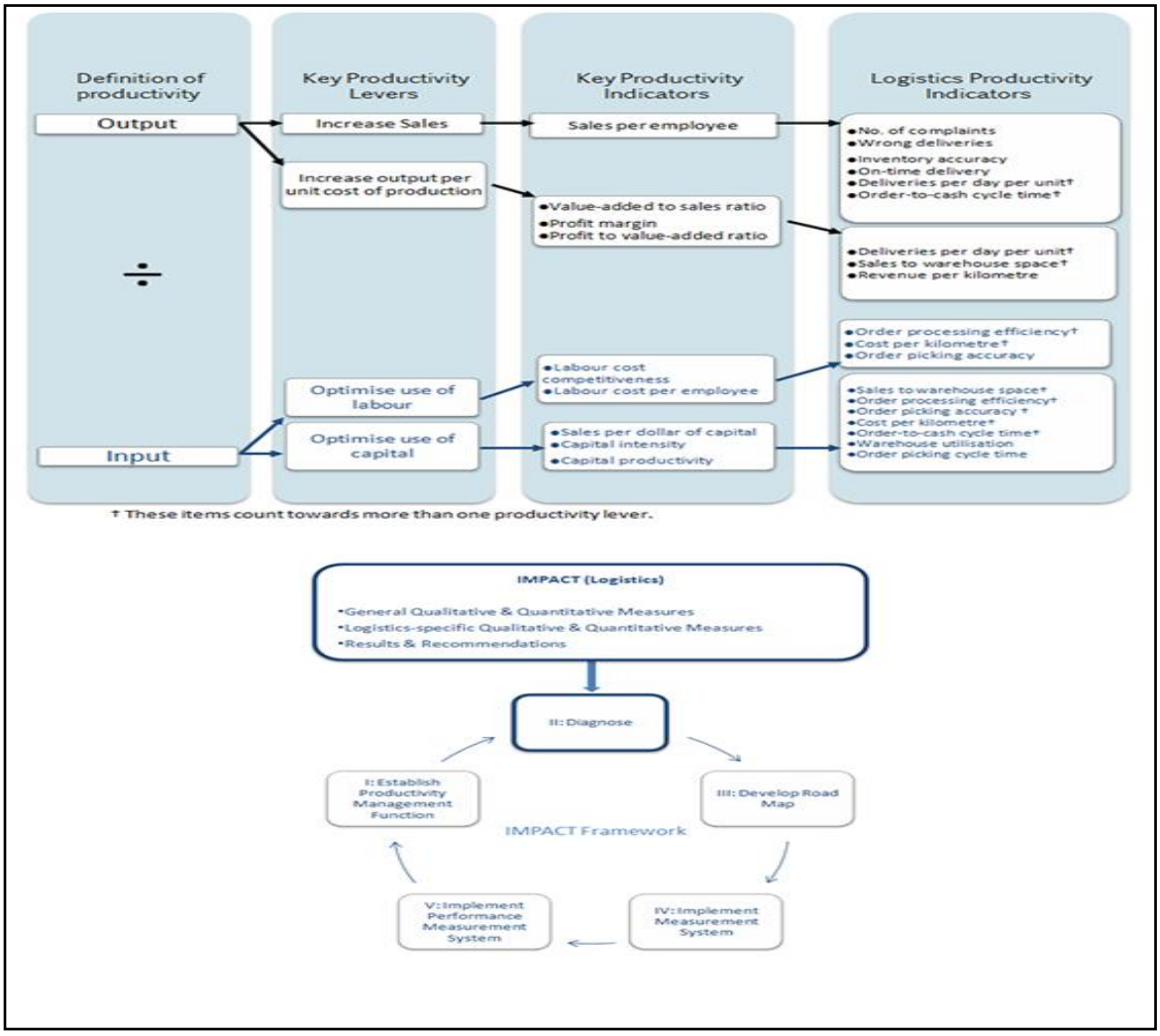

Figure 2: Logistics Productivity Indicators within the IMPACT Framework
Source:
http://www.waytogo.sg/how-to-improve-productivity/productivity-methodologies/2013/08/06/impact-(logistics)-assessment-tool

3.2 Improved Training and Increased Hires for Skilled Workers

For the logistics industry to achieve global leadership, Singapore has endorsed a hefty US42 million and a five year roadmap to improve productivity. More logistics companies are getting on the bandwagon and are adopting new and improved methods of automation and redesigning their workflow as well as redesigning job and resource sharing.

3.3 Increased Use of Warehouse Automation

Lowering the dependence on labour and relying more on automation is going to accomplish a great deal. Faster processing of customer orders can be done by automation and increase customer satisfaction. Automated warehousing will require training but once accomplished, it will vastly change and improve the Singapore warehousing industry.

Robotics alone will be able to save a vast array of financial and personnel resources but adoption has been slow, perhaps due to costs or perhaps due to worker resistance to the methodology. According to the 2013 RIS News/Gartner Retail Technology Study, just 20% of retailer respondents are using up-to-date technology for real-time inventory visibility, 24% for distributed order management and 16% for multi-channel fulfillment.

Automated transport will be a valuable way to bring efficient operations to the warehousing /logistics industry.

4. Key Enablers and Disruptive Technologies in Logistics

Beyond warehouse applications, there are new visionary concepts using Internet of Things (IoT) in operations and management , in line haul transportation and last mile delivery.

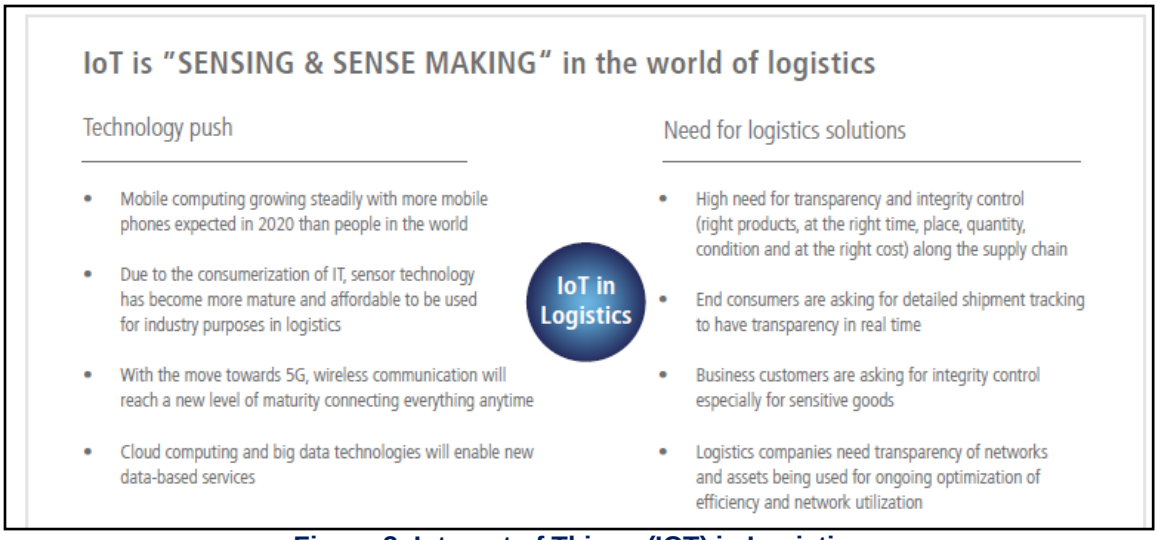

Figure 3: Internet of Things (IOT) in Logistics
Source:
http://www.dhl.com/content/dam/Local_Images/g0/New_aboutus/innovation/DHLTrendReport_Internet_of_things.pdf

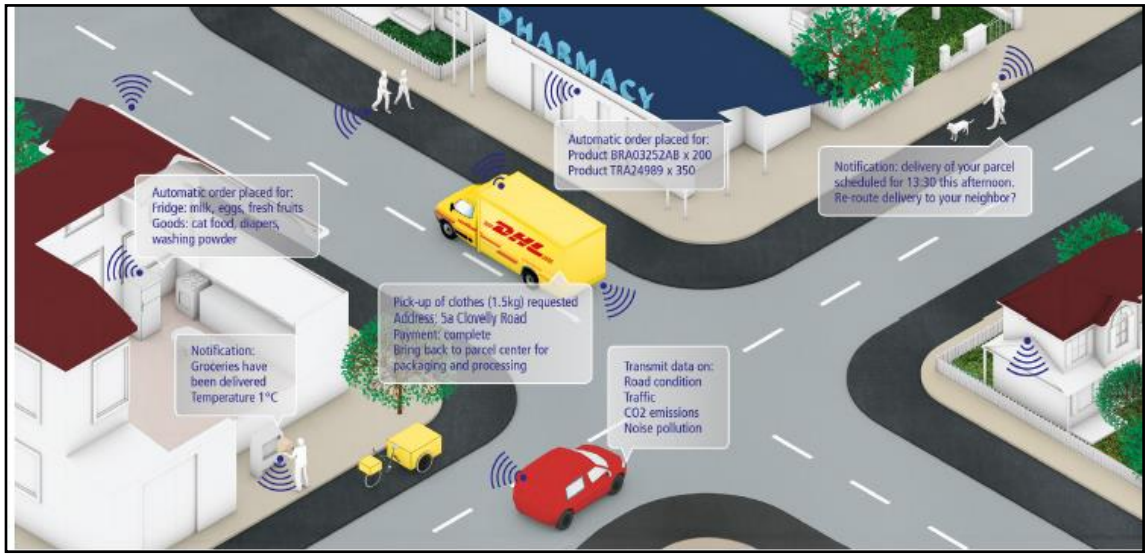

Figure 4: Internet of Things (IOT) in warehousing operations, freight transportation, and last-mile delivery.
Source:
http://www.dhl.com/content/dam/Local_Images/g0/New_aboutus/innovation/DHLTrendReport_Internet_of_things.pdf

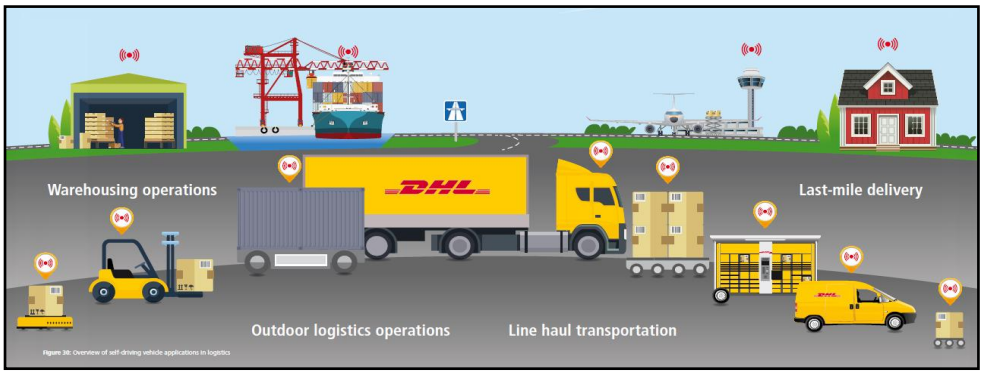

Figure 5: Self-Driving Vehicles in Logistics
Source:
http://www.dhl.com/en/about_us/logistics_insights/dhl_trend_research/self_driving_vehicles.html

Streamlining the operations will be necessary in the long range, but some short term recommendations being made are these:

- Good use of Big Data
- Improvements in Customer Service
- Improving demand driven operations
- Shorten the order to delivery time
- Better customer relationships
- More effective management techniques

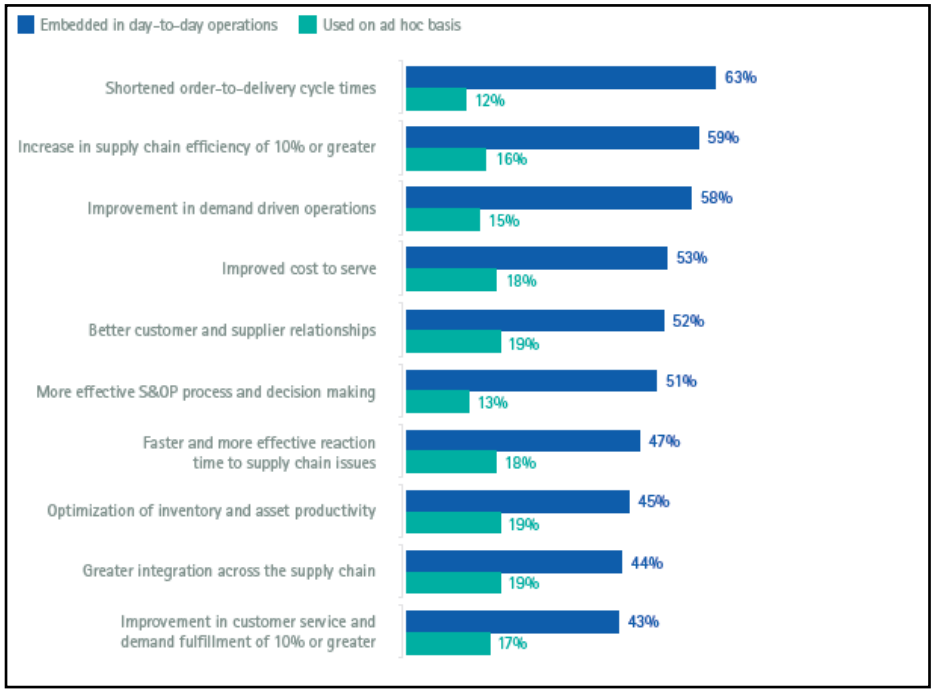

Figure 6: Benefits of using Big Data Analytics in Operations
Source: http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture-Global-Operations-Megatrends-Study-Big-Data-Analytics.pdf

These changes will give the industry time to make the changes that will heighten their productivity in the long term. Some examples of these are found in the case studies below.

Case Study

Case Study 1: Singapore Study – LF Logistics & Pan Asia Logistics Singapore Pte Ltd

Some companies are working hard to make changes in their productivity. Simply by using wifi technology, solid leadership and making small changes without reinventing the wheel, local companies made a big difference and won some well-deserved recognition.

Six local enterprises were awarded the inaugural Singapore Productivity Awards for changes that they made to increase and improve their productivity. The winners of the 2014 Singapore Productivity Awards hailed from the hospitality, F&B, logistics and retail sectors. These winning companies implemented productivity initiatives to boost revenue and incentivise employees' morale as well as to motivate team work and team building. Award recipients were Holiday Inn Singapore Atrium, LF Logistics Services, Neo Group Limited, Pan Asia Logistics Singapore Pte Ltd, Select Group Limited and Sheng Siong Group Limited.

LF Logistics Services and Pan Asia Logistics Singapore Pte Ltd has leveraged on technology to improve the productivity of their logistics business, setting themselves as role models and leaders in their industry.

LF LOGISTICS | Case Studies

ONE-STOP

OPTIMIZED SOLUTION

FROM SOURCING TO LOGISTICS

When one of LF Sourcing's platinum customers was looking to improve their supply chain efficiency, the LF Sourcing team sprung into action. Their customer, came from suffering bottlenecks within their supply chain, rising costs for new domestic warehouses and increasing freight and ground transport costs. This slowed the customer's initiative to grow direct imports and improve profit margins.

As a solution, the head of LF Sourcing personally led the customers' Chief Operating Officer and his senior management to meet the LF Logistics team and see what they could offer.

The customer was quickly impressed by the vision and capabilities of LF Logistics, and was willing to invest the next 4 months in a supply chain re-design project carried out by LF Logistics. The project examined multiple models and out-of-the-box scenarios, and deployed rigorous analytics methodologies to optimize the customer's total supply chain costs from its factory all the way to its retail store in the United States. Through rounds of testing validation and fine-tuning, the customer subsequently chose a new model, which could yield 20% savings of the direct logistics costs with a slight improvement of weighted average lead-time.

The customer's Chief Operating Officer wrote a letter to LF Logistics and said he never imagined an external logistics provider could achieve such a deep understanding of their internal operations - and produce such a quantum leap in logistics savings. He was also delighted at the opportunity for one single party to manage the whole supply chain performance from sourcing to logistics - avoiding potential finger-pointing among various business partners.

The new model included:

- Advanced inventory allocation for pick-and-pack at three origin hubs in Asia for direct U.S. store delivery
- Dynamic optimization of shipments between factory, hub and store
- Re-organize warehouse location and transportation pool-points in the U.S.

Figure 7: One-Stop Optimised Solution by LF Logistics
Source: http://www.lflogistics.com/sites/default/files/images/case-study/file/LF%20Logistics_mag_A4_4_0.pdf

Figure 8: Investing in SMART warehousing - Pan Asia Logistics
Source: http://www.panalogs.com/services/contract-logistics/

"Making Good Use of Space" featured in The Business Times

Pan Asia Logistics has been awarded the Singapore Productivity Award for excellence in the logistics sector.The award honours organisations for their leadership and business practices that contribute towards labor productivity, efficiency and sustainable growth.

Pan Asia Logistics is constantly adapting, transforming, reshaping, and innovating in order to meet the growing and ever-changing demands of their clients and the global markets. Productivity improvements have been a natural course of action taken by PAL, with it being a significant factor for their long-term sustainability.

Pan Asia Logistics Singapore's productivity efforts are driven by the needs of their customers. The company has activated a substantial amount of measures and is looking for innovative ways to tap into the current market developments and map out their strategic direction for the coming years.

"The Logistics industry needs disruption to prepare for the next generation of logistics solutions, because the next generation of customers and employees are born into the digital age" said Mr. Tan, CEO of Pan Asia Logistics.

Figure 9: Optimising Warehouse Space – Pan Asia Logistics
Source: http://www.panalogs.com/media-and-updates/

Case Study 2: Efficiency and Logistics and Storage - LTW Intralogistics

More and more food producers need to know precisely where things are coming from and where each one originated in order to ensure efficiency, safety and security. Automation of warehousing can help to accomplish that. AS/RS Fires-Up Productivity in Deep-Freeze Warehouses. New automated storage and retrieval systems that are now online can help to reduce warehouse labour, improve inventory and fulfillment accuracy. In addition it can also cut product and facility damage. "In a deep-freeze environment, workers can easily make tracking mistakes in the severe cold," continues Gregory. "It is a huge benefit to have this function automated, particularly as the demands for product tracking in the entire supply chain are continually getting tighter."

By incorporating the latest improvements in high-bay stacker crane systems, a frozen foods processor or distribution center can better adapt to changing throughput dynamics, while operating at a more cost-efficient level. Lowering the need for manpower inside the cold condition is another added benefit and preventing illness and injury keeps the manpower hours and medical outlay lower while raising the efficiency dramatically. "Modern cranes operate within a set of top and bottom rails, which stabilise the crane, allowing greater load capacities, as well as higher rack heights," says Daryl Hull, president North America, LTW Intralogistics.

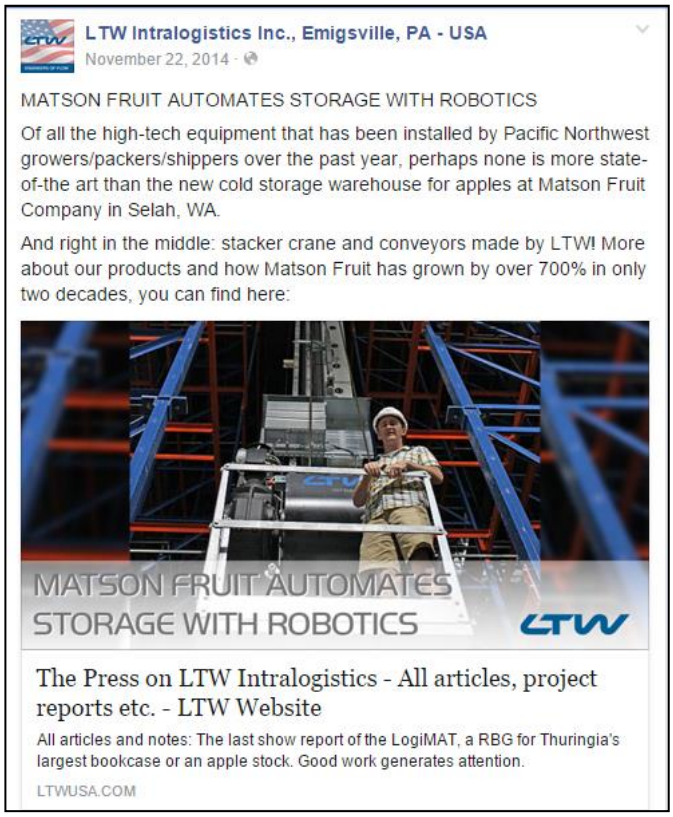

Figure 10: Use of Robotics – LTW Intralogistics Inc.,
Source: https://www.facebook.com/pages/LTW-Intralogistics-Inc-Emigsville-PA-USA/169745819752390

The anticipation is that productivity and efficiency will rise by as much as 50 percent from the installation of automation in the deep freeze atmosphere.

Using automation, software and other technologies, we can significantly lower the injury rate, improve customer relations and increase efficiency in our day to day logistics operations. Moving toward the technology of tomorrow is necessary in order to compete in today's highly competitive and technology based climate.

6. Conclusion

In summary, companies can benefit by leveraging technologies and taking heed of the following transition tips:

- Take it step by step
- Combine processes and people with technology.
- Create Team Thinking and embrace change.
- Don't reinvent the wheel.

Recommended Readings

Title: Big data driven supply chain management : a framework for implementing analytics and turning information into intelligence
Author(s): Nada R. Sanders, Ph.D.
Publisher: Pearson
Year of Publication: 2014
ISBN: 9780133801286
Call Number: 658.7 SAN -[BIZ]
Remarks Please check the availability via http://search.nlb.gov.sg/

Title: Warehouse management : a complete guide to improving efficiency and minimizing costs in the modern warehouse
Author(s): Gwynne Richards
Publisher: Kogan Page Limited
Year of Publication: 2014
ISBN: 978-0749469344

Title: Lean Supply Chain and Logistics Management
Author(s): Paul Myerson
Publisher: McGraw-Hill Education
Year of Publication: 2012
ISBN: 978-0071766265

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