Searching for blue oceans: Mental representation and the discovery of new strategies
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How do managers come up with new strategies?
- For instance:
  - Jeff Bezos and Amazon
  - Guy Laliberté and Cirque du Soleil
- We don’t know exactly
- Otherwise it would be automated
- From vast research in the Carnegie tradition we know that managers search (Simon 1955, Levinthal 1997)
- Search implies:
  - A search space
  - An algorithm to choose where to go next

A blind spot in the Carnegie tradition
- The Carnegie tradition (starting with Simon 1955) has used a “pre-cognitive science” idea of search
  - Agents search in the actual problem space (as a mouse in a maze)
- Cognitive science (mostly developed from the 1970s onwards) established that
  - Agents do not search in the problem space, but in a mental representation of it
- Introducing mental representation into search implies:
  - The quality of the search depends on the quality of the representation
  - Problems that are complex under one representation may be trivial under another
- For strategy and organizations, all this matters because
  - Managers’ mental representations affect the payoffs and alternatives they perceive and, thus, the quality of the strategies they will discover
  - Maybe, more important than searching for business policies is to search for mental representations

But studying how search and mental representations interact is problematic
- Mental representations are mostly tacit knowledge
  - Hard to explain and communicate
- Idea:
  - A popular management technique, BOS, proposes a mental representation
  - We can learn about how search and mental representation interact by modeling BOS
- Opportunity for cross-fertilization:
  - BOS: no acknowledgement of the complex search problem
  - Search literature: no acknowledgement of the mental representation that managers use

Research questions
1. Under what conditions is it better to emphasize searching for the right mental representation rather than the right policies, and vice versa?
2. Is it riskier to search for mental representations than to search for policies?

BOS and mental representation
BOS presents two main tools:
1. The strategy canvas, which is a representation of a product or strategy
2. The four actions framework, which are the search operations allowed in the strategy canvas
BOS urges managers to search for new strategies, applying the four actions to the strategy canvas until discovering a satisfactory strategy

In other words, BOS consists of a mental representation + search operations

The model
- Policies (e.g., thickness of carpet, hours of training, …)
- Attributes (e.g., quality of music, entertainment, service, …)
- Profits
- Reality
- Mental Representation
- Search on policies
- Search on attributes
- Managers search in their mental representation
  - Trying to improve $p'$ by varying policies and attributes
  - Independent variable:
    - % of time spent searching for policies ($w$)
  - Contingency variables:
    - # of attributes ($K$)
    - Complexity of each attribute ($K_i$)
    - How similar/different is the magnitude of each attribute ($w_i$)
    - For how long to search ($T$)

Results: Optimal search strategy
- Performance follows inverted-U shape
  - If $w=0$, policies are stuck
  - If $w=1$, attributes are stuck
- The optimal effort on policy search increases with cognitive capacity and attribute similarity
- If managers’ mental model captures more attributes, managers should spend less time search for the right attributes
- If more attributes matter (higher $w$), it is worthwhile to spend more time searching on attributes

Results: Risk and return of different search strategies
- Both extremes are risky
- Search can get stuck because policies or attributes are not explored
- The optimal is in the middle
- Negative relationship between risk and return:
  - Strategies that have higher performance also have less risk
  - Alternative explanation of the Bowman paradox

Conclusions
- Results
  - It is important to keep a balance between searching for attributes and policies
  - Settings in which the bounds of rationality are more constraining (e.g., low $M$, high $w$) call for more search over possible representations
  - Alternative explanation of the Bowman paradox: avoiding path dependencies
- The literature on search in strategy has mostly focused on policy search
- But strategists must also search for attributes
- Incorporating mental representations into models of search is an opportunity to improve rigor and relevance of strategy research
- Moves us a little closer to understanding how managers come up with new strategies