MRO 2022:
10 DIGITAL TECHNOLOGIES TRANSFORMING MRO SUPPLY CHAIN

Digital technology is quickly impacting every part of the world, and supply chain is no exception. Cisco published a report in 2015[1] on how *digital disruption is redefining industries*, and back then they put the estimate at only 3.1 years to completely turn an industry on its end. By the year 2022, even a supply chain as historically neglected and ignored as MRO (maintenance, repair and operations), which is more often viewed as a tactical spend category that sits at the tail end of tail spend, will be completely transformed by digital technology.
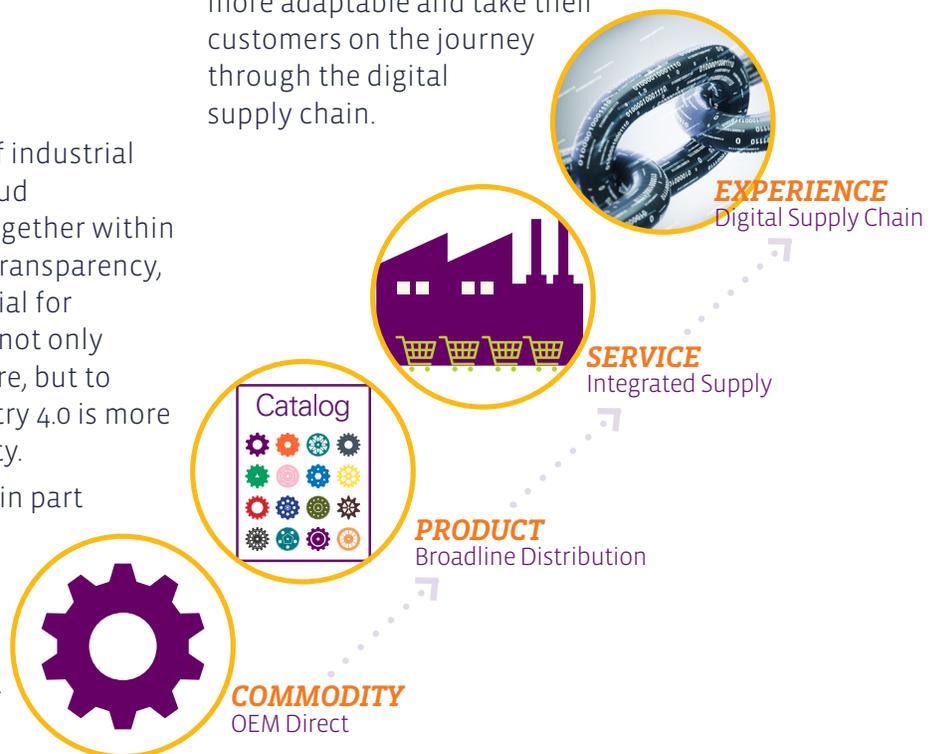
Lowering hardware costs and greater availability of powerful cloud computing capabilities have brought the digital supply chain within reach for so many companies that now have the opportunity to transform the way they use data and technology to streamline operations, lower operating costs, and improve product and service quality. **There are two major disruptive forces**, beyond technology, driving the digitization of the MRO supply chain: Industry 4.0 and the growth of consumerism.

Industry 4.0

Industry 4.0 is the collective ecosystem of industrial technologies – the Internet of Things, cloud computing, analytics, AI, etc. – working together within business operations to create effortless transparency, tremendous value, and enormous potential for optimization. It allows manufacturers to not only identify waste and correct points of failure, but to actually predict and prevent them. Industry 4.0 is more than a catch phrase – it's a business reality.

The MRO supply chain is evolving thanks in part to Industry 4.0. While MRO was once a **commodity**, it shifted to a **product** when broadline distribution stepped between the customers and the OEM to add value. It shifted again from a product to a **service** when distributors started

to offer integrated supply, getting stickier with their customers, but still making a piece-price play. Today, business needs have moved beyond (self-serving) integrated supply, and customers are demanding a B2C-like environment, a digital supply chain **experience**. To drive improvements in traditional MRO supply chains, companies need to invest in, develop, and implement advanced digital technologies and leverage a digital ecosystem of partners to become more adaptable and take their customers on the journey through the digital supply chain.

EXPERIENCE
Digital Supply Chain

SERVICE
Integrated Supply

Catalog

PRODUCT
Broadline Distribution

COMMODITY
OEM Direct

[1] Digital Vortex. How Digital Disruption is Redefining Industries. IMD & Cisco Global Center for Digital Business Transformation. Page 8, 2015.

MRO 2022 *CONTINUED*

The Growth of Consumerism

Today's consumers are accustomed to getting exactly what they need at a moment's notice. The Internet of Things is enabling new levels of constant, real-time connectivity in the consumer world. From app-controlled lighting and NEST thermostats to connected cars, the expectations for connectivity have never been higher. In fact, a **2018 MarketSource study**[2] shows that by 2021 more than half of the homes in America will be IoT Connected. Companies like **Uber** have created a higher demand for on-demand services. Changing the game even more for what a 'reasonable' wait time should be and posing a challenge to solutions that require more advanced planning.

And **Amazon** has driven consumer expectations to new heights for availability, transparency, and visibility into the complete supply chain. Expectations have risen to the point where you have a need, you hit a button, and an app shows you a picture of it on your front step within hours – not days. A recent **Salesforce. com study**[3] on shifting consumer expectations found that 69% of surveyed consumers expect "Amazon-like buying experiences" from their vendors. Technologies like these have raised the bar on expectations – consumers demand the same B2C experience in the B2B space.

Driven by Industry 4.0 and the rising consumer expectations, digitization will bring about an MRO Supply Chain that not only is faster but also more:

➔ *Agile*

➔ *Responsive*

➔ *Collaborative and aligned with other enterprise functions*

➔ *Visible and transparent*

➔ *Value-creating*

➔ *Reliable*

➔ *Predictable*

Application of Digital Technology

There are so many ways companies can leverage digital technology to optimize their businesses that it could be overwhelming. The best advice is to **think big, but start small**, and then scale as you find successes. While the possibilities are limitless, here are just a few ideas to think about digitization for MRO specifically.

MOBILITY

Mobile applications have quickly become the norm, as consumers have become accustomed to ease of use

and access to information at the tap of a finger. B2B customers are no different. They want to be able to identify and order parts needed to repair and maintain their production lines, without having to leave the shop floor and walk to a storeroom window, desktop or terminal. Great strides are being made in MRO supply chain mobile apps to give the maintenance users an easier way to get the supply they need to do their jobs.

APIs

Application Program Interface, both the vertical and horizontal integration of platforms, is not new technology, but the application is proliferating. APIs offer a true plug-and-play solution to integrate for secure and easy passage of data between systems, enabling customers to access cutting-edge technology in real-time, without having to start over or build it from scratch. We are now seeing more and more companies that are willing to use open APIs to integrate platforms. This will mean easier integrations between Enterprise Asset Management (EAM) and Computerized Maintenance Management Systems (CMMS) and between purchasing and Enterprise Resource Planning (ERP) systems. This results in greater transparency, improved efficiency, elimination of waste in the process, and acceleration of the process overall.

[2] Consumer Expectations for Smart Home Automation. MarketSource Study. 2018.

[3] State of the Connected Customer. Second Edition. Salesforce Research, Page 9, 2018.

MRO 2022 *CONTINUED*

Analytics

Advanced analytics are increasingly being used in dynamic pricing and replenishment. A purpose-built MRO analytics tool can take any manner of data and use it to help sourcing specialists pinpoint where best to drive efficiencies in supplier consolidation, cost reduction, and productivity improvements. Analytics can enable better visibility into MRO supply chains, thereby giving customers greater control to better future-proof their businesses.
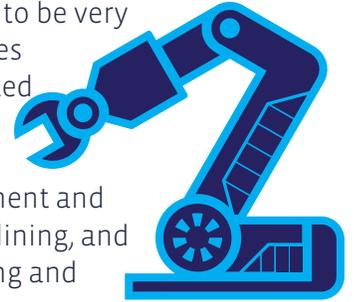
eCommerce & Dynamic Marketplaces

According to The Hackett Group's procurement benchmark, 29% of indirect spend is not on contract today and 17% of indirect spend consists of one-time buys.[4] For the MRO subset, the percentages are substantially higher with even less spend under contract and one-time buys significantly higher. Consumers expect an Amazon-like experience, and these needs are driving MRO providers to enable purchasing, compliant to negotiated sourcing contracts, on an open market. Having instant access to global markets that are dynamic creates a forum for competition and innovation. It has broader impact on even those suppliers who don't participate in those dynamic marketplaces, as it becomes a benchmark – and it will continue to grow.

[4] Amazon Business and eBay: A Fresh Approach to Managing Tail Spend. Patrick Connaughton, The Hackett Group. 2016.
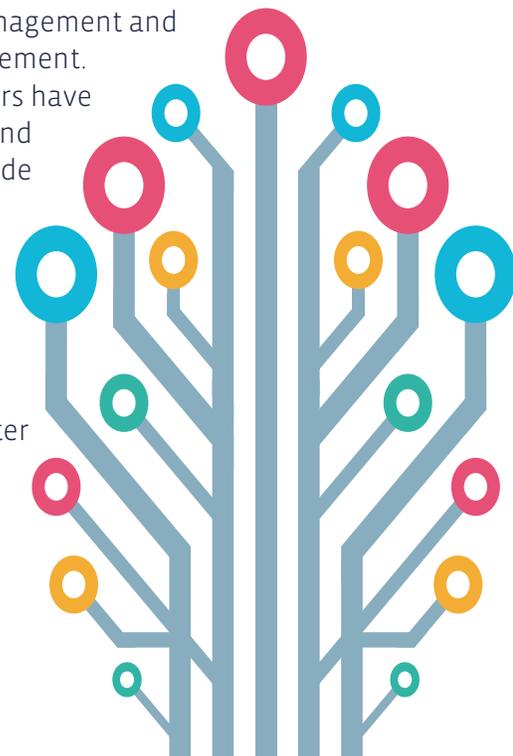
RPA

Robotic Process Automation has numerous applications in MRO. RPA tools cut costs, eliminate keying errors, speed up processes and link applications. It has proven to be very effective in simple-use cases where third-party automated data integration poses a challenge. RPA can help with automating procurement and quoting processes, streamlining, and reducing the cost of quoting and purchasing.

IoT

The Internet of Things has advanced so rapidly, and costs are dropping so quickly, that it has become a ubiquitous technology. Almost any single asset can be monitored at all times. Having that visibility into one asset in advance will predict (and prevent) failure and allow for better planning in the MRO supply chain. While this level of connectivity is not as common in a complete end-to-end supply chain process, the IoT for MRO sits at the intersection of enterprise asset management and supply chain management. This means customers have the parts available and the ability to intercede before it becomes a catastrophic loss. It means improved asset utilization and higher uptime, more customer focus, better end-to-end supply chain performance, superior supply availability, greater visibility and improved reliability.
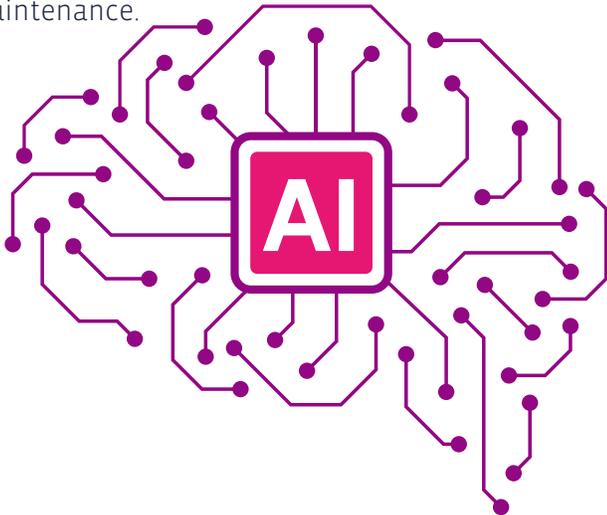
MRO 2022 *CONTINUED*

3D Scanning & Printing

Additive manufacturing (3D printing) enabled by 3D scanning is allowing the re-engineering of otherwise obsolete parts to extend the life of production assets. This technology is having a disruptive and transformative effect, because you could theoretically eliminate or minimize huge amounts of inventory and lead times and make the parts on-demand. 3D scanning enables the capture of a digital version which can be reverse-engineered or re-engineered and then printed in hours. No expediting fees. No delivery fees. Usage has evolved beyond prototyping and is growing, as the technology has advanced so rapidly companies can now print at OEM production capacity – as fast as most other mainstream manufacturing processes with metal.

AI

Artificial Intelligence and Human-Assisted AI is speeding the sourcing, selection and transaction process in MRO supply chain management. A highly transactional business, MRO supply chain automation is supported by AI's self-learning. AI solutions can help automate various supply chain processes such as demand forecasting, connecting to production planning and enabling predictive maintenance.

Blockchain

Any supply chain involves various parties from one end to the other. For direct supply you could have dozens of suppliers and partners in your supply chain. For MRO, it's not dozens, it's thousands of suppliers in such a fragmented supply chain that traceability, automation, and security are virtually impossible. Innovative technologies such as blockchain can significantly impact and shift the very nature of the MRO supply chain. Blockchain could address visibility and traceability to reduce counterfeiting, track warranty and repair history, and improve efficiency in pay, virtually eliminating match exceptions.

Last Yard Logistics

More and more, procurement and maintenance teams are leveraging the digital ecosystem for extra value in their MRO and indirect supply chains. In the B2B world, that means taking that visibility into the supply chain and moving beyond central receiving within the manufacturing plant. The last yard extends beyond last-mile logistics to integrate critical products, parts, and services to seamlessly and efficiently manage operations, facilities, break rooms, and storerooms. Leveraging the digital ecosystem in combination with dynamic platforms, B2B customers' need for ease of ordering, transparency, and speed can be fulfilled with additional value such as site storeroom services, inventory management, and controls to extend the supply chain from the receiving door to the operations floor. This last yard provides organizations with visibility into unmanaged purchases, reduces transaction costs, and shortens the distance between the point of purchase and point of use.

MRO 2022 *CONTINUED*

What can your organization do to get there?

Digital Supply Chain is a journey, not a destination. The digital transformation promises greater visibility and transparency but depends greatly on an organization's **willingness to be flexible** and openness to innovation. Only a culture of entrepreneurship or intrapreneurship within a larger organization will drive this shift. It means continuously looking for new and better ways and staying curious. To always find new and better ways, not just as a way to focus on the customer and to push results, but as a way to collaborate and fulfill a natural curiosity and drive to learn. **Think big.** Have that future vision in mind. What does the digital journey look like in 3 years, in 5 years?

Start small. Don't get overwhelmed or paralyzed by the long-term vision. Find a small project and get those small wins under your belt to build confidence and momentum. **And scale fast.** Take those wins and repeat them for bigger projects for long-term gains. As in any revolution, you will try things and fail. But with the pace of technology changing so rapidly, you want to fail fast. Fail. **Fail fast. Learn from it and keep moving forward.**

About the author

Jim Owens is the 2019 Advisory Board Chairperson for Penn State's Center for Supply Chain Research (CSCR®) and Senior Vice President at SDI, the leader in Digital Supply Chain Services and Solutions for MRO. Contributing author on the recently published Supply Chain Management Review article, **The Longest Yard**, and The Last Yard research featured in the **2019 3PL Study**, Jim Owens brings a unique blend of strategic and creative thought to every engagement to foster an environment of proactive collaboration and shared value for clients and partners alike.

Owens has a passion that drives him to develop innovative ideas and strategies to help clients solve their toughest challenges. With a history of commercial and industrial business development for companies like EMCOR, Transfield Services, and IFCO, Owens' experience at creating and implementing successful and strategic value-driven solutions transcends industry sectors.