Enabling Innovation: Theories and Application in Research Development

NORDP Conference

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10:15 AM

Speaker Introductions

- Kimberly Eck, PhD – Geisinger Health System

- Lisa Goble, PhD – UNCG

- Michael Preuss, EdD – Hanover Research

- Paul Tuttle – NC A&T State University

Overview of Presentation

1. Creativity and Innovation

2. Theoretical Constructs

3. Proposal Development

4. Project/Process Management

5. Project and Process Evaluation

6. Tech Transfer/Innovation Commercialization

Creativity and Innovation

Creativity and Innovation

Creativity is the larger sphere in which innovation is positioned

"Creativity requires not only coming up with ideas but knowing when a problem exists to start with, how to define the problem, how to allocate resources to solve the problem, and how to evaluate the value of potential solutions – knowing which ideas are your good ones."

Source: Sternberg, R.J. & Lubart, T.I. (1995). *Defying the crowd: cultivating creativity in a culture of conformity*. New York, NY: Free Press., p. 134.

Think of creativity as…

"…the mental ability to conceptualize (imagine) new, unusual or unique ideas, or to recognize new connections between seemingly random or unrelated things."

Think of innovation as…

"…a process that transforms unique, creative ideas into new realities: products, services, or processes that deliver greater value or benefits."
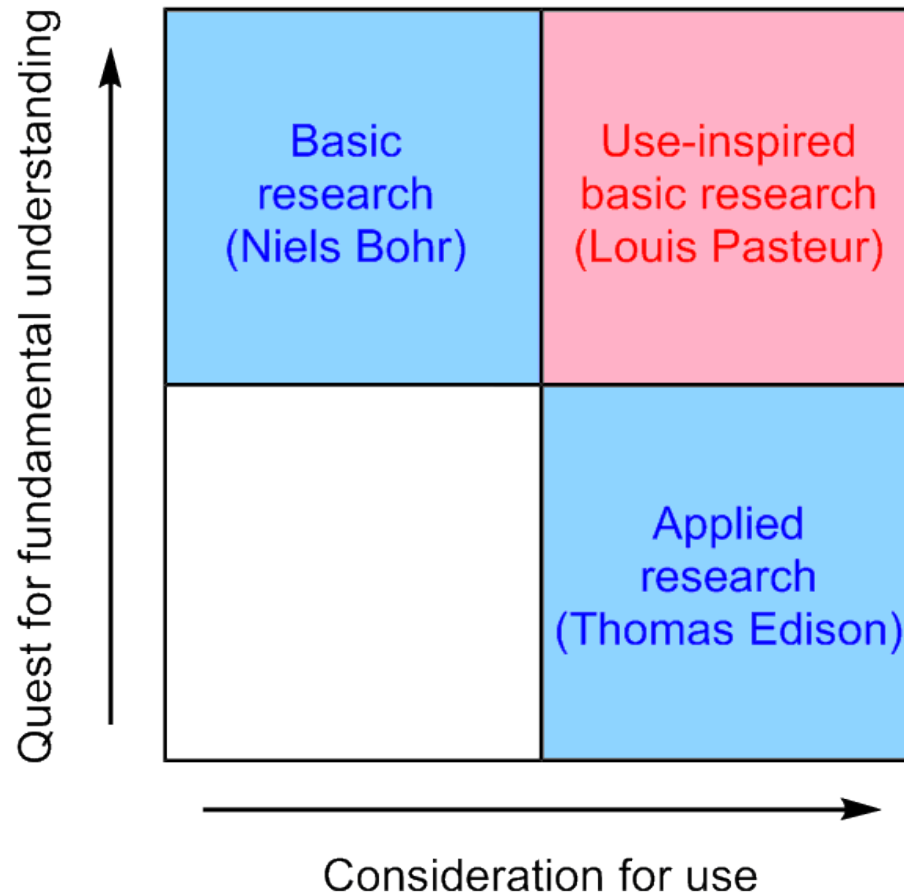
Source: Harmeyer, K. (March 2, 2015). *The relationship between creativity and innovation.*
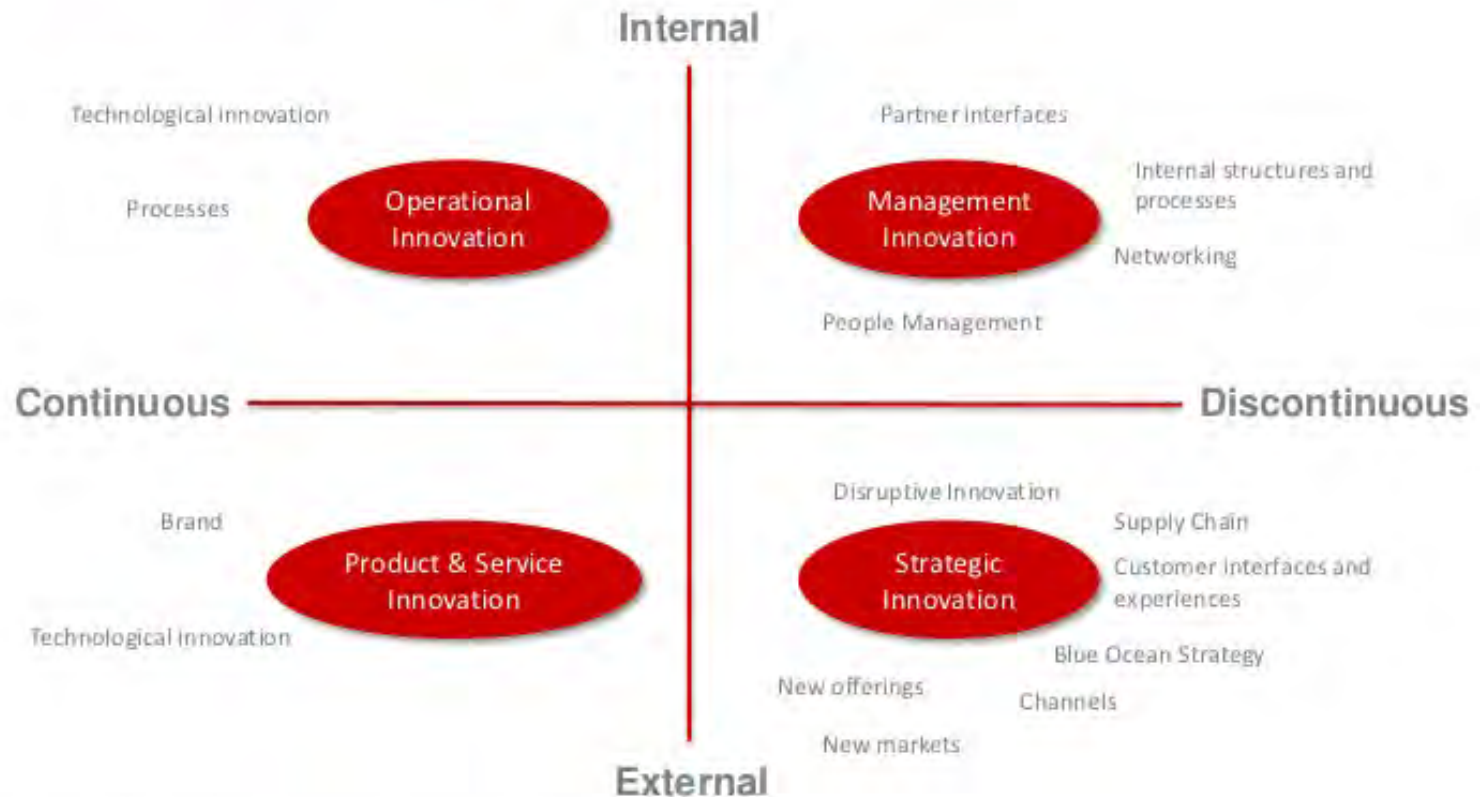
Innovation Theory

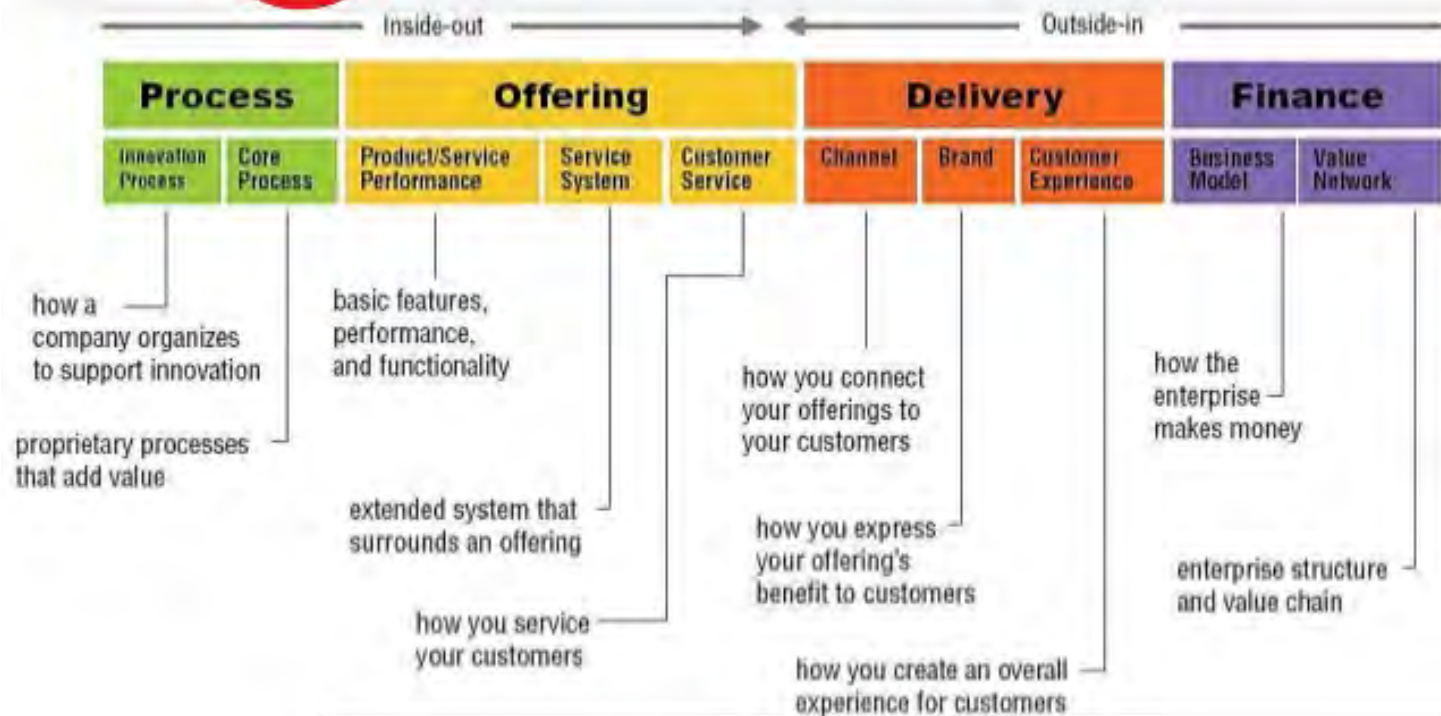# Innovation Theory

- Pasteur's Quadrant

Innovation Theory (2)

The Innovation Map

Internal

Technological innovation

Partner interfaces

Internal structures and processes

Processes

Operational Innovation

Management Innovation

Networking

People Management

Continuous ———— Discontinuous

Disruptive Innovation

Brand

Supply Chain

Product & Service Innovation

Strategic Innovation

Customer interfaces and experiences

Technological innovation

Blue Ocean Strategy

New offerings

Channels

New markets

External

Innovation Theory

10 Types of Innovation. Larry Keeley, Ryan Pikkel Brian Quinn, Helen Walters
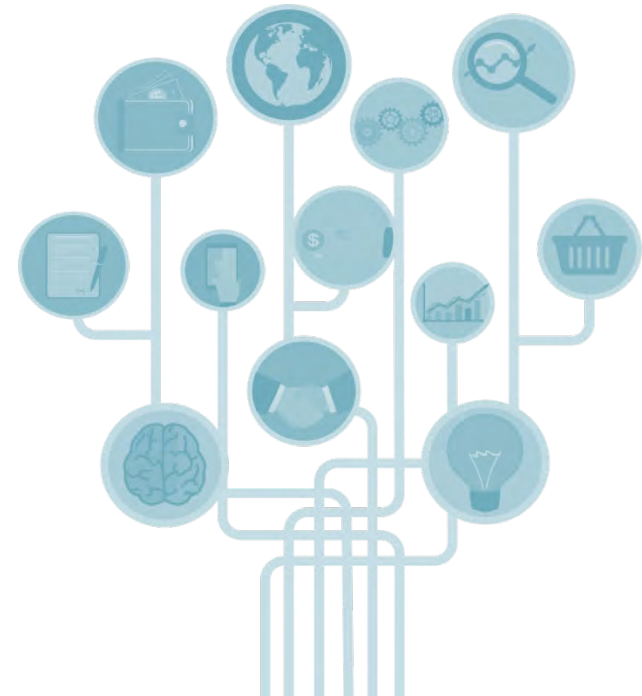
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Proposal Development

Proposal Development

Proposal development <u>as</u> innovation – following the "10 Types of Innovation" sequence

- Emergence of proposal (and now research) development offices
- Emergence of team science

Illustration – increase in the number of "proposal development" positions

Proposal Development (2)

Proposal development specialists <u>supporting</u> innovation by:

- Helping PIs develop project visions and teams
- Facilitating meetings and follow-ups/minutes
- Helping PIs reach out to POs
- Suggesting ways to emphasize innovation while protecting proprietary/sensitive IP

Illustration

- Client intent on developing a better wheelchair
- Followed the "10 Types of Innovation" sequence

Project/Process Management

Project/Process Management

Innovation is: creativity with boundaries

Illustrations of using project/process management to support innovation

- Methods: Agile, scrum, waterfall, Kanban, PPM
- Tools: Gantt charts, work plans, calendars, post-it notes, task lists

Project/Process Management (2)

Example 1: RD to spur innovation

- Supporting transition from basic to use-inspired research
- Dr. Davies studies how biofilms form and the genes that regulate development
- He wants to create a business selling anti-biofilm medical devices and supplies
- Using scrum project management methodology
  - Road map with the full team
  - Assign task as you go
  - Cadence and incremental action

Project/Process Management (3)

Example 2: Innovation in RD

- Using brand innovation with the SUNY Networks of Excellence

- Traditional project management

- Developed well-defined process informally
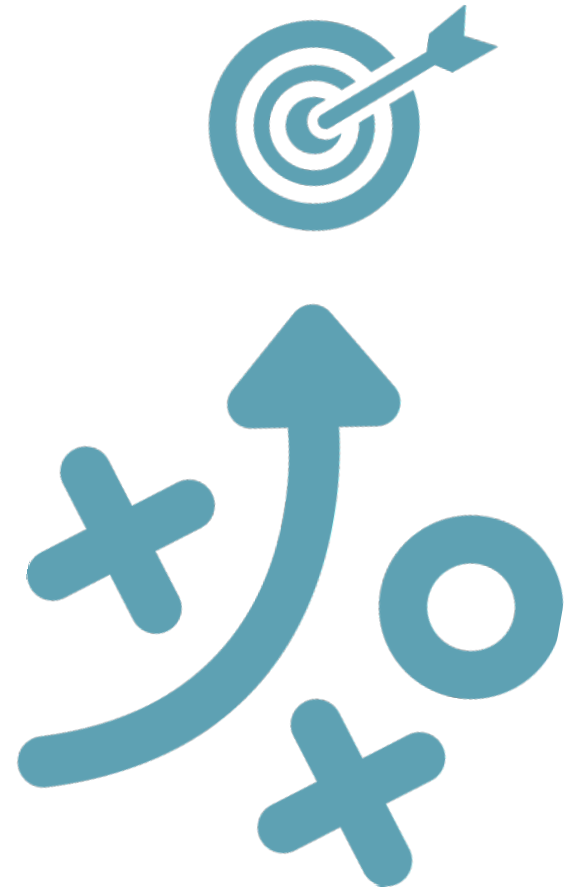
- Recognized and leveraged organic brand awareness

Project and Process Evaluation

Project Evaluation
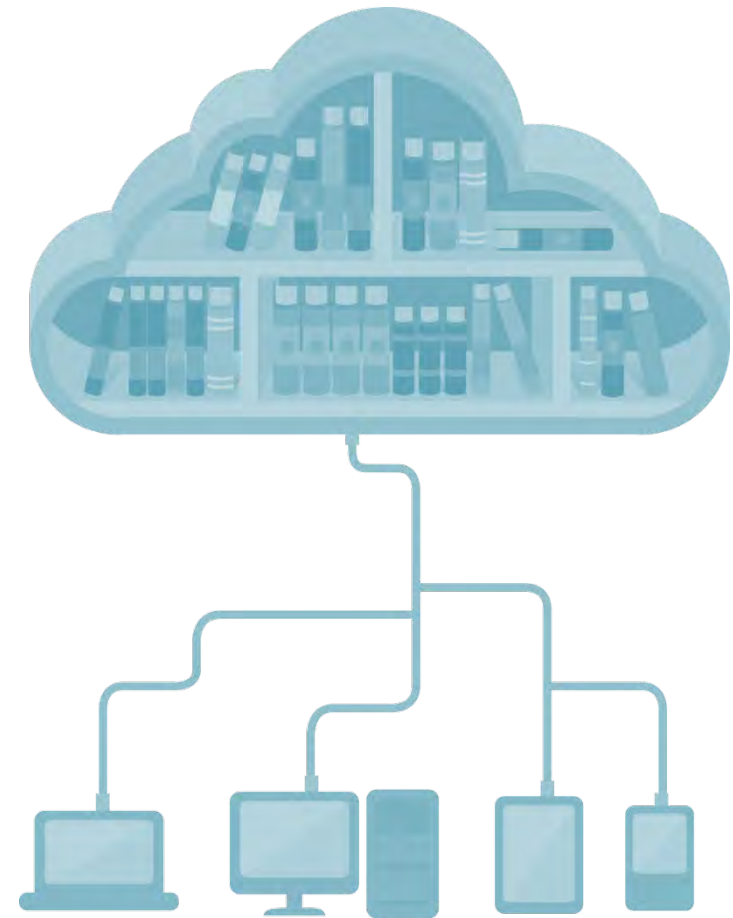
Project evaluation <u>as</u> innovation

- Altered expectations
- Changing/standardizing expectations
- Changing relationships
- Methodological expansion alongside research innovation

Project Evaluation (2)

Project evaluation <u>supports</u> innovation

- By providing planning assistance
- By providing formative feedback
- By providing summative reporting
- By providing critiques and making recommendations

Process Evaluation

Evaluating RD processes <u>is</u> innovation

- No standard pattern
- Absence of uniform metrics
- Unique or idiosyncratic elements in most situations
- Variety in funder, institutional, and research agendas
- Need to define purpose, metric, process, analysis, weighting, and interpretation

Tech Transfer/ Innovation Commercialization

Tech Transfer <u>as</u> innovation

- By …
- By ..

Tech Transfer <u>supports</u> innovation

- By …

Questions and Comments

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