2018

Participatory design for service robotics

Valpreda, Fabrizio and Cataffo, Marco

RSD7 2018

Relating System Thinking and Design

Participatory Design for Service Robotics

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Fabrizio Valpreda, Marco Cataffo

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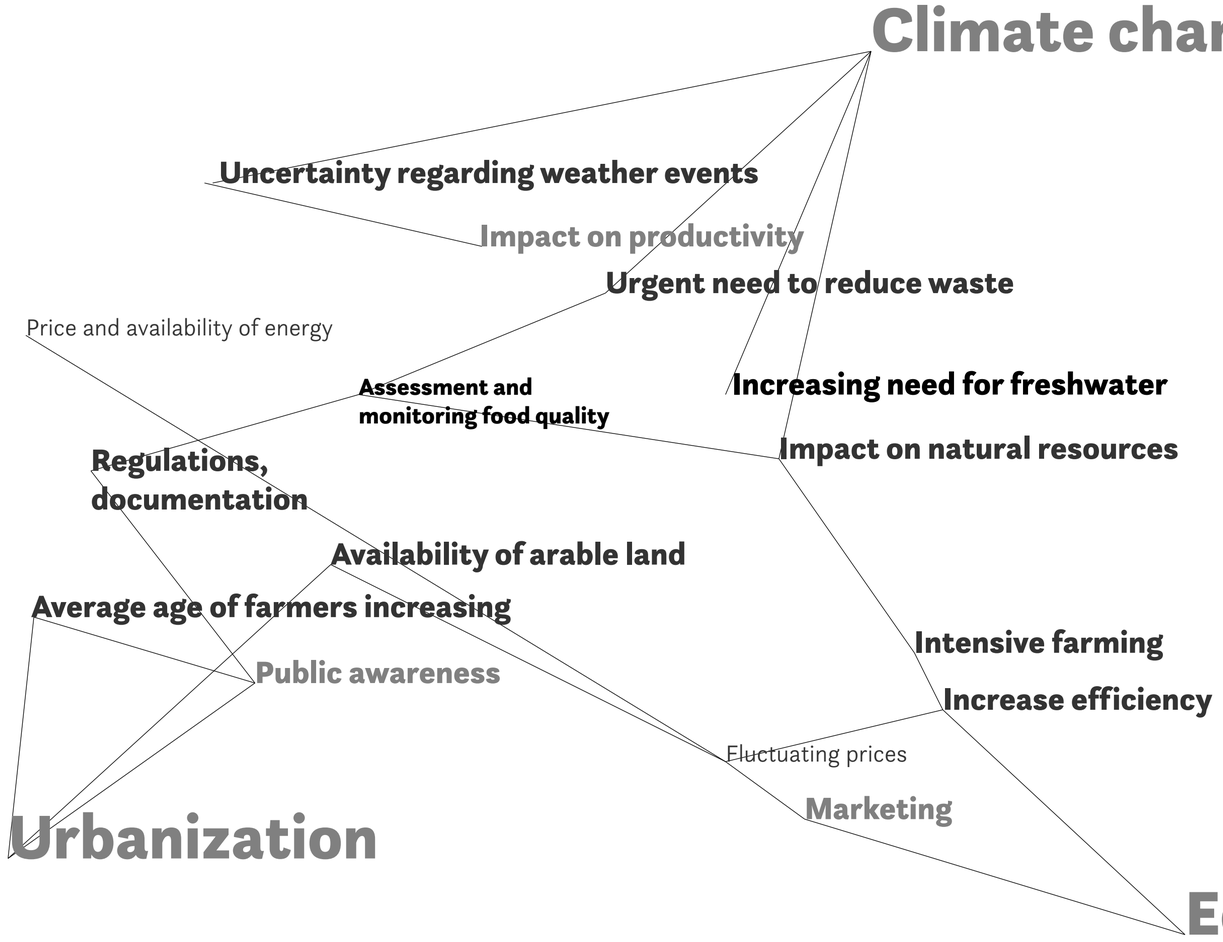

agriculture and farming

complex scenario

When facing the issues concerning the agricoltural practice nowadays, we encounter the amount of correlation among problems that leads us frame it as a **complex problem**.

As a serie of interrelating conditions, these problems are hard to be addressed simptomatically ad call for a **holistic approach.**

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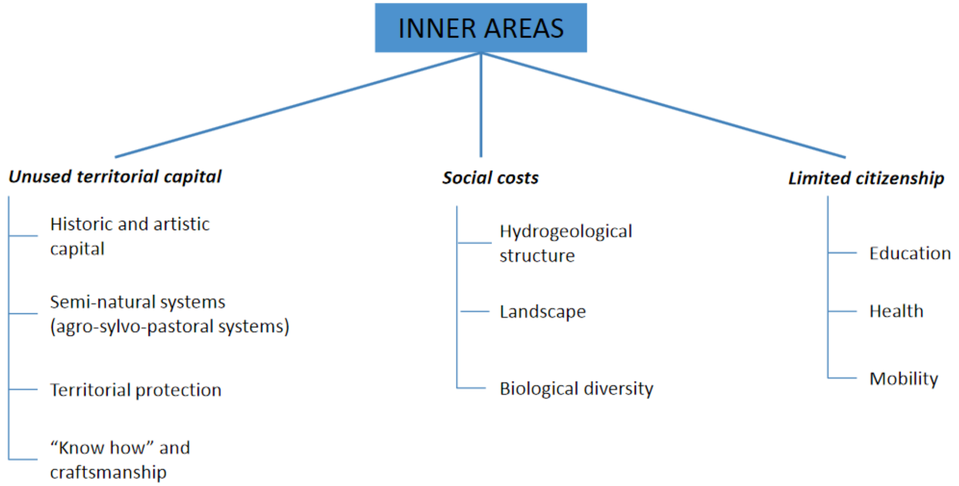
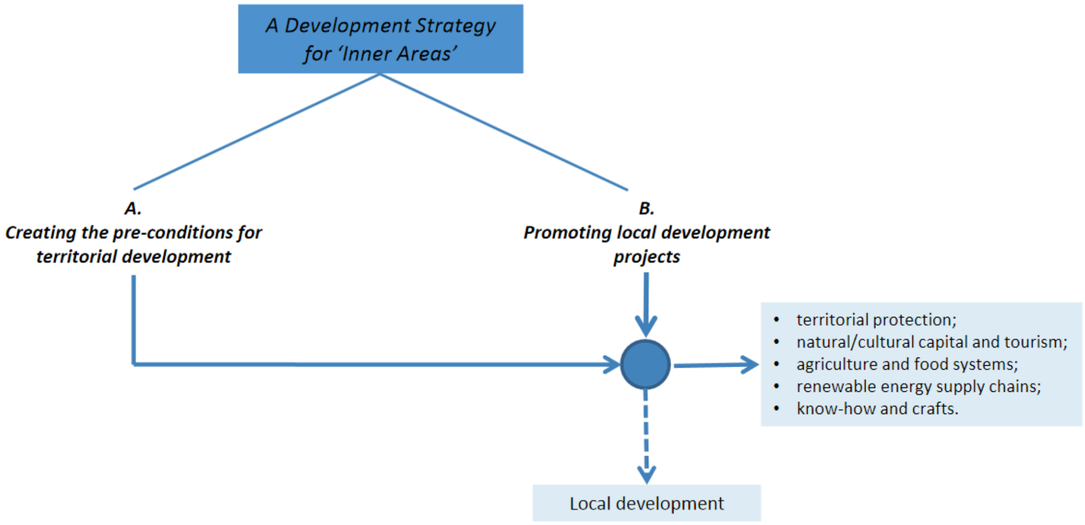


Figure II.3 - A local development strategy



territorial development

inner areas

.local biodiversity

.direct producer consumer relationships

*.policy and governance: **top down** procedures*

*.social, economical and ecological **framing***

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.agricolture
intensive

.tech
monolithic

engineering design innovation

.market driven growth

.mass production

.monocolture

.waste unwise

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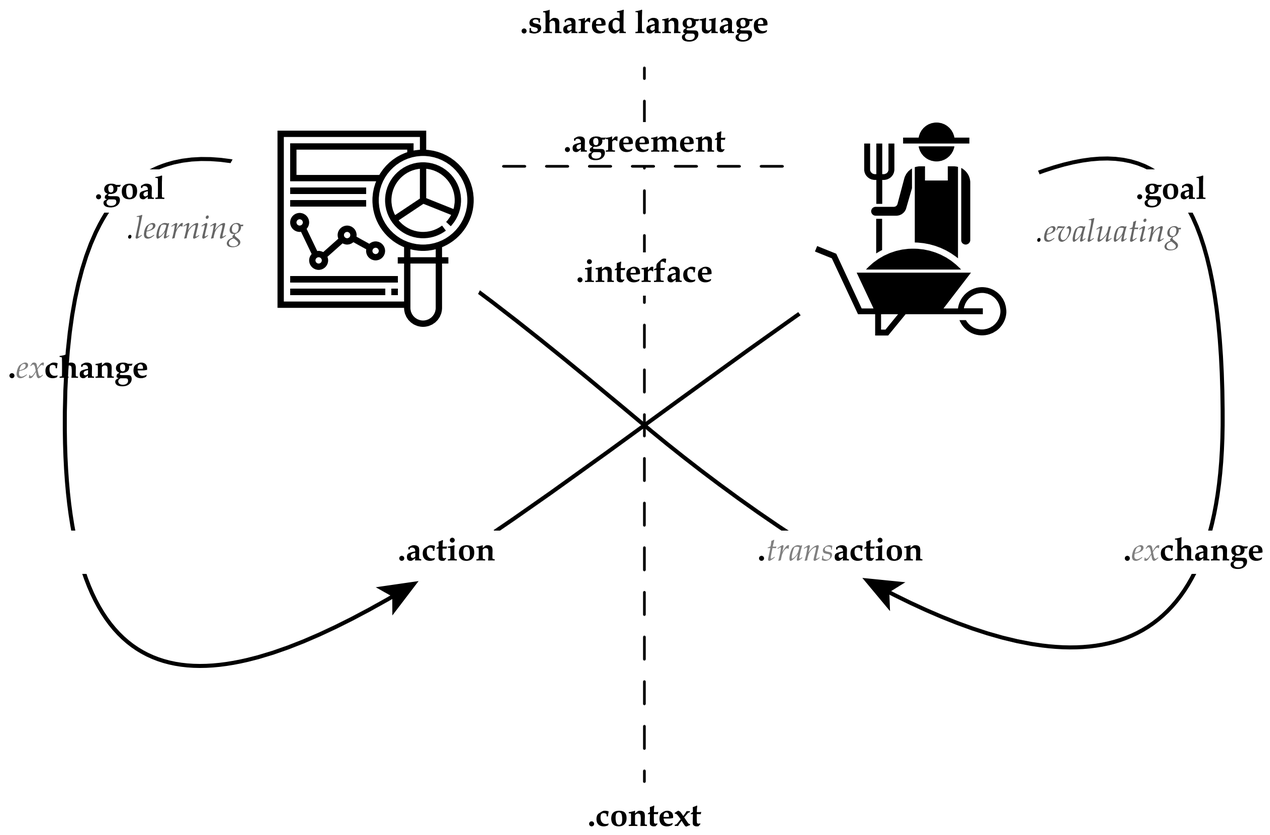

.elicting ***knowledge***

context
lifestile
drivers

conversation theory

second order cybernetics

participatory design

.user engagement

.abstraction

.structure

.purpose explicitation

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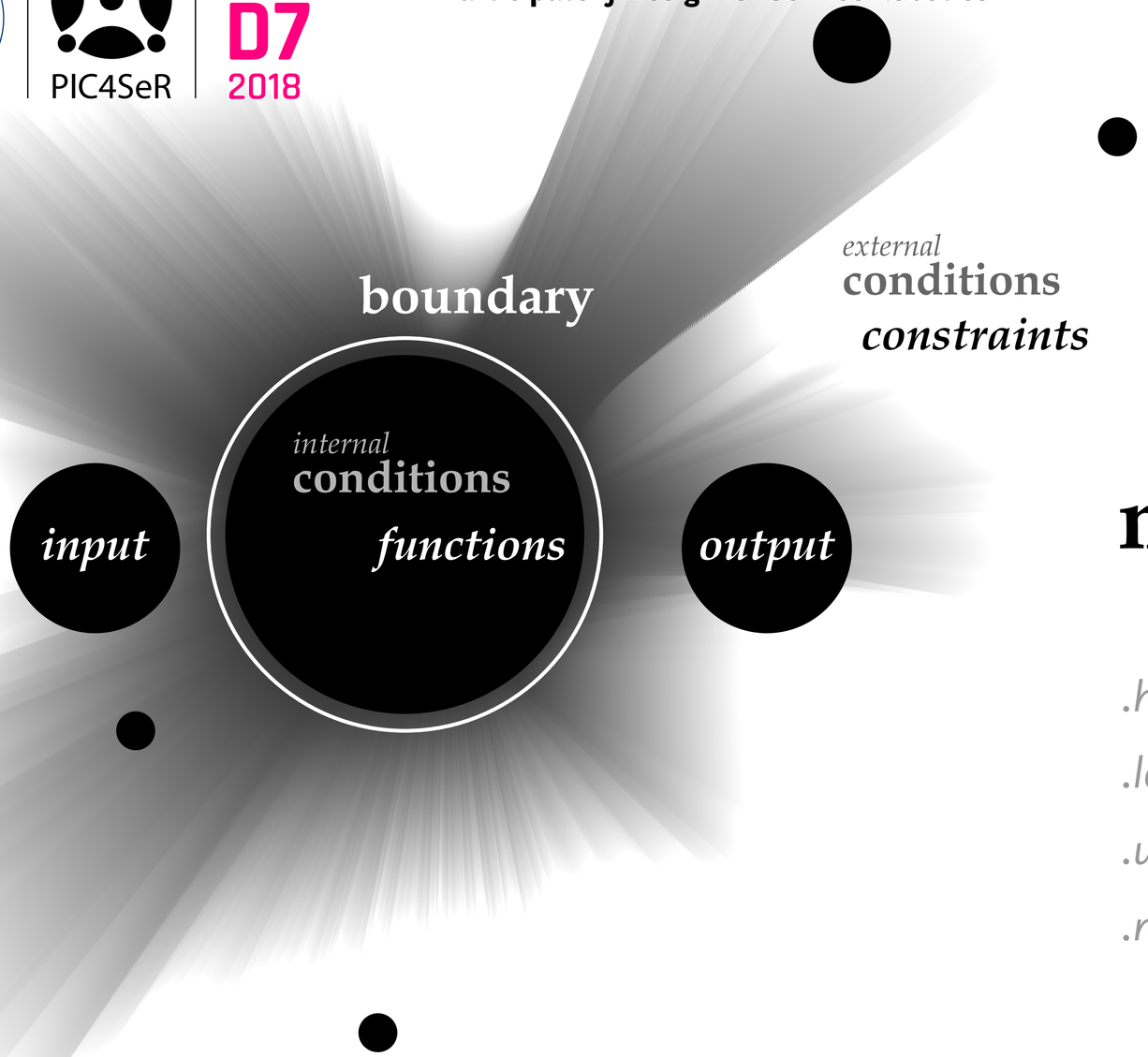

/ˈmɑdjuːl/
noun

each of a set of standardized parts or independent units that can be used to construct a more complex structure, such as an item of furniture or a building.

module interface protocol

.highly interconnected

.lowcost interactions

.unbundling

.natural buffer

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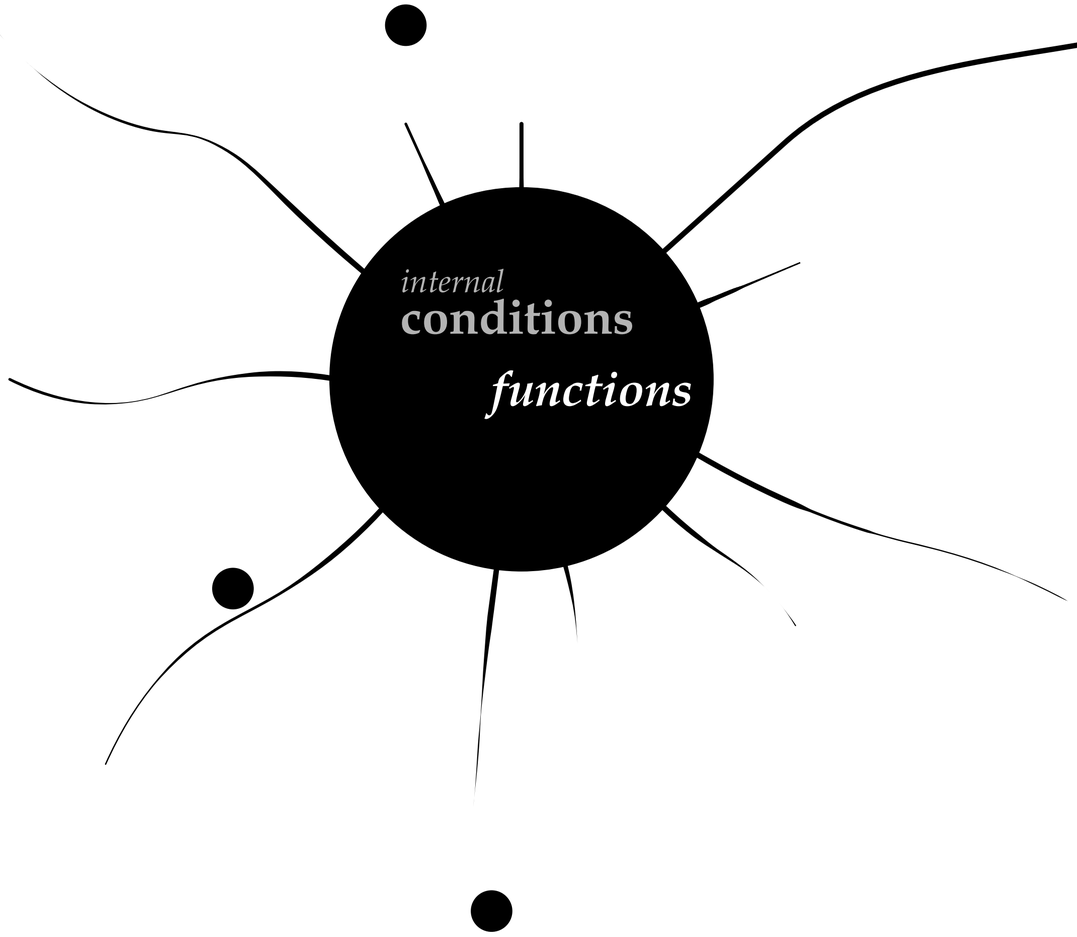
complex problem solving



adaptivity

Elements in the system are almost fully autonomous. Each node contributes to providing the system's infrastructure and maintaining the system. Thus, they require more engagement and responsibility from each node in the ne work but can result in exceptionally robust systems.

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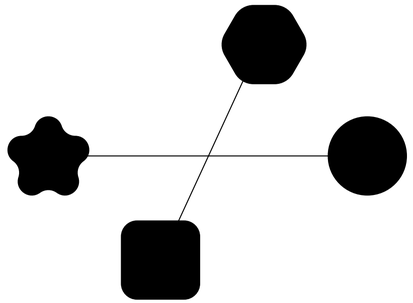
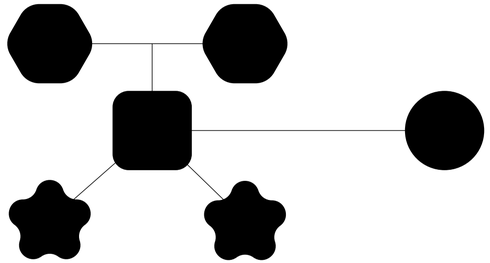
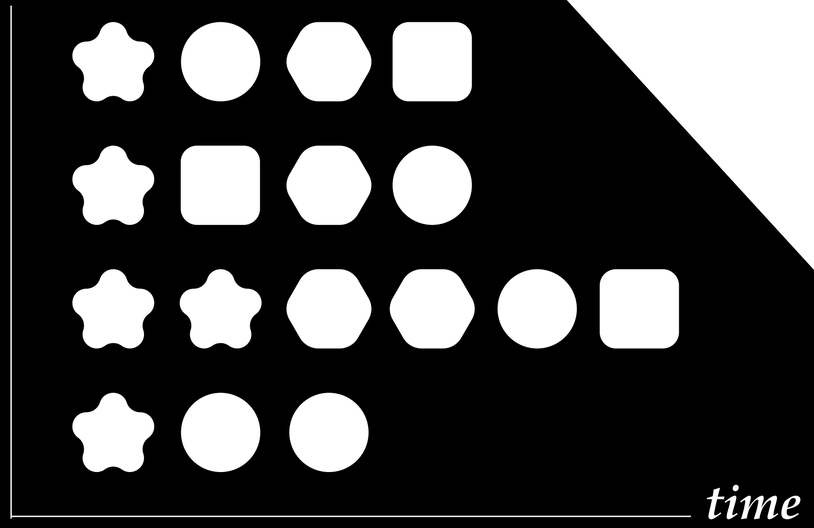


autonomous customization



reconfiguration



adaptivity

In complex adaptive systems, there is always a dynamic between agents and structure, that is, between the elements in the system and he system itself. Understanding this dynamic and the trade-off between being able to control the system vs. harnessing the uncontrollable resources of the users is a key consideration.

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.inner area environment

nested

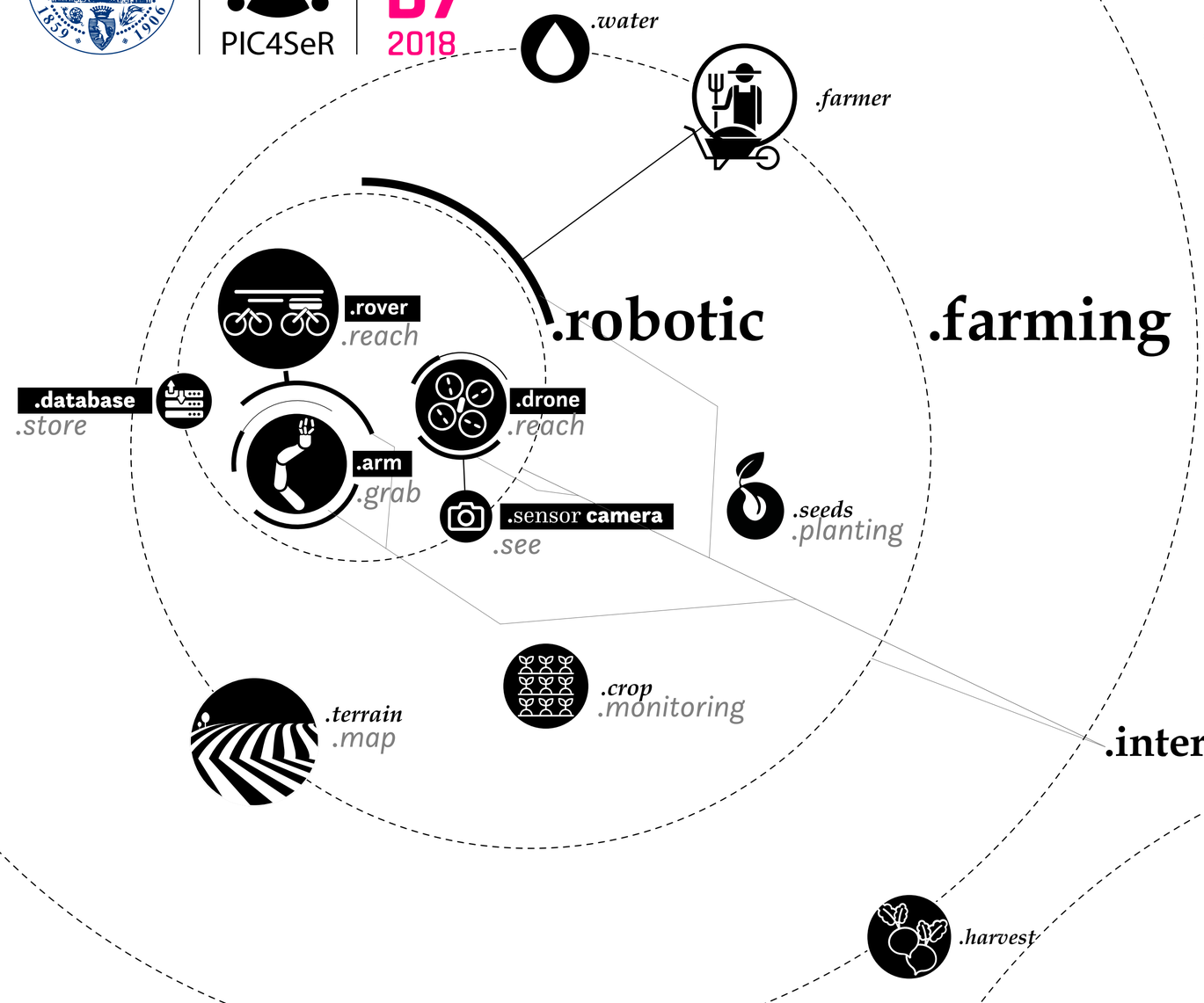
dynamic

socio-tecnical

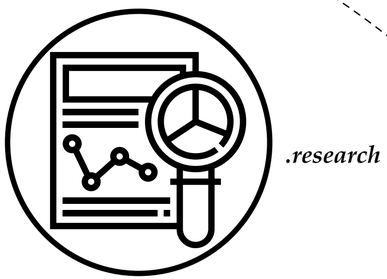
product-service system

innovation

The creation of novel and competitively priced goods, processes, systems, services, and procedures that can satisfy human needs and bring quality of life to all people with a life-cycle wide minimal use of natural resources per unit output, and minimal release of toxic substances.



.urban environment



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top down

environment

organizational regulations

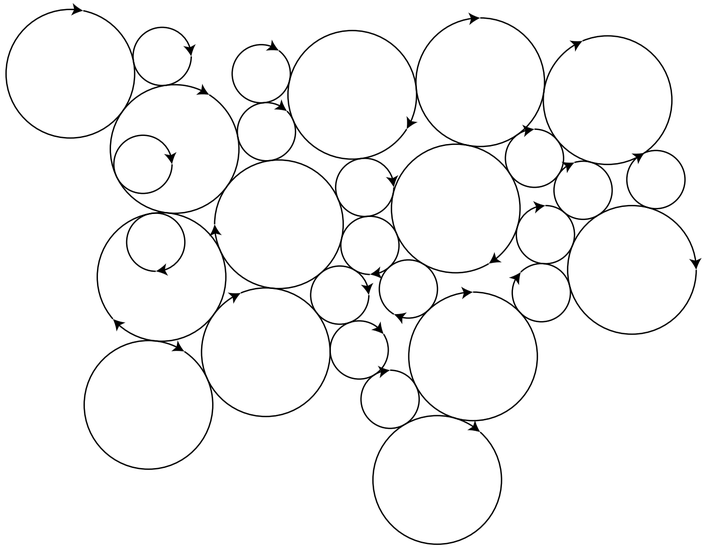
observables

input

income

information

resources



output

new projects

knowledge

goods

observables

subsystems: functions

bottom up

social complex adaptive system

~~innovation~~ emergence

The repeated action of external conditions and internal forces results in emergent behaviors of a complex adaptive sistem. It's social connotation strenghten the creative process also understood as **self-organization**