



THE INDUSTRY 4.0 PARADOX

Overcoming disconnects on the path to digital transformation

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Industry 4.0 Paradox

A global survey of how companies are investing in Industry 4.0-driven capabilities to enable digital transformation

The era known as Industry 4.0 has opened up new opportunities to drive innovation and growth in business operations, processes, and production. But how are organizations planning to invest in digital transformation? Where and how do they plan to use digital technologies?

**EXECUTIVES
(DIRECTOR+)**

361



COUNTRIES

11



UNDERSTAND

How and where they are investing -- or planning to invest -- in digital transformation

Key challenges they face in making such investments

How they are forming their technical and organizational strategy around digital transformation.



7

INDUSTRIES:

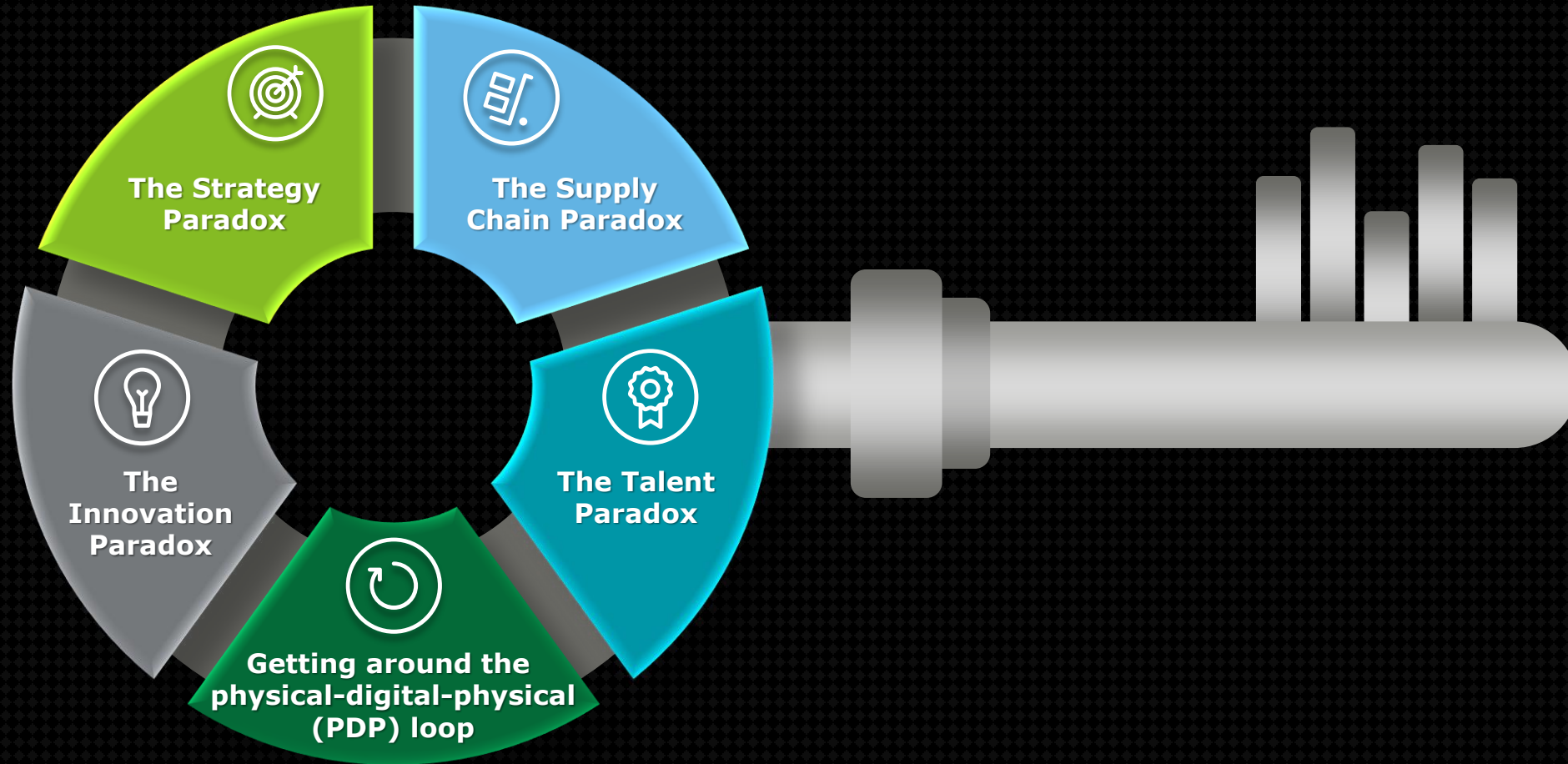
Aerospace and Defense, Automotive, Chemicals and Specialty Materials, Industrial Manufacturing, Power, Oil & Gas, and Mining



\$500 MM+ REVENUE



As digital transformation is taking shape in nearly every organization, our study reveals five key states of play:



The Strategy paradox – Digital transformation prioritized, but not necessarily perceived as profitable



Key Findings

- **94 percent** of all respondents indicate digital transformation as a top strategic objective for their organization.
- **But only 68 percent of all respondents and just 50 percent of CEOs** indicated that these transformations are critical to maintaining profitability.
- Digital transformations may be viewed as “**defensive**” **investments** to protect, rather than grow their business.
- On average, companies plan to invest a **median of 30 percent of their operational/IT budget** on digital transformation initiatives -- but **only 11 percent of their R&D budgets** on the same.



Recommendations

- **Incrementally move beyond operational upgrades:** Digital transformation can lead to revenue growth in the form of improved products or services.
- **Invest in the long run:** Transformative benefits often take time to accrue and require mindset shift. Don't neglect longer-term opportunities in pursuit of shorter-term objectives.
- **Consider increasing time and financial investments in digital transformation R&D efforts,** focusing on supply chain -- especially as it offers opportunities to pilot a number of digital technologies.

The Supply Chain paradox – High priority, low stakeholder engagement



Key Findings

- Respondents' **most planned future investment** area identified is supply chain (**62 percent**).
- But **only 22 percent** of Chief Supply Chain Officers (CSCOs) were either a key decision maker or highly-involved in the decision-making process.
- Also **only 34 percent** of overall respondents **see supply chain as a driver of innovation**.



Recommendations

- **Status of the CSCO** should be elevated and provided a seat at the decision-making table.
- Organizations should train its supply chain function **to align with the broader strategic objectives** of the organization.
- Leverage DSN for **new innovative and transformative uses of technology**, which can drive end-to-end supply chain transparency and intelligent decision making.

The Talent paradox – Technically advanced, intuitively limited



Key Findings

- **Only 15 percent** of respondents indicated they need to dramatically alter the composition and skill sets to support digital transformations.
- **Yet the #1** organizational and cultural related challenge cited is finding, training, and retaining the right talent (35 percent).
- Respondents cite their biggest talent need is for **user interface design, but it is not budgeted for.**



Recommendations

- Consider building technologies collaboratively by involving employees in the digital integration process.
- Make upfront investments in talent development which can help ensure that employees have the right skills and tools.
- Build a more intuitive user interface design which can improve employee engagement with these digital technologies.

The Talent paradox – Technically advanced, intuitively limited



Key Findings

- The top 2 factors driving digital transformation, as cited by respondents to our survey, are **Productivity improvement and Operational goals** - mostly doing the same things better - help generate positive ROIs.
- However, the survey data suggests that **equally positive ROIs** can be realized when organizations are driven by an **increased desire for innovation**.



Recommendations

- Continue to invest in **productivity and operations**; however, sticking mostly with tried-and-true can leave opportunities untapped.
- Consider focusing not only on building a strong foundation of technologies, but also truly **innovative new approaches**.
- Get moving – **because others are likely planning to** or already are moving along the digital transformation maturity curve.

Getting around the physical-digital-physical loop – A look at current Industry 4.0 capabilities



Key Findings

- **Harnessing each stage of the PDP loop is important** to the full realization of Industry 4.0 and a challenge that many organizations face.
- **More than 90 percent** of respondents report **gathering some data** from the physical world. But fewer are able to analyze the data and **only about half report being able to act on it in real time.**



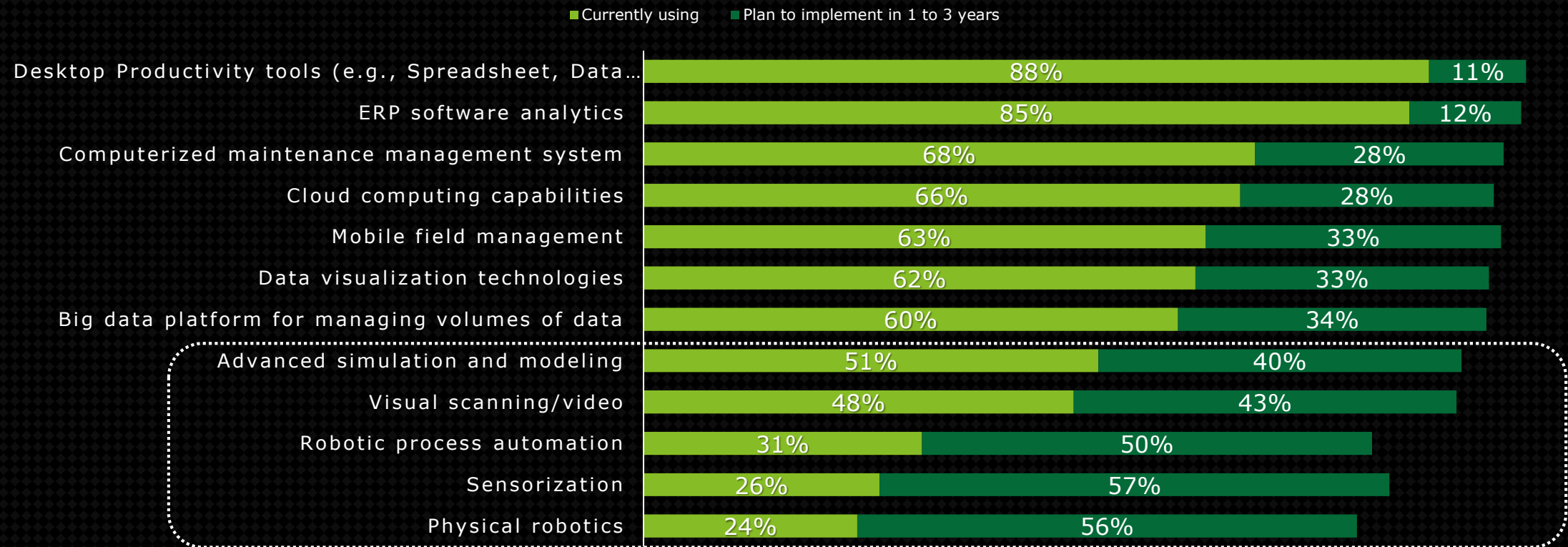
Recommendations

- Generating and analyzing data is valuable, **but focus should be on completing the PDP loop** as a roadmap for technology investments.
- Recognize that **investment leads to Industry 4.0 success**, and increases the risk that those who haven't gotten started could be left behind.
- Organizations should **start building their technology capabilities by using the tools they already have.**
- Subsequently organizations could identify and make more **targeted investments in what they actually need.**

Investment in more advanced, connected capabilities may increase in the future

Executives' reported plans to invest in advanced technologies such as visual scanning and physical robotics suggests a move toward innovation is on the horizon - as part of a continued evolution, rather than a revolution

Use of tools and technologies to access, analyze and leverage data from assets



Q19. What tools and technologies are you currently using to access, analyze, and leverage the data from your assets? Which do you plan to implement in the next 1 to 3 years?

Source: Deloitte Industry 4.0 Investment Survey, 2018

There isn't any one single path to digitally-transformative innovation; organizations can adopt the technologies that best suit the complex needs of their industry

Use of these technologies is perhaps reflective of each industry's various complexities, whether the distributed nature of manufacturing or the remote monitoring needs of mining and oil and gas

Tools and technologies currently used to access, analyze, and leverage the data from assets	Mining	Manufacturing	Power and Utilities	Oil and Gas
Desktop Productivity tools (e.g., Spreadsheet, Data Management System)	94%	81%	89%	95%
ERP software analytics	86%	83%	86%	89%
Cloud computing capabilities	68%	64%	72%	65%
Data visualization technologies	62%	60%	67%	59%
Mobile field management	58%	61%	72%	60%
Computerized maintenance management system	80%	61%	75%	67%
Big data platform for managing volumes of data	56%	54%	68%	65%
Sensorization	16%	32%	30%	19%
Physical robotics	18%	25%	20%	31%
Robotic process automation	28%	32%	24%	40%
Advanced simulation and modeling	50%	47%	62%	48%
Visual scanning/video	52%	47%	48%	48%

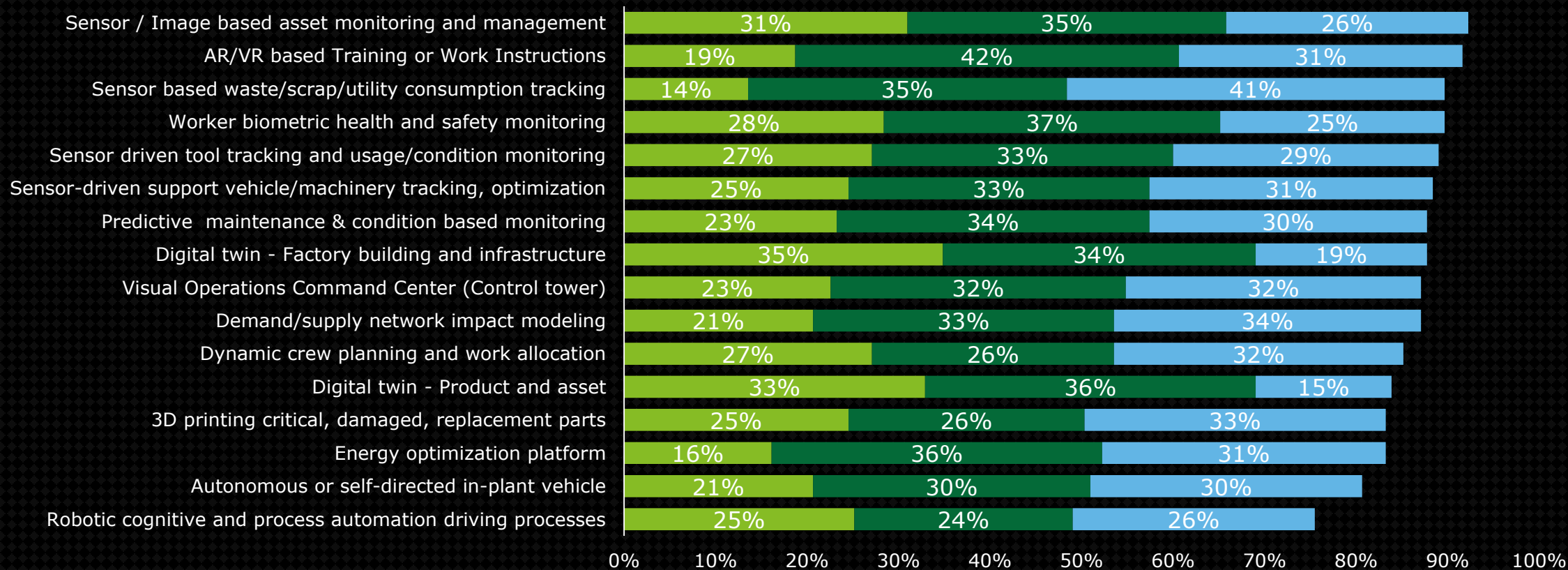
Q19. What tools and technologies are you currently using to access, analyze, and leverage the data from your assets? Which do you plan to implement in the next 1 to 3 years?

Source: Deloitte Industry 4.0 Investment Survey, 2018

Use cases for Industry 4.0 will continue to evolve

Reported plans suggest many industrial organizations plan to pilot and scale multiple capabilities on the path to the smart factory and the digital supply network

Current maturity across various Industry 4.0 use cases



Q1xManx1,2 - Where do you feel your company currently sits along the digital transformation curve for each of the following technologies? N=155

■ Piloting ■ Phasing in to broader use across the organization ■ Global standard

Source: Deloitte Industry 4.0 Investment Survey, 2018

Overcoming the paradoxes

01

Digital transformation not just limited to technology implementation, but can also be critical to organizational strategy, touching upon every aspect of the company



02

There are multiple paths to digital transformation. Organizations should consider their requirements and strategic goals, and determine the unique path to achieve it through digital transformation.



03

Organizations should assess their talent readiness and take action to prepare them for digital transformation. Also help legacy talent understand how their roles may reshape in a digital world.



04

People within all levels of the organization should be heard in order to drive digital transformation and ensure its viability on a daily basis.





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