ORCA LEAN
DIGITAL SOLUTIONS

Software Solutions for Manufacturing Excellence

Digital Transformation for Manufacturing

www.orcalean.com

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Digital Solutions for Manufacturing

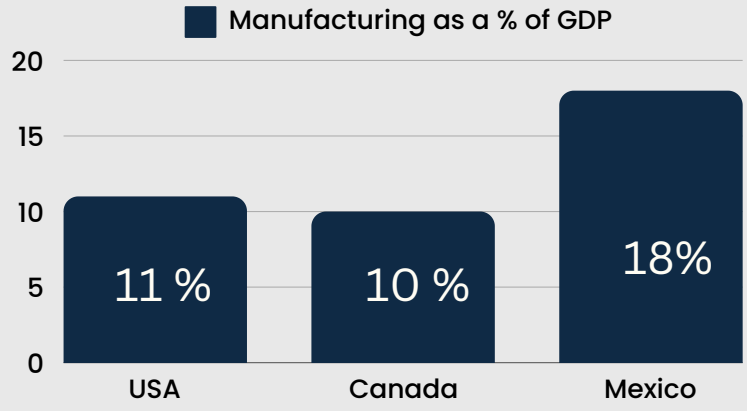
Manufacturing Excellence in North America

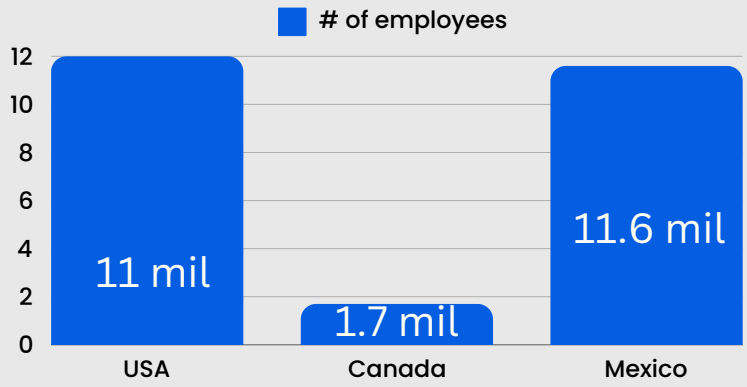
United States: The manufacturing sector contributes approximately 11% to the U.S. GDP. It employs over 12 million people, which indicates the sector's crucial role in the national economy. The U.S. sees a significant yearly investment in areas like semiconductor and clean technology manufacturing, with substantial new facilities being developed.

Canada: Manufacturing in Canada accounts for around 10% of the national GDP. It directly employs over 1.7 million people. The sector is heavily involved in high-tech industries such as automotive and aerospace, with ongoing investments in technology and sustainability to maintain and enhance its competitiveness on the global stage.

Mexico: The manufacturing sector is particularly robust in Mexico, contributing about 17% to 18% of the national GDP. It employs a significant portion of the workforce, with roughly 20% of the labor force that is 11.6 million people are engaged in manufacturing. Mexico has become a pivotal manufacturing hub, especially for the automotive and electronics industries, thanks to its competitive labor costs and strategic location.

These figures highlight the critical importance of the manufacturing sector in supporting economic stability and job creation across North America. Each country leverages its unique strengths and addresses challenges to enhance the sector's productivity and global competitiveness.





As North American manufacturing sees a resurgence with operations increasingly returning to the region, the implementation of Continuous Improvement (CI) and Operational Excellence (OpEx) has become essential. Lean manufacturing principles, which focus on minimizing waste while maximizing productivity, are widely adopted, driving manufacturing excellence that improves product quality and operational efficiency. These practices not only help local companies stay competitive against overseas markets with lower labor costs but also support the trend of reshoring manufacturing activities, thereby sustaining economic viability and job creation within North America.

The strategic emphasis on operational excellence through methodologies like Six Sigma and Total Quality Management (TQM) is reshaping the manufacturing landscape, fostering a culture of innovation and quality. This commitment is crucial for creating high-skill, high-wage jobs and ensuring economic stability. As manufacturing facilities become more sophisticated, they require a workforce skilled in these advanced operational practices, bolstering North America's competitive edge globally. This alignment of manufacturing strategies with labor market evolution marks a foundational shift towards sustaining North America's manufacturing sector as a cornerstone of economic growth and a leader in global manufacturing innovation.

Digital adoption in North American manufacturing is rapidly increasing as companies recognize the need to enhance competitiveness and efficiency in a global market. Firms are increasingly investing in technologies like AI, IoT, and cloud computing, which facilitate smarter production processes and data-driven decision-making. This surge in digital integration is reshaping traditional manufacturing landscapes, making them more agile and responsive to market demands and technological advancements.

ORCA LEAN OPERATING PRINCIPLES

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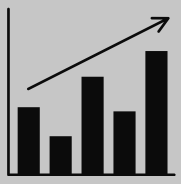
Digital Solutions must empower the shop floor teams

02



Digital Solutions must Improve KPI

03

Digital Solutions must expand the knowledge of the organization

1: Digital Solutions must empower the shop floor teams

A good digital solution is the one that makes the life of shop floor teams better, helps them become more efficient and helps them innovate and continuously improve the processes.

Most digital companies get very carried away into designing several features and menus, and forget about the end users capability to use their software. We have to be honest, the shop floor's main job is to produce parts with a good quality. Any digital solution which distracts them from doing this fundamental job is not a good solution and the team will not accept it.

Many times the decision to purchase or develop a digital solution is made by IT/OT teams who are not connected to the shop floor and this is a big mistake that an organization can make. Engaging the shop floor users at an early stage such as POC (proof of concept) or Trials is crucial. Their feedback is very important. At the same time, the management needs to be wary of certain shop floor members who will always oppose everything shown to them. There needs to be a balanced acceptance of the feedback received, keeping the ultimate goal in mind. Its advisable to first prove out an improvement process with paper and whiteboards, and once the process is working and giving results, we must think of converting that into a digital process with help of Software and AI, because it can really save a lot of time and effort and the data saved, can be of incredible importance.

At ORCA LEAN we design our software with an assumption that the end user is not a tech savvy engineer, but a shop floor team members who is very busy running production activities. Our interface is intended to be so simple and easy that anyone can learn within a few minutes. It is important that the employees dont feel burdened with the learning curve and feel positively engaged.

2: Digital Solutions must Expand the Knowledge of an Organization

A manufacturing plant can thrive in its Daily Operations, Continuous Improvement initiatives, and Future Launches if it possesses a thorough understanding of effective processes and problem-solving techniques. When the workforce is knowledgeable and clear on their responsibilities, it significantly improves the chances of success. Conversely, initiatives tend to fail when employees lack direction and continuously attempt to devise new methods. While innovation is crucial, it isn't necessary in every situation or on every project. It's essential to preserve past data and utilize it as a resource. If a process was established five years ago and proved effective, reusing it can provide a significant advantage. Ultimately, the objective is to achieve strong key performance indicators (KPIs). Traditional methods like paper processes and whiteboards often lead to the loss of critical information such as action items, root causes, and best practices. Digital solutions can safeguard this information, allowing it to be easily accessed and applied when similar challenges arise. With AI enhancements, searching through data becomes more intuitive, akin to having a natural conversation—this powerful feature is now embedded in our software and is highly recommended, though still optional.

As much of the experienced workforce approaches retirement, the risk of losing valuable knowledge and experience increases. While the new generation of workers brings energy and enthusiasm, they often find themselves reinventing the wheel, which may be unnecessary.

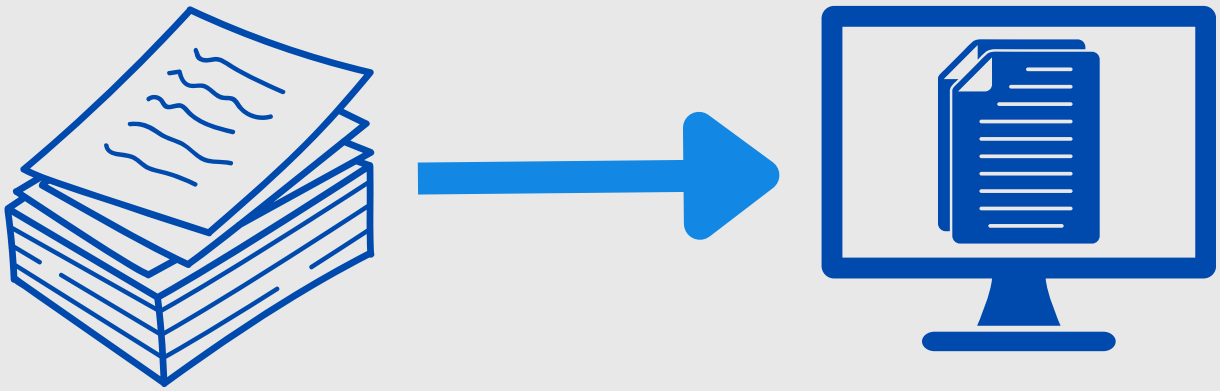
At ORCA LEAN Our solutions are designed to preserve the 'valuable knowledge' of seasoned employees, keeping their expertise accessible in digital form even post-retirement. This is akin to a young employee consulting an experienced professional for advice on problem-solving, ensuring continuity and efficiency in our manufacturing processes.

3: Digital Solutions must Improve KPI (Key Performance Indicator)

Imagine you have just been appointed as the VP of Manufacturing and are visiting one of your plants in North America for the first time. How would you assess whether this factory is being run well?
One approach is to take a walk through the factory and observe several key aspects such as the implementation of 5S principles, the discipline and attitude of the workforce on the shop floor, the condition of the equipment, how busy the repair bay is, and to discuss with frontline managers to gauge the overall condition of the factory.
Alternatively, you could review the balanced scorecard, which lists all the performance metrics for safety, quality, delivery, cost, morale, and environment. This scorecard can provide significant insights into the factory's performance, assuming it is maintained accurately.

At ORCA LEAN, we strongly believe that Key Performance Metrics (KPIs) are a true reflection of a plant's well-being. Top-level executives prioritize KPIs and are continually striving to enhance them. At ORCA LEAN, KPIs form the basis of why we launch a specific solution into the market. We maintain that improvements must be tracked mathematically and compared to past figures as well as industry benchmarks. For example, a world-class Operational Equipment Effectiveness (OEE) score is 85%, which is where truly world-class plants operate. On average, however, factories operate at about 55% to 60% OEE, presenting a significant gap to higher performance. When designing our solutions, our intent is always to target such gaps in KPI averages and benchmarks. The strategies and lean methods to achieve improved KPIs are embedded in our software and we strongly believe that the companies adopting our software will automatically improve their metrics if they follow its disciplined use.

Why is this the Right Time to go from Paper to Digital?



In the past, manufacturing plants were often hesitant about going digital, fearing that it would be a challenging initiative for shop floor teams. However, this perspective is quickly changing due to several factors.

The manufacturing sector is facing an array of challenges such as labor and skill shortages, supply chain disruptions, rapid product launches, and increasing customer demands for variety and quality—all while dealing with rising equipment costs. These challenges are compelling companies to continue their improvement initiatives, despite limited resources.

Moreover, as manufacturing returns to North America, competition for new business opportunities is intensifying. Companies are now expected to deliver high-quality products within shorter lead times. In this environment, if Company A adopts digital technology and leverages it effectively, Company B risks falling behind, as digital solutions can significantly enhance a plant's performance.

The readiness of the workforce for digital transformation is greater than ever. With the widespread use of smartphones, most people are accustomed to digital interfaces, using apps for banking, social media, transportation, dining, and navigation in their daily lives. When these individuals encounter outdated paper processes in a manufacturing setting, they find it cumbersome. Particularly, the younger workforce strongly prefers digital solutions to traditional paper and board methods, often questioning why these processes can't be handled on phones, laptops, or tablets. With an aging workforce retiring and being replaced by younger, more tech-savvy employees, it's an opportune moment to implement digital technologies.

Preservation of knowledge is crucial as experienced workers retire and high attrition rates persist. Fortunately, technology has become more cost-effective. Just a few years ago, data storage, internet connectivity, software development, and mobile usage were costly and inefficient. Now, advancements in cloud computing, 5G, and the Industrial Internet of Things (IIoT), along with the proliferation of sensors, have made technology not only more accessible and deployable but also cheaper for data storage. AI capabilities further enhance these benefits, offering virtually limitless possibilities.

Given these factors, it is evident that digital adoption improves KPIs. Therefore, embracing digital transformation is not just advisable; it's essential.

Increase Productivity to finish tasks : **50%**

Data Entry Errors Reduced by : **30 to 70%**

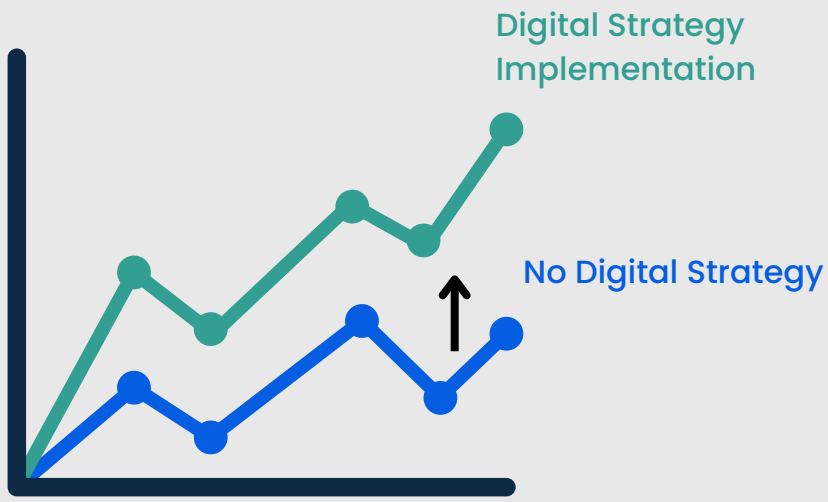
Speed up Defect Tracing : **75%**

Digital Strategy vs Digital Tools

In the context of manufacturing, the terms "digital strategy" and "digital tools" have specific implications:

Digital Strategy in Manufacturing:

- A digital strategy in manufacturing involves a comprehensive plan for integrating digital technology into all aspects of manufacturing processes to enhance efficiency, productivity, and adaptability. This could include setting goals for automation, data analytics, IoT deployment, and cloud computing to improve operations, reduce costs, and innovate on products and services.
- It focuses on aligning technology initiatives with business objectives, optimizing the supply chain, enhancing customer experiences, and often involves a transformation in company culture towards data-driven decision-making.
- Digital Strategy is extremely expensive and is controlled and launched as a 5 to 10 year plan by the executive level in a company and it must be aligned to the overall business plans.



A digital strategy can enhance a company's ability to respond to market changes and customer needs effectively, with companies reporting up to a 50% improvement in customer satisfaction rates.

Digital Tools or Digital Solutions in Manufacturing:

- Digital tools are the specific technologies used as improvement initiatives with specific purpose. These can include software solutions like MES (Manufacturing Execution Systems), QMS (Quality Management Software), KPI Dashboards, ERP (Enterprise Resource Planning), Unique Software solutions for People management etc. as well as hardware such as sensors, robots, and automated assembly lines.
- Tools also encompass platforms for data analysis, predictive maintenance applications, and software for design and simulation. These tools are used to gather data, automate processes, and improve quality and efficiency on the production floor.
- Digital Solutions or tools can fit in your budget, and are a great option to adopt for improvement initiatives. They are also a great option to test your workforce readiness before you go big on a digital strategy. Usually, these decisions can be made at a plant level with collaboration of corporate managers and IT teams.

ROI on Digital Transformation

At the end of the day, the return on investment (ROI) on digital transformation is absolutely crucial for a manufacturing plant. Before investing in expensive technologies, a plant must calculate the ROI to ensure profitability.

Transformation Cost: This refers to the cost incurred in converting raw materials into finished products and includes labor, employee salaries, equipment costs, third-party expenses, energy, and legal compliance costs. When a digital technology is implemented, it increases the transformation cost, so it's essential that this technology compensates by reducing other costs such as scrap, energy consumption, and labor while improving productivity, throughput, operational equipment efficiency (OEE), and the overall cost of quality.

Throughput: Often considered the king of all KPIs, throughput measures how much product is produced with the available resources. Improving throughput means you could potentially reduce a day of production each month if monthly demand is already met. An old adage in manufacturing says that a 10% improvement in OEE across ten plants eliminates the need to start an eleventh plant to meet production demands. Therefore, digital initiatives must positively impact throughput to justify their investment.

Labor: Labor is typically the most significant part of transformation costs, especially in plants with labor-intensive assembly operations. Any invested technology or digital solution should enhance labor efficiency and potentially reduce the number of people needed to perform the same tasks. This is the essence of lean manufacturing, which focuses on waste reduction, line balancing, and job optimization.

At Orca Lean, our principle of improving KPIs is intrinsically linked to ensuring a positive ROI for our clients. For smaller factories, we offer discount codes to help ensure they remain profitable while collaborating with us. This strategic approach helps ensure that our digital solutions are both beneficial and cost-effective.

Our Product Offerings

Digital Solution	Main Areas of Focus	Software Type
Qualitygram	Quality Management Non Conformance Management Continuous Improvement Gemba Walks	Mobile App & Web
FactoryKPI	Daily Operations Tracking Dashboarding Continuous Improvement KPI Tracking	Web Screen Responsive
SolvoNext - NCR	Non Conformance Management Cost of Quality Dashboarding	Web Mobile Responsive
Qi Screen	Quality Inspection Floor Audits Repair Tracking, Gemba Walks Any Processes needing data inputs from humans	Web Screen Responsive
Qi Surface	Quality Inspection of larger parts with multiple points	Web Screen Responsive
Orca Custom Solutions	Talk to us about your challenges or any process that you want to convert from paper to digital	Web Mobile Screen Responsive

**screen responsive - a web software that will fit to the size of the screen it is being used on including desktop, laptops, tablets and smart phones.*

About ORCA LEAN Digital Solutions

We solve manufacturing challenges at ORCA through a combination of Lean Manufacturing Methods and Software.

At ORCA we believe a process becomes more sustainable and results can be achieved faster if there is a technology boost given in the right direction. Simplicity of Technology is the key advantage for sustained utilization.

Feel free to connect with us to see how we can help.

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