

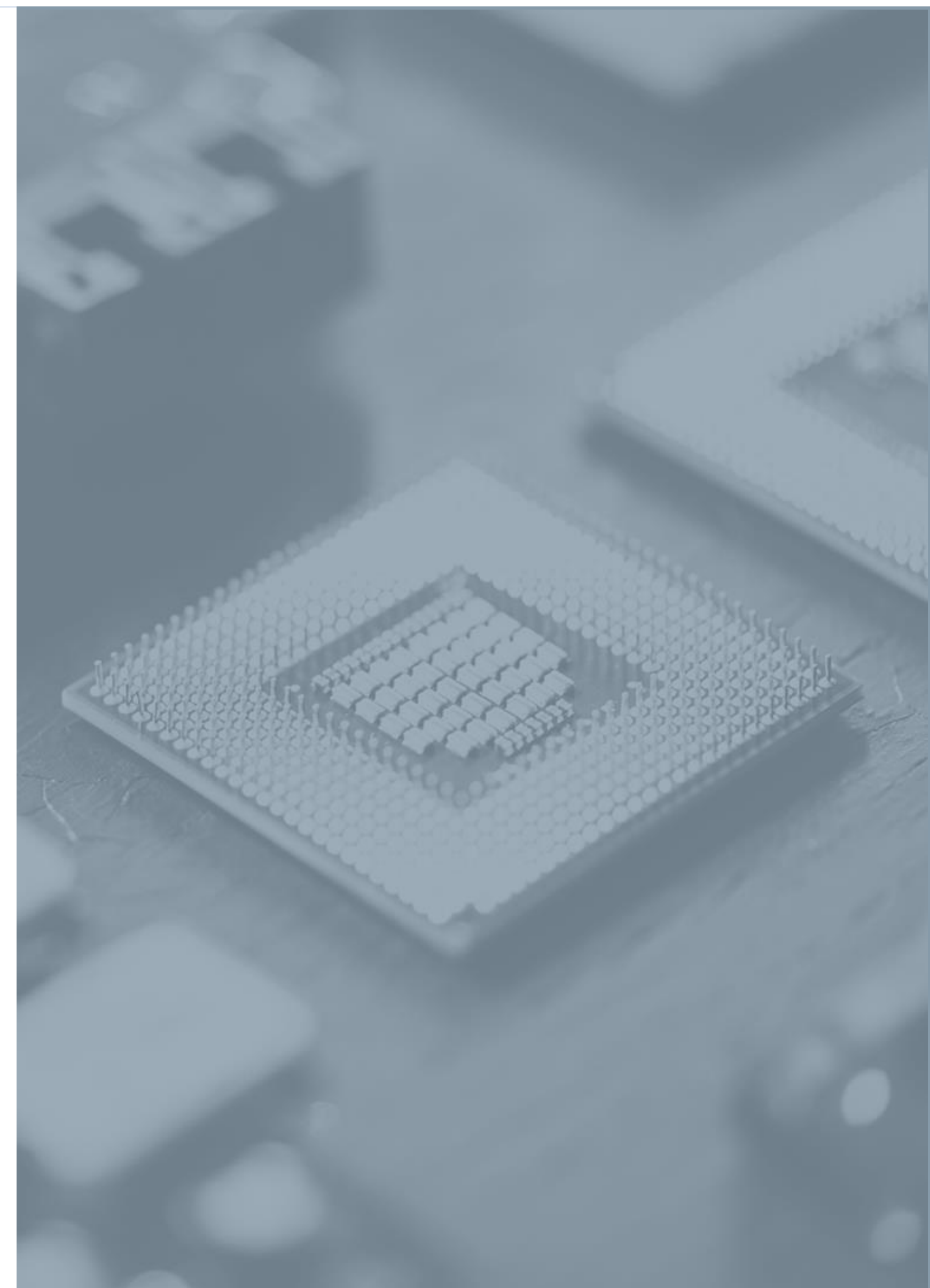
CMSE 2025: Addressing the Growing Challenges of Electronic Component Unavailability and Industry Knowledge Loss

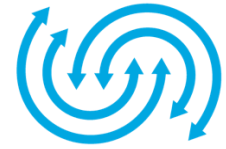
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....why talk Availability?

Let's Define Obsolescence – IEC-62402:

3.1.12 obsolescence

transition of an item from ***available to unavailable*** from the manufacturer in accordance with the original specification

3.1.14 obsolescence risk

measure of uncertainty as to when an item will become obsolete

3.1.15 obsolete <tangible item>

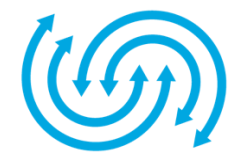
no longer in production from the manufacturer in accordance with the original specification

3.1.16 obsolete <intangible item>

no longer ***available*** from the manufacturer in accordance with the original specification

The international standard on obsolescence mentions availability *20 times*.



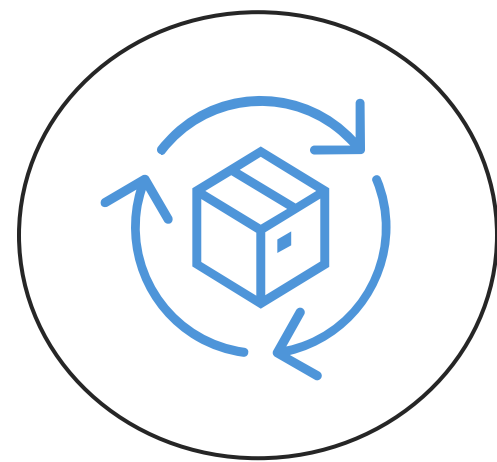


Why discuss this? Trends Contributing to Component Unavailability

- The semiconductor industry is growing rapidly, expected to reach USD \$2 trillion by 2032.
- Procurement managers don't care about the reason

"All I want to know is if the component is available or not. Will it be on my dock, or my CM's dock when it should be, or not? If not, what is the corrective action."

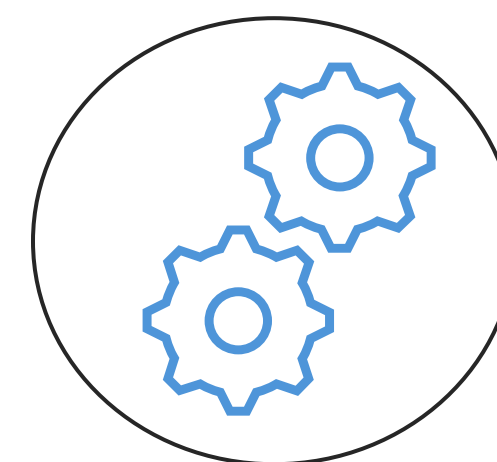
- Component unavailability is becoming a larger issue due to:



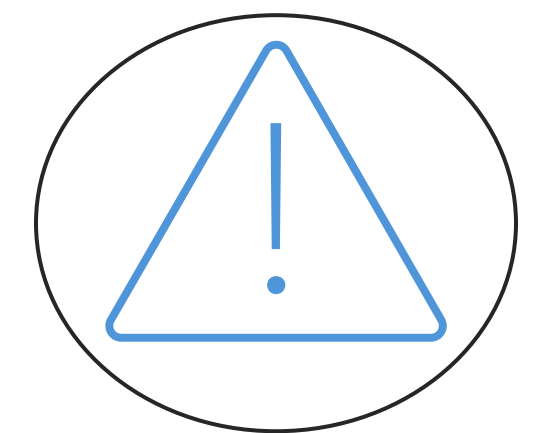
Supply Chain
Disruptions



Market
Demand



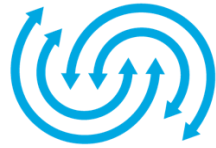
Manufacturing
Challenges



Component
Obsolescence

Corrective actions to address component obsolescence can be applied to ***other instances of unavailability.***



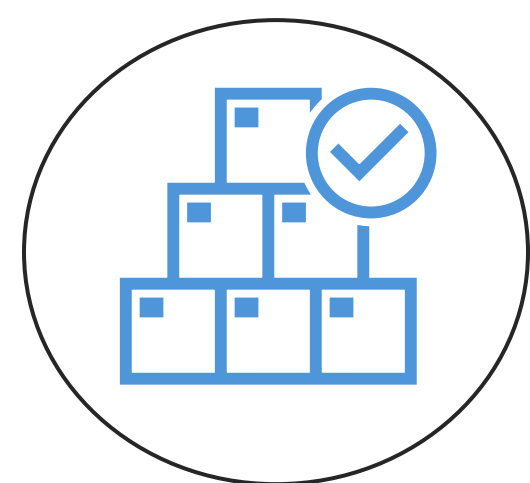


Hallmarks of Availability Challenges

Problem	Impact	Resolution	Cost	Heartburn factor?
Missed EOL	High	Redesign, Reclaim, Spot buy	High (if recertifying)	High
Planned EOL	Medium	Redesign, Reclaim, LTB	High (if recertifying)	Depends on IIOM Membership
Extended Lead Time	Medium-High	Spot buy, Wait	Depends if line-down, or contractual penalties	High
Shipping Delays	Medium-High	Spot buy, Wait	Depends if line-down, or contractual penalties	High
Demand Spikes	High	Spot buy, Wait	High	High
Shortages (deliberate or accidental)	High	Spot buy, remortgage house, medicate CFO	HIGH	High
Strikes, Geopolitics	High	Redesign, Spot Buy	High	High
Diminishing Manufacturing Sources and Material Shortages	High	Redesign, Spot Buy, Wait	High	High

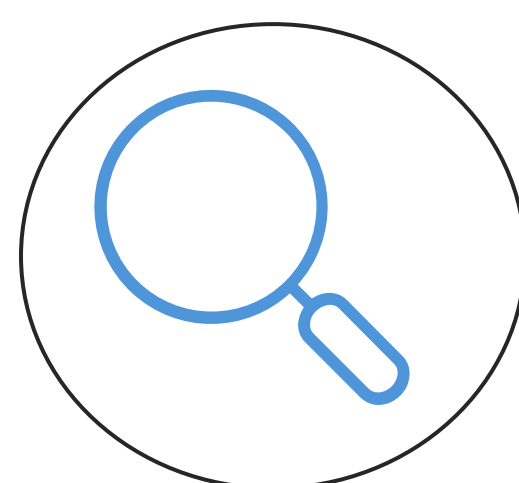


Common Solutions to Obsolescence/Unavailability and Their Risks



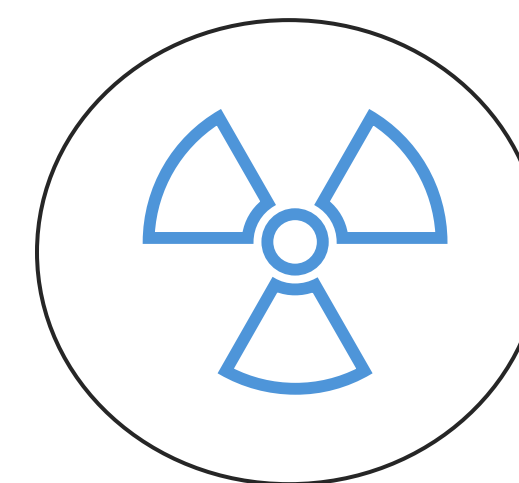
Last-Time Buy (LTB)

LTBs don't work for instant obsolescence, insufficient purchasing power, and lack of proper warehouses.



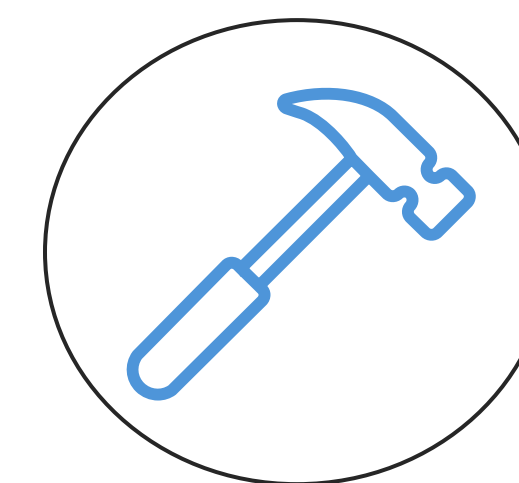
Find Alternates

Some alternates may no longer be active, lack manufacturers while others require redesigns.



Spot Buy

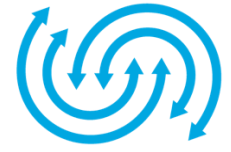
Drastic measure to keep production lines running, and to retain contract and deliverable viability.



Redesign/Recertify

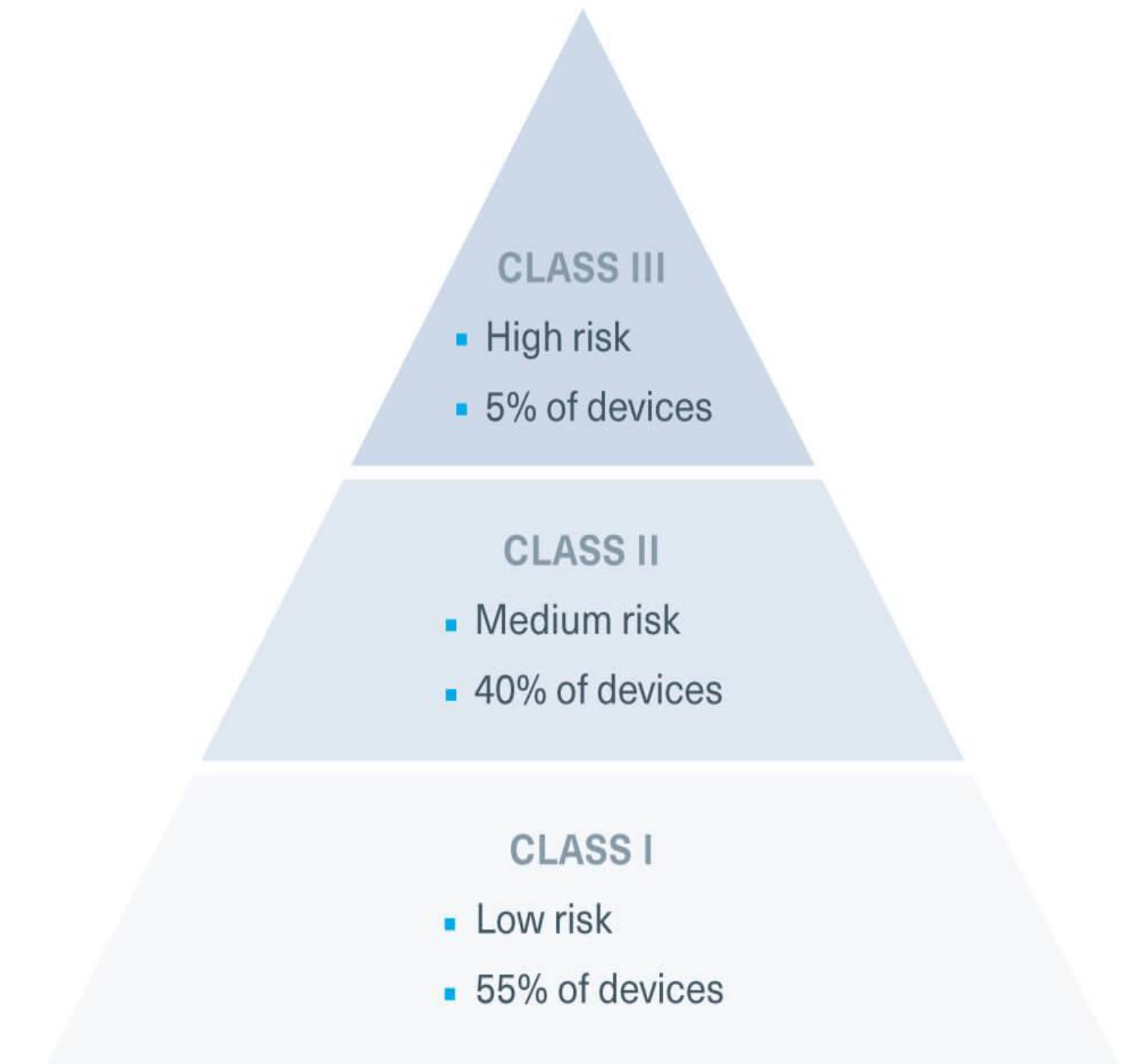
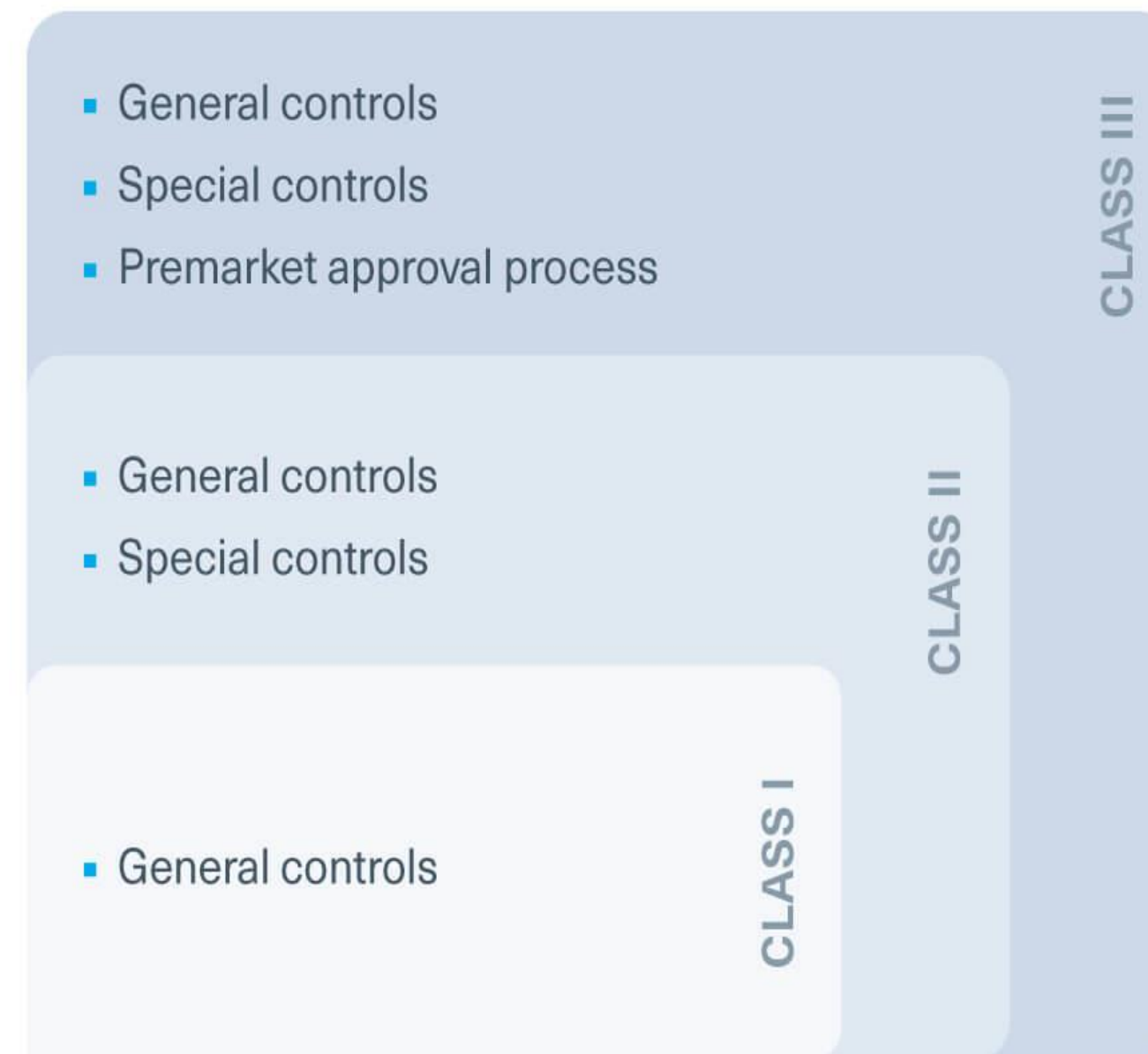
Redesigns are costly, especially for high-reliability industries. Design knowledge may have been lost.





Redesign/Recertification Challenges in High-Reliability Industries

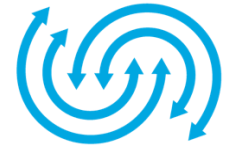
- These manufacturers must abide by strict pre-market approvals.
- Products undergo months to years of costly redesigns and recertifications.
- Simply replacing a part with a DIR may require re-applying for certification, making LTBs the only viable solution.
- If no LTB is possible then Spot Buy is the least-worst option.



FDA market approval requirements for medical devices

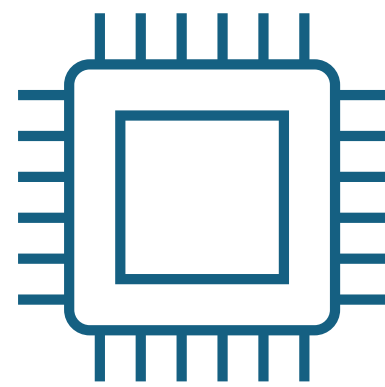






Sustainable Solutions to Component Unavailability

- Sustainable design is to design products with a “***right-to-repair mindset.***”
- Four key strategies help promote and establish greater awareness around sustainable product design.



Strategic Design
Choice



Case
Management

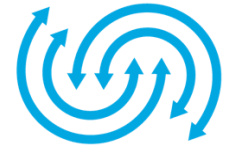


Market
Monitoring



Integrated
Solutions



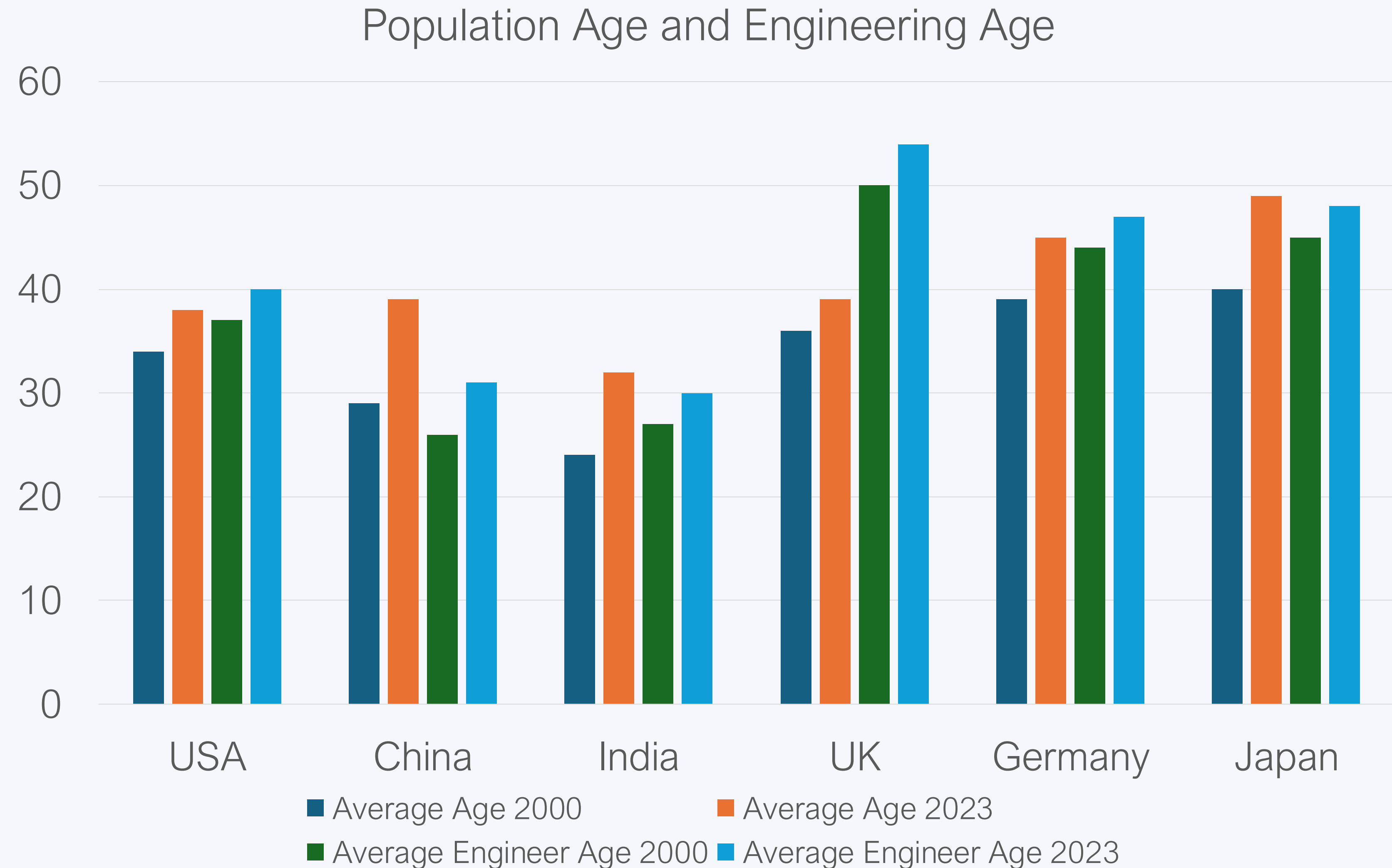


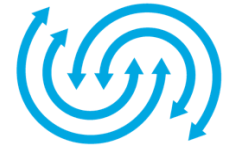
Now Let's Touch on Knowledge and the Current Labor Pool

“An aging workforce, regulatory changes, newly required skill sets, and shifting employee expectations are changing the landscape of semiconductor talent,”
- *Deloitte*

Education comes in many forms.

Let's focus on formal and higher education.

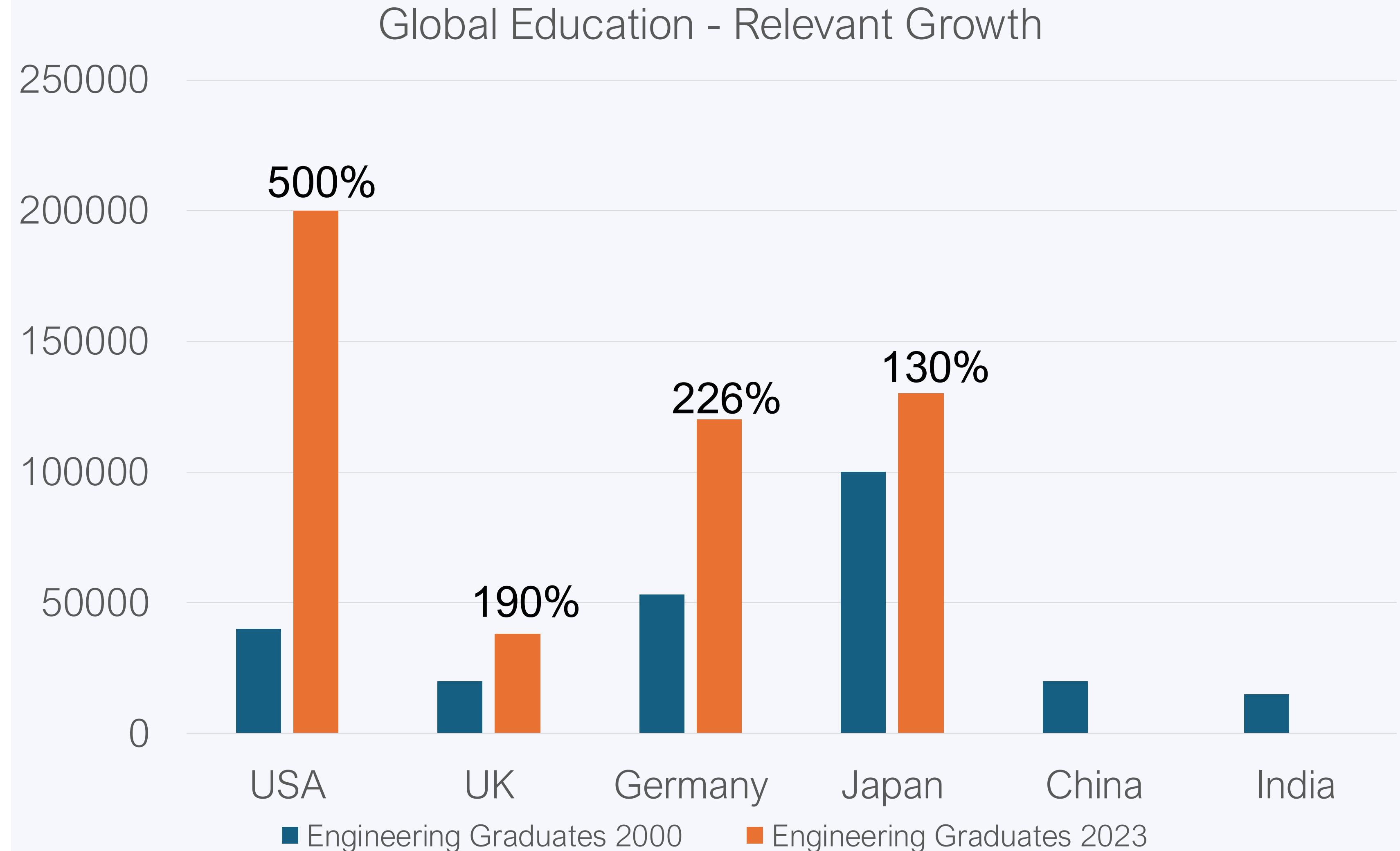


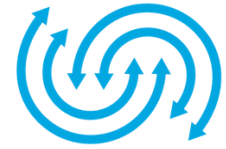


Global Comparisons for Education

More graduates are leaving
'Western' Universities with STEM
degrees but...

- 80% of semiconductor-related graduates in the U.S. do not stay in the U.S. post-graduation
- 90% of polled companies say talent acquisition is key to sustaining industry growth
- 63% of polled organizations agree that talent capability and acquisition are major company risks





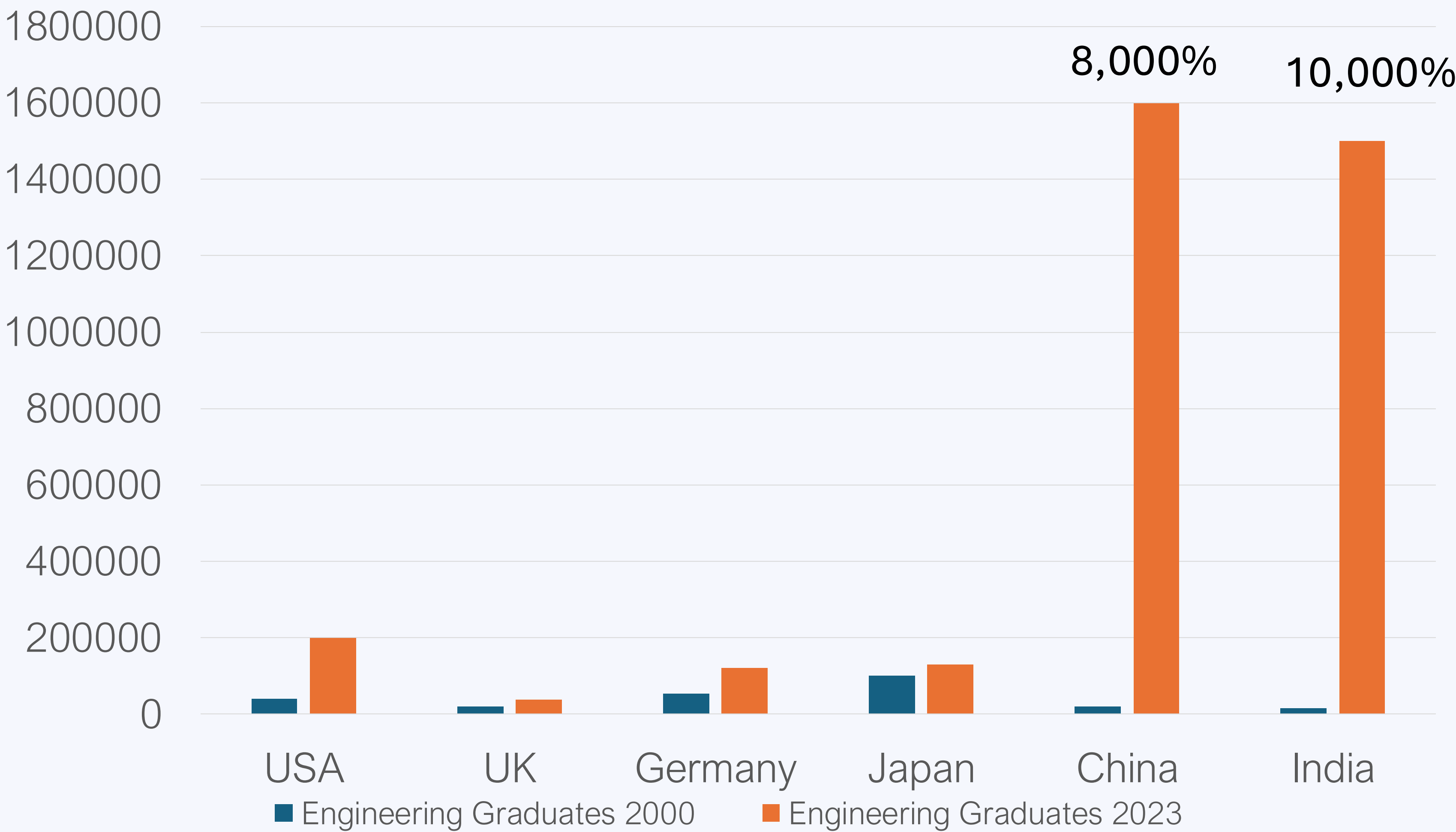
Global Comparisons for Education

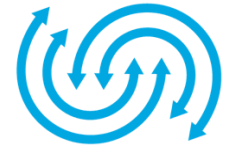
.... but compared with key ‘emerging’ economies this is not so impressive.

The U.S. semiconductor workforce is older than other technology industries.

- 55% of the U.S. semiconductor workforce is 45 or older
- Less than 25% of that is under the age of 35
- 20% is 55 or older in Europe
- Germany expects 30% of its chip workforce to retire in 10 years

Global Education - Relevant Growth





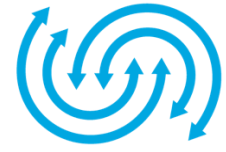
Are there jobs? Electronics Focus

- Huge onshoring efforts globally
- USA CHIPS act aims to add 200,000 jobs
- EU CHIPS rivals the USA investment, but job claims range from 9,000-50,000
- Intel, Micron, BAE, Microchip, GlobalFoundries, TSMC, Samsung, Texas Instruments, HP all receive funding and loans....
-all but Micron have delayed their start dates
- Research shows that policies, like the CHIPS Act, improve retention while geopolitics, such as the advanced manufacturing equipment ban, stall this growth.



You said you would show us sustainable solutions
and now you only have 7 minutes left....





Strategic Design Choice

- Prioritize sustainable component choices over today's cheap parts.
- Sole source avoidance is a vital step in sustainable design.
- Removing sole sources and other risks in the design phase can boost product sustainability.

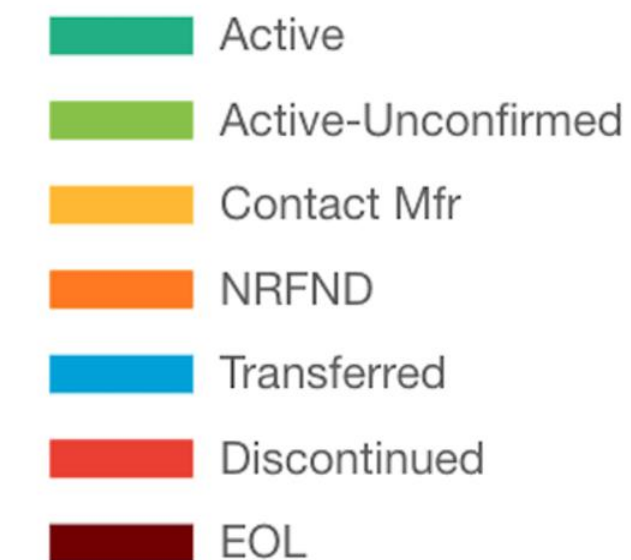
Multi-Source Availability

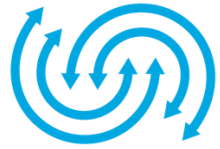
4.5



A higher score indicates alternate availability from multiple manufacturers.

Alternates (FFF & DIR)





Case Management

- Companies should manage cases for risky parts early in the design phase.
- This promotes visibility and transparency at all organizational levels.
- The DoD has standardized guidelines, SD-22 and SD-26 for diminishing sources.

Case Information

AD737JN

End of Life

Analog Devices, Inc. — [Show Part Data](#) —

Part Change Notification

GENE-001 (AD737JN (n/a))

Priority *

High

Impact Date *

04/19/2024

Assigned To *

rob.picken@sourceability.com

Impact Description *

Missed this discontinuance as assembly has not been produced since 2011 and we had stock on shelf to consume. Unexpected re-order from UPS supplier for Metro Area General Hospital. Large order, 5 units of MPS product for delivery Jun 2024.

Case Resolutions

Life Of Need Buy

AD737JN (n/a)

rob.picken@s...

10 months ago

\$15.0000

0

Simple Substitute

Missing Part

rob.picken@s...

10 months ago

\$10.0000

0

Suggested Resolution

Next Suggested Resolution

Audit Log

Status changed at was updated

Status was updated

Final resolution was updated

Rob.Picken@sourceability.com

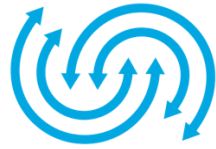
10 months ago

Status changed at was created

Rob.Picken@sourceability.com

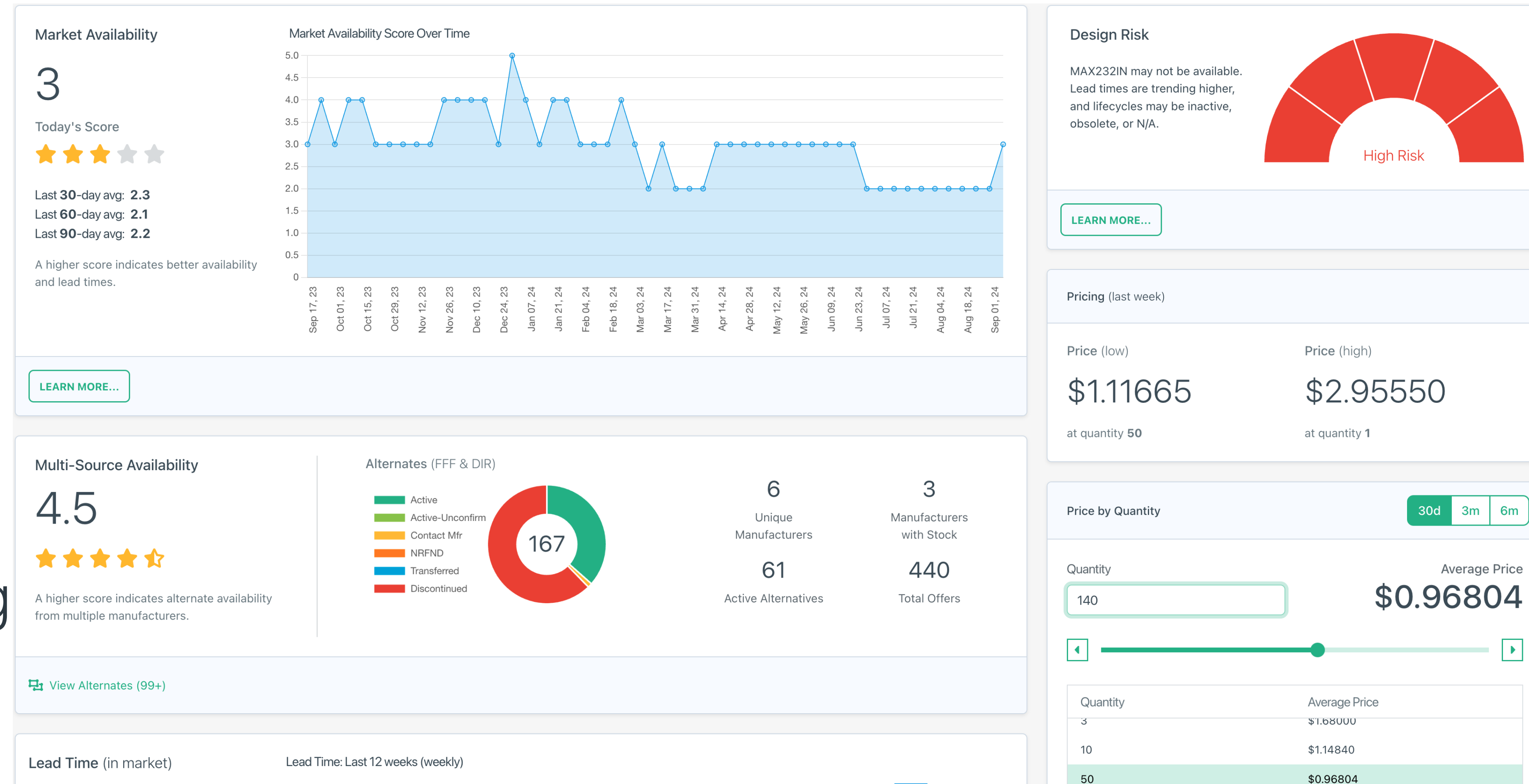
10 months

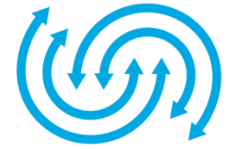




Market Intelligence and Monitoring

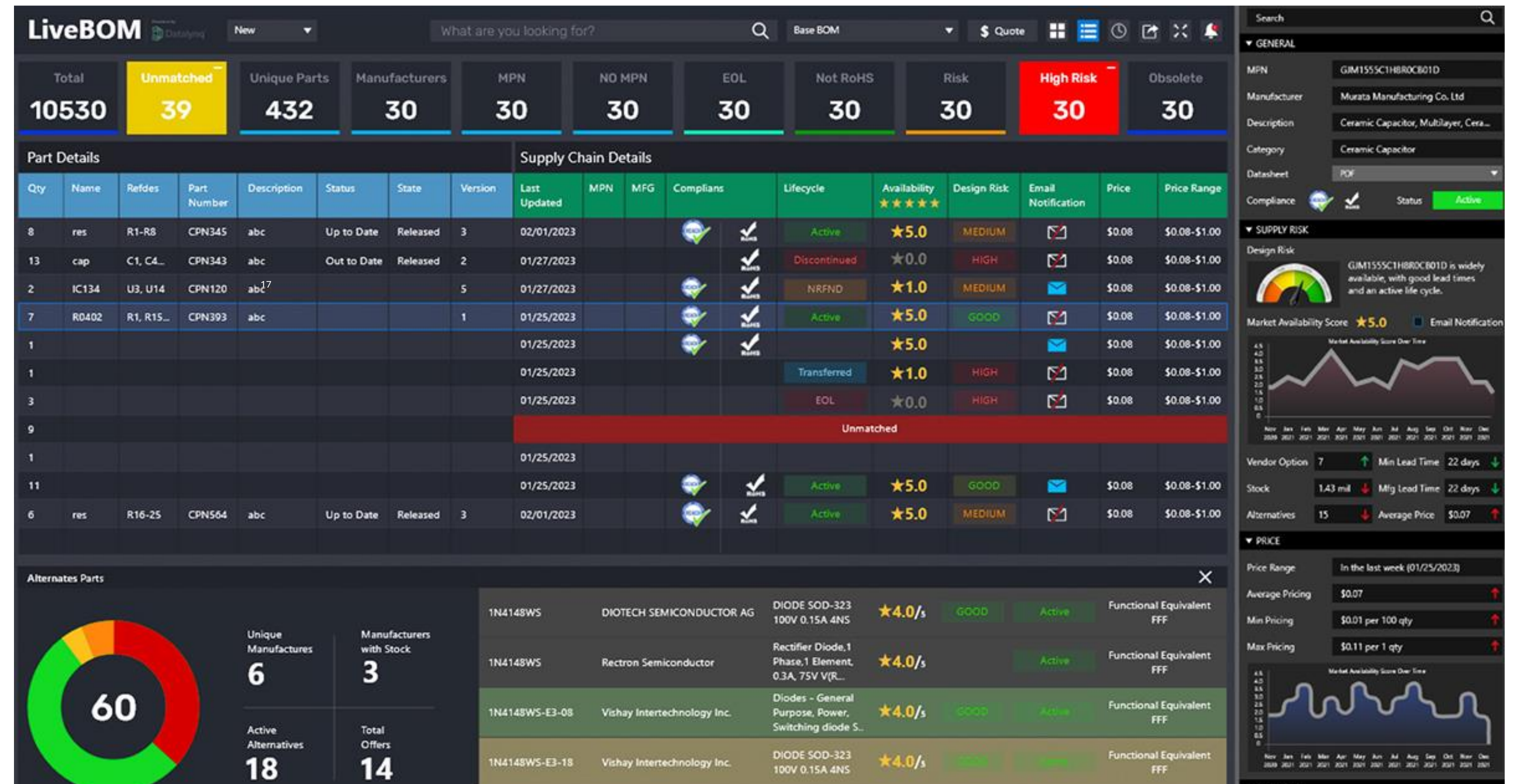
- Proactive monitoring can identify upcoming choke points.
- Manual processes contribute to an increased risk of human error leading to delays and revenue loss.

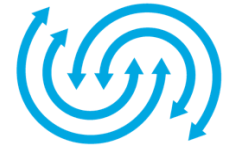




Integrated Solutions

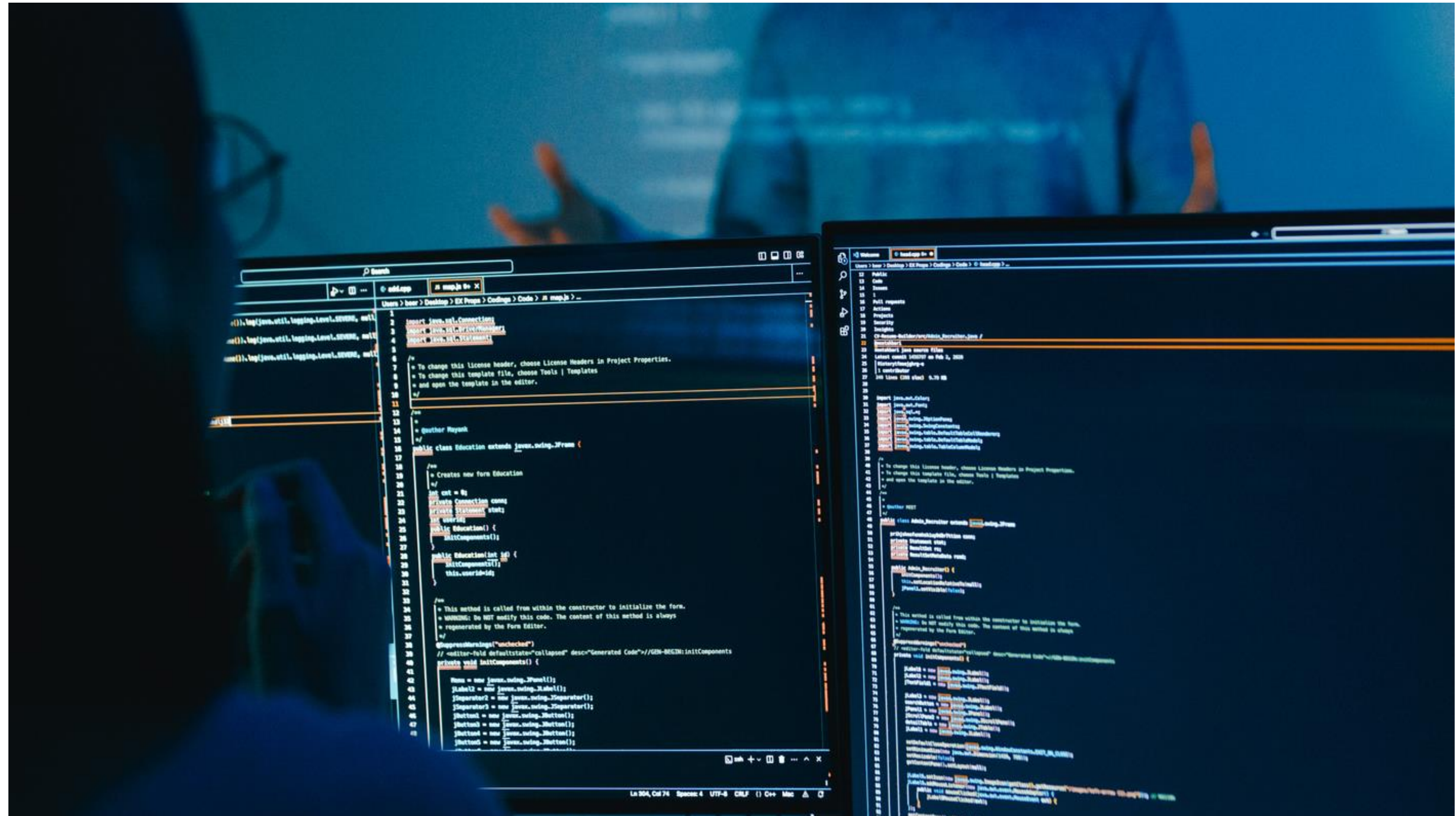
- Team collaboration optimizes the design-to-development process, reduces time and resource waste, and increases productivity via collaboration.
- Engineers and procurement teams need to work together.

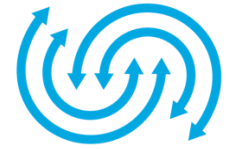




Supplementing Labor Gaps with Agile Solutions

- Education pipelines are in development but will take time to train the next generation.
- Secure knowledge with artificial intelligence applications to document data that incoming talent can later utilize.
- AI can help fill in the gaps by handling manual tasks and maintenance.
- Invest in upskilling and reskilling existing workers or career-adjacent labor.





Conclusion – Modern Challenges Require Sustainable Support

- Electronic component unavailability is a common supply chain threat that occurs for various reasons, not limited to obsolescence.
- Organizations must prioritize sustainable solutions over current component prices and unfavorable contracts, calling on the experience of skilled practitioners to make progress.
- Sustainable design can be accomplished through education, strategic selection, case management, market monitoring, and collaboration via integrated tools.
- Knowledge loss can be prevented by using AI to document data and train new technicians while identifying and filling in gaps caused by the labor shortage.
- Above all other problems, organizations MUST plan for the single largest threat to sustainability, viability and long-term progress and the common limiting factor across all industries...

...people, their fragility and challenges around replaceability.



Thank you

