

Emerging Risks CAS ERM Seminar Minneapolis, MN October 1-2, 2015

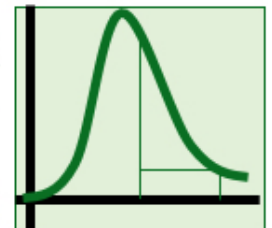
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**RISK
ASSESSMENT
PARTNERS**



Agenda

- What are Emerging Risks?
- About the Survey
- Survey Results
- Blending Trends and Strategy

What are Emerging Risks?

- Evolving risks (creeping, mean reverting)
 - Home mortgage market
 - Climate change
- Tail risk (recently unseen)
 - Asteroid/disease

Rumsfeld's Unknown/Unknowns

- Known/unknown
 - Risks we know to be unclear;
 - Napa fault line
- Unknown/known
 - Where we think we know something, but actually don't
 - Improper pricing
- Known/known – historical data
- Unknown/unknown – what risks are out there that aren't on our radar screen at all?

Emerging Risks

- May be internally or externally generated
 - Higher order impact/interaction (e.g., oil spill/tourism)
 - May be positive/unclear events (e.g., drones, driverless cars, genetically modified food)
 - *Environmental scan, internal survey, external workshops, stress testing*
- Outliers in real distribution
- Next big risk is likely to be something new
- Time horizon – longer than your business plan

About the Survey

- Eighth survey of Emerging Risks by Joint Risk Management Section (JRMS)
- JRMS is a collaboration between the CAS, CIA and SOA
- Latest survey based on 167 responses from:
 - JRMS members
 - North American CRO Council
 - LinkedIn groups related to risk management

About the Survey

- The first survey was in 2008
- The latest survey was from November 2014
- Includes 23 emerging risks identified by the World Economic Forum
- Max Rudolph, FSA, CFA, CERA, MAAA is the author of the underlying report and many of these slides

Emerging Risks (% of Top 5 Risks Identified)

- Economic

- Energy price shock (3%)
- Currency trend (1%)
- Chinese economic implosion (6%)
- Asset price collapse (7%)
- Financial volatility (9%)

- Environmental

- Climate change (4%)
- Freshwater loss (2%)
- Tropical storms (1%)
- Earthquakes (1%)
- Severe weather (2%)

Emerging Risks

(% of Top 5 Risks Identified)

- **Geopolitical**
 - Terrorism (9%)
 - Weapons of mass destruction (2%)
 - Interstate/civil wars (4%)
 - Failed and failing states (6%)
 - Transnational crime (2%)
 - Globalization fallback (2%)
 - Regional instability (8%)
- **Societal**
 - Infectious diseases (6%)
 - Chronic diseases (1%)
 - Demographic shift (5%)
 - Regulatory (5%)
- **Technological**
 - Cyber security (12%)
 - Technology / Space weather (1%)

Current Environment Matters

April 2008

- Oil price \$114
- S&P 500 1,386
- Currency 1.56 \$/Euro

November 2008

- Oil price \$68
- S&P 500 969
- Currency 1.27 \$/Euro

Fall 2012

- Oil price \$92
- S&P 500 1,440
- Currency 1.29 \$/Euro

Fall 2014

- Oil price \$91
- S&P 500 1,972
- Currency 1.26 \$/Euro

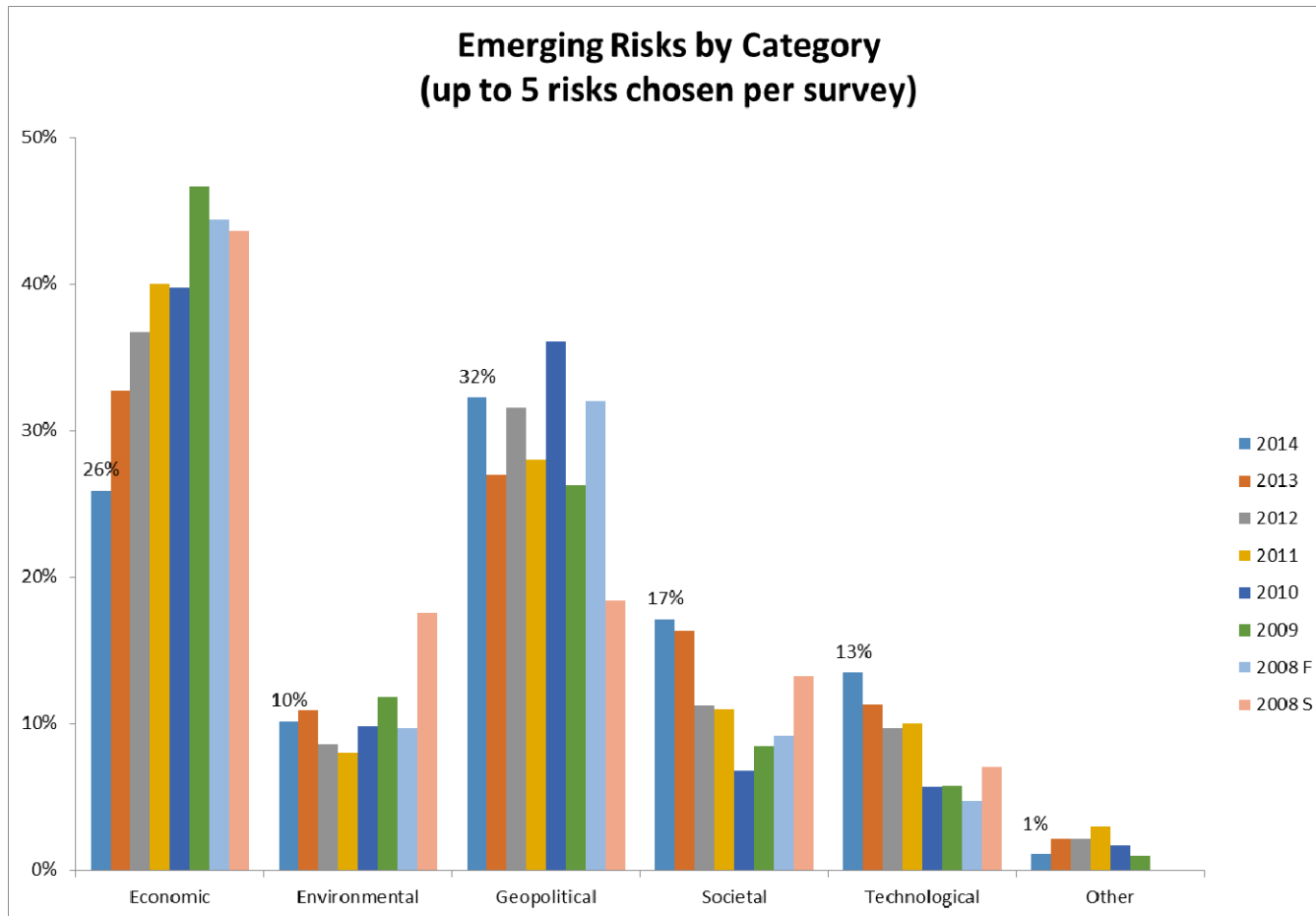
Anchoring – Behavioral Finance

- April 2008
 - 57% Oil price shock
 - 40% Climate change
 - 40% Blow up in asset prices
- October 2014
 - 58% Cyber security
 - 44% Financial volatility
 - 41% International terrorism

Interesting Revelations 2014

- Cyber now top risk
 - Continues to evolve
- Geopolitical category increased
 - Russia/Crimea
 - Syria, Iran
- Societal category increased
 - Ebola outbreak in West Africa
- Economic category decreased
 - Steadily declining as we get further from the financial crisis
- Move toward leading indicators
- ERM finding role within strategic team

Top Emerging Risks



Trending the Top Risks

2011

Financial volatility

Failed and failing states

Cyber security/interconnectedness of infrastructure

Chinese economic hard landing

2012

Financial volatility

Regional instability

Cyber security/interconnectedness of infrastructure

Failed and failing states

2013

Financial volatility

Cyber security/interconnectedness of infrastructure

Blow up in asset prices

Demographic shift

2014

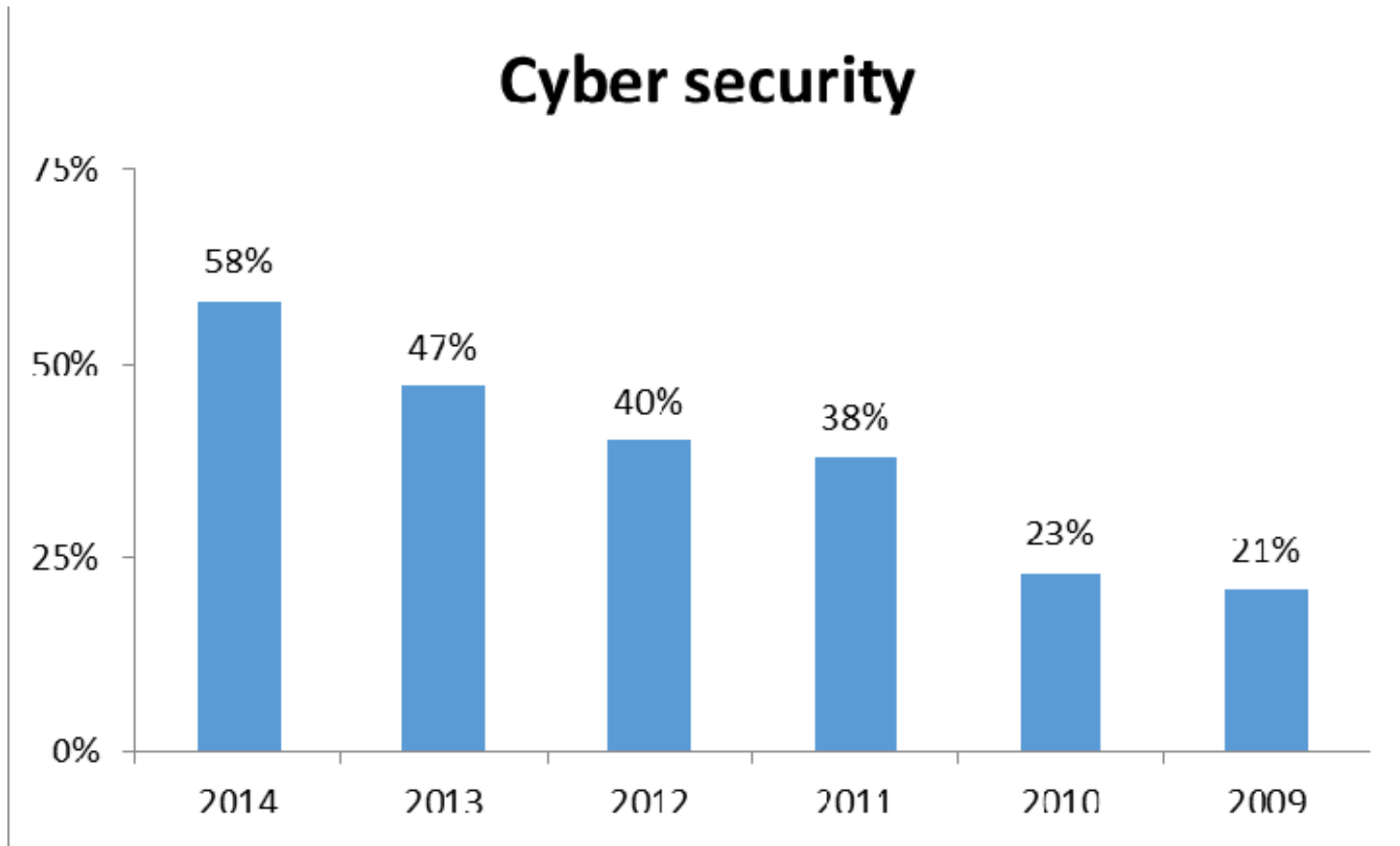
Cyber security/interconnectedness of infrastructure

Financial volatility

International terrorism

Regional instability

Cyber security



Is ERM Working? NO

- ERM is a way for a company to "feel good"
- Illusion: activity without substance (not relied on)
- Bureaucratic
- ERM gives a false sense of security
- Compliance driven (cost)
- So many risks that risk manager freezes up
- Analogy: reduces likelihood of fender-bender, but not likelihood of a serious collision
- **CULTURE!**

Is ERM Working? YES

- Decision makers are engaged
- Risks are more transparent
- Greater awareness of potential risks
- Improved risk/return understanding
- Better risk management in the industry allows more realistic pricing
- Best practices incorporate strategic planning
- Made decision-making more fact-based; enabled better goal-setting.

To access surveys/articles

<http://www.soa.org/Research/Research-Projects/Risk-Management/research-emerging-risks-survey-reports.aspx>

Blending Trends and Strategy

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October 1, 2015
2015 CAS ERM Seminar

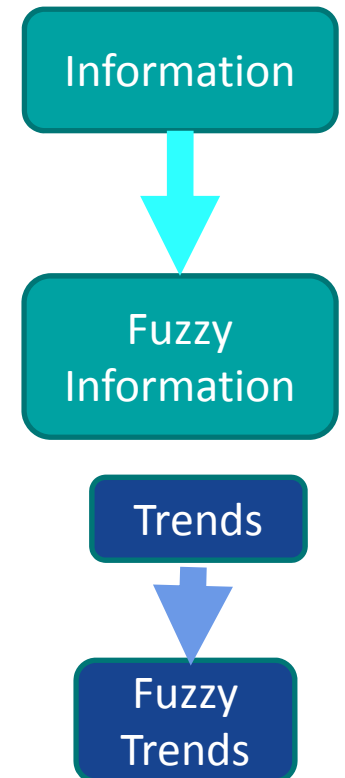


ERM Leadership

	Known	Unknown
Known	Management Identified Risks	Model Risks Market Trends Emerging Risks
Unknown	Management Unidentified Risks	Future Risks Black Swans

ERM Risk Reviews

- Review of Current Risks
 - Internal
 - Management Risks
 - Operational Risks
 - Model Risks
 - Parameter Risks
 - External
 - Market Risks
 - Competitive Strategy
- Review of Emerging Risks
 - Internal
 - Demographic Risks
 - Technology Risks
 - Strategy Risk
 - External
 - Competitor Strategy
 - Market Risk



Understanding Strategy

Staying Profitable and Relevant in Markets

Current View

- Strategy – what is it that you do
 - Tactics – how do you do it
- Operations – make it happen

Bridging Strategy with Trends

Current (Passive)

- Strategy - What do you do?
- Tactics – How do you do it?
- Operations – How do you make it happen?

Future (Active)

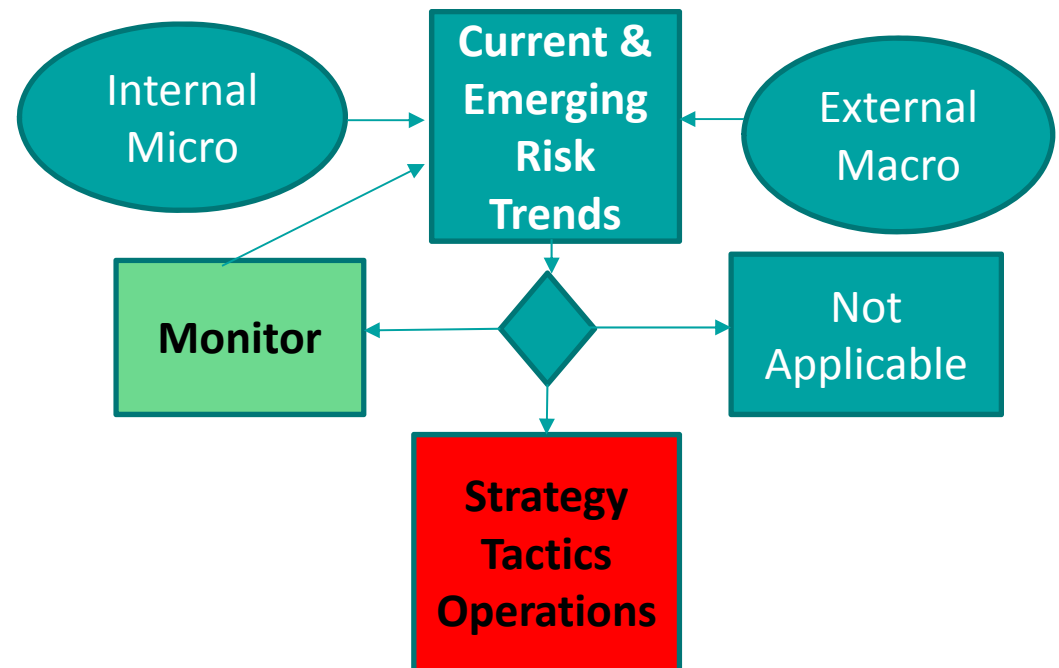
- Strategy – What is it that you should do?
- Tactics – How should you do it?
- Operations – How should it happen?

Risk Management of Emerging Risks

Metrics & Leading Indicators

- Strength of Trend
 - Applicability
 - Horizon
 - Continuity
- Macro Trends to Micro Action
 - Macro – Behavior of the Aggregate
 - Micro – Behavior of the Individual
- Strategic, Tactical, Operational Impact, if any

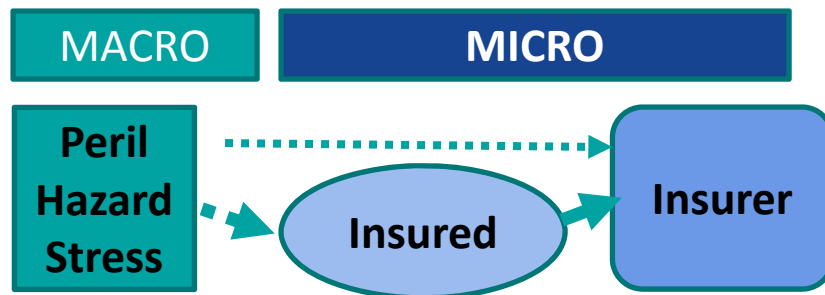
Response to Leading Indicators



Micro Response to Macro Stresses

Macro System Stresses

- Emerging Risks:
 - Financial
 - Environmental
 - Geopolitical
 - Societal
 - Technological



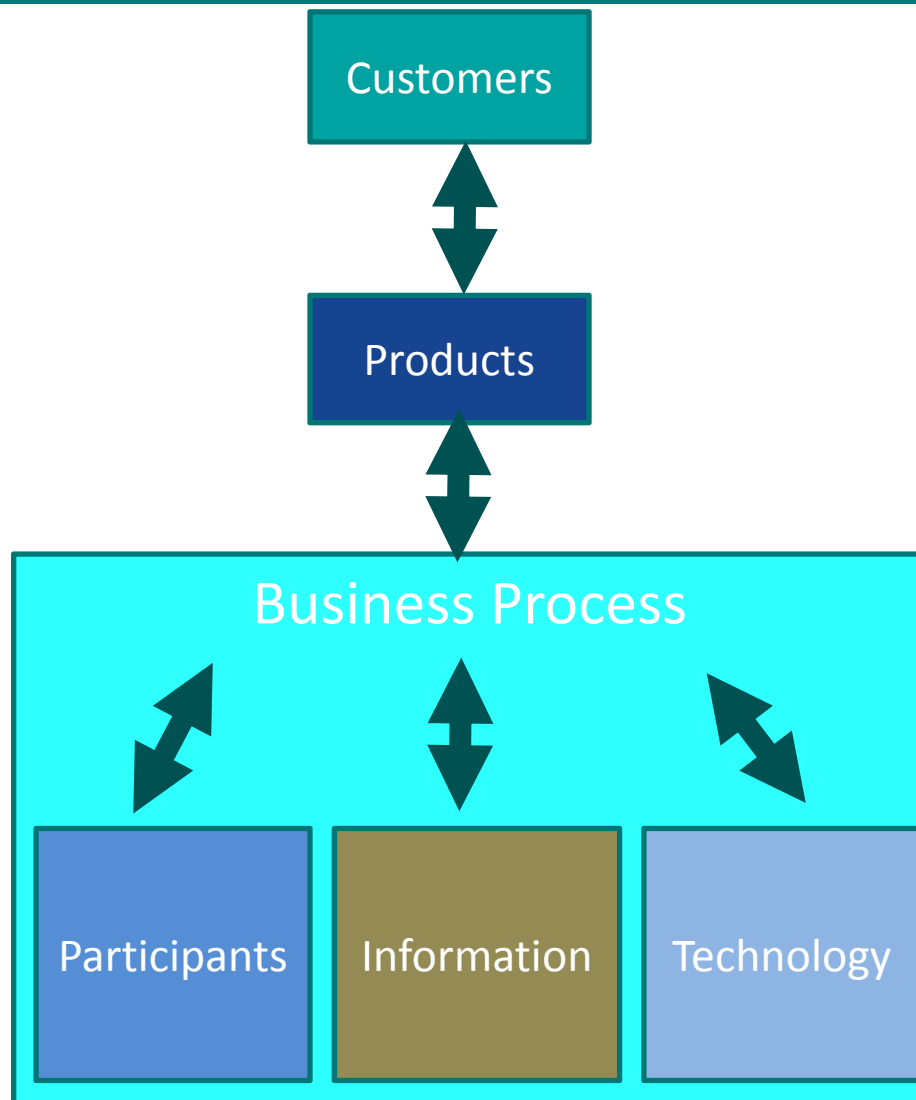
Micro System Stresses

- **Insured:** Individual Behavioral Response Mapping
 - Insured Reactions: Moral, Morale, Regulatory, Adverse Selection
 - Value Proposition: Risk Aversion, Cost/Benefit
- **Insurer:** Business Response
 - Strategy Mapping: Low Cost, Differentiation or Focus
 - Tactical Mapping
 - Competition Strategy
 - LOB, limits, deductibles, exclusions
 - Process Mapping
 - Marketing & Sales
 - Exposure: Underwriting
 - Claims: Systematic or Systemic
 - Legal & Regulatory Issues
 - Investment

Bridging Strategy with Trends

- Converting Macro Economic Trends to Micro Economic Actions
 - Moving Product Definition
 - SWOT: Evaluation of Strengths/Weaknesses/Opportunity/Threats
 - Proactive vs. Reactive
- Understand your Strategies
 - Low Cost – minimum variance
 - Differentiation – options & risk margin
 - Focus
- Strengthen your tactics
 - Macro Trends
 - Time Horizons
 - Behavioral
- Evaluate and Introduce operational change
 - Integrate Macro Trends into Micro Analysis & Decisions

Case Study One – Economic Financial Volatility



Review of Investments

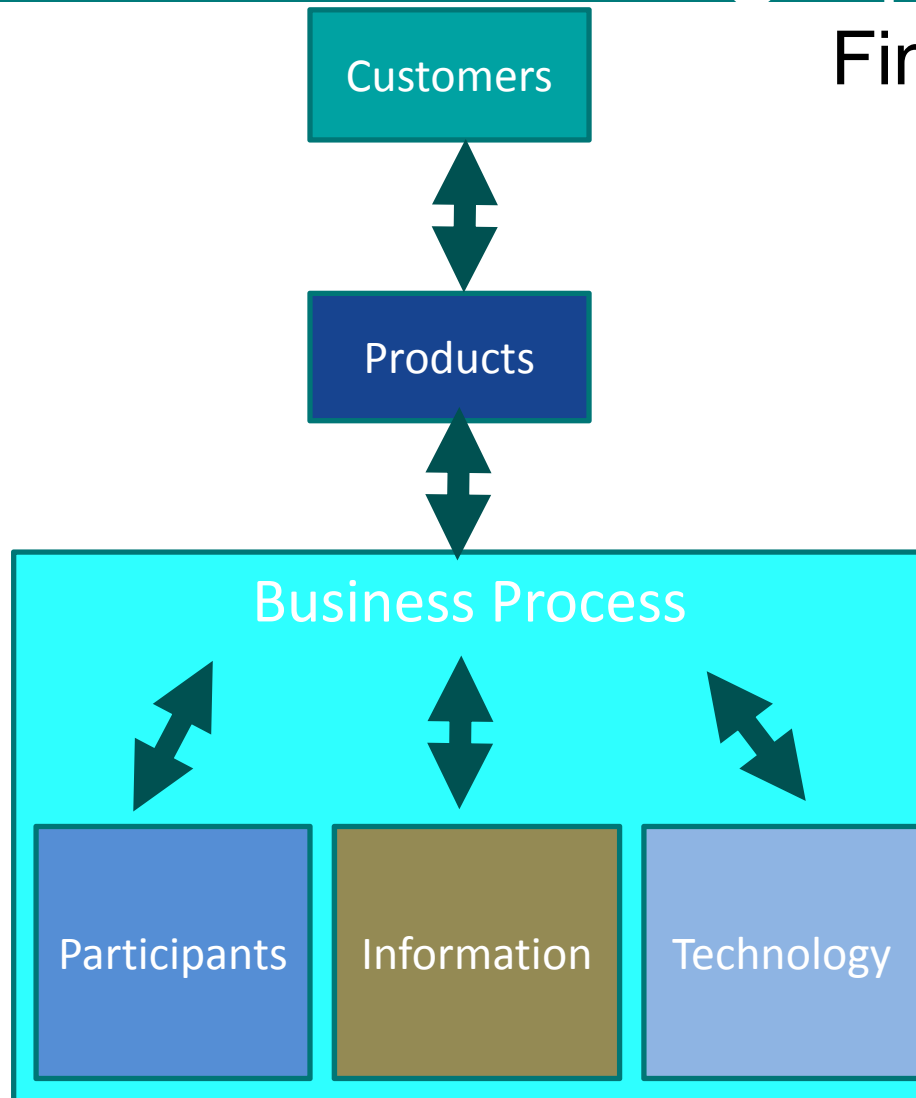
External Goals

- Architecture
- Performance

Internal Goals

- Infrastructure
- Context
- Risks

Case Study Two – Societal Demographic Shifts



Finding Opportunities for Improvement

Internal Goals:

- Marketing & Sales
- Underwriting
- Claims

Thank you!

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