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# Defining features of the technological innovation system for zero emission buildings

Hilde Nykamp



# Today

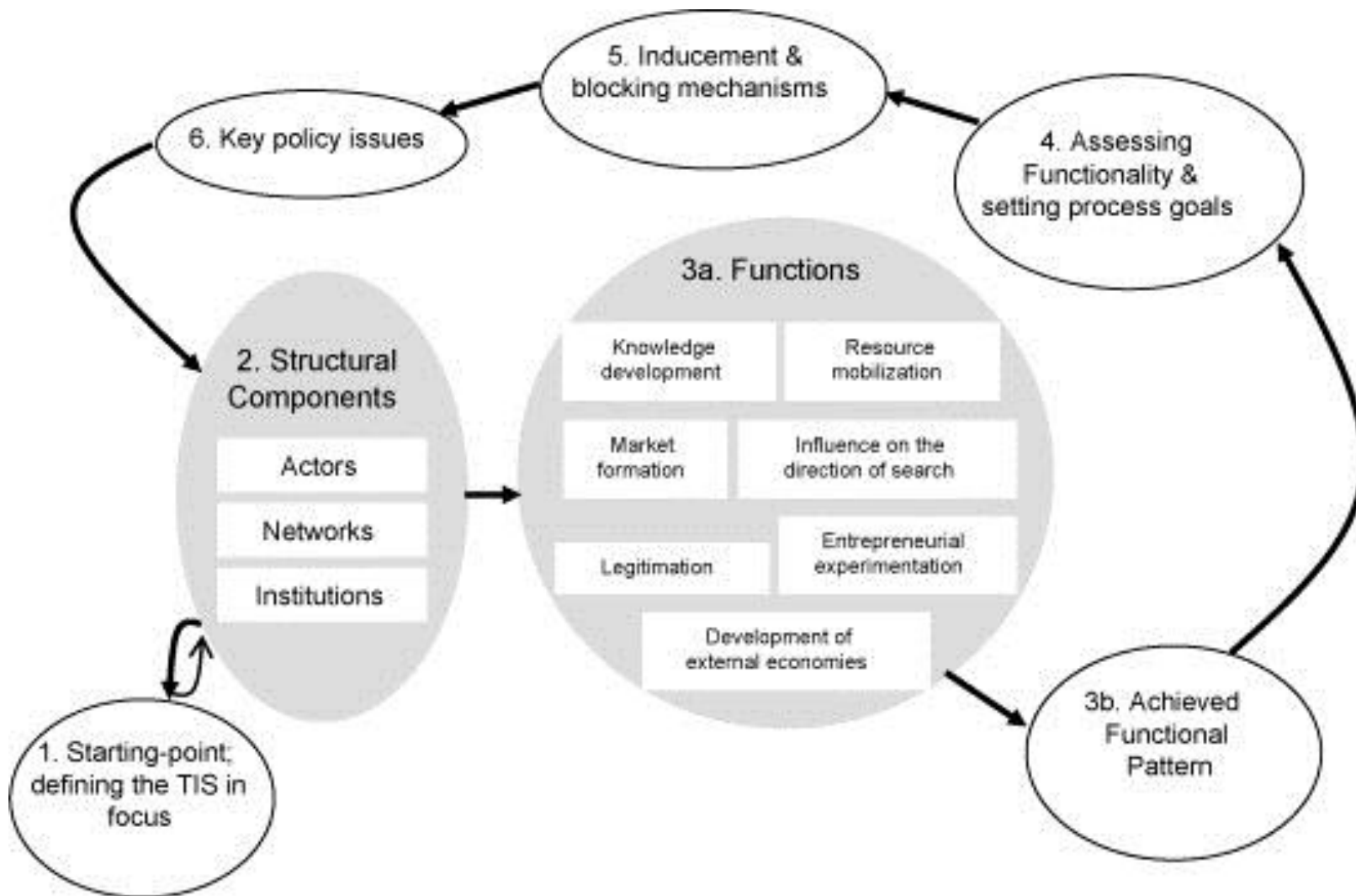
- First, say a little about plans for my thesis
- I will present some preliminary observations about the possibilities for environmental innovation in the construction industry

# Background

- Disconnect – the know-how is there but uptake in the industry is slow
- Some very good and ambitious demonstration-projects have been built
- Why? Are there special features in construction that's holding back the use of relevant knowledge

## Three directions of research

- 1) State of TIS – functional analysis
- 2) Micro-level study of planning/design process – integration and learning between disciplines
- 3) Transitions oriented study - sustainable buildings role and relation to other industries, like energy and mobility



## Defining the TIS in focus

- “Sustainable buildings” collective term for many different building concepts (Passive house, active house, zero emission building, plus energy building, BREEAM, LEED etc.)
- The general idea is consume little or no energy or compensate for energy use by producing heat and or electricity

## Defining the TIS in focus

- Buildings are not one technology – but a product with a bundle of integrated technologies
- Architectural innovation (Henderson & Clarke 1995)
- Complex product systems (Miller et.al 1995, Winch 1998)

# Defining characteristics (product)

## Complex systems product

- Engineering intensive
- Highly customized
- Relatively unique one off product
- Long lasting (50+ years)
- Costly
- Place bound



# Structural components

## Actors

- Firms along value chain , design organization and production organization, industry level organizations, knowledge/educational actors

## Institutions

- Regulative, normative, cognitive

## Networks

- Relationships – formal networks

## Defining characteristics (Process)

- Competitive tendering
- Extensive use of subcontracting
- Project based
  - Two overlapping organizations
  - Discontinuous /temporary
  - Multidisciplinary
- Complexity (uncertainty, unknown dependencies and lack of information)



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Thank you !

