Barriers and Solutions for Small and Medium Sized Manufacturers' Collaborative Robot Adoption

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Problem

- Slow diffusion of cobot technology
- Innovation challenges for small and medium-sized manufacturers (SMMs)
- Lacking a systematic understanding of barriers to cobot adoption among SMMs

Scientific Impact

- Systematic analysis identifying barriers to cobot adoption
- Understanding development needs for cobots
- Advancement of labor market analysis methods with Real-Time Labor Market Information (RTLMI)

Response

- Identifying the barrier structure through a Delphi survey & Interpretive Structural Modeling
- Firm and labor market analysis using restricted-use microdata and RTLMI
- Mapping & identifying robotics clusters
- Comparative international case studies to assess enabling environments & policy programs

Source: International Federation of Robotics (2022). Industrial Robot Sales Estimates
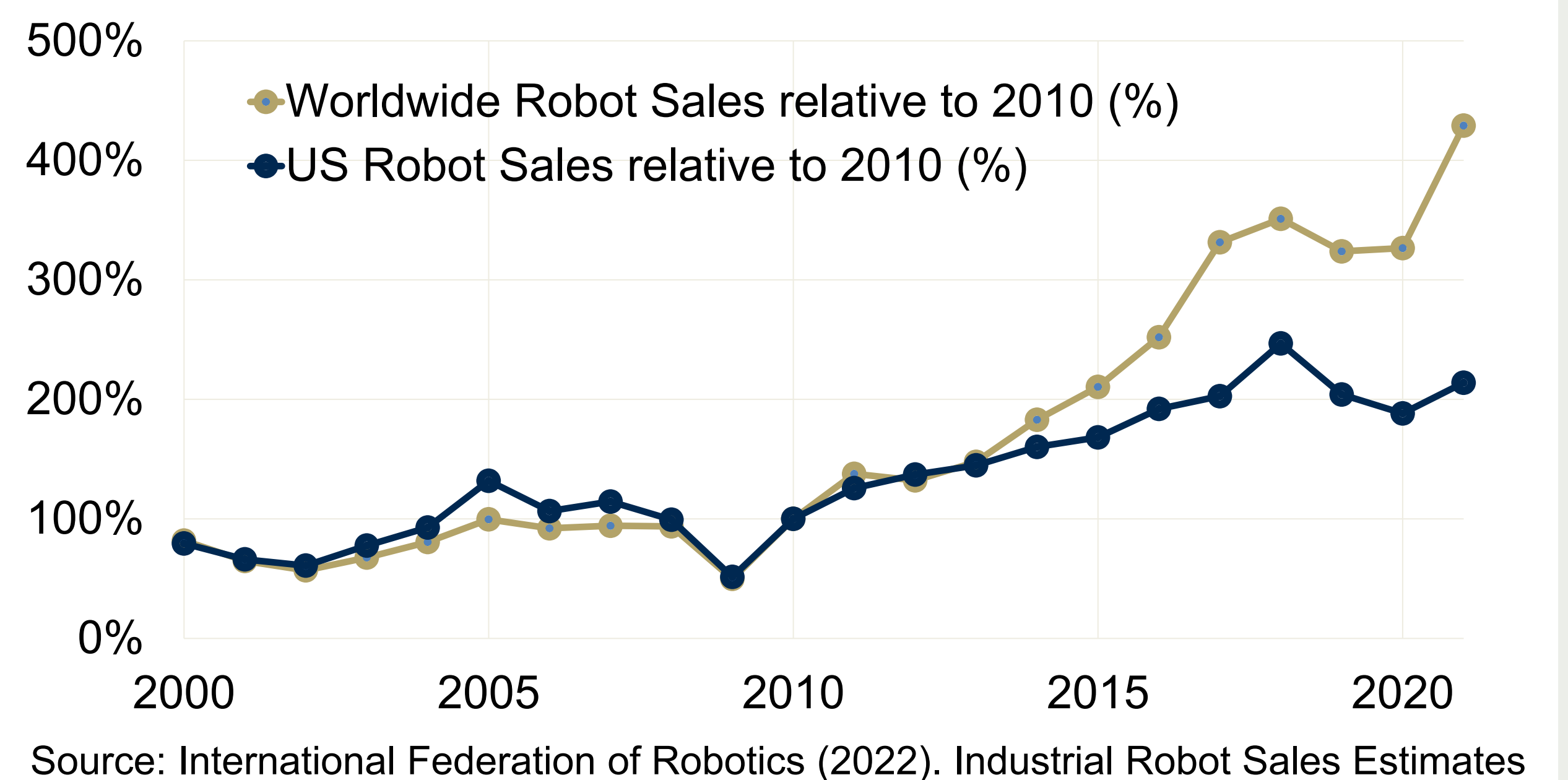
Broader Impact

- Potential solution to problems & support for SMMs
    - Increase productivity & competitiveness
    - Upskill jobs & increase wages
    - Attract workers & counter growing inequality
- Understanding supportive environments for technological innovation and diffusion in SMMs
- Insight for regional development & industrial development policy
- Publications
    - Leigh, N. G., Lee, H., & Kraft, B. (2022). Disparities in robot adoption among US manufacturers: a critical economic development challenge. Industry and Innovation, 1-20.
    - Leigh, N. G., Kraft, B., & Lee, H. (2020). Robots, skill demand and manufacturing in US regional labour markets. Cambridge Journal of Regions, Economy and Society, 13(1), 77-97.
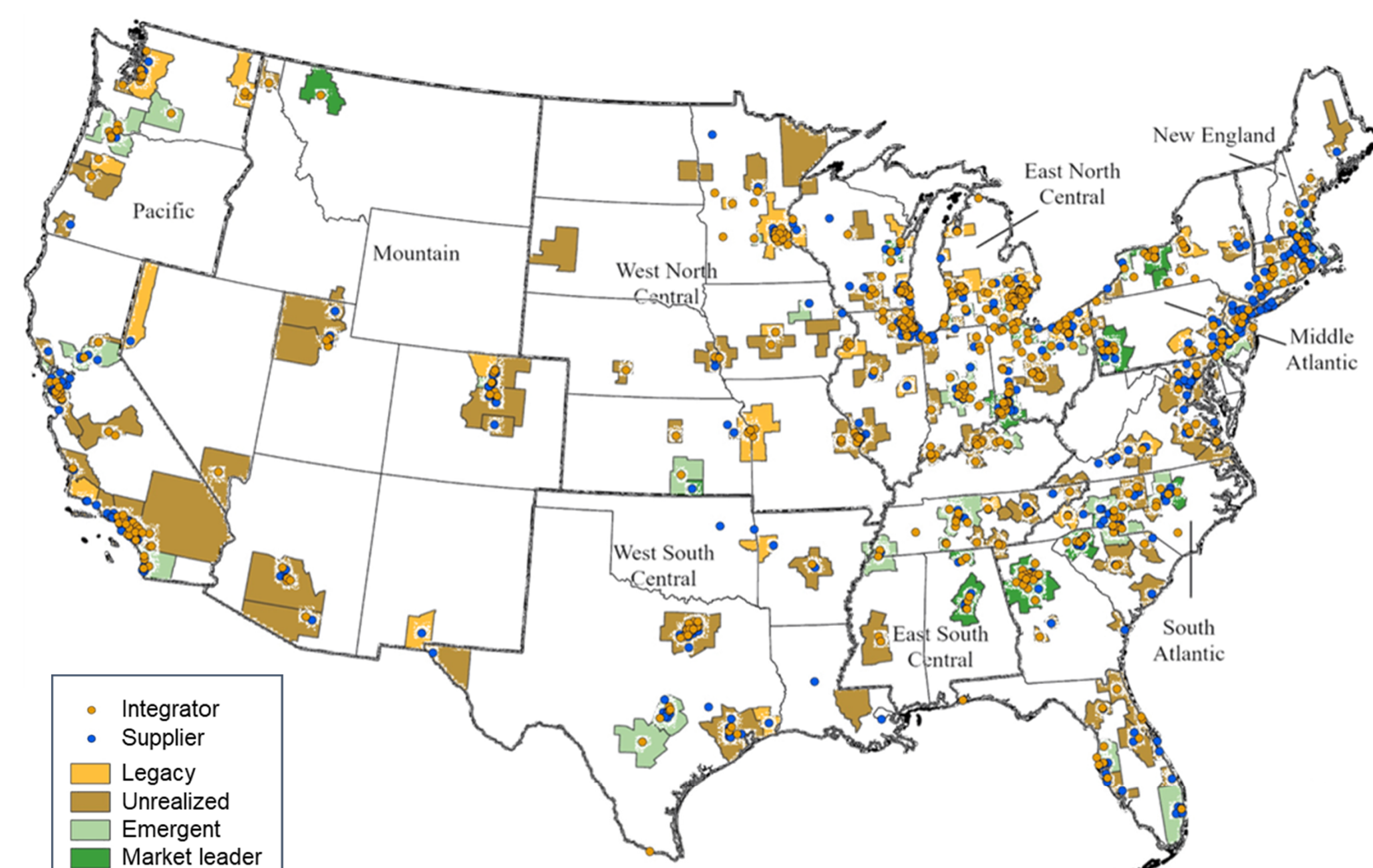
Locations of Robot Suppliers and Integrators & Classification of Robotic Regions (2019)
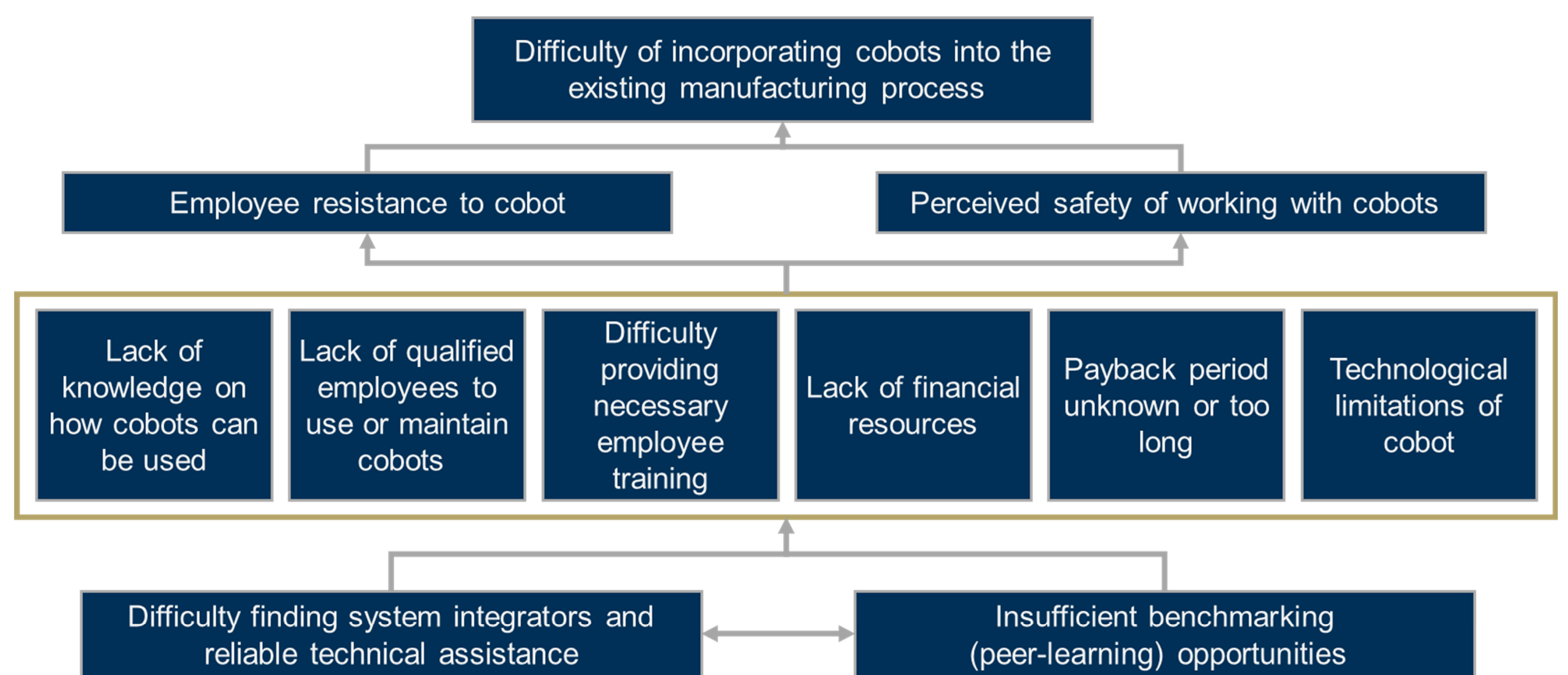
Barrier Structure to Cobot Adoption in SMMs (Delphi survey results)

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