

***Automation Innovation: From AI and Analytics to Machine Learning and Robotics, Supply Chains will never be the same again.***

**Bart De Muynck** - Research Vice President / Americas Symposium Chair – Gartner

**Dwight Klappich** - Research Vice President / Gartner Fellow

# Today's Presenters



**Bart De Mynck**  
Vice President Analyst

**Gartner®**



**Dwight Klappich**  
Vice President Analyst

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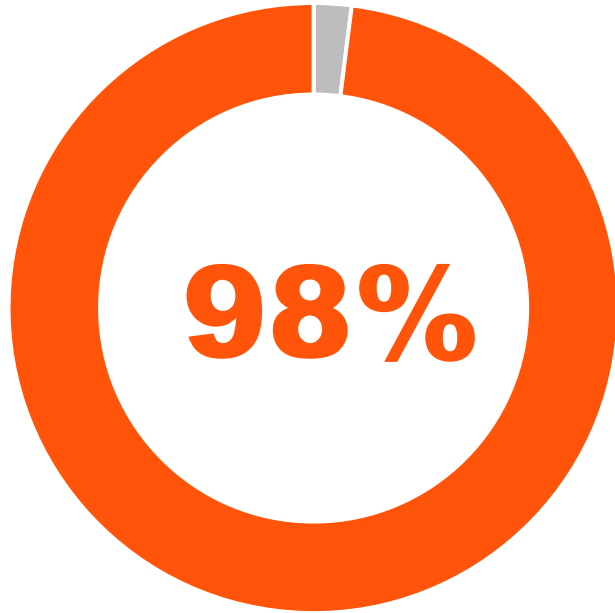
**V**olatility

**U**ncertainty

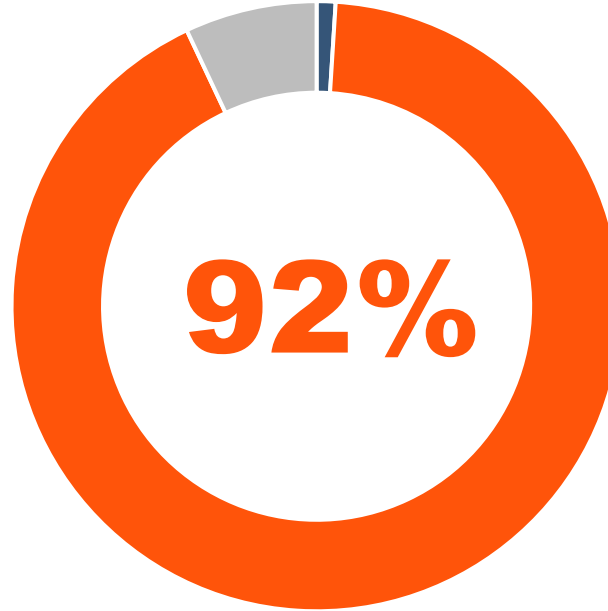
**C**omplexity

**A**mbiguity

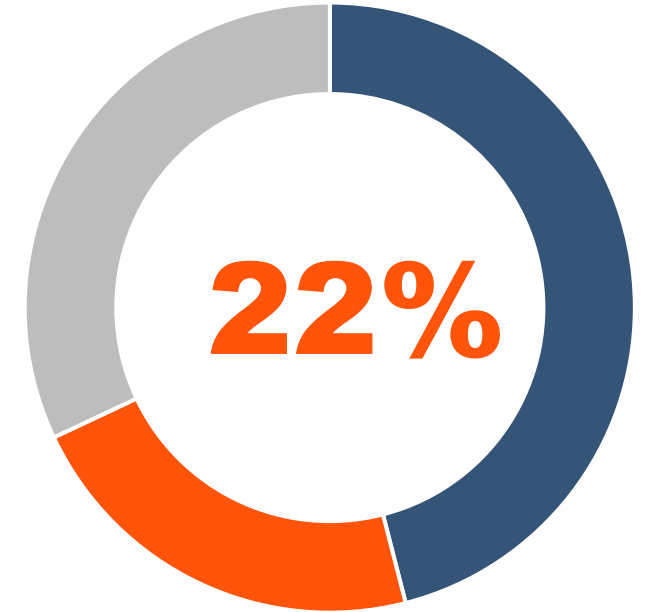
# Shifting Competitive Environments Within 5 Years



**Working from Home**



**Adoption of New Business Models**



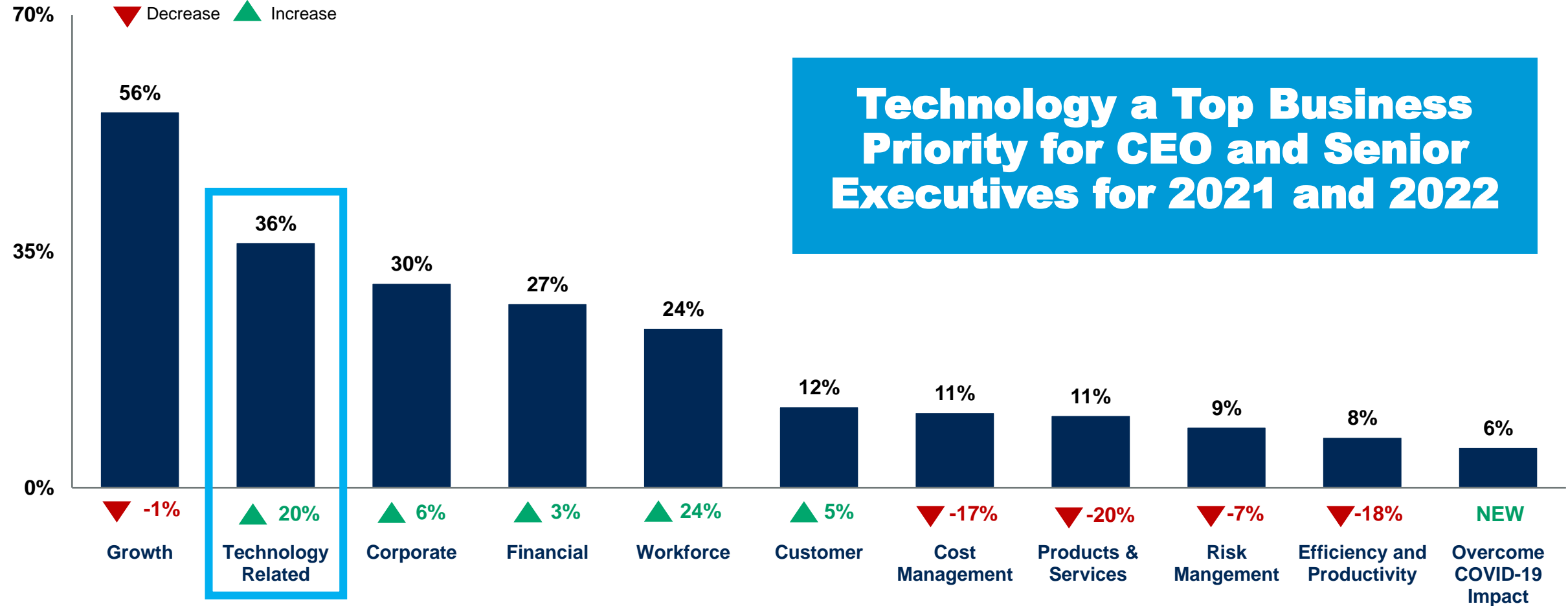
**Globalized Supply Chains**

■ Increase    ■ Stay the Same    ■ Decrease

Source: Opportunity After Crisis Survey, 2020, n=523  
Q. What changes do you see to supply chains within five years following the current COVID-19 disruption?

# CEO Business Priorities, 2021 and 2022 — Top 11

Summary Top Three Mentions, Coded Responses



**Technology a Top Business Priority for CEO and Senior Executives for 2021 and 2022**

n = 465, All Respondents

Q. To start, please tell us about your organization's top 5 strategic business priorities for the next 2 years (2021/ 2022).

Source: 2021 Gartner CEO and Senior Business Executive Survey

# Increased need for Automation through Innovation

**Artificial Intelligence**

**Advanced Analytics**

**HyperAutomation**

**Robotics**

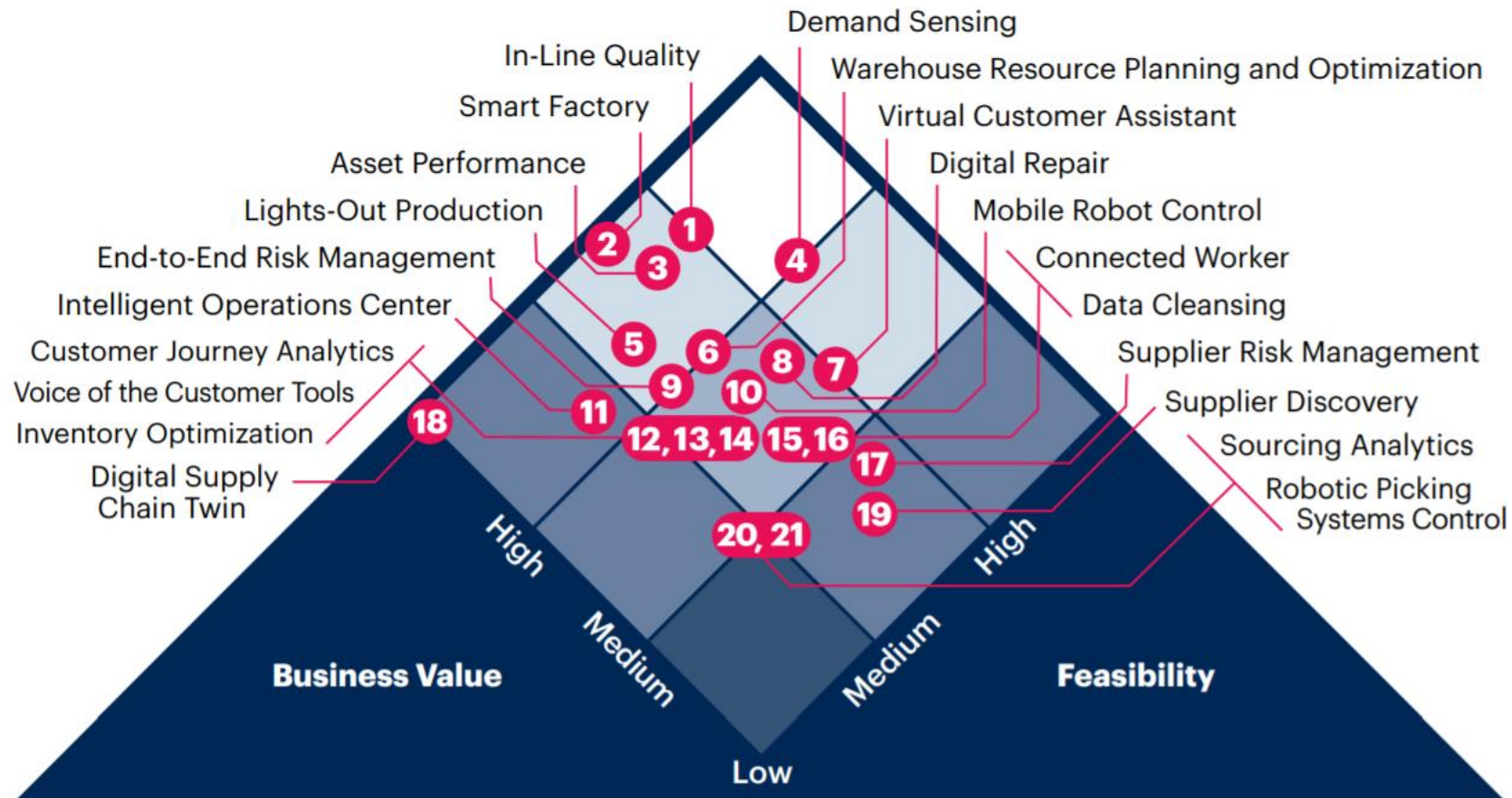


# Types of Innovation

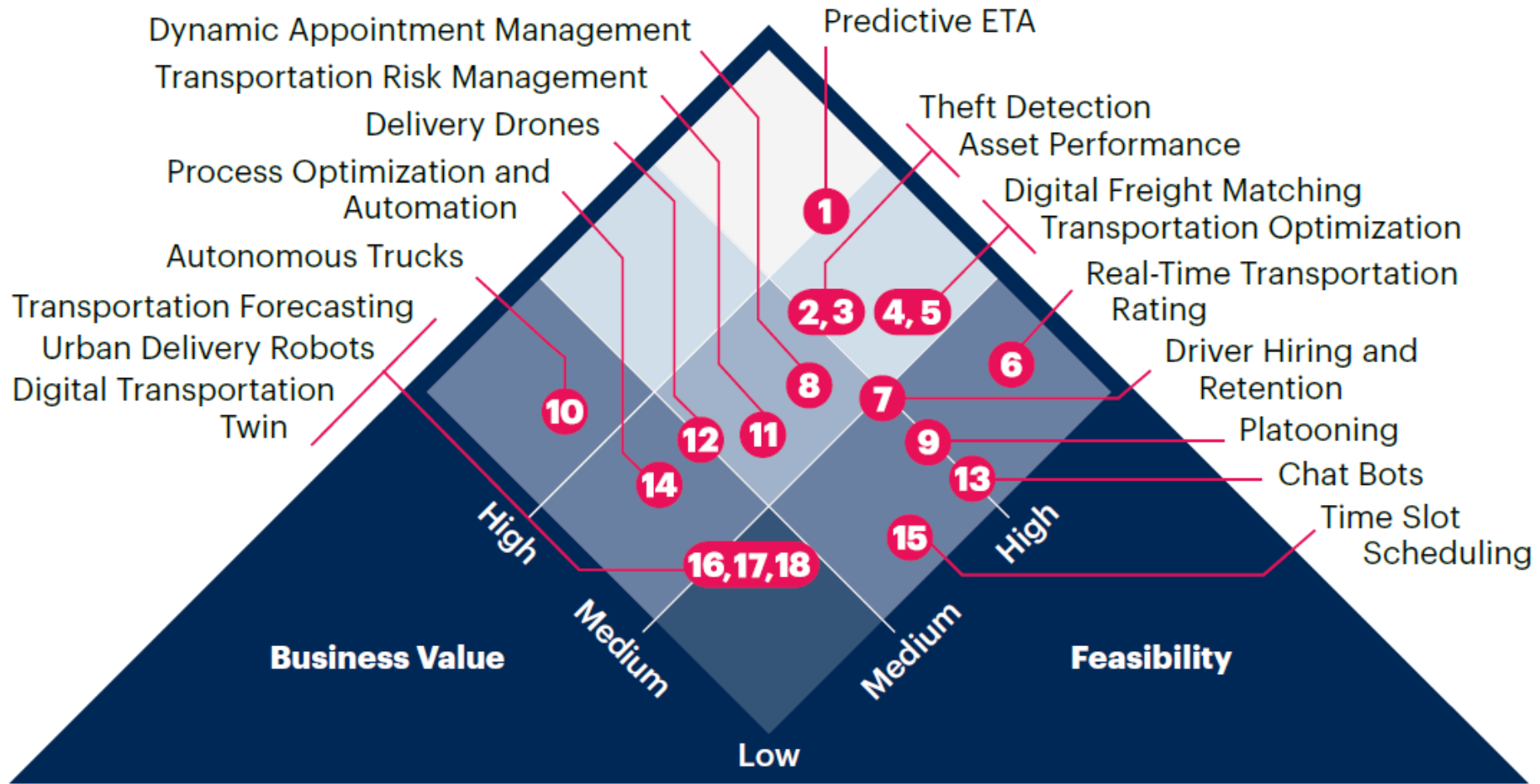




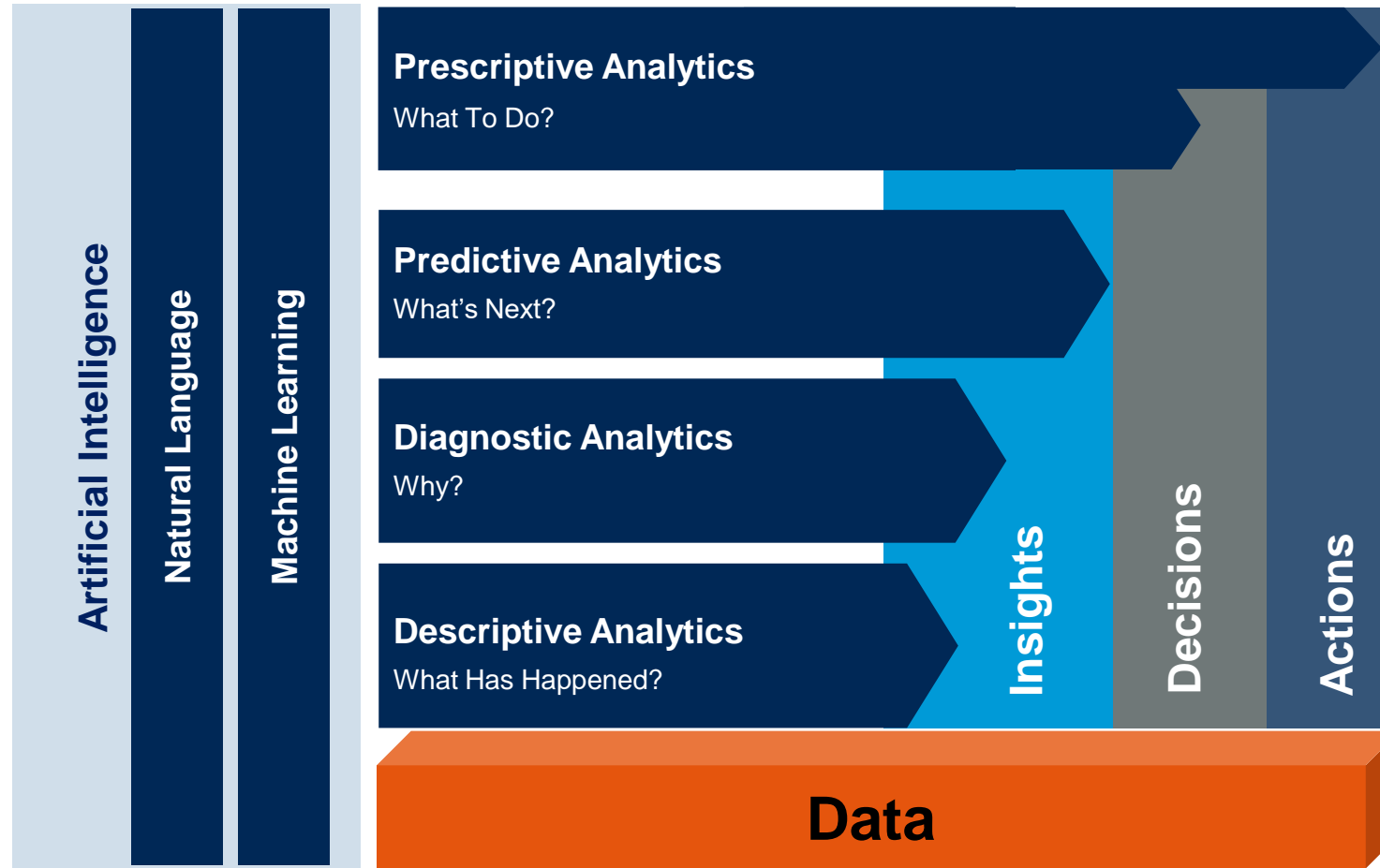
# Supply Chain Use Cases



# Transportation Use Cases



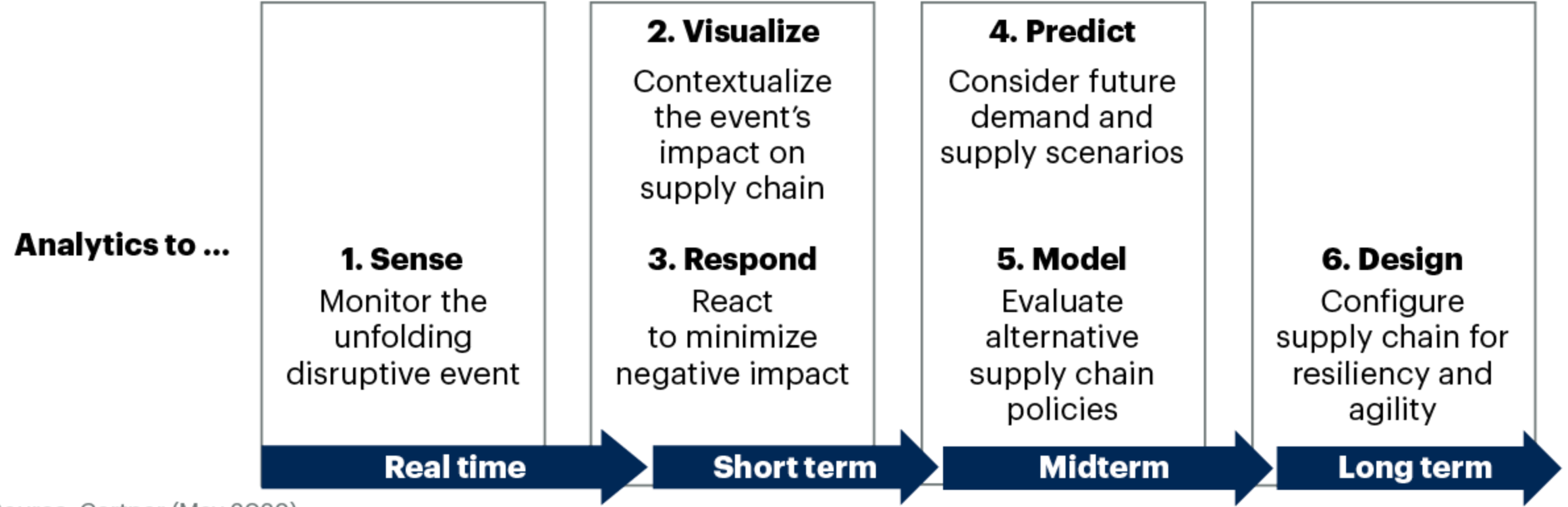
# Advanced Analytics: Domains of AI and ML



**Journey towards the Autonomous Supply Chain**

# Use of Analytics in SC Disruption

## The Use of Analytics in Supply Chain Disruptions



Source: Gartner (May 2020)

# Hyperautomation

The goal of Hyperautomation is to automate anything that can be automated.

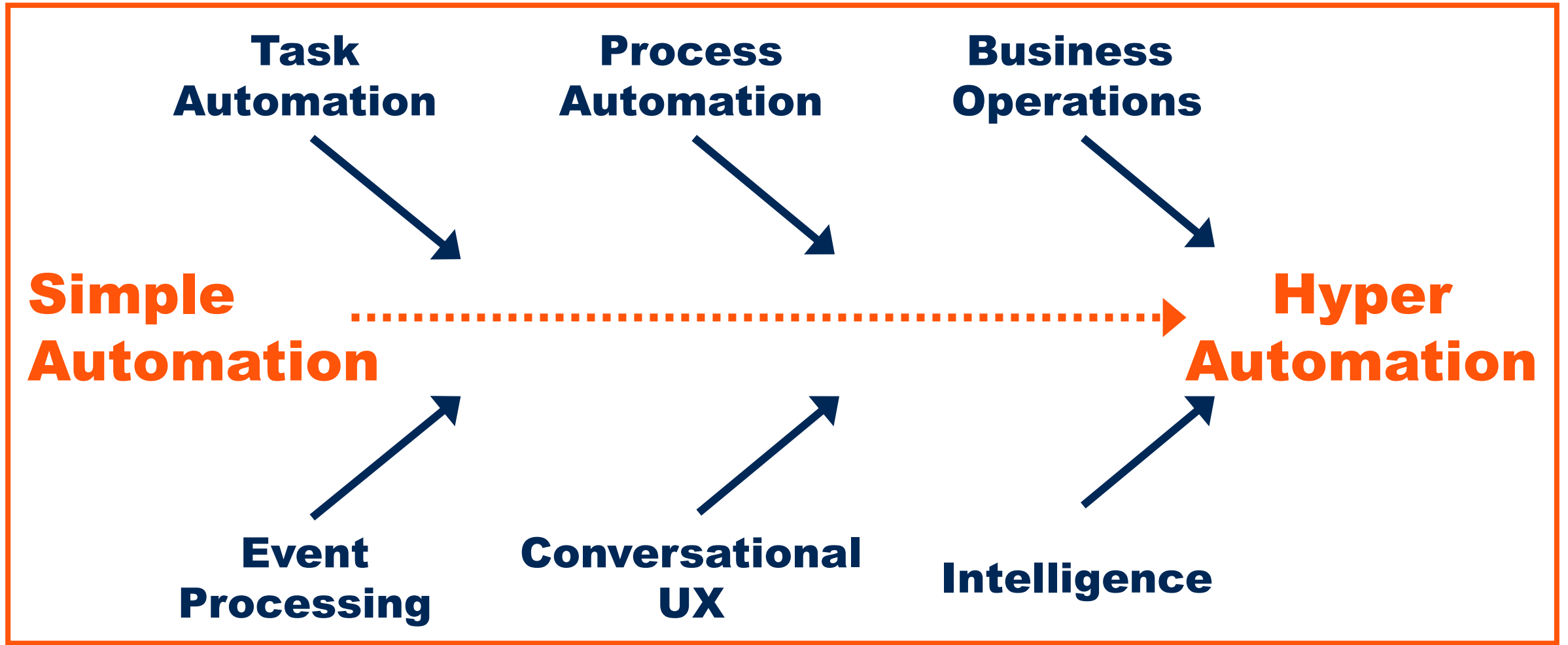
The No. 1 use case for AI is process automation.

Source: [“AI Use Cases, Tales From the Trenches: A Gartner Trend Insight Report”](#) (G00373320)



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# The Path to Hyperautomation



# Autonomous Trucks in the U.S.



**“ ... the regulatory environment went from being a hindrance to being on pace with the technology.”**

— Robert Brown, Director of Public Affairs, TuSimple

# Autonomous Last Mile Delivery Vehicles





# Last Mile Drones



**Acceleration of Technologies ... and possibly the Regulations that speed up Adoption**



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# Robotics



# ***Robotics***

**Not If But .....*When,  
Where, What, How and  
How Many***



# .... Think This Is All Hyperbole?



## Double Digit CAGR Over Next Decade

- Medical robotic systems market expected to reach **\$28.34 billion by 2026**, (CAGR of 22%+).
- Industrial robotics market is projected to rise to **\$119 billion by 2030**, (CAGR of 15%).
- Autonomous mobile robot (AMR) market expected to grow from **\$2.4B in 2020 to \$8.3B in 2027** (CAGR of 19%+)

# 96%

**Have Or Plan To Use  
Cyber-Physical Automation  
in Warehousing and Manufacturing Operations**

n = 517 supply chain professionals, excluding Don't know

Q20A. Does your organization currently utilize or plan to use cyber-physical automation (e.g., industrial robots, mobile robots, material handling, conveyor/sortation, storage and retrieval, automated guide vehicles) in its warehouses and/or manufacturing operations?

Source: 2020 Gartner Supply Chain Technology User Wants and Needs

# Macro Trends Impacting Logistics Automation



- **Labor Constraints** Increasing Demand
- Rapid and Continuous **Innovation**
- Growth Large **New Markets**
- Expansion — **New Use Cases**
- **Too Many Options** Slowing Adoption
- Users **Lack Internal Expertise**
- Reward vs. Risk **Confusion**





***By 2031, 75%  
of indoor material  
handling  
will be done by  
mobile robots.***

Source: [Predicts 2017: Supply Chain Trends and Innovations](#)

# Labor Availability Is a Growing Motivation For Investing in Cyber-physical Automation

**55%**

**Labor Cost  
Reduction**

**45%**

**Labor  
Availability**

n = 38, Base: BUYER BRANCH

Q05B. Select statement that most closely describes the impact of labor issues on your material handling purchasing decisions?

Source: 2019 Gartner Warehouse Automation Survey

The logo icon consists of seven blue squares arranged in a grid-like pattern. The top row has three squares, the middle row has two squares, and the bottom row has two squares, all aligned to the left.

**FORTNA**

VEENA  
robotics

# **Automation Is Not New, So What is?**

# The Historical People — Automation Trade-Off

## MHE

Reliable Life Time

Integration

Speed

Density

## Human

Agility

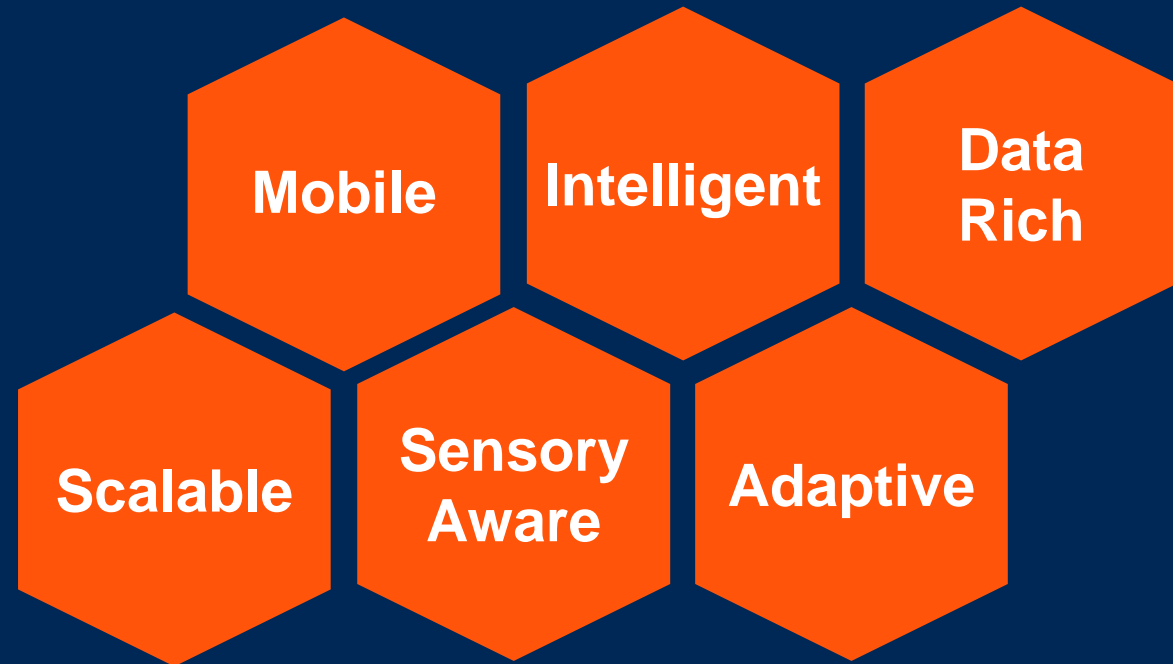
Adaptability

Scalability

Intuitive



# Automation — What's New?



Source: iStock

# Robots — Transforming Logistics Work Processes



Manual



Collaborative Picking Robots



Transport Robots



Goods to Person (G2P)



Robotic Picking



Legacy MHE Systems



# Robots — *Where's the Business Case?*

## Value Proposition

- **Lower Entry Cost**
- **Faster Time to Value (8X+)**
- **Low-Hanging Fruit — Reduce Travel Time**
- **Incremental Versus Big Bang**
- **Pilot/Prototype vs. Complex Design/Build**
- **Adaptability**
- **Scalability (Up and Down)**

# Critical Competencies Needed in Supply Chain Organizations Over the Next 5 Years

Top 2 Box (6,7 Rating) Percentage of Respondents

**58%**

**Automation/Material  
Handling Engineers**

**44%**

**Robotics Engineers**

Total Respondents, Excluding DK

Q16. How important do you see the following roles and competencies being within your supply chain organizations over the next 5 years?

Note: Percentages may not add to 100% due to rounding

Source: 2019 Gartner Supply Chain Technology UWaN Survey

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# How to Start — *Develop a Robust Robotics COE*



- Knowledge Gathering
- Education
- Innovation
- Problem Solving
- Socialize
- Organize/Coordinate
- Collaboration
- Governance and Control



# Q&A



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