Alignment in Organizations

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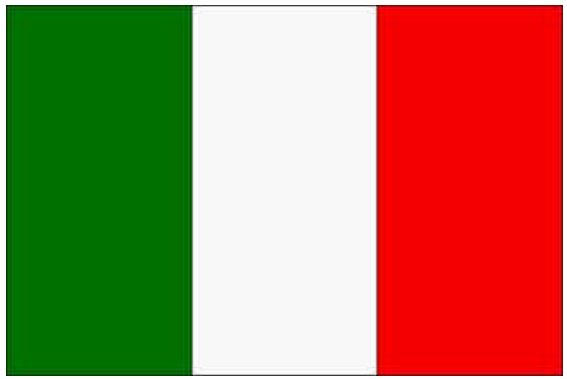
Ultra Large Systems - System of Systems- Organizations



Business

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- "Organisations are social units deliberately constructed to seek specific goals." (Etzioni 1961)
- "Strategic alignment is not even event but a process of continuous adaptation and change." (Henderson 1993)

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Classification scheme for IS planning and design (Henderson 1990)

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- Production Capability

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- Control Capability

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- Production Capability
- Control Capability
- IT Infrastructure Capability

CS

- Formal framework to support organizational design (Jonker et al 2012)

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- Multiagent Systems

Research Objectives

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- Framework

Organization

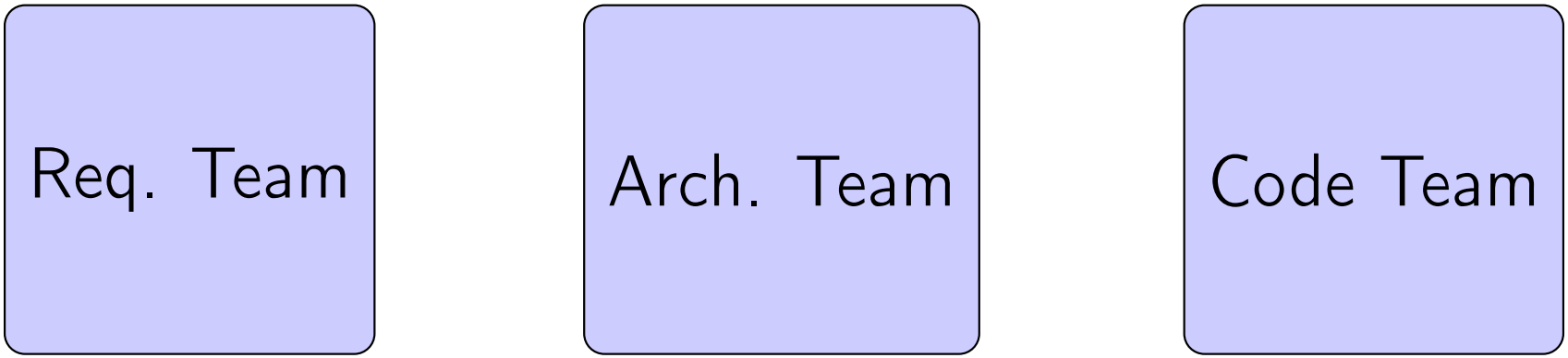
org(O,T)=($\underline{S}$,$\underline{R}$,$\underline{D}$)

- $\underline{S}$: set of systems,
- $\underline{R}$: global requirements,
- $\underline{D}$: domain assumptions.

Example: Software Organization

R: Maintain software,...

D:



System

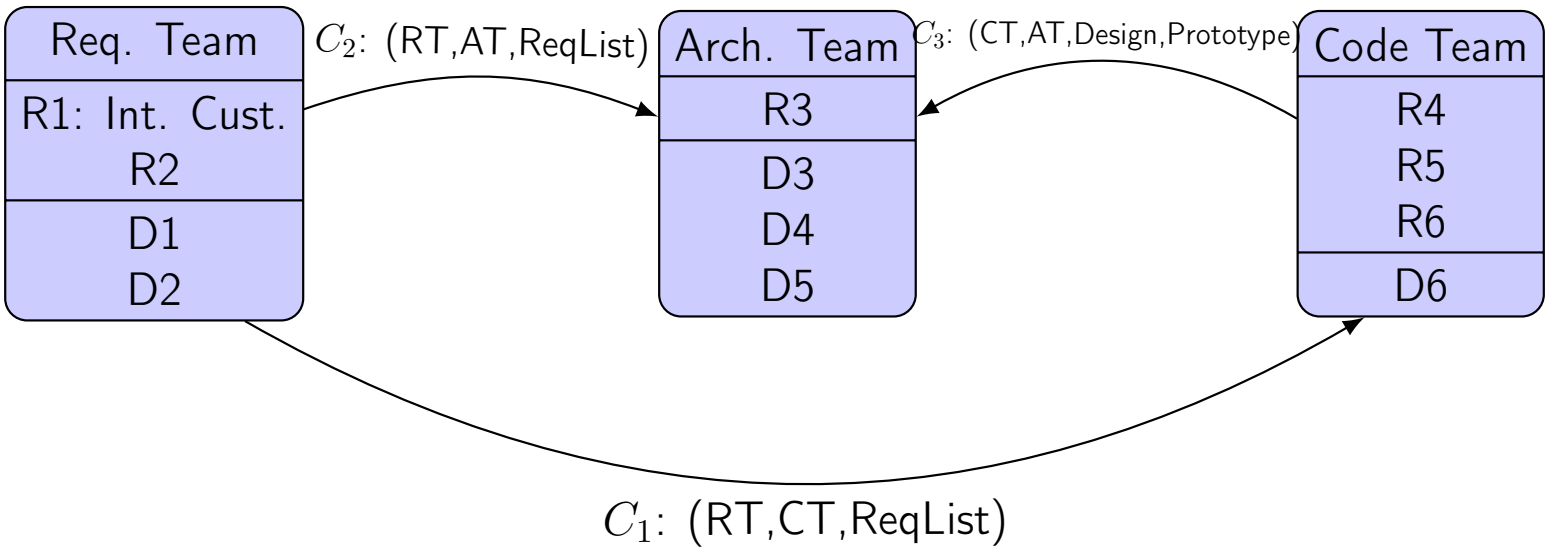
sys(S,T)=($\underline{R}$,$\underline{C}$,$\underline{D}$)

- $\underline{R}$: system requirements,
- $\underline{C}$: commitments,
- $\underline{D}$: domain assumptions.

System

R: Maintain software,. . .

D: D1, D2,. . .



Alignment

An organization O is aligned at time T, iff $\cup$r(S_i, T), $\cup$c(S_i, T), $\cup$d(O, T) $\models$ r(O,T).

Alignment

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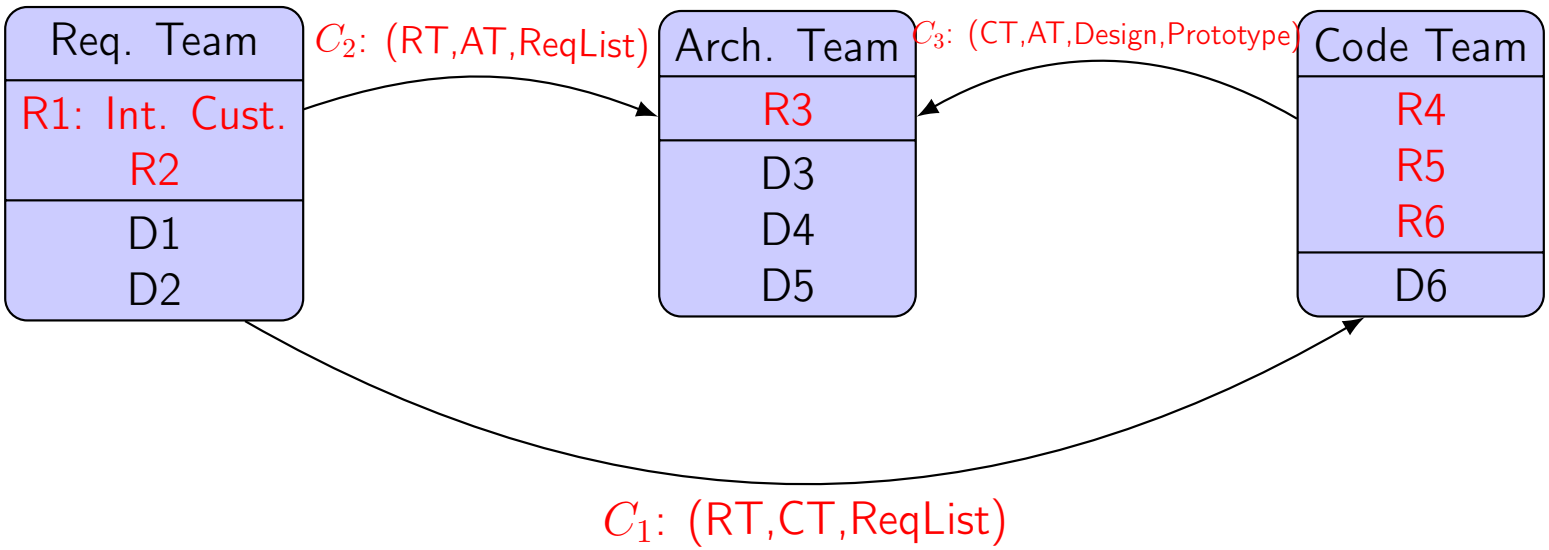
D: D1, D2,. . .



Difference

The difference of two sets $\underline{\text{X}}/\underline{\text{Y}}$ is the set theoretic difference of $\underline{\text{X}}$ and $\underline{\text{Y}}$. We extend this notation to tuples of sets, e.g.,
sys(S,T)/sys(S',T')=(R/R',C/C',D/D').

Proposed evolution

- $\Pi(S_i, T) = (\pi R_i, \pi c_i, \pi D_i)$.

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- $\Pi(S_i, T) = (\pi R_i, \pi c_i, \pi D_i)$.
- $\Pi(S, T) = (+R_1, -R_2, \{\}, \{\})$.

Proposed evolution

R: Maintain software,. . .

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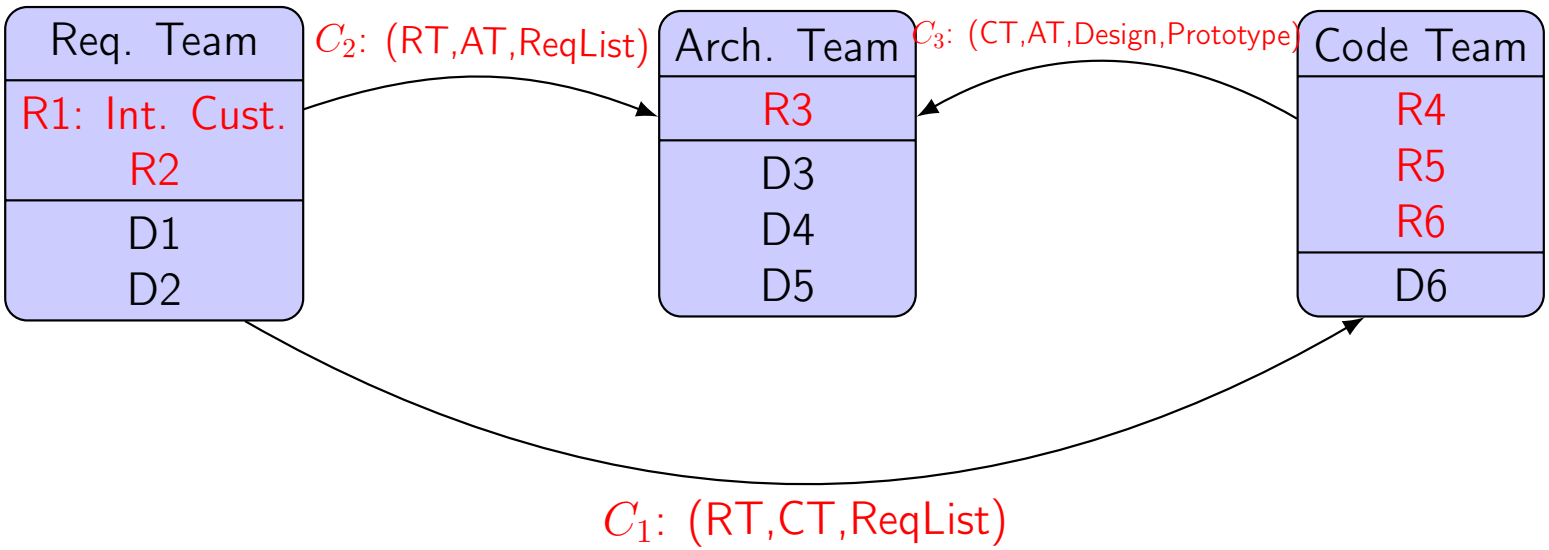

Alignment Mechanism

An alignment mechanism takes as input a set of proposed changes Π(O,T) and returns an alignment process consisting of approved sets of changes $\{\Delta(O,T_i)|$ i=1,⋮,k$\}$ for some k.

Future Work

- Socio-technical systems

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- Decision Making Processes

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- Negotiation Mechanisms

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