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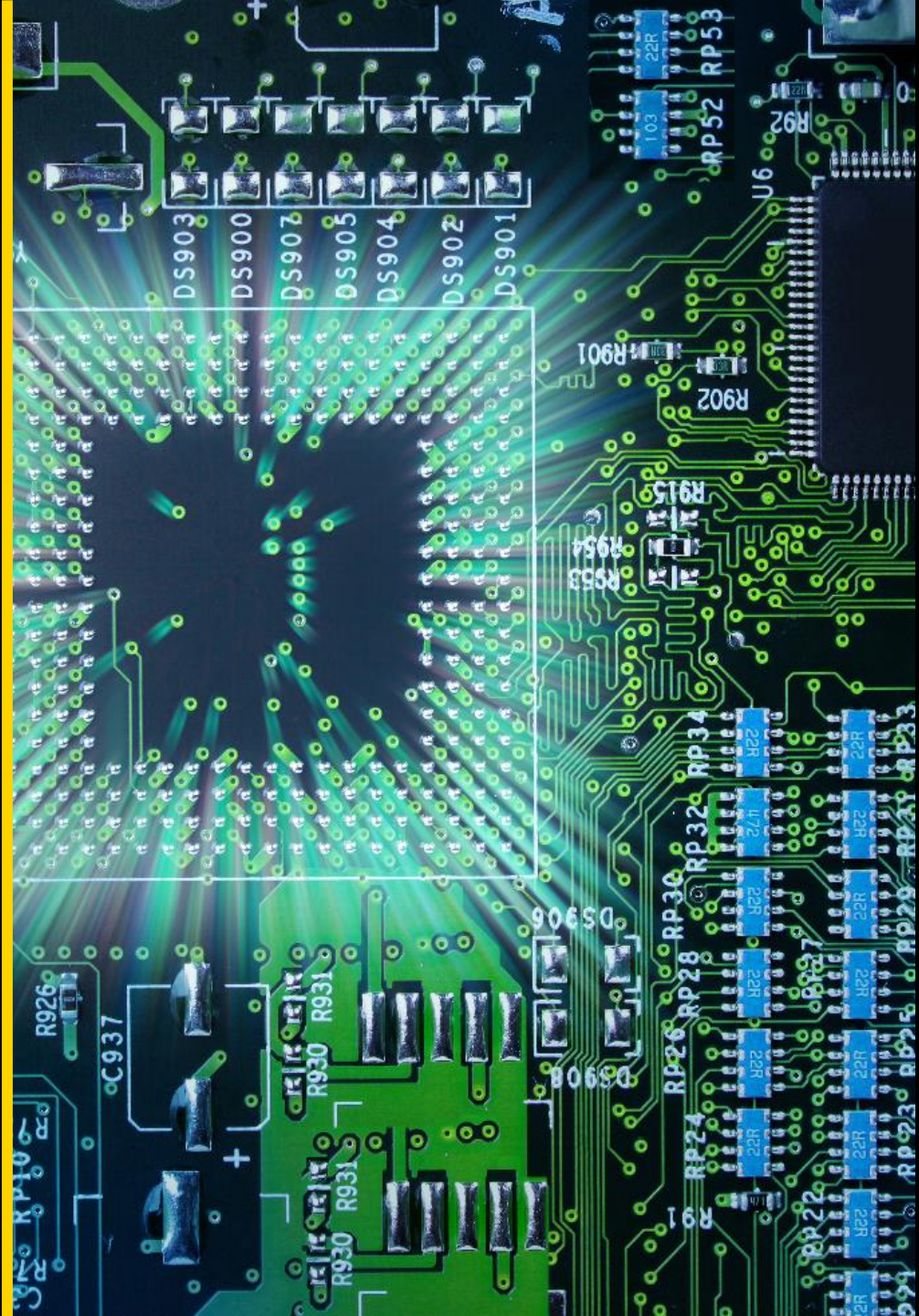
# Beyond Global Semiconductor Shortage

June 2021

INTRODUCTION

# Agenda

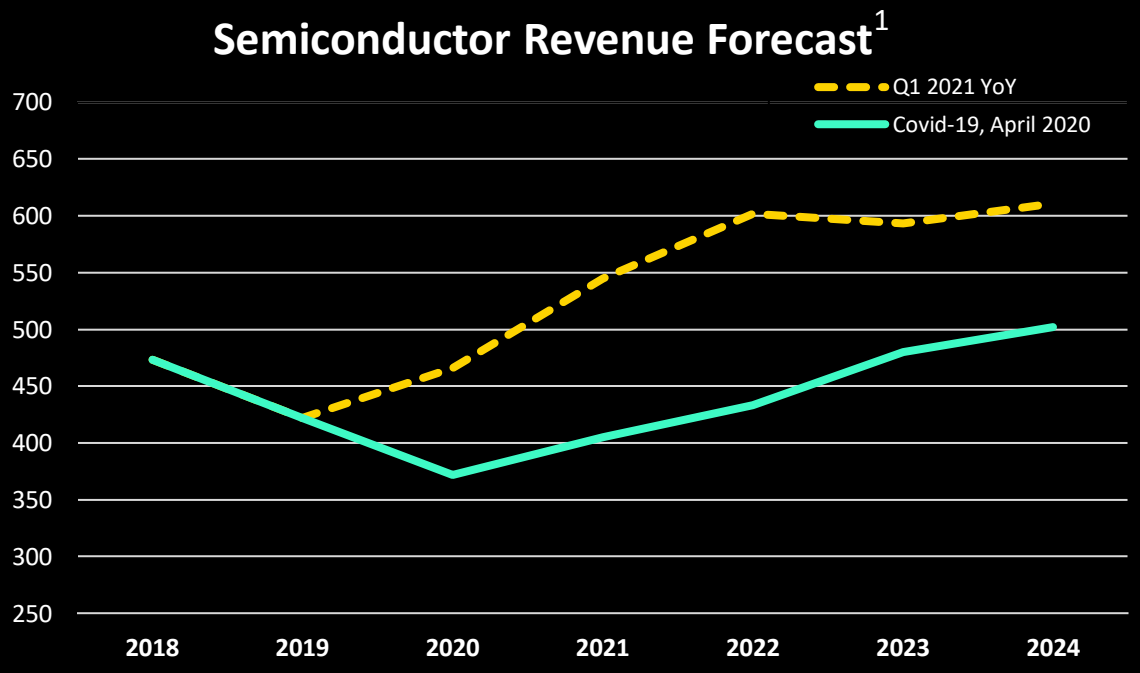
| | |
|---|---|
| Industry Current State | 5 min |
| Industry Outlook | 15 min |
| • Top issues for next 3 years<br>• Supply Chain Disruption<br>• Territorialism and Nationalism | |
| Regional Outlook | 5 min |
| Q&A | 5 min |

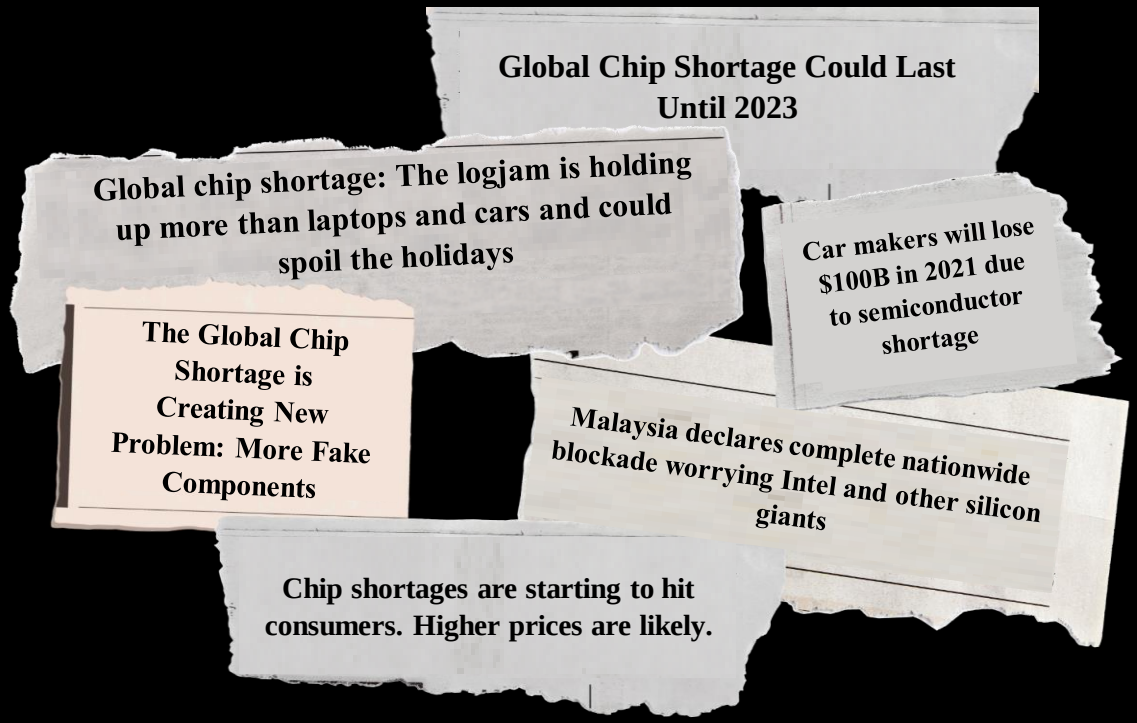


# From Prediction to Reality

Accelerated by COVID-19 pandemics, increasing demand for digitalization drives up revenue of the global semiconductor industry. However, it leads to global chip shortage that impacts supply chains across sectors.

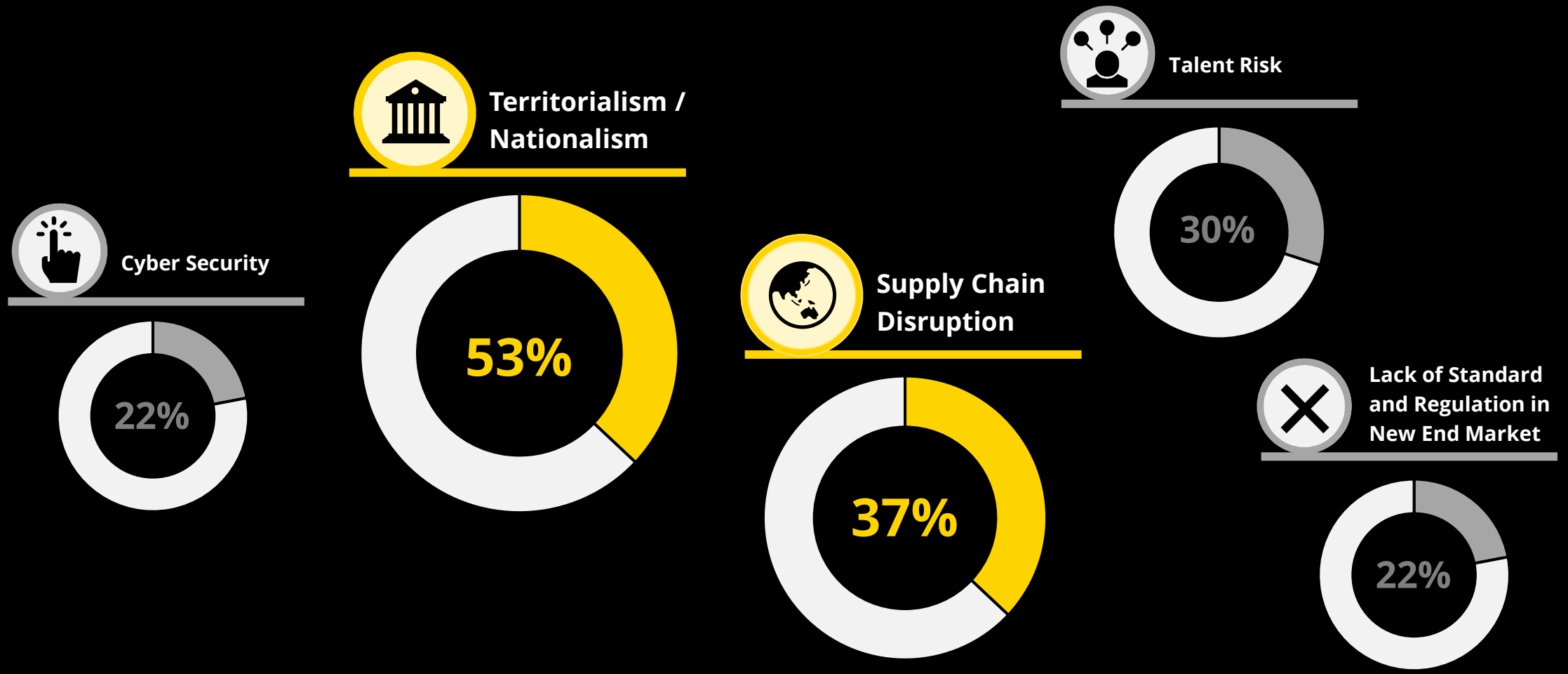



Source: 1. COVID-19 forecast data source: IDC, "State of the Market: Semiconductor Industry Assessment and Outlook"; 2021 YoY data source: Gartner, "Semiconductor Forecast Database, Worldwide, 1Q21 Update"

# Top 2 Issues[1] Selected By Semiconductor Industry Executives And Other Sector Leaders

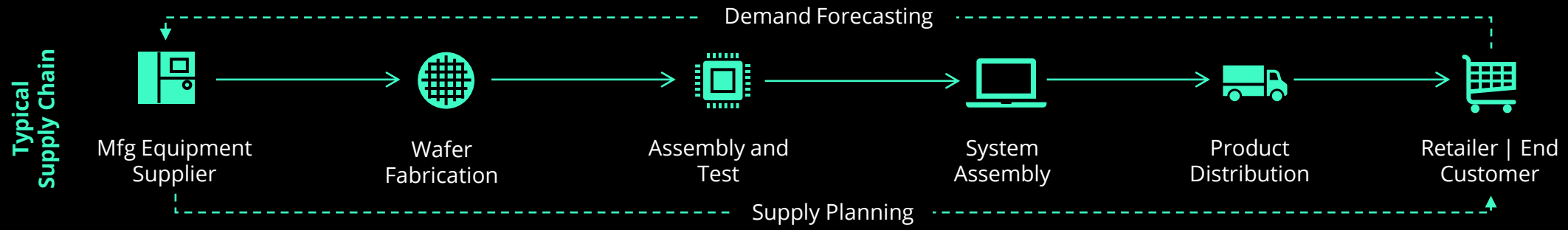



Source: 1. KPMG Global semiconductor Industry Survey findings, 2021

# Supply Chain Disruption

The global chip shortage from computers, cars to household appliances could last until 2023




**Mfg Equip. Supplier**

- Geopolitics increases restriction on manufacturing equipment purchasing in some regions

**Wafer Fabrication**

- Continue to be a bottleneck to supply chain
- Standing up fab sites is capital and R&D intensive.

**Assembly and Test**

- Highly susceptible to pandemic outbreaks due to workforce intensive processes

**System Assembly**

- Less disruption in regions with high COVID-19 vaccination rates

**Product Distribution**

- Cross border shipment and delivery are impacted by pandemics
- High demand but low availability of distribution

**Retailer | End Customer**

- Manufacturers delay production due to chip supply shortage
- Increasing demand from new end market (i.e., AI, IoT, etc.) drives the shift of processes

**Demand Forecasting**

- Low confidence in demand signals as they are based on historical data
- Cumulative forecasting delay from end customers to manufacturing equipment procurement and planning

**Supply Planning**

- Long lead time to build and expand capacity to address the immediate shortage issue
- Cumulative order volatility through the supply chain
- Price could potentially drop in the future as volatility stabilizes

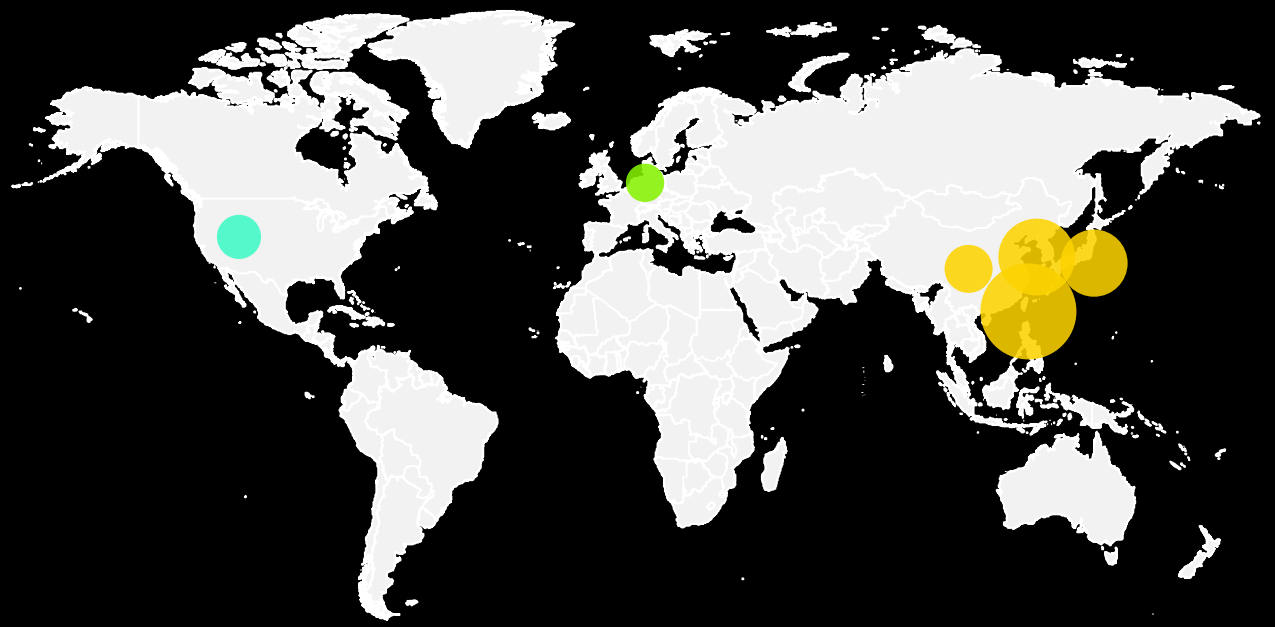
 

**Disruption Level** Low | Medium | High

# Global Trade Trends

Regions are focused on standing up chip production capabilities to be self dependent.

**Wafer Capacity**
*(As of 2019[1])*



**Asia (72.4%)**

- Plans to invest $100B over the next three years, including building a $12B chip plant in US

**N. America (12.8%)**

- $50B investment toward domestic chip production
- Companies investing $20B toward new chip facilities

**Europe (5.8%)**

- EU to commit portion of $160B of COVID-19 recovery fund, with goal to grow its semiconductor market to 20% by 2030

**Rest of World (9.0%)**

Source: 1. IC Insights, "Wafer Capacity at Dec-2019 – Geographic Region (Monthly Installed Capacity in 200mm-equivalents)".

# What Opportunities Are Present for the Region?

The Global Outsourced Semiconductor Assembly and Test (OSAT) Market is projected to grow from USD 32.5 billion in 2020 to USD 45.2 billion by 2026 at a CAGR of over 5.7%.

**Global Trade**

**Investments**

**Post Pandemic Supply Chain Challenges**

# Q&A