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Change Management in Software Development Organizations DIT035, 7.5 credits

Lecture 7: Learning Organizations

Examiner: Agneta Nilsson

Course Assistant: Hamdy Michael Ayas



Previous lectures and reading

- ⚙ Questions?
- ⚙ Examples from exercise to share and discuss?



Agenda

- ⚙ Critique against traditional management
- ⚙ Drift and Control
- ⚙ Espoused theory & Theory in Use
- ⚙ Single-loop learning & Double-loop learning
- ⚙ Model I & Model II
- ⚙ Organizational Learning
- ⚙ Re-cap & Final report





Between control and drift: negotiating improvement in a small software firm (Tjørnehøj and Mathiassen, 2008)



Critique of the management literature

- ✧ the intricacies of 'real life' cannot 'naturally' be captured by a model
- ✧ deadlock and ineffectiveness
- ✧ traditional conception of technology - 'passive' and neutral set of means to achieve some ends
- ✧ look pragmatic – deceptively persuasive – simplified, sweeping generalizations and abstractions
- ✧ muddies the water by reinforcing the illusion of extant management values
- ✧ centrality of control – “increased complexity calls for increased control”

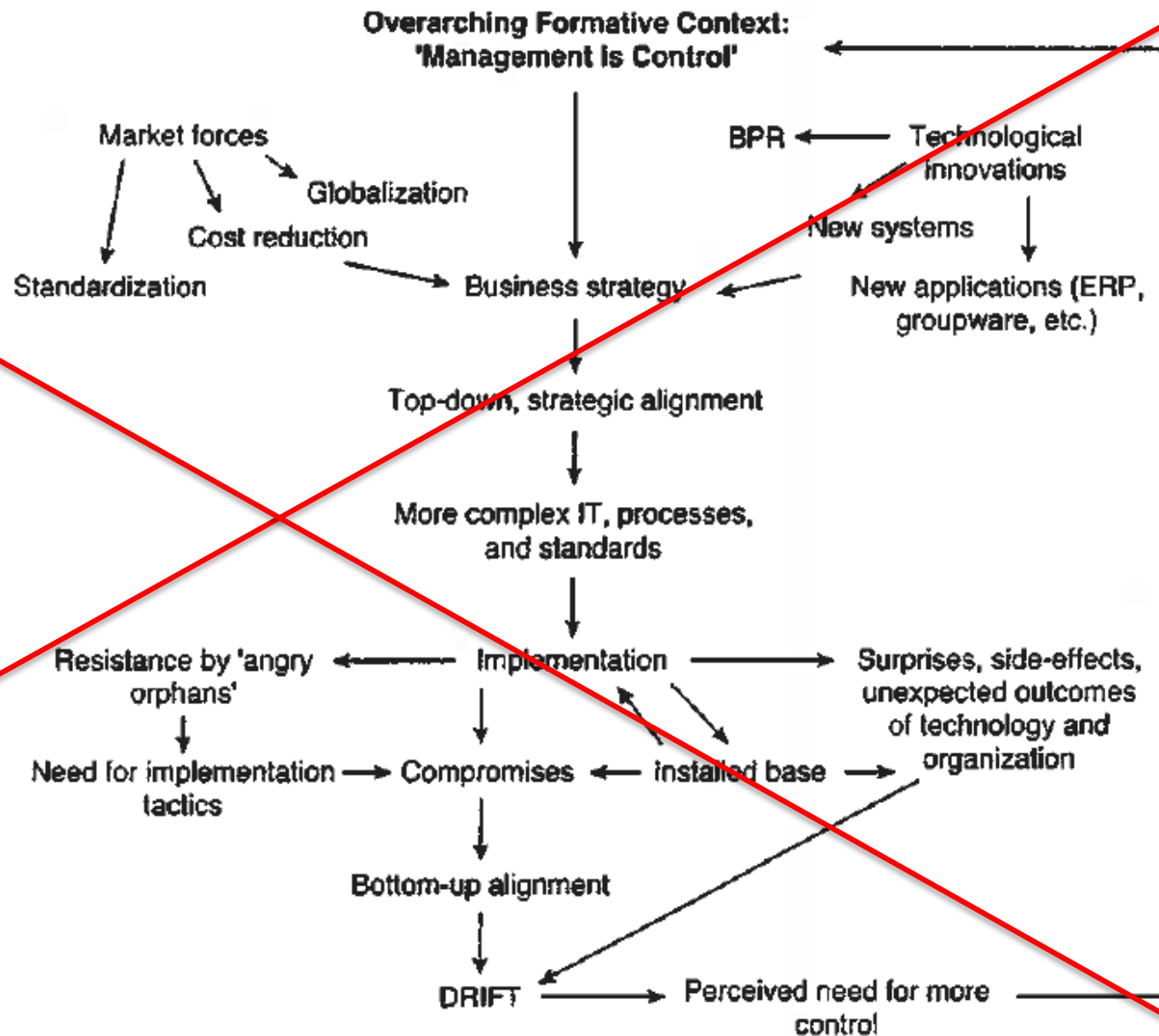


Formative Context

“failures at innovation, surprises, and a whole range of related phenomena can be accounted for by introducing the notion of *formative context*, that is, the set of institutional arrangements and cognitive imageries that inform the actors’ practical and reasoning routines in organizations. Limited capability to inquire into formative contexts is responsible for the actors’ limited learning, irrespective of their strategies, interests, espoused theories, and methods.” (Ciborra & Lanzara, 1994, p61)

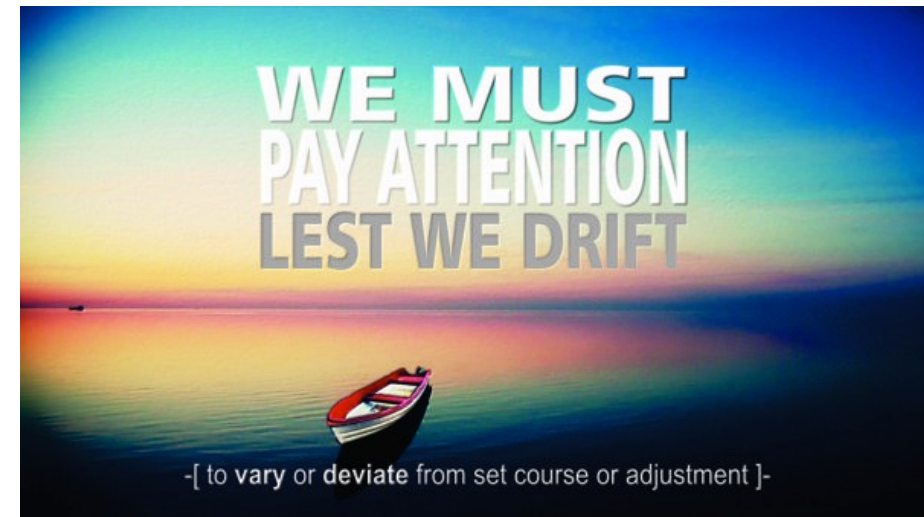


the 'vicious circle' from Mapping Dynamics of Infrastructure (Ciborra, 2000, p4)



From Control to Drift

- ⚙ While trying to control and plan technology - it drifts away from plans due to side effects and surprises
- ⚙ Humans respond by reinventing technology through improvisations, bricolage, and hacking
- ⚙ The adoption process gets shaped differently than expected through formative contexts or the already installed base
- ⚙ When bounded in their imagination by specific formative contexts, humans have limited innovative capabilities
- ⚙ Coincidences, breakdowns, and human coping can spark technology drifting and result in more innovative outcomes





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Technology is the result of events in
a complex, unpredictable, and unmanageable web
- shaped by bricolage and formative context



BRICOLAGE

MAKING ARTFUL USE

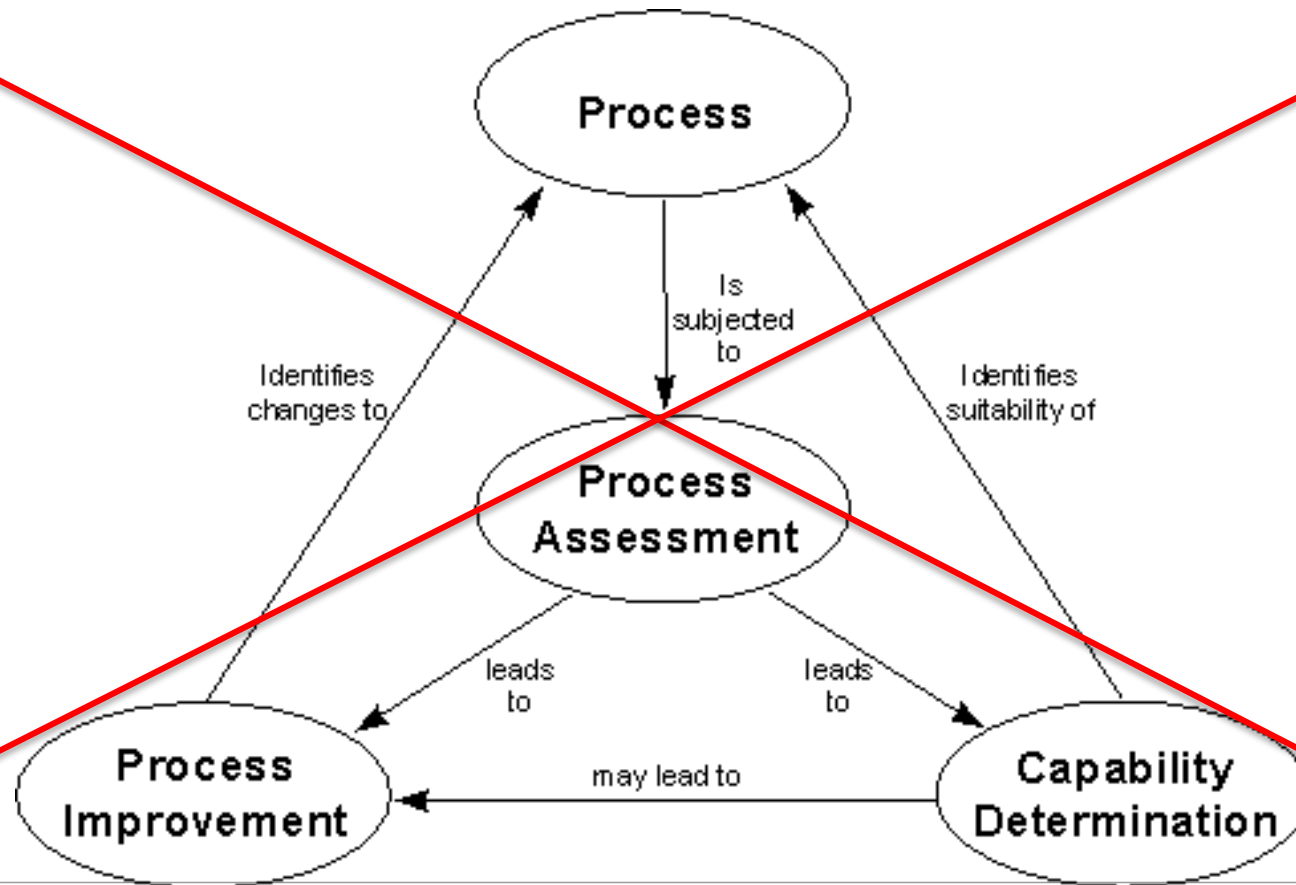
OF WHAT IS AT HAND



Formative context is the set of institutional arrangements
and cognitive imageries that inform actors' practical
and reasoning routines in organizations.



SPI - Software Process Improvement

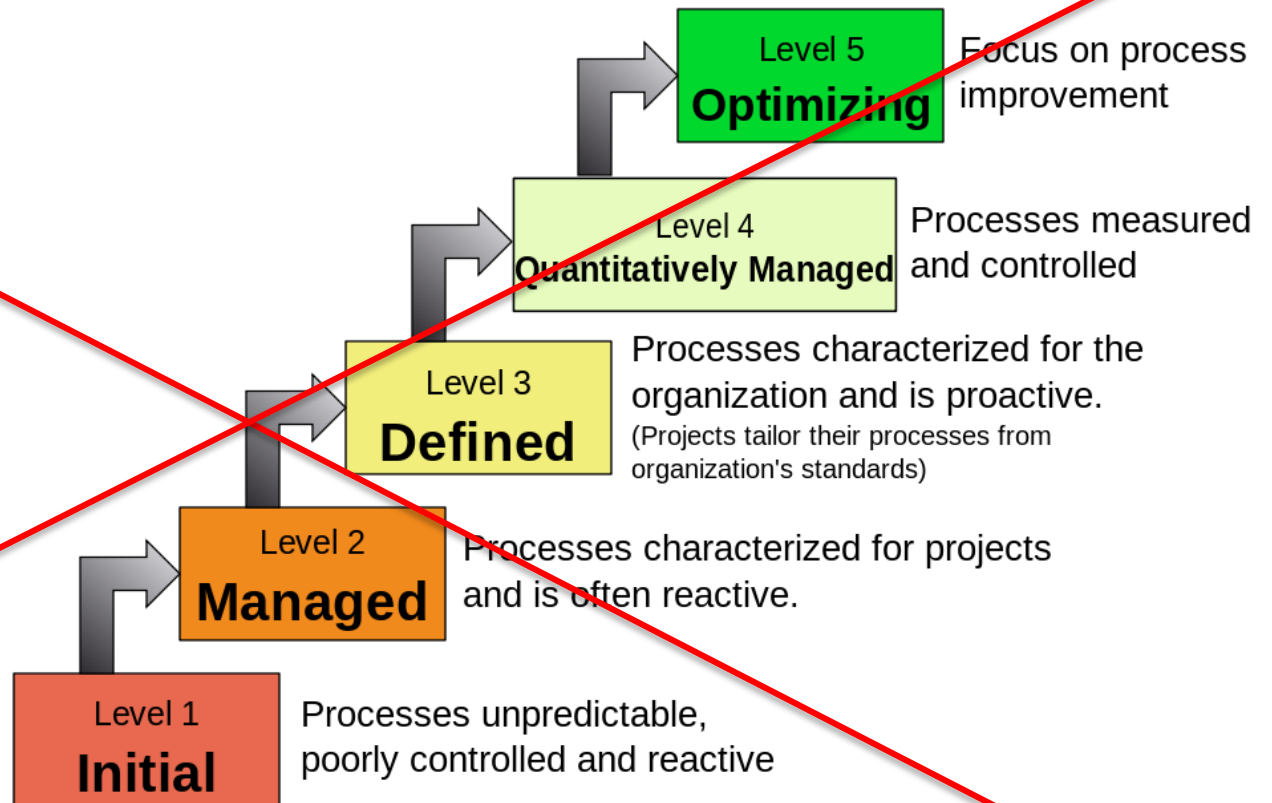




CMM – Capability Maturity Model

CMMs are based on the ideal of a rational, control-centered culture for software development

Characteristics of the Maturity levels





Between Control and Drift

Control is based on a rational view of the world, where management base their planning on simplistic theoretical models



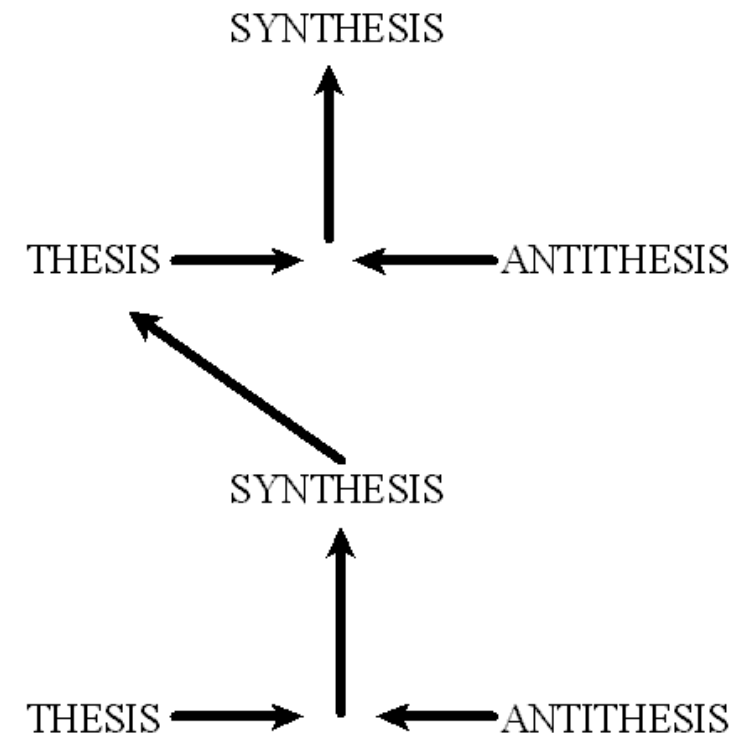
Drift emphasizes how side effects, surprises, and people's everyday coping strategies with bricolage, hacking, and formative context make reality drift away from plans



Control and drift are complementary

Intrinsically related opposites of a dialectical relationship, rather than alternative management philosophies

HEGELIAN DIALECTIC





Chris Argyris: theories of action, double-loop learning and organizational learning (Smith, 2001)

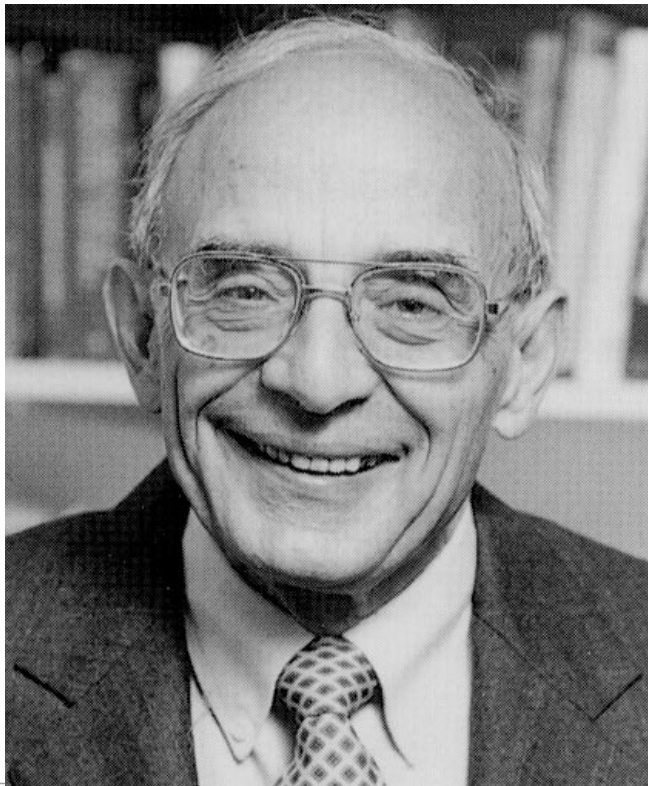


“The stars are indifferent to our opinion of them, and the tides are independent of our theories about them. Human behavior, however, is directly influenced by our actions and therefore by our theories of action. The behavioral world is an artifact of our theories-in-use” (Argyris & Schön, 1974, p17).

Argyris, C. & Schön D.A. (1974) Theory in Practice - Increasing Professional Effectiveness. John Wiley & Sons Inc, San Francisco.



Chris Argyris & Donald Schön



Chris Argyris:
professional
effectiveness and
organizational
learning

Donald Schön:
learning systems

Starting point: people
have mental maps
regarding how to act
in situations



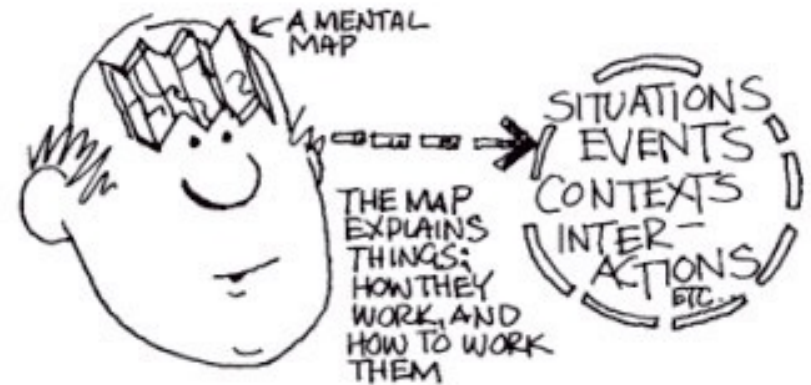


Theory of action

- ✧ It is impossible to reason anew in every situation. If we had to think through all the possible responses every time someone asked, “How are you?” the world would pass us by.
- ✧ Therefore, everyone develops a theory of action.
- ✧ A set of rules that individuals use to design and implement their own behavior as well as to understand the behavior of others.

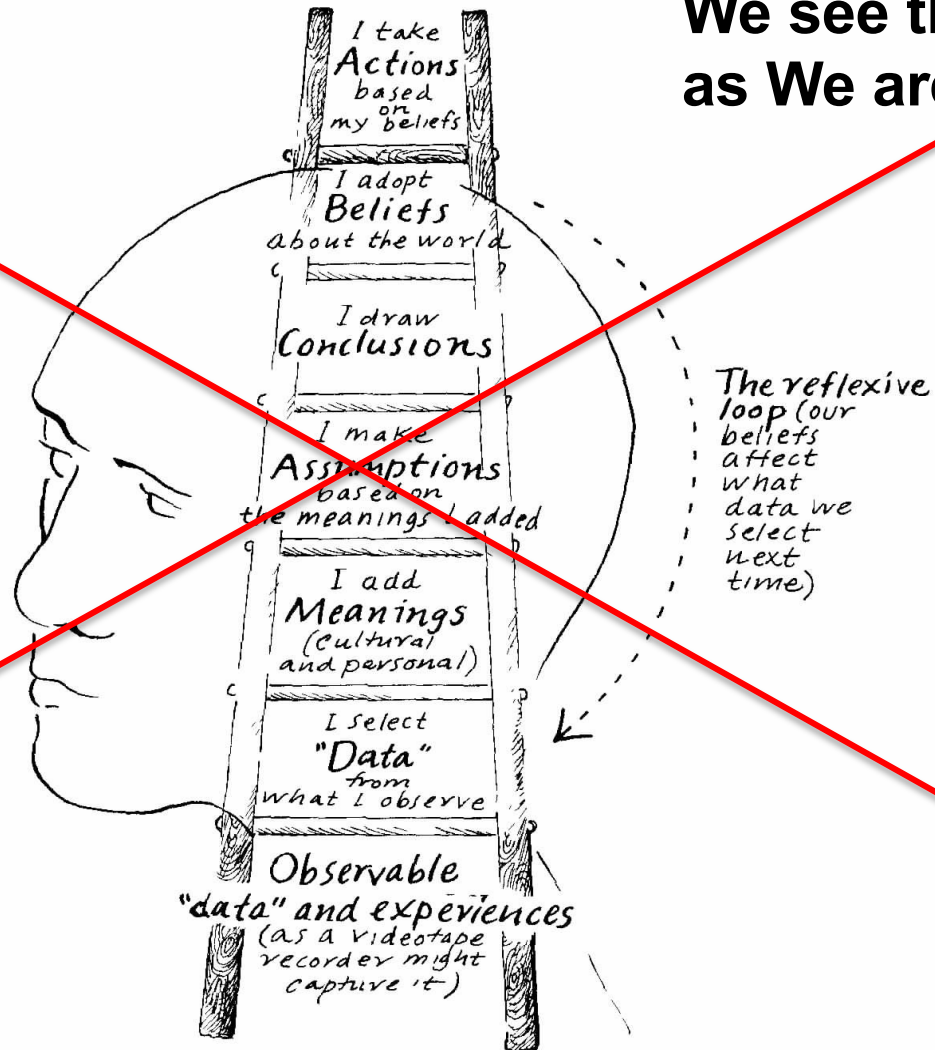
Mental Maps

- ⚙ People have mental maps with regards to how to act in situations. This involves the way they plan, implement, and review their actions.
- ⚙ It is these maps that guide people's actions rather than the theories they explicitly espouse or say.
- ⚙ Fewer people are aware of the maps or theories they use. And others don't usually tell them either!



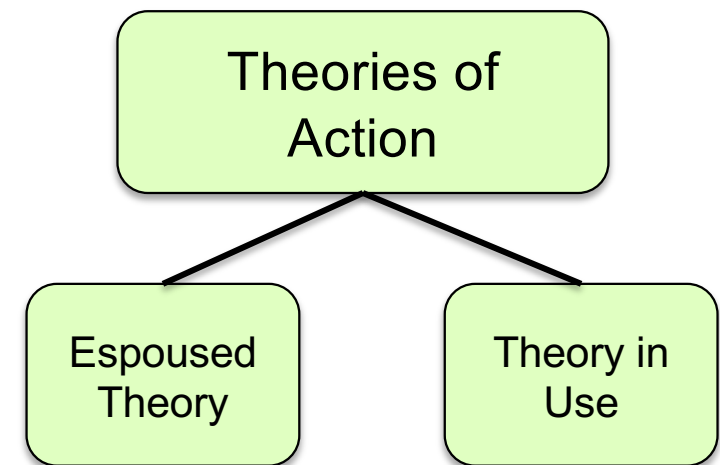
The ladder of inference - how we make sense

We see the World
as We are (Not as it is)



Espoused Theory vs Theory in use

- ⚙ Most of our theories of action are in our subconscious until we start to intentionally name and work with them.
- ⚙ **Espoused Theory:** are the theories we claim to use to solve various problems. Accounts individuals provide when they try to describe, explain, or predict their behaviour.
- ⚙ **Theory in Use:** what people actually do. Implicit program or set of rules that specifies how to behave.
- ⚙ There is often a gap between our espoused theories and theories in use.





Espoused Theory vs Theory in Use

Espoused theory

- The words we use to convey what we do or would like others to think we do
- Explicit



What individuals say they do



Theory in use

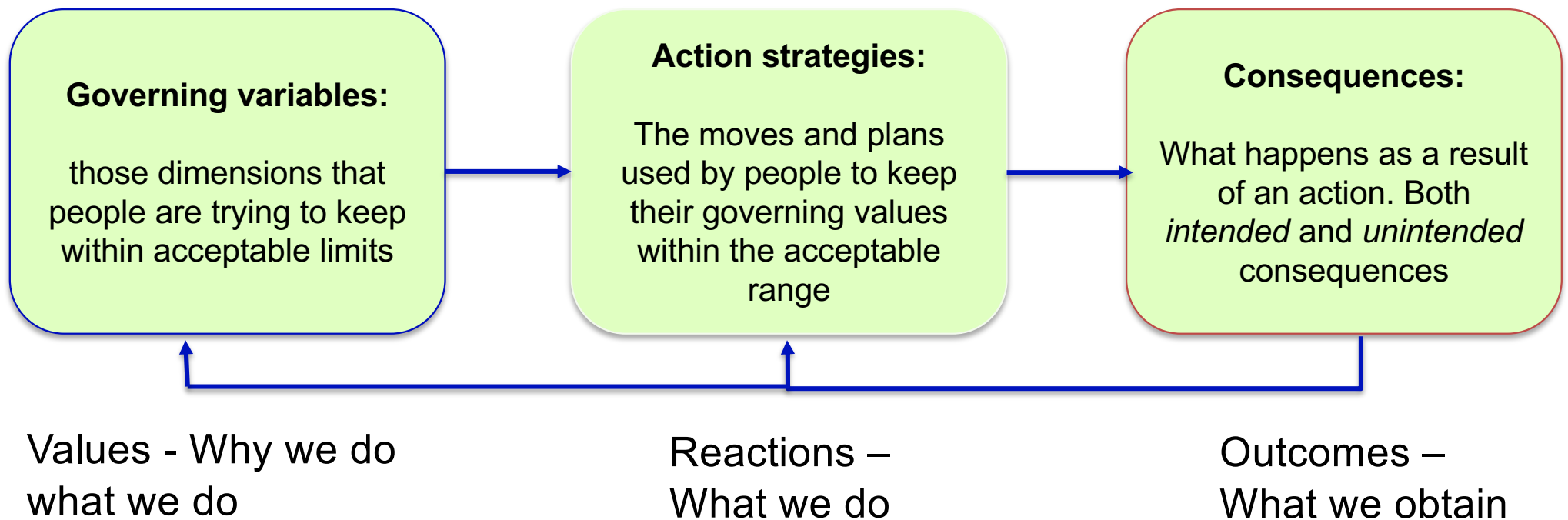
- Govern actual behavior
- Typically tacit/implicit
- Contain assumption about self, others and environment



What people actually do

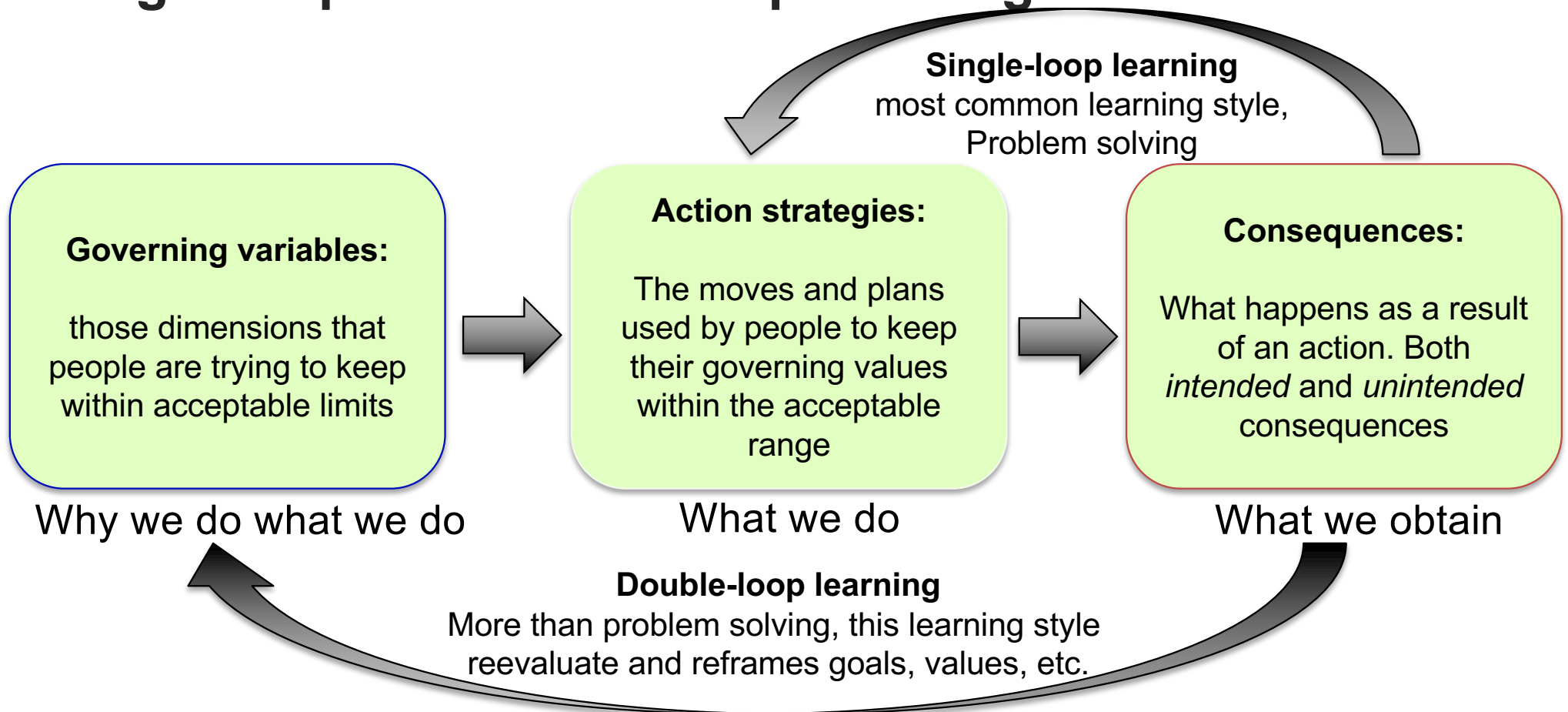


Processes involved





Single-loop and double-loop learning





Model I and Model II

- ⚙️ Argyris and Schön introduced two models that describe features of theories-in-use that either inhibit or enhance double-loop learning.
- ⚙️ Model I - inhibit double-loop learning
- ⚙️ Model II - enhance double-loop learning

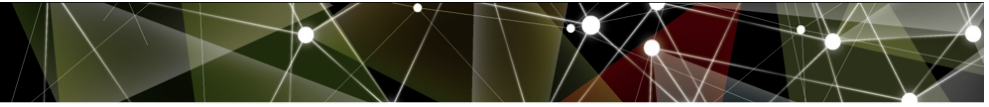
Model	Governing Values	Strategies	Consequences for the behavioral world	Consequences for learning
I	<ul style="list-style-type: none"> Define goals, and try to achieve them Maximize winning, minimize losing Minimize generating or expressing negative feelings Emphasize rationality 	<ul style="list-style-type: none"> Design and manage the environment unilaterally Own and control the task Unilaterally protect yourself Unilaterally protect others from being hurt 	<ul style="list-style-type: none"> Actor seen as defensive, inconsistent, competitive, controlling, manipulative... Defensive relationships Defensive norms (mistrust, lack of risk-taking, conformity, power-centered competition...) 	<ul style="list-style-type: none"> Self-sealing Single-loop learning Little public testing of ideas (privately testing)
II	<ul style="list-style-type: none"> Valid information Free and informed choice Internal commitment 	<ul style="list-style-type: none"> Design situations where participants can be origins and can experience high personal causation Tasks is controlled jointly Protection of self is a joint enterprise and oriented toward growth Bilateral protection of others 	<ul style="list-style-type: none"> Actor seen as minimally defensive (facilitator, collaborator...) Minimally defensive interpersonal relations and group dynamics Learning-oriented norms (trust, individuality, open confrontation on difficult issues) 	<ul style="list-style-type: none"> Disconfirmable processes Double-loop learning Public testing of theories



Organizational Learning

- ⊗ Individuals using Model I create Organizational Learning Systems characterized by:
 - ⊗ defensiveness, self-fulfilling prophecies, self-fuelling processes, and escalating errors
 - ⊗ feedback loops that make organizational assumptions and behavioral routines self-reinforcing – inhibiting detection and correction of error

 - ⊗ Organizational development - attend to criteria suggested by Model II:
 - ⊗ mapping the problem as clients see it;
 - ⊗ internalization of the map by clients;
 - ⊗ test the model;
 - ⊗ invent solutions;
 - ⊗ produce the intervention;
 - ⊗ study the impact
-



Discuss

- ⚙ What experiences do you have of organizations that relies on Model I?
 - ⚙ What experiences do you have of organizations that relies on Model II?
 - ⚙ What experiences do you have of “learning by reflecting critically upon the theory-in-action”?
-



Not that simple!

- ✧ Single and double loops can coexist and exist on different levels in the organization
 - ✧ The assumption 'good' learning 'takes place in a climate of openness where political behaviour is minimized' - can be questioned
 - ✧ The interventionist strategy is staged or phased – can be questioned
 - ✧ Still – significant contribution with theorizing of theory-in-action, the educative power of the models, and the conceptualization of organizational learning
 - ✧ Argyris and Schön's conceptualization - makes it possible to learn by simply reflecting critically upon the theory-in-action (as opposed to trial-and-error)
-



Exercise

- ⚙ Define and explain the key concepts in the theories by Ciborra et. al. (2000) and Tjornehøj and Mathiassen (2008). Give examples of 'drift' and 'control' in a selected case article. Reflect on the actual or potential utilization of drift in the selected case description.
 - ⚙ Define and explain the key concepts in the theory by Argyris and Schön (Smith 2001). Give examples of the two learning-loops in selected case article(s) and justify your analysis.
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Brief Re-cap

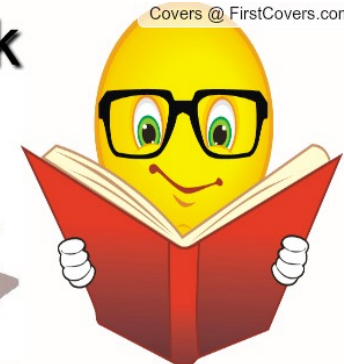
- ⚙ Success Factors and Obstacles
- ⚙ Planned Change
- ⚙ Emergent Change
- ⚙ Responses to Change
- ⚙ Communication and Leadership
- ⚙ Change Modes
- ⚙ Organizational Learning

= 12 articles

Synthesize and cover
key concepts in all articles

Guest
lecture

Case
article(s) to
exemplify





Some words about the final report

- ✧ Must include all the required readings plus minimum one case article
 - ✧ Crossed-out sections in lecture presentations = not required in the report
- ✧ Define and explain key concepts.
- ✧ Must be a theory-centric structure
- ✧ Must be your own synthesis – do not give a sequential presentation of the different concepts and theories (do not follow the same structure as the lectures)
- ✧ Formulate headings that reflect how you have grouped the theories
- ✧ Exemplify using case article(s) – per section is OK.
- ✧ Must include relevant reflections on topics presented in the guest lecture – at least in one section
- ✧ Be concise and to the point, while still applying full sentences in academic writing style
- ✧ Must use template – provided at Canvas
- ✧ Maximum 5 pages (excluding the list of references)
- ✧ Must use correct reference technique following the APA style
- ✧ Do not miss deadline: Friday October 28, 17:00. (Re-exams: 5 Jan and xx Aug 2023)