

Research Portfolio Overview

DONALD BUCHALSKI, Business Development Director,
The Axia Institute, MSU



Research Grand Challenges

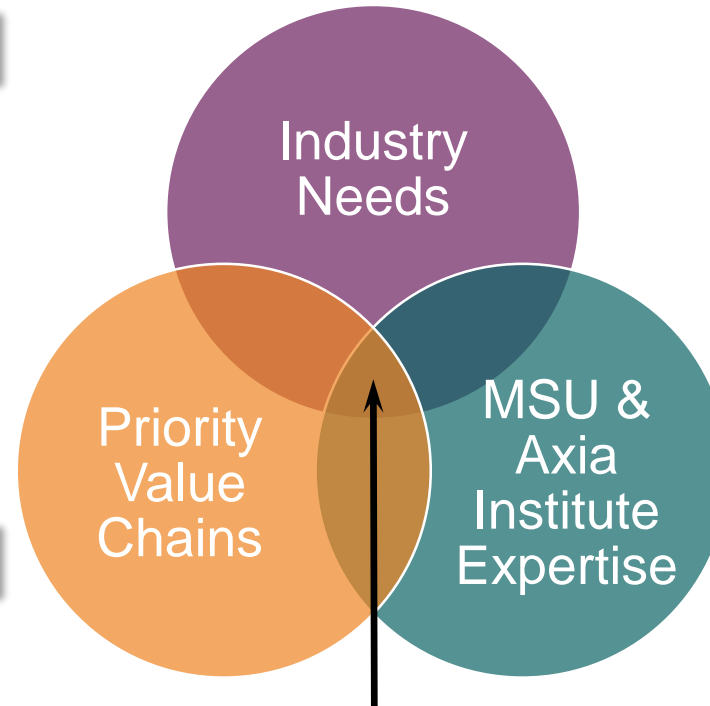
Industry Needs

What's Keeping Supply Chain Managers Awake at Night?

- Capacity/resource availability
- Talent
- Complexity
- Threats/challenges
- Compliance
- Cost/pricing issues

Priority Value Chains

- Healthcare
- Fast Moving Consumer Goods (FMCG)
- Automotive
- Electronics
- Petrochemicals



Competitive Advantage

MSU Expertise

- Supply chain management
- Packaging
- Agriculture
- Engineering/Optimization
- Anti-counterfeiting

Axia Institute Expertise

- Bioscience
- Materials science



The Axia Institute:
Delivering Value Chain Solutions
MICHIGAN STATE UNIVERSITY

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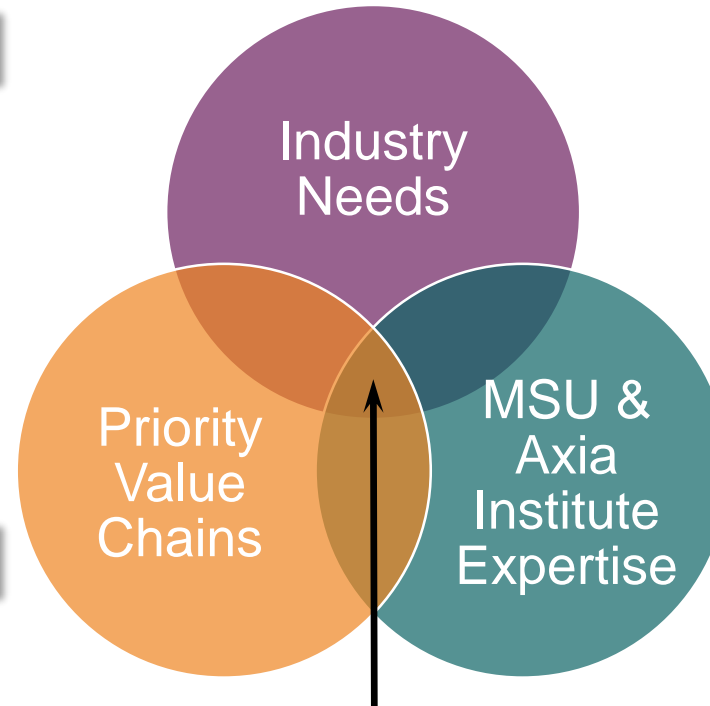
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**Smart Packaging
Risk Mitigation
Value Chain Solutions**

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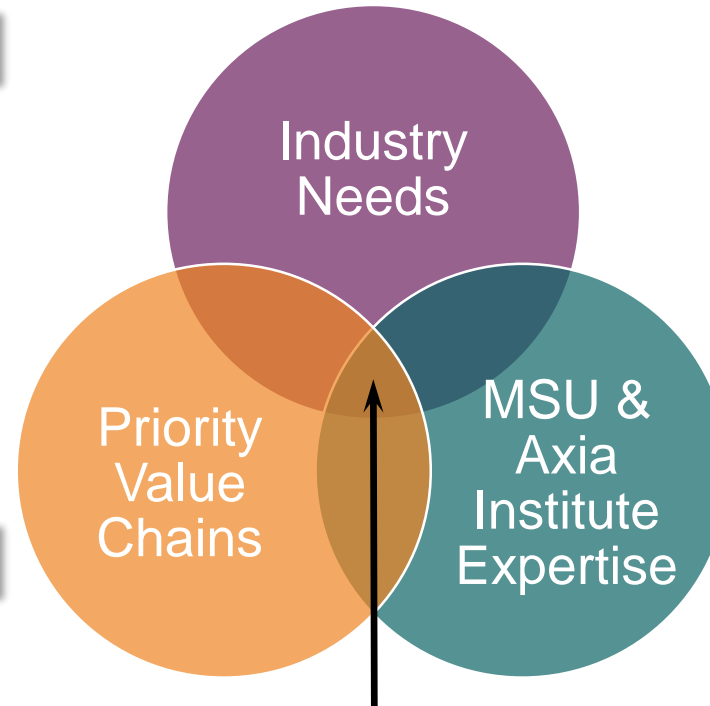
Research Grand Challenges

Smart Packaging

- RFID Sensing for Tracking and Sensing Packaging
- Product Authentication and Anti-Tampering
- Printing RFID Sensors
- Packaging Solution to Prevent Opioid Abuse and Misuses

Risk Mitigation

- Nano-Bioelectric Technique for Novel Microbial Intervention in Packaged Food
- The Renaissance of the Drinking Water Fountain



**Smart Packaging
Risk Mitigation
Value Chain Solutions**

Value Chain Solutions

- Value Chain Index
- Solving Multi-Level Problems Using Multi-Objective Optimization for Robust Solutions
- Automated SC Management Using Machine-Learning-Based Tariff Classification and Optimized International Trade Compliance

