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The Speed of Change

App Dev Priorities in an Era of Crisis and Recovery

Manufacturing 2020

Foreword

Recalibrating Manufacturing IT for the Post-COVID World

The disruption caused by the pandemic has impacted our global economy, production is affected, supply chains disrupted, and many companies are facing financial impacts.

The manufacturing industry has been hit hard. It is being disrupted not only by today's pandemic and resulting economic impact but also by trade dynamism, digitization and talent/future of work. According to **Deloitte research**, manufacturing leaders need to rethink strategies and operations to overcome disruption and become resilient.[1]

Manufacturers now have a long, uphill battle—particularly if production capacities remain limited by social distancing precautions or if supply chain reliability suffers. As a result, IT spending is expected to fall by more than 3% in 2020.[2] In a **Deloitte survey in February 2020,** 51% of the manufacturing leaders say they will spend their digital transformation investment on changing and transforming the business model and 35% on building out next-generation digital core.

These same manufacturing leaders say that the key business model for the next 10 years will shift to 50% product and 50% outcomes/solutions and that digital streams will account for one-third of overall revenues.[3] Therefore, manufacturers should create a holistic digital strategy for the coming years as a crucial element to overcome current disruptions and be prepared for what is coming.

The consensus from Deloitte's industrial manufacturing leaders is that if manufacturers don't embrace digitization, as many as 35 percent of today's manufacturing companies could be out of business or significantly changed in 10 years. Deloitte advises that:

- Manufacturers focus digital investments on building out the digital core to power Industry 4.0 use cases.
- Further embrace Industry 4.0 to incorporate and benefit from advanced technologies like augmented and virtual reality, video analytics and machine learning
- Change or transform the business model to support digital revenue streams and change the way customers are engaged through design, production, and service delivery.

Now is the time to make bold decisions regarding digitization to not be left behind. So, how can manufacturing IT cope with the changes required to implement these decisions? And perhaps most importantly, how can IT teams accelerate application development to give their companies the agility needed in this era of crisis and digital urgency?[4]

According to results of the 2020 OutSystems State of Application Development survey, manufacturers suffer an agility deficit compared to many other industries. Most manufacturers are failing to shorten

[1]Paul Wellener, Ben Dollar, Brian Umbenhauer, et. al., "Deloitte - Navigating Disruption: Five trends influencing tomorrow's manufacturing industry" Deloitte, 7 Apr. 2020.
[2]"IDC Forecasts a Drop in IT Spending in Nearly Every Industry in 2020 Due to COVID-19, But the Scope of These Reductions Will Vary Across Industries." BusinessWire, 21 Apr. 2020
[3]"Deloitte - Navigating Disruption: Five trends influencing tomorrow's manufacturing industry"
[4]Deloitte, "2020 industrial products leadership swarm." 3 Feb. 2020

application development backlogs. Just 23% of manufacturers have larger application development teams than a year ago—roughly half of the percentage reported by other industries.

If it seems like your firm's Industry 4.0 initiatives and other transformation priorities are falling behind, you can boost your agility using several different approaches and technologies.

This report has actionable recommendations for manufacturers who want to become agility leaders, adopt industry 4.0 initiatives, and invest in digital capabilities to advance in the digital maturity curve. Investing in advanced technologies such as robotics, 3D prototyping, artificial intelligence and cognitive services to reinvent and improve processes is one way for manufacturers to become more digital and resilient. Just as important is investing in workflow automation like real-life tracking logistics and predictive and prescriptive servicing, allowing companies to become more digital and resilient.

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Introduction

This year's OutSystems State of Application Development survey took place amid the early part of the COVID-19 pandemic crisis, between February 12 and March 31, 2020. In this period, respondents' organizations were grappling with lockdowns, work from home, supply chain and revenue disruption, and capping it all, a 25% global stock market crash. We, therefore, owe many thanks to the 2,200 IT and senior business execs who found time amidst the turmoil to take part in our survey.

It will take some time to understand the full impact of the crisis. Many speculate about a "new normal." At this time, it's hard to imagine what that new normal will look like. But for those of us that have experienced market crises before, two things seem sure:

- Organizational agility will be tested as never before over the coming months.
- Organizations that muster the most agility and ingenuity will grasp new opportunities when others falter.

Moreover, taking a longer-term view, the organizations with the most agility will outpace their competitors and establish a foundation for future growth.

So, questions for readers—and indeed for all organizations are—**How agile is your organization? And, for that matter, can your approach to application development keep up in this era of "digital urgency"?**

Our research took us around the world, connecting us with IT professionals and senior business people in multiple industries, across six continents.

Seven percent of responses came from organizations in the manufacturing sector (including automotive, airlines, aerospace, and defense). We've added some extra analysis to see how these organizations are performing

compared to other industry peers. These findings are summarized in the pages that follow. We also include the results provided by all respondents for comparison.

Manufacturing: A Landscape of Upheaval

The survey took place as the full impact of the pandemic crisis started to become apparent to the world. As the responses rolled in during late February and throughout March, we saw the reordering of other perceived threats following the pandemic lockdown and market crash. Changes in customer preferences and behaviors became a primary concern. The fear of being digitally disrupted by competitors with more agility fell considerably.

Top Fears of Disruption

In the manufacturing sector the top fears of disruption were as follows:

Top Fears of Disruption - Manufacturing Responses	Unlikely	Somewhat Likely	Likely
Market Downturn or Recession	22%	46%	32%
Significant Changes of Customer Preferences or Behaviors	22%	51%	27%
Disruptive Regulatory Change	16%	65%	19%
Digital Disruption From Established Competitor	19%	62%	19%
Disruptive Cyber Attack	35%	46%	19%
Digital Disruption From New Competitor	38%	46%	16%
Government Budget Cuts	57%	35%	8%

A market downturn or recession and changes in customer preferences and behaviors were the primary concerns for respondents in the manufacturing sector. Disruptive regulatory change seems to be a heightened concern. Other causes of disruption were quite evenly spread, except government cutbacks—in obvious last place.

Digital Priorities Shift to Survival

We saw similar changes in sentiment when we asked respondents in all sectors to identify their organization's top three goals for digital transformation. The top goal was to improve agility and accelerate innovation. But for those who responded after the crash, the need to address evolving customer behaviors and preferences rose higher, and the need to outperform competitors fell to last place.

Respondents in the manufacturing sector placed reducing costs and improving efficiency above improving agility and faster innovation as their closely fought top goal for digital transformation. Otherwise, responses closely correlated with the global average responses.

Top Goals for Digital Transformation	Manufacturing	Global	Variance
Reduce costs/improve efficiency	21.90%	19.48%	2%
Improve cybersecurity resilience	7.62%	7.08%	1%
Address evolving customer behaviors/preferences	17.14%	17.39%	0%
Outperform competitors	10.48%	10.31%	0%
Improve agility/accelerate innovation	20.95%	22.39%	-1%
Achieve growth in new markets	15.24%	15.88%	-1%
Meet evolving expectations of employees	6.67%	7.46%	-1%

Demand for Applications is as High as Ever

Fueled by digital innovation and differentiation initiatives, demand for application development remains at the record high level we saw in 2019. Focusing on organizations with 500 or more employees, we found that:

- Just over 65% have ten or more apps planned for delivery in 2020.
- 39% have 25 or more apps scheduled for delivery in 2020.

According to our respondents, the demand for new applications is less keenly felt in the manufacturing sector. Focusing on organizations with more than 500 employees we found:

- 47% have 10 or more apps planned for delivery in 2020.
- Just 31% of respondents have 25 or more apps scheduled for delivery in 2020.

Backlogs Remain Stubbornly Long

Only 27% of all respondents said that their backlog had improved in the past 12 months, and 8% said their backlog had gotten worse. Industries most likely to complain of lengthening backlogs include insurance, banks and financial services, healthcare and pharmaceuticals, and business support, logistics and transportation.

The majority of respondents in the manufacturing sector said that their backlogs had not improved. Only 21% of respondents said that their backlog had improved in the past 12 months, and 8% said their backlog had gotten worse.

Development Skills Are in Short Supply

Only 15% of respondents described hiring developer roles as easy or very easy. Only 45% of organizations have larger app dev teams than a year ago. For many organizations, retention of developer talent appears to be a challenge.

In the manufacturing sector, organizations seem to be even more challenged when resourcing development talent. Less than 10% of manufacturing respondents described hiring developer roles as easy or very easy. Just 23% of organizations have larger app dev teams than a year ago—roughly half of the global percentage.

How Can Manufacturing IT Get Faster?

Modern technology and approaches that enable multi-disciplinary teams to move at pace, maximize reuse, and more successfully adopt customer-centric product development practices can boost agility. Judging by the lagging agility maturity in their industry highlighted in this report, manufacturers' IT teams sorely need this kind of application development modernization.

The findings in **The Speed of Change: How Fast Are You?** provide valuable insights for how manufacturers can recalibrate their IT efforts and obtain the agility needed for this digital urgency era. Because manufacturing was not in the industry agility leader category, the sector can benefit from recommendations in the full report. Here is a brief summary.

Increase Application Development Speed

In the survey, we asked all respondents what technology their organizations were using to speed up application delivery. The table below shows the results.

Investment in Technologies to Increase Delivery Speed	Laggards	Leaders	Difference
Low-code + MXD Platforms	29%	44%	15%
Containers + Microservices	15%	29%	14%
New programming languages or frameworks	15%	29%	14%
Digital Process Automation/ RPA	24%	29%	5%
BPM Platform	7%	11%	4%
Cloud	58%	61%	3%

As you can see, agility leaders invest more in every category of technology, especially those that automate development or offer visual environments. Manufacturers can evaluate these technologies based on their application development needs—preventive and maintenance, IoT, digital twinning, and more—and determine which is likely to accelerate development. Low-code development, containers, and microservices have enabled other manufacturers to succeed, including cargo strap manufacturer, **Cordstrap**.

Eliminate the Top Application Development Challenges

According to our analysis, the top application development challenges for those who are not agility leaders are:

- Legacy system integration/lacking APIs
- Fuzzy/changing requirements
- Lack of technical development skills
- Mastering new technology and standards

So, what can manufacturers do to address these challenges? Here are some ideas:

Start with UX

Use customer journey mapping and design sprints to put the user at the center of your development process.

Build for change

Adopt iterative, agile development practices to accommodate uncertainty, unclear direction or changing requests.

Add new skills

Look for whatever skills your team needs next - web, mobile back-end, and modern stack.

Focus on CD

Add technology to help teams achieve continuous delivery (CD) without assembling an array of DevOps tools and skills.

Reach legacy

Find tools with built-in and DIY connectors for easy integration with any enterprise system, database, or web service.

What It All Means

Speed is the name of the game. Manufacturing organizations that focus on customer needs and offer developers an easy and fast path to innovation will be able to reduce costs and improve efficiency while enabling faster innovation. A small percentage are already there, and they continue striving to get faster and better. Others have work to do, but there are ways forward for them. Whether you are executing on your priorities or just getting started, you have options not just to get in the game, but to win it.

Next Steps

Highlights of the OutSystems State of Application Development research are summarized in *The Speed of Change: How Fast are You?*, a report that outlines how the findings relate to becoming a speed and adaptability leader. It compares leaders and laggards in IT speed and offers tips to lagging organizations on how to become a leader.

Download the report **here.**

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