MEASURING DESIGN AND ITS ROLE IN INNOVATION

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Why design measurement?

- The missing link in the system?
- Central role in innovation?
Is design as fundamental:
As R&D?

YOU'VE GOT TO HAND IT TO BLOOMENKRAFT—HE GOT A $500,000 FEDERAL GRANT TO RE-INVENT THE WHEEL.
Review of theory and evidence

• **Purpose:** Derive new concepts for measurement, based on:
  – Design theory
  – Economic theory
  – Innovation measurement standards
  – Empirical studies
Design theory

- Design as Science of the artificial
  - “design is the transformation of existing conditions into preferred ones” (Simon, 1996)
  - C-K Theory

- Design Thinking
  - “a new liberal art of technological culture.” (Buchanan 1992)

- Design-driven innovation
  - “design is making sense of things” (Krippendorf, 1989)

- Design in Services
  - “Service Design addresses the functionality and form of services from the perspective of the user” (Mager, 2009)
Economics

- **The Chain Link Model**
  - “the initiating step in most innovations is not research, but rather a design” (Kline and Rosenberg, 1986)

- **Functional categories** (Swann, 2010)
  - A link from creativity to innovation
  - A source of competitive distinction
  - An approach to planning and problem-solving
  - A means of creating order out of chaos.
  - An approach to systems thinking
Innovation measurement standards

• Project commissioned in part with a view to revising the current guidance for innovation measurement:
  – Frascati manual (R&D)
  – Oslo manual (Innovation)

• So includes discussion of how design is covered:
  – Argues that there are gaps
  – Question of if these should be filled and if so how? (the focus of this project)
Evidence

• Reviewed important examples of earlier and current research, using a range of concepts:
  – Industry surveys
  – Danish innovation ladder
  – Innovation surveys in e.g. UK and Denmark
  – Intangible investment approach
  – Skills (human capital)
5. Derive new concepts for measurement

- What do we want to know about innovation? For example:
  - Resources used
  - How it is done?
  - Who does it?
  - Occurrences
  - Effects (Impacts)
  - Benefits and costs
Concepts from design theory

• Science of the artificial and C-K Theory
  – Design is the Creative stage -thinking through the “wicked problems.”
  – C-K: Design transforms concepts and knowledge into useful ideas and how to implement them

• Design thinking
  – Link between understanding of business objectives and the market (inspiration); desired characteristics (of goods or services) into offerings (ideation) and delivery or choreography of the user experience (implementation).
Concepts from design theory

• Design driven
  – emphasis on the psychological and social contexts and effects of innovation in goods and the need for radical “propositions” to users

• Service design
  – concepts in service design theory include designer understanding of the “customer journey”
  – artefact design is part of the framework for “touch points” that condition use of a service
Roles of design

• Designing product and services for functional change and the addition of characteristics to affect the perception and use by customer

• Designing artefacts to enable more efficient production and distribution

• Design skills in business process change to improve the service offered

• Design in services - marketing and beyond
Economic measurement concepts

- **Design-led or design-determined innovation**
  - Key suggestion is that a fundamental design decision is the pivotal step in good and services innovation

- **A Frascati manual analogy**
  - Specify a range of functions of design in the wider picture of innovation, perhaps with reference to the Swann categories.

- **Application specific approaches**
  - Distinguish the functions of design in a few broad categories of goods, services and processes such as Consumer and Producer goods and services

- **Resource based**
  - Skills, knowledge and teams