Incorporating Uncertainty into Long-Range Planning

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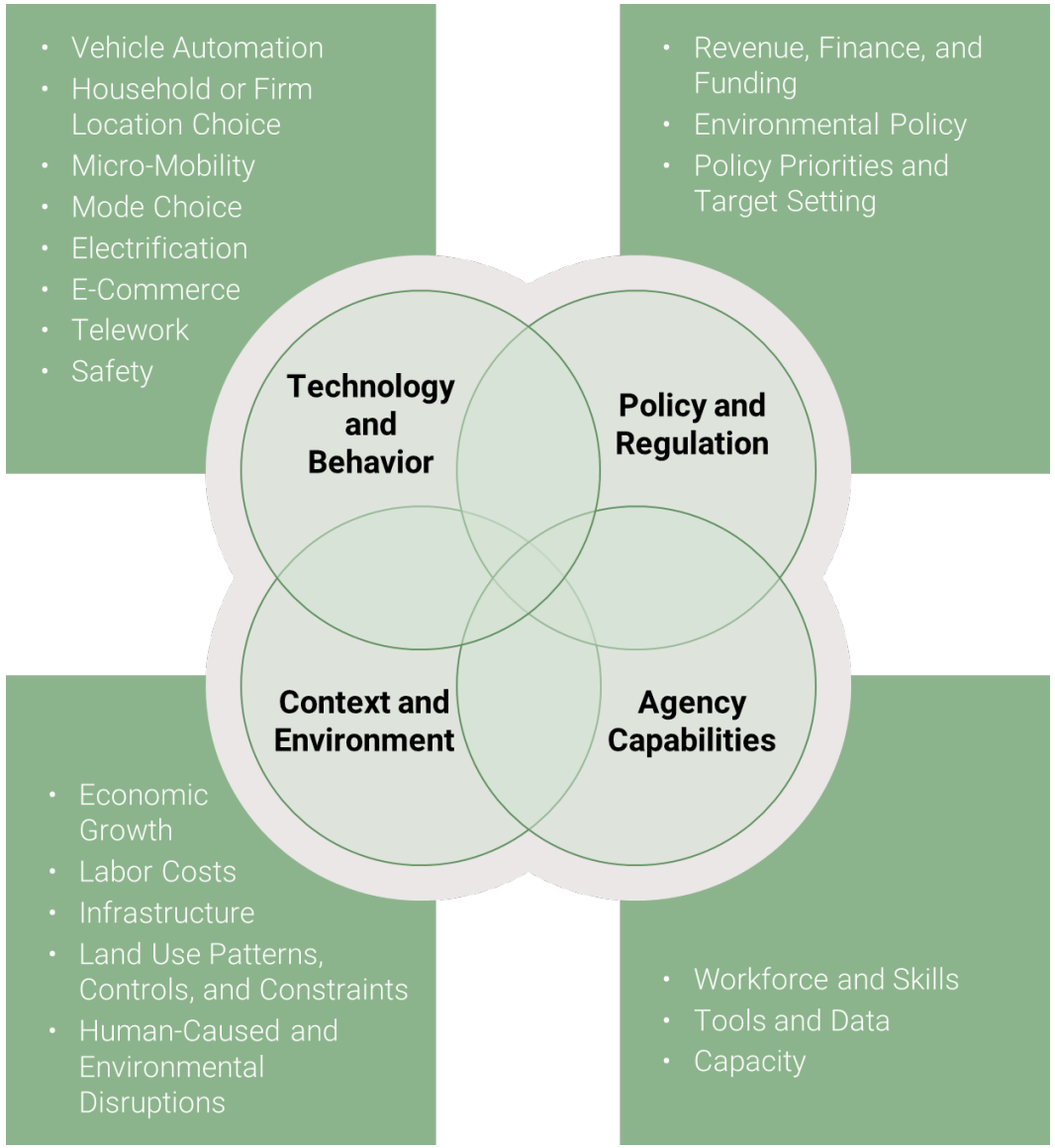
- **My perspective**: coming out of 2+ years researching how states and regions can integrate uncertainty into long-range planning for NCHRP Project 08-154

What did the project aim to accomplish?

Despite advancements in understanding uncertainty through scenario planning, risk analysis, and advanced modeling, a key challenge persists:

TRANSLATING INSIGHTS INTO ACTIONABLE DECISION-MAKING.

The research sought to address this gap.



Why Address Uncertainty

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Reduce Risks

- Investing limited resources in long-lasting infrastructure then then proves **unneeded or overdesigned**.
- Make policy or design choices now that overly **constrain future choices**.
- **Limited responsiveness** in times of disruption
- **Blindness to new needs** through insufficient tracking of changing conditions
- **Inability to execute plans and meet goals** due to changes in available resources or the effectiveness of strategies that were reliable in the past

Potential Benefits

- Increased **accountability**
- Enhanced **effectiveness of strategies** across multiple versions of the future and the ability to **coalesce around core priorities**
- Organizational and staff **readiness** to make the most of **new opportunities**
- Ability to learn and adapt to **improve the effectiveness of future actions**
- Heightened ability to **source and integrate new information to guide decision-making**
- Increased **confidence in prioritization**
- Encouragement of **interdisciplinary problem-solving and partnership building**

Success Factors for Managing Uncertainty

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Accept uncertainty, plan for adaptation

- While improving our forecasting and modeling tools is an important form of learning, this must be coupled by planning for adaptation over time.

Target points of flexibility and influence

- Consider the points of flexibility in existing decision-making. Where are "on-ramps" and "off-ramps" for future actions?

Establishing a learning culture focused on agility and responsiveness

- Reinvigorate the commitment to planning as a cyclical process.
- Think ahead to implementation of insights from analysis.
- E.g., adjustments to project prioritization, identifying trends to track and contingent actions, identifying needed communication and coordination, organizational and workforce capacity building, and more.

Success Factors for Managing Uncertainty

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Build a "family" of interconnected cyclical planning processes

- Do not think about each long-range plan in isolation
- Learning and adaptation requires a more holistic perspective that connects long-term planning with mid- and short-term action.
- Take advantage of the long-term perspective of strategic and long-range planning to provide insight and inputs to other parts of planning and programming

Maximize limited resources.

- By focusing on implementation of uncertainty insights, make the most of technical, engagement, or organizational efforts, rather than repeatedly conducting resource-intensive processes that sit on a shelf or are duplicated in disparate divisions of planning processes within an agency.

Parting Challenge

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- It doesn't have to be complicated to be effective.
- Before diving head-first into modeling or analysis, ask yourself:
  - What am I trying to learn?
  - What are the causal relationships I'm exploring?
  - How will whatever analysis I do affect my actions/where are my points of influence?
- Try writing out a hypothesis, question, or diagramming your system

For example: Pavement Risk System Mapping

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