



MANUFACTURING TECHNOLOGY POST-COVID

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The top section of the slide has a teal background with several stylized virus particles, including a large one in the center and several smaller ones scattered around.

COVID CHANGED EVERYTHING

(not really)

- Most changes in manufacturing and supply chain were already underway
- It's fair to say COVID accelerated the adoption of technologies like IIoT, AI, ML, and automation

A dark blue speech bubble with a tail pointing towards the bottom left, containing white text.

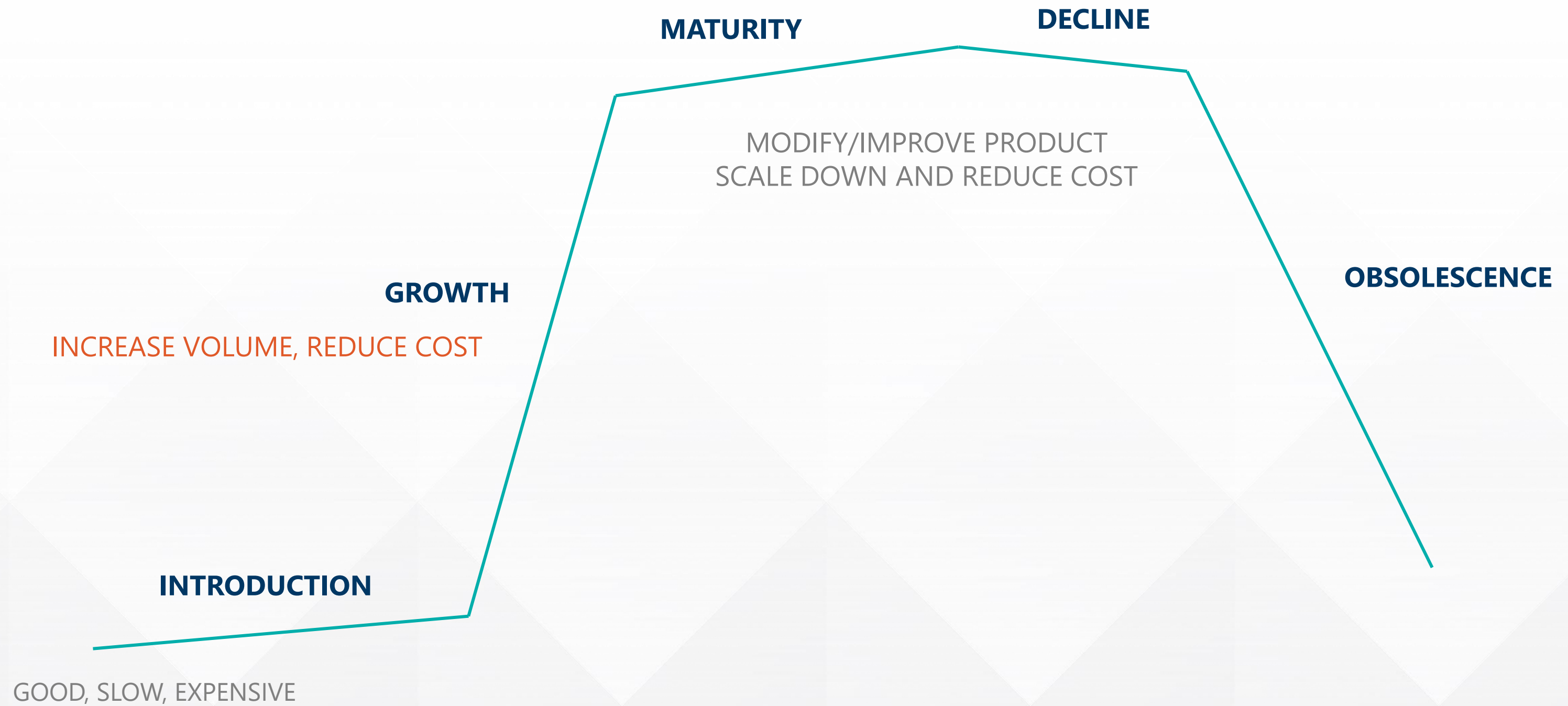
Let's talk about
manufacturers and
technology

A blue-tinted image of an industrial robotic arm on the left side of the slide, set against a background of a network of white dots and lines. The arm is white and metallic, with various cables and joints visible.

WHEN / WHY DO MANUFACTURERS INVEST IN TECHNOLOGY?

- **When they are new or growing**
 - When they need to ramp up capabilities

THE VALUE PROPOSITION CHANGES





WHEN / WHY DO MANUFACTURERS INVEST IN TECHNOLOGY?

- **When they are new or growing**
 - When they need to ramp up capabilities
- **When there's new technology that changes the equation**
 - Dramatically lowers costs
 - Eliminates labor content
 - Produces new or better product
 - Is being adopted by the competition

**MANUFACTURING MANAGEMENT AND
SUPPLY CHAIN MANAGEMENT IN ONE WORD:**

TRADEOFFS

GOOD, FAST, CHEAP

PICK TWO – The Emphasis Changes



Good & Cheap

Good & Fast

Cheap & Fast

DEMAND DURING COVID

**What do you do when your market disappears
(or changes radically)?**

**Ford makes
face shields**



**Breweries make
sanitizer**



**Everybody
makes masks**



MANUFACTURERS MUST ADAPT **OR DIE**



POST-COVID **SUPPLY CHAIN**

- **(Supplier) plant shut-downs**
- **Atypically long supply chains**
 - Congestion/delays at the ports
- **China**

CHINA

- **How they got to be everybody's preferred supplier**
- **It's complicated (geopolitical)**
- **What are we doing about it?**





WHAT DOES ALL THAT HAVE TO DO WITH MANUFACTURING TECHNOLOGY IN 2021?

- **MANUFACTURERS EMPLOY TECHNOLOGY TO IMPROVE PERFORMANCE AND OVERCOME CHALLENGES**
- **FOR MANY, THE TOP PRIORITIES ARE:**
 - Reducing labor content (and cost)
 - Increasing agility
 - Managing/reducing supply chain risk



PRODUCTION TECHNOLOGY FOR **REDUCING LABOR CONTENT**

- **Manufacturing engineering**
 - Design for manufacturability
- **Automation**
 - Robots and cobots
- **Expanded and enhanced planning/scheduling and MES**



TECHNOLOGY FOR **SUPPLY CHAIN**

- **Smart Systems**
 - AI and ML
- **IIoT**
- **Analytics**

These also apply to planning and scheduling



Final Thoughts

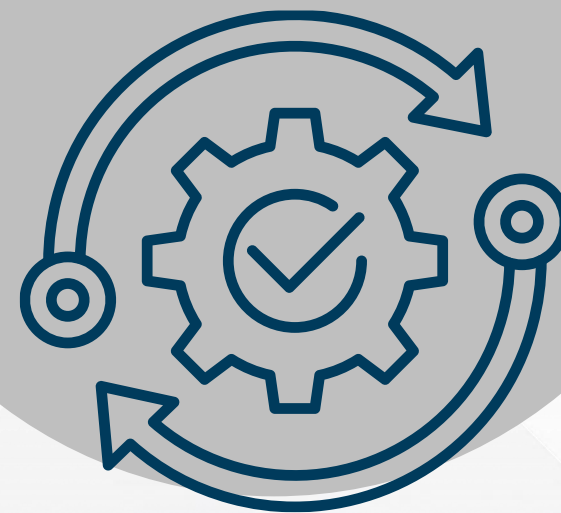
- **Any investment in technology must deliver a reasonable ROI**
 - Sometimes it may be difficult to see if the main benefit is survival
- **Technology is always changing... and changing faster than ever before**
- **The challenge is to quickly identify the right technology and move your organization quickly to stay ahead of the competition**
- **Make sure you know what keeps your operational leaders awake at night**
 - That's where your technology investments should go

FOR MANY,
THE TOP PRIORITIES ARE:

**Reducing labor content
(and cost)**



Increasing agility



**Managing/reducing supply
chain risk**

