Structuration Theory

Fundamentals of Human-Centered Computing

Structuration Theory

Focusing on change

How do technologies change the environments in which they are introduced?

Today we will cover:

- What problems does Structuration Theory try to solve?
- How does Structuration Theory solve these problems
- How can we apply Structuration Theory?
- What are good and bad aspects of Structuration Theory?

The problems

What problems does Structuration Theory try to solve?

The problems

Activity Theory:

Plans are anticipatory reflections of recurring activity

Thereby, activities are socially constructed, and may evolve in the course of action (short term) and over time (long term)

HCI should look at the historical development of activities

Realization: Why do this retrospectively?

The problems

New goal of HCI: actively study the adoption of new technologies

Why? Because technology is **interpretively flexible**

- Its use may change beyond the intended use
- The social structure may change its use
- Its use may change the social structure

The solution

How does Structuration Theory solve these problems?

The solution

Structuration theory: structure is both a product and a constraint of actions

This is a reciprocal process

- The sum of (and reflection upon) actions constitute structure
- Structure guides and constrains the actions

This is similar to the idea of anticipatory reflection

- But looking at the organizational consequences

Structuration

The outcome of this **reciprocal process** can be one of two things:

1. The structure persists

   It is recreated by action following accepted scripts

2. The structure is reconfigured

   The actions diverge so far from the structure that new scripts are introduced

Structuration

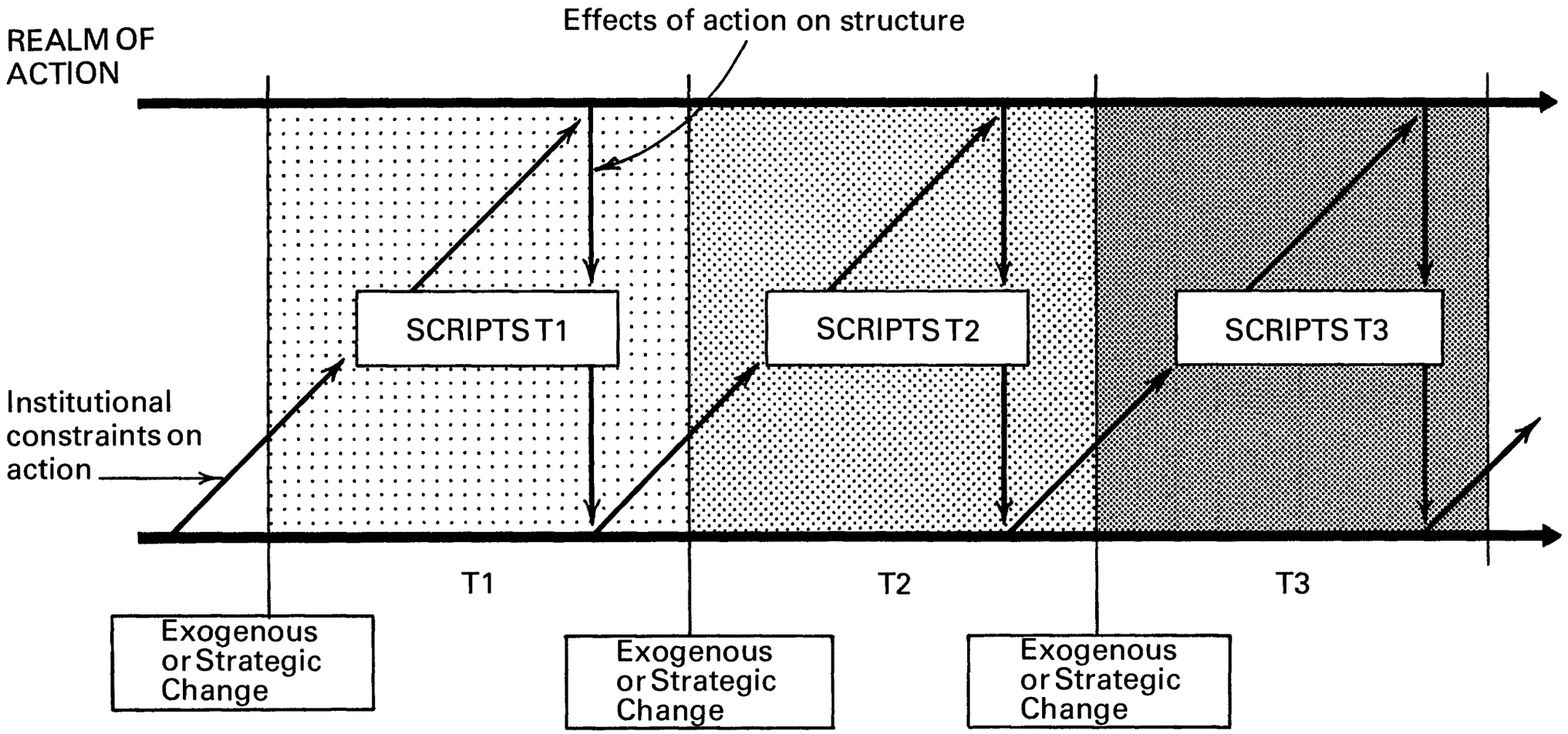
An **exogenous factor** (or a strategic change) may trigger a new social dynamic

- Technology could be one such exogenous factor

This may in turn **change the structure**

- This can be intentional (the technology was supposed to change the structure) or unintentional

Structuration



Note: The progressively denser backgrounds signify structuring's cumulative effects.

Technology

In sum, technology can influence an organization

However, because of interpretive flexibility, this can happen in unexpected ways

> Its actual effect on structure is not always the same as its intended effect

The actual effect depends on whether the technology is accepted, changed, or rejected

Technology

Let's say a technology is supposed to **formalize** an existing structure:

By **accepting** the technology, the existing structure is **reaffirmed**

> The organizational values are imposed on the users through their use of the technology

By **changing** or **rejecting** the technology the structure itself can (eventually) be **changed**

> The failure may be due to unobserved nuances

Technology

Let's say a technology is supposed to **change** an existing structure:

By **accepting** the technology, the existing structure can (eventually) be **changed**

> The new organizational values are imposed on the users through their use of the technology

By **changing** or **rejecting** the technology the structure is **maintained**

> Technology change requires organizational support!

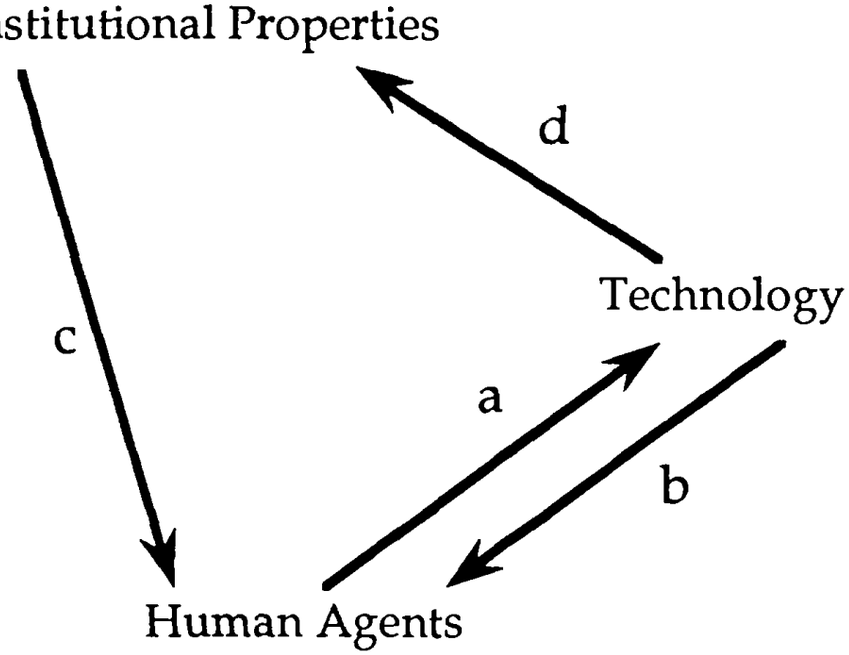
Process

a) Design, development, appropriation, modification

b) Facilitation and constraint of human action

c) Influence of preexisting institutional constraints

d) Transformation of existing structure



Implications

It is important to know the preexisting constitutional constraints as a baseline

- Either try to support it with your technology, or at least acknowledge that you are going to change it

Adoption may occur in stages

- Because structuration is a recursive process
- Studying these stages can be very useful!

Implications

The effects of technology may be delayed

Change is not effected by the technology itself but by the social dynamic

Longitudinal research is needed!

The same technology and the same structuring process may still results in different social dynamics

Cross-sectional research is needed!

The method

How can we apply Structuration Theory?

The method

Mostly observational research

- Needs to be longitudinal
- Needs to be cross-sectional

Focus on preexisting structure, stage-wise changes in structure, and the consequences of these changes

- Compare between settings as a means to factor in the contextual/situational aspects

Focus

Differences in **pre-existing structure** may result in completely different adoption outcomes

Look for organizational flexibility, open mindedness of actors, structure of existing procedures, flexibility of the technology to be introduced

A cultural-historical perspective can be useful here!

Focus

After introducing the technology, identify **stages** of structuration

- Adoption happens over time

The recursive process means that there is iterative action and reaction

- These involve the technology, the actors, and the organization
- In each stage transition, at least one of these changes

Focus

Focus on the **consequences** of a change in structure:

Signification

A new distribution of knowledge

Domination

A new distribution of power

Legitimation

A new distribution of norms and values

Flexibility

Flexibility is important!

Example of Orlikowski: Introduction of explicitly defined design tools and an incentive to use these tools

- Design process became formalized
- Highly efficient yet restrictive nature of the tools was not always adequate for the problem at hand
- Rigid structure meant that people did not question the instituted design process

Context

Context is important!

Example of Barley: CT staffing decisions seemed to crucially (yet unintentionally) influence the structuration process

- Difference in experience of technicians and radiologists determines who takes the lead
- Explains how this lead to conflict in one setting, not in the other
- This dynamic may change over time as people react to each other

Reflection

What are good and bad aspects of Structuration Theory?

Reflection

Criticism: Applying Structuration Theory is an extremely effortful endeavor

Daily, minutely coded observations are necessary for the analysis to be effective

Response: Can be worth the effort, especially in a corporate setting

Reflection

Criticism: Structuration Theory is mainly descriptive of the organizational change, not suggestive

> It provides insights after the technology is introduced, so it will not be able to inform the design

Response: Still useful for repeated projects (e.g. beta/pilot launch)

> Also, possible to intervene and adapt technology (or organization!) after the fact

Questions

How strong is the link between technology and the social dynamic?

What is the timeframe of change in social dynamic?

How can we reduce the gap between technology design and appropriation?