IndustryWeek.

Strategic Insights Study

Industry Intelligence: Manufacturing in the Digital Age

Introduction & Methodology

OVERVIEW

Methodology, data collection and analysis by Endeavor, on behalf of EC&M.

Methodology conforms to accepted marketing social listening research methods, practices and procedures.

PRIMARY OBJECTIVES

- What is the target audience saying about digitization trends in manufacturing?
- Where are they going online to consume content?
- What are their pain points when it comes to digitizing?
- How do they feel about disruptive technologies?

METHODOLOGY

Through a combination of robust third-party tools, we look across online media types (blogs, forums, social media channels, mainstream news, etc.), during a specific time period, based on study objectives & goals.

Using manual research, our experienced analysts are able to go beyond traditional channels to uncover additional audience and industry insights that would not be collected through tools alone.

ANALYZE & ASSESS

Findings are explored, insights are identified, opportunities are outlined and content is reviewed.

After identifying key insights, we are able to validate and/or expand on the findings with Informa's own industry experts.

This collaboration of qualitative and quantitative research results in the findings that are published in this report. We align insights with marketing recommendations and provide a path of execution for you to use this data moving forward.

Top Digitalization Trends
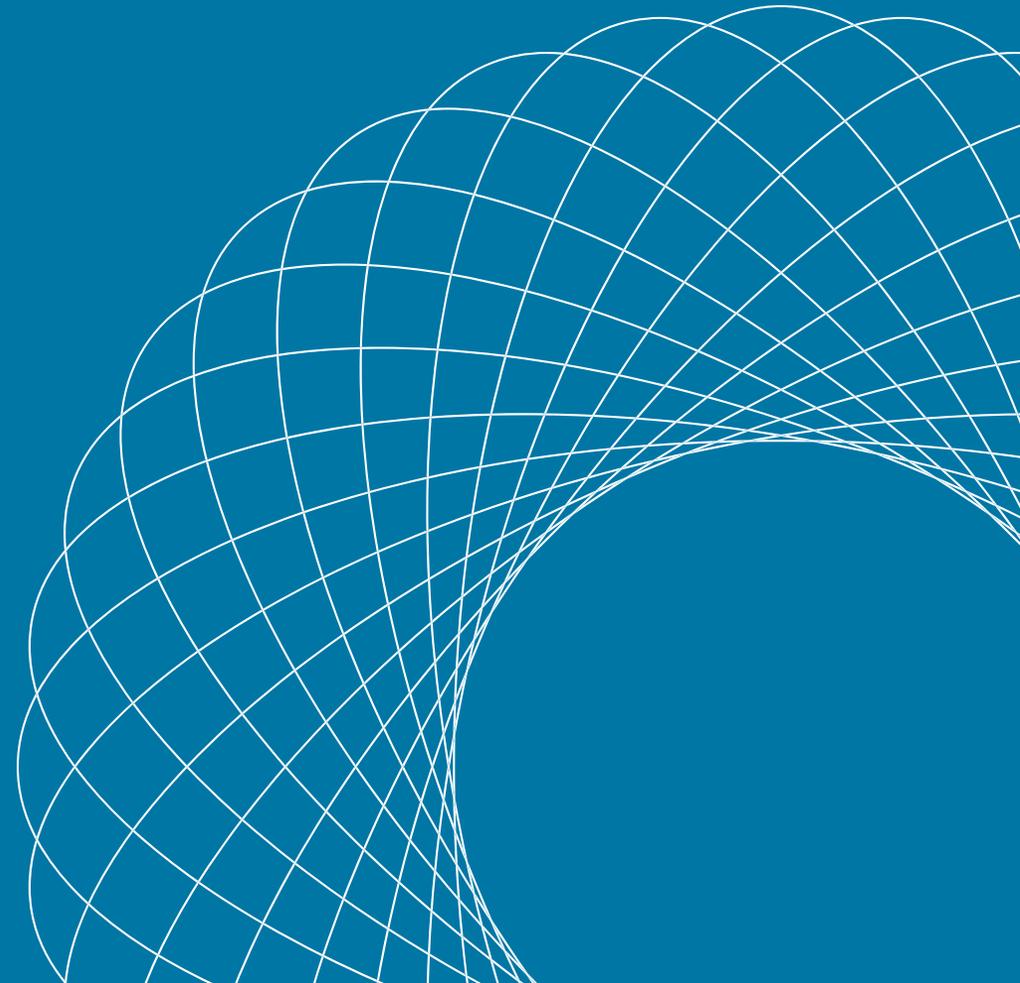
Digitization in Manufacturing Trends

Implementation Struggles

Manufacturing lags behind other industries when it comes to the digital transformation. It is overwhelmingly clear that manufacturing executives understand the importance of IoT, but are hitting roadblocks in their transition.
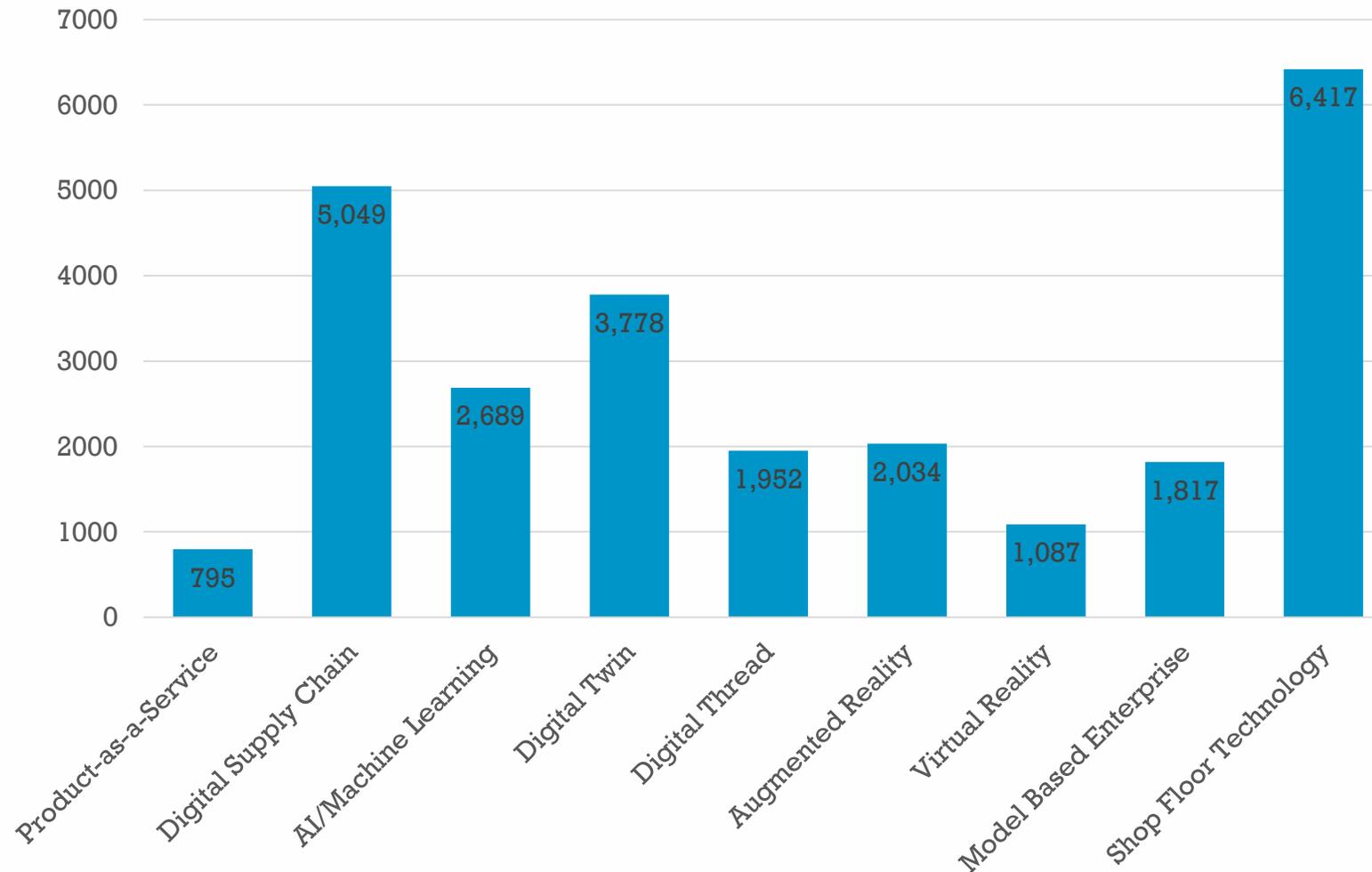
Roadblocks

Across manufacturing companies, whether large or small, executives are citing the same set of challenges in their digital transformations:

- Employee acceptance
- Lack of trained personnel
- Organizational structure
- Lack of digitization strategy
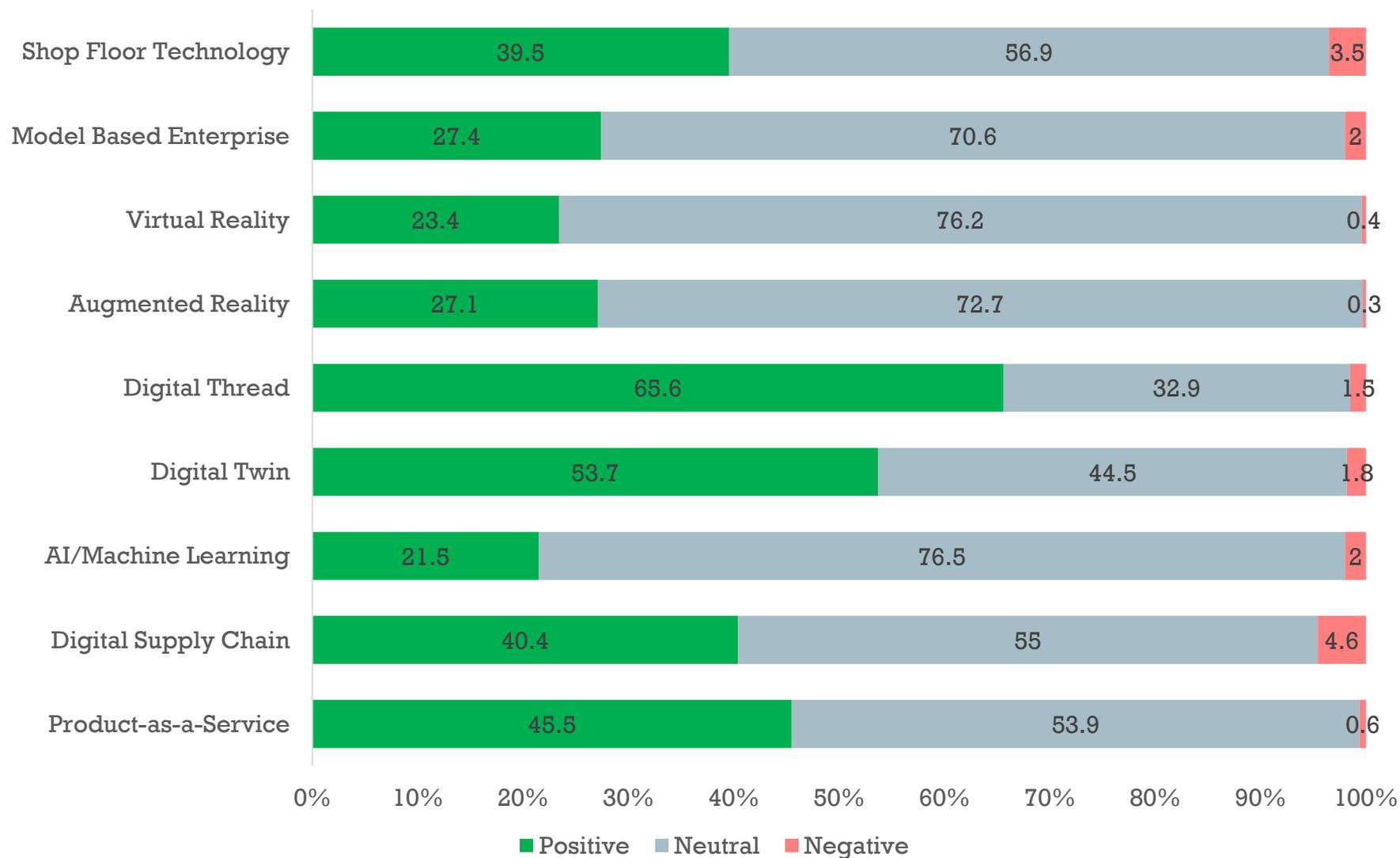- Limited budgets

By the Numbers...

- **30%** – By 2018, the percentage of manufacturers investing in digital transformation that will be able to maximize the outcome; the rest are held back by outdated business models and technology. (*IDC*)

- **5%** – The percentage of manufacturing executives who are satisfied with their current digital strategies. (*GT Nexus*)

- **$178 Billion** – The estimated total manufacturing IoT spend in 2016. (*IDC*)

- **50%** - Percentage of US companies that admit to not having a systematic roadmap or toolbox for easy rollout of digital manufacturing solutions. (*McKinsey*)

- **48%** – The percentage of executives who admit that "traditional" methods such as phone, fax, and email are still their dominant ways to interact with supply chain partners. (*GT Nexus*)

Disruptive Technologies – Volume of Mentions

Bar chart values:
- Product-as-a-Service: 795
- Digital Supply Chain: 5,049
- AI/Machine Learning: 2,689
- Digital Twin: 3,778
- Digital Thread: 1,952
- Augmented Reality: 2,034
- Virtual Reality: 1,087
- Model Based Enterprise: 1,817
- Shop Floor Technology: 6,417

Date Range: January 1 – December 15, 2017; Region: North America; Language: English

Disruptive Technologies – Sentiment

Technology	Positive	Neutral	Negative
Shop Floor Technology	39.5	56.9	3.5
Model Based Enterprise	27.4	70.6	2
Virtual Reality	23.4	76.2	0.4
Augmented Reality	27.1	72.7	0.3
Digital Thread	65.6	32.9	1.5
Digital Twin	53.7	44.5	1.8
AI/Machine Learning	21.5	76.5	2
Digital Supply Chain	40.4	55	4.6
Product-as-a-Service	45.5	53.9	0.6

■ Positive ■ Neutral ■ Negative

Technology on the Shop Floor

Availability

For most manufacturers, the availability of technology is not an issue. Even the smallest of manufacturers is using some sort of technology on their shop floors.

- Manufacturers are using a combination of software and consumer electronics and devices to manage the shop floor (i.e. iPads, Bluetooth devices, wearables, etc.)
- Cloud enabled devices help employees stay connected to the supply chain in real-time.

ERP Software

Many manufacturing executives are seeing the benefits of ERP software and are working to incorporate it on the shop floor if they aren't already. These software solutions offer end-to-end visibility and seamlessness that help contribute to a business's efficiency and bottom line. However, not all of these solutions are used as intended.

Smaller and mid-sized companies are finding that not all ERP software is created equal. Some are experiencing an "overkill" of features, while others find that the software assumes too much about the way their team works.

Technology Case Study

PKC Group:

"The combination of cloud and mobile devices enable new levels of flexibility and freedom. One manufacturer, PKC Group, has moved to an almost entirely mobile plant floor. Workers use Microsoft Surface tablets to access cloud ERP using nothing more than a Web browser. PKC then determined it could pair the tablets with inexpensive Bluetooth hand scanners for shop floor scanning; for example, inventory could be scanned directly to the cloud in real time."

Technology Feedback

"I think, the technology that will give leaders within the manufacturing sector a competitive edge is real feedback capabilities. When we get to the point where the manufacturing environment is available in real-time to report back efficiencies, that the technology will pay [for itself]."

- Gardner Denver VP & CIO, Brian R. Lurie

Product-As-A-Service

Upward Swing

Product-as-a-Service is increasingly becoming more popular amongst manufacturers (similar to the popularity of SaaS). However, it's not always the best solution for every type of manufacturing.

For discrete and process manufacturers, this model has been proven to work and both industries are already doing some great things with Product-as-a-Service. On the other hand, some industries can't make an ROI justification for Product-as-a-Service, such as batch process manufacturing.

Industry Shift

With a customer-centric business model that is designed to meet specific needs, Product-as-a-Service signifies a major shift in the industry. It's enabled by advanced, immediate means of collecting feedback and applying it to the production cycle.

- A recent Frost & Sullivan estimation foresees that 70 percent of Fortune 500 companies are expected to develop new business models that provide product-as-a-service.

Managing the Shift

The successful implementation of a product-as-a-service model relies on **quality, accuracy and timeliness** of the affected data.

As new business models continue to emerge and evolve, the implementation of best practices in data governance can help reduce risk, time, and budget of the implementation by helping to address the management of greater volumes, varieties and accuracy of data.

Transition Strategies

When making the shift to Product-as-a-Service, manufacturers need to have a strategy or the model will not work. Some recommended strategies for making the jump to Product-as-a-Service include:

- Calculate ROI
- Factor In Product Redesign
- Map Out Relevant Business Impacts
- Rethink the Entire Organization
- Find the Right Leadership for the Transition
- Monitor Regulations
- Determine Who Can Access the Data

Digital Supply Chain/Machine Learning

Machine Learning/AI

Advanced algorithms are changing the way the manufacturing industry collects information, performs skilled labor, and predicts consumer behavior.

- Smart factories with integrated IT systems can increase production capacity by 20% by providing relevant data to both sides of the supply chain more easily.
- Quality is no longer sacrificed for efficiency, as machine learning algorithms determine which factors impact service and production quality.
  - Sensors are replacing human hands, resulting in less wasted time and materials, as well as optimal accuracy and workflow.
- The digitization of the manufacturing industry can mean lower production costs, faster turnarounds, and efficiently meeting customer demand.

The economics of AI

A recent Infosys study of manufacturing IT and business decision-makers from a range of sectors found that the companies planning to or currently using AI technology, such as robotics, anticipate a nearly 40 percent boost to their organization's revenue by 2020.

However, of those that were surveyed only 25% say that they have fully deployed and working AI technologies. Of those that use it, only 10% believe they are fully maximizing the current available benefits of AI.

- Savvy manufacturers are using data to help replace inventory and are experiencing massive improvements in efficiency and reduction in costs as robots take over most of the assembling, moving, packaging, transporting and other physical tasks.
  - However, AI also brings its share of challenges. According to the same survey, 37 percent of manufacturers believe that training employees in using AI will be a significant issue when it comes to implementing AI in their business.

Digital Supply Chain/Opportunities & Challenges

Digital Supply Chain Challenges

Cost, complexity, and demands for increased flexibility continue to be the primary challenges around digital supply chains for most manufacturers. They are increasingly overwhelmed by the amount of data they have readily available to them. They are working hard to harness the power of this data — and it is proving to be both a challenge and an opportunity.

- Only 29% of manufacturers admit to truly understanding what having a Digital Supply Chain Network (DSN) is, with under 15% implementing a DSN and expecting them to become the norm for the business in the next five years, according to a new Sapio Research study.
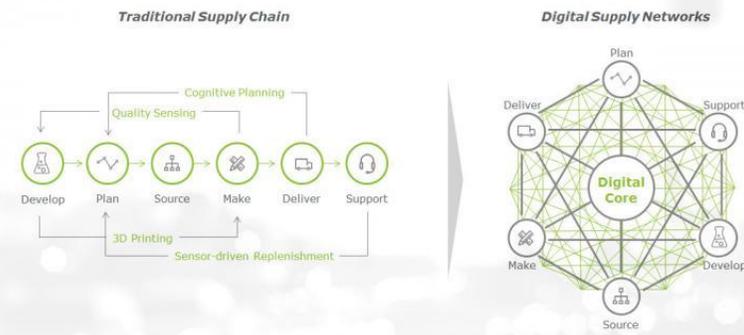

Game-Changers

According to a recent CGE Digital Supply Chain Initiative survey, companies need to take advantage of new and improved management practices, continuously expanding amounts of data, and new technologies relevant to digital supply chains (DSCs) to achieve future competitive advantage and satisfy their customers. It also identifies some future DSC game-changers:

1. Real-time data analytics (e.g., the increased use of mobile technology, sensors, Internet of Things, social media).
2. Digital impact on manufacturing and delivery (e.g., robotics, drones, driverless vehicles, 3-D printing).
3. Collaboration with a purpose (internally and externally).
4. Managing various forms of risk.
5. Blockchain, a new form of database architecture that allows two or more parties, operating through a trusted network, to increase the speed, security and accuracy of settlements on financial and commercial transactions.
   - Blockchain is viewed by industry experts as "the second generation of the digital revolution that creates the 'Internet of Value,' a way of building digital relationships that will reshape the way in which we do business."

Trending Content
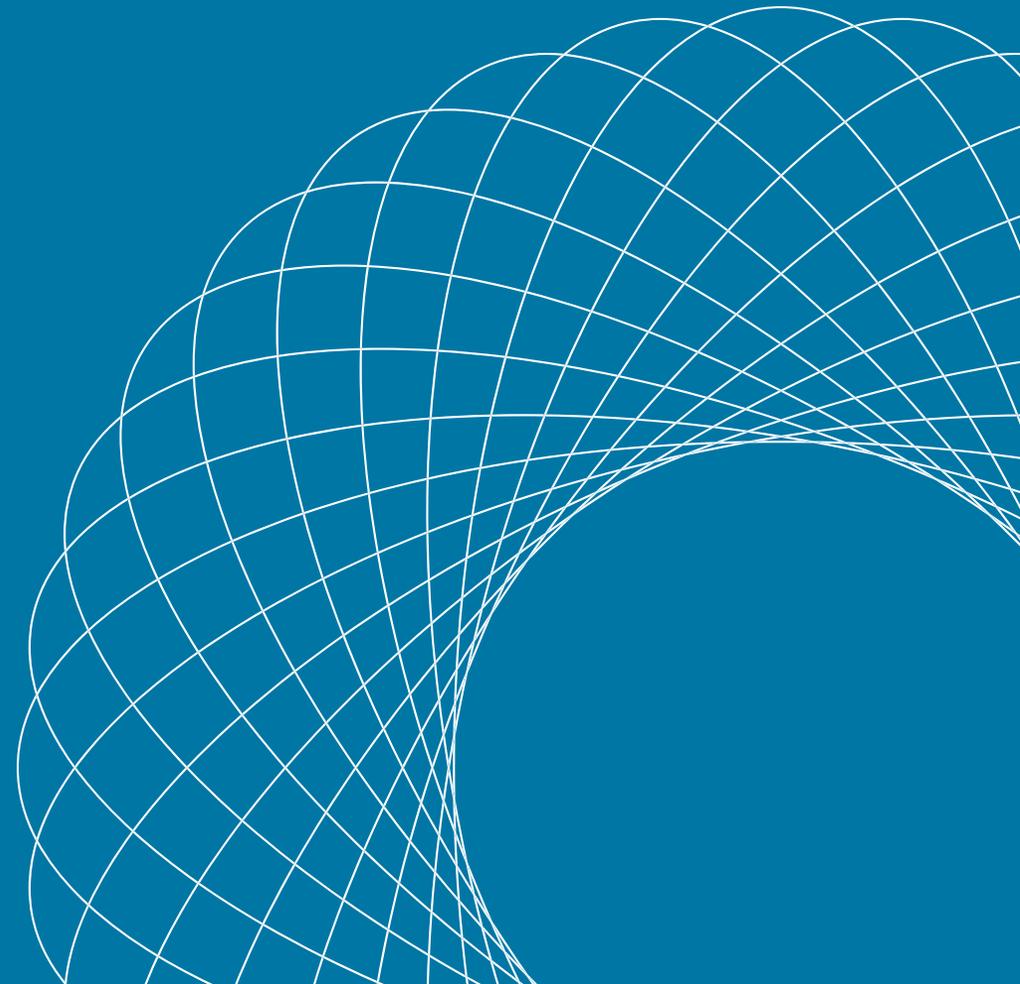
Top Trending Distribution Channels & Resources

The target audience of manufacturing executives are actively reading and visiting the following publications, blogs and social channels. In order to better reach this audience, consider creating content that resonates with this audience and distributing it across these sites and channels.

Publications & Blogs

- Automation World
- Digitalist Magazine
- Industry Week
- Logistics Management
- Manufacturing Business Technology
- Manufacturing Technology Insights
- Supply Chain Digital
- Supply Chain Management Review

Trending Social Channels

- LinkedIn
- SlideShare
- Twitter

Trending Content

- Research Studies
- Sponsored Articles
- White Papers
- Blogs
- Q&As

Content Trends Across the Web: "Digitization in Manufacturing"

	Facebook Engagements	Linkedin Shares	Twitter Shares	Pinterest Shares	Number of Links	Total Shares ↓
Top 5 Digital Transformation Trends In Manufacturing Aug 8, 2017 forbes.com	561	1.5K	847	3	-	2.9K
Da Vinci Code 2.0: How 3D Printing And Digital Technologies Are Altering The Face Of Aircraft Engine Manufacturing In Italy By Yari Bovalino — Feb 11, 2017 gereports.com	876	1.6K	51	5	-	2.6K
Henry Ford 4.0: Getting Digital Leadership Right in Industrial Manufacturing Just Might Drive Your Margins Up by 26% Mar 27, 2017 egonzehnder.com	27	1.3K	14	3	-	1.3K
**Four Investments Driving Digital Transformation in Manufacturing	IoT For All** By Jabil — Oct 4, 2017 iotforall.com	36	315	246	0	-	597
Industry 4.0: Digital Transformation In Manufacturing By Sandeep Raut — Apr 25, 2017 digitalistmag.com	95	294	130	1	-	520

Content Trends Across the Web: "Digital Supply Chain"

	Facebook Engagements	LinkedIn Shares	Twitter Shares	Pinterest Shares	Number of Links	Total Shares ↓
Challenges and opportunities of digital information at the intersection of Big Data Analytics and **supply chain** management By Florian Kache — Jul 18, 2017 emeraldinsight.com	0	15.2K	8	0	-	15.2K
Digital disruption: Data intelligence, **digital supply chain** and beyond By Sebastien Meunier — Apr 14, 2017 mobilebusinessinsights.com	13.1K	484	26	2	-	13.6K
Supply Chain App Store - Mobile-First and Cloud Solutions for the **Digital** Economy | NewsWatch Review By NewsWatch — Jun 4, 2017 newswatchtv.com	3.3K	64	3	1	-	3.3K
P&G's Pritchard: 'We Don't Want To Waste Time And Money On A Crappy Media **Supply Chain**' | AdExchanger By Adexchanger — Jan 30, 2017 adexchanger.com	351	1.5K	277	2	-	2.1K
The **Digital Supply Chain** | Netflix Feb 20, 2017 vimeo.com Video	348	1.5K	20	1	-	1.8K
Industry 4.0: The Five Steps Towards A **Digital Supply Chain** By Strategy& — Mar 21, 2017 forbes.com	102	1.4K	293	0	-	1.8K
Railways to go **digital**; Suresh Prabhu to launch **supply-chain** contract By Financial Express — Apr 10, 2017 financialexpress.com	1.8K	2	12	0	-	1.8K
The Evolution of the **Digital Supply Chain** By Roberto Michel — May 3, 2017 logisticsmgmt.com	190	1.4K	73	0	-	1.7K

Thank you!

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