Design Methods in Systemic Design Research

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System Theory > Design practice.

- **What we're calling systemic design may be unique in its position to an existing body of theory.**
- **Not that we actually use it in practice.**
- **We use *working* theories every day – don't often refer to system (or social theory) in practice.**
- **"Theoretically-informed," taking a pragmatic turn in design work**
- **More likely to borrow the theory inherent in *methods*.**

Before methods, contexts.

- **Systems science has preferred theories for system *description* (explanation), *prediction* (control), & *intervention* (change).**
- **Contributions of modern design disciplines - industrial, information, service design – are marginal at best.**
- **“Design” as problem solving, or a process of system design**
- **Social systems design as a template for design thinking in complex socially-constructed domains.**
- **Which are (in Anthropocene) nearly everything.**

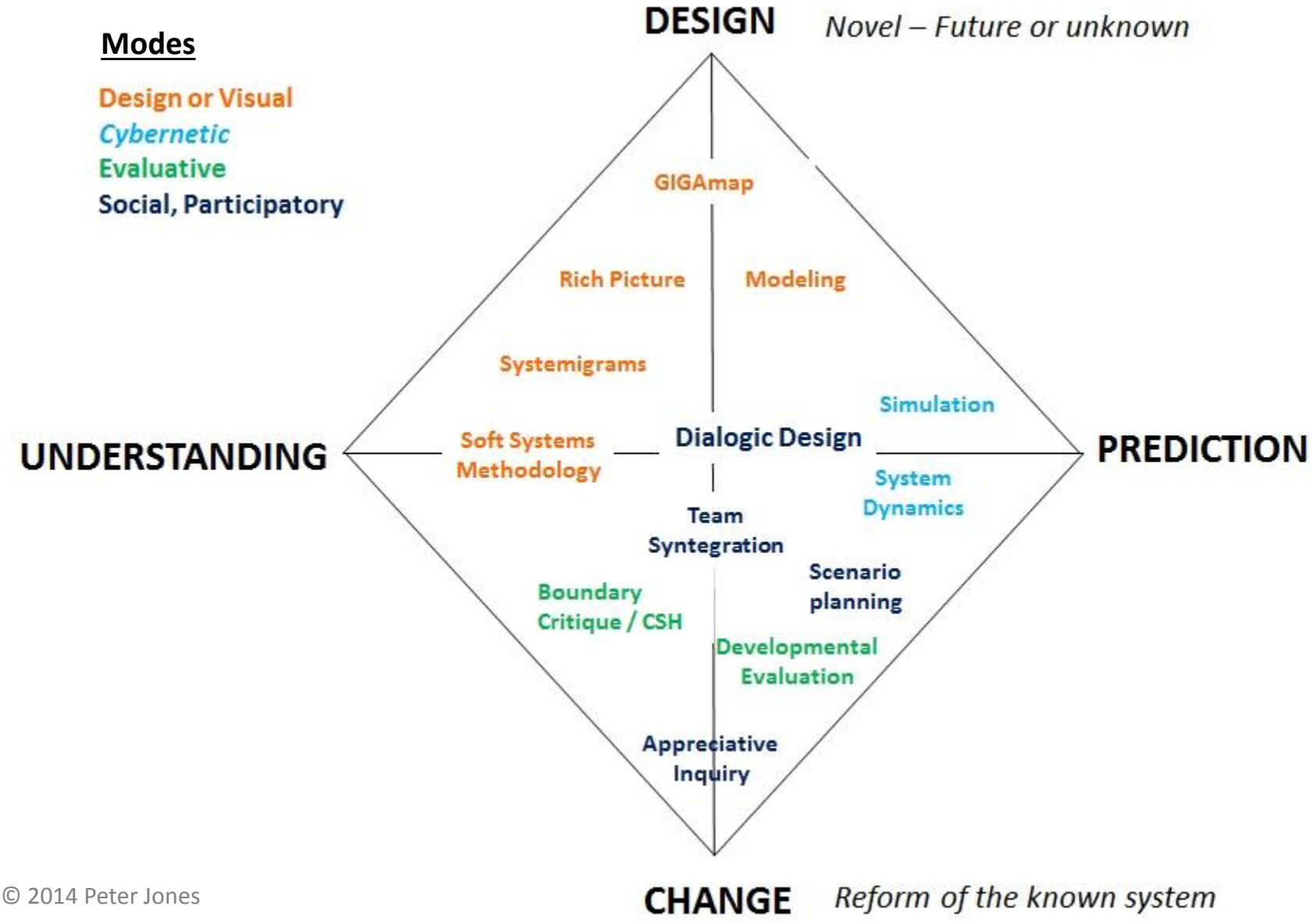
Integrating systems *thinking.*

We tend to adopt system thinking *as method.*

As we did with management practices .

Shortcut theory : Principles > methods

Systemic design methods by intent



10 *Shared* Design Principles

"The primary aim the two systems of thought share today is enabling organized high-leverage action in increasingly complex and systemic problems as design situations."

Design Principle

1. Idealization
2. Appreciating Complexity
3. Purpose finding
4. Boundary framing
5. Requisite variety
6. Feedback coordination
7. System ordering
8. Generative emergence
9. Continuous adaptation
10. Self-organizing

Guidance for complex systems design from systems, cybernetic & complexity principles.

Foundation for practitioners to enhance engagement and evolve better practices.

Elicited from systems theoretic concepts, but no net-new theory.

Elements to form net new frameworks enabling integration of other concepts for specific design contexts.

Jones, P. (2014). ***Systemic design principles for complex social systems.*** In G. Metcalf (ed.), ***Social Systems and Design***, Volume 1 of the Translational Systems Science Series, pp 91-128. Springer Japan.

Design methods associated with principles

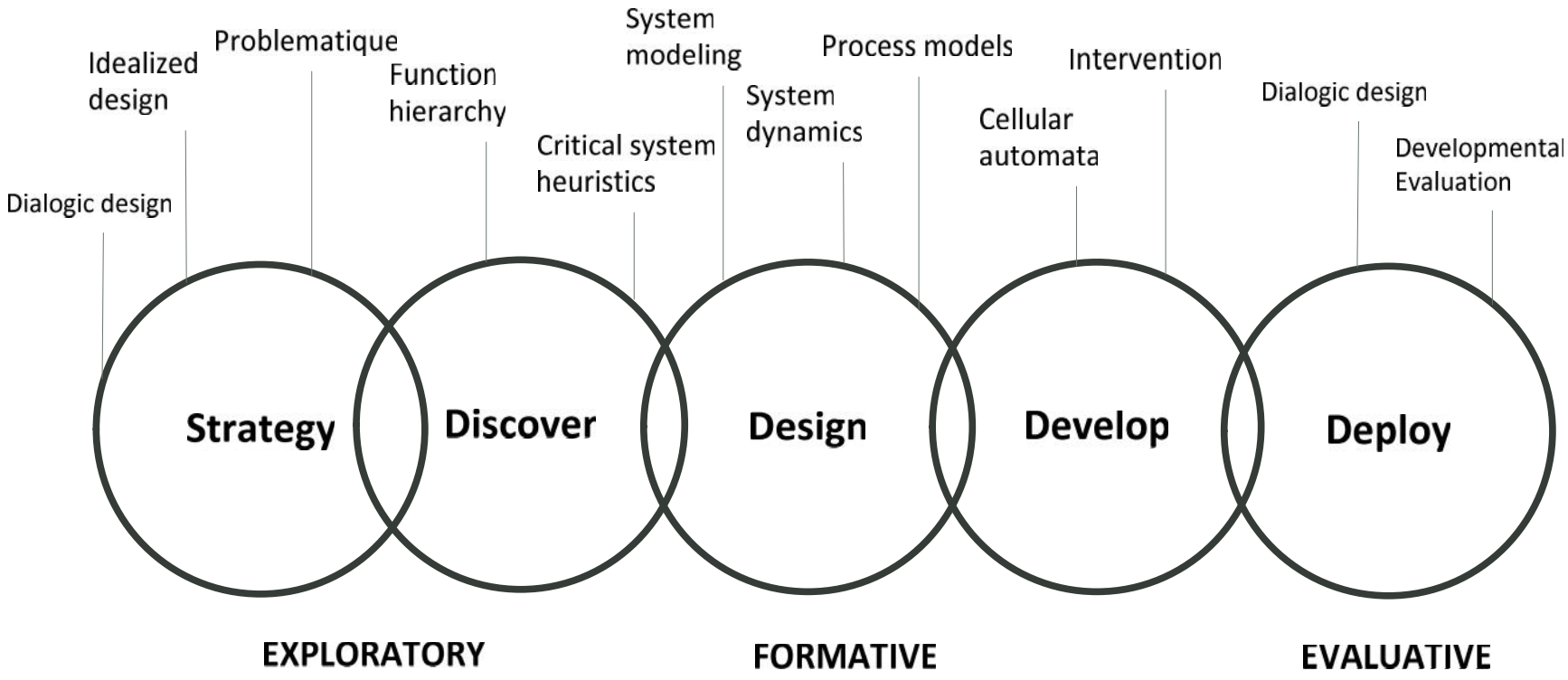
Principle	*Design* Methods
1. Idealization	Framing, Iteration, Backcasting
2. Appreciating Complexity	Sensemaking, System sketching
3. Purpose finding	Inquiry (5 Whys), Prototyping
4. Boundary framing	Critical probes, Strange-making
5. Requisite variety	Co-creation, Function analysis
6. Feedback coordination	Modeling, Interactive Testing
7. System ordering	Structuring, Pattern making
8. Generative emergence	Future creation,
9. Continuous adaptation	Multiple reasoning modes
10. Self-organizing	Co-creation, Facilitated design modes

We might also observe *design of*: Time (4), Space (3), Information (3)

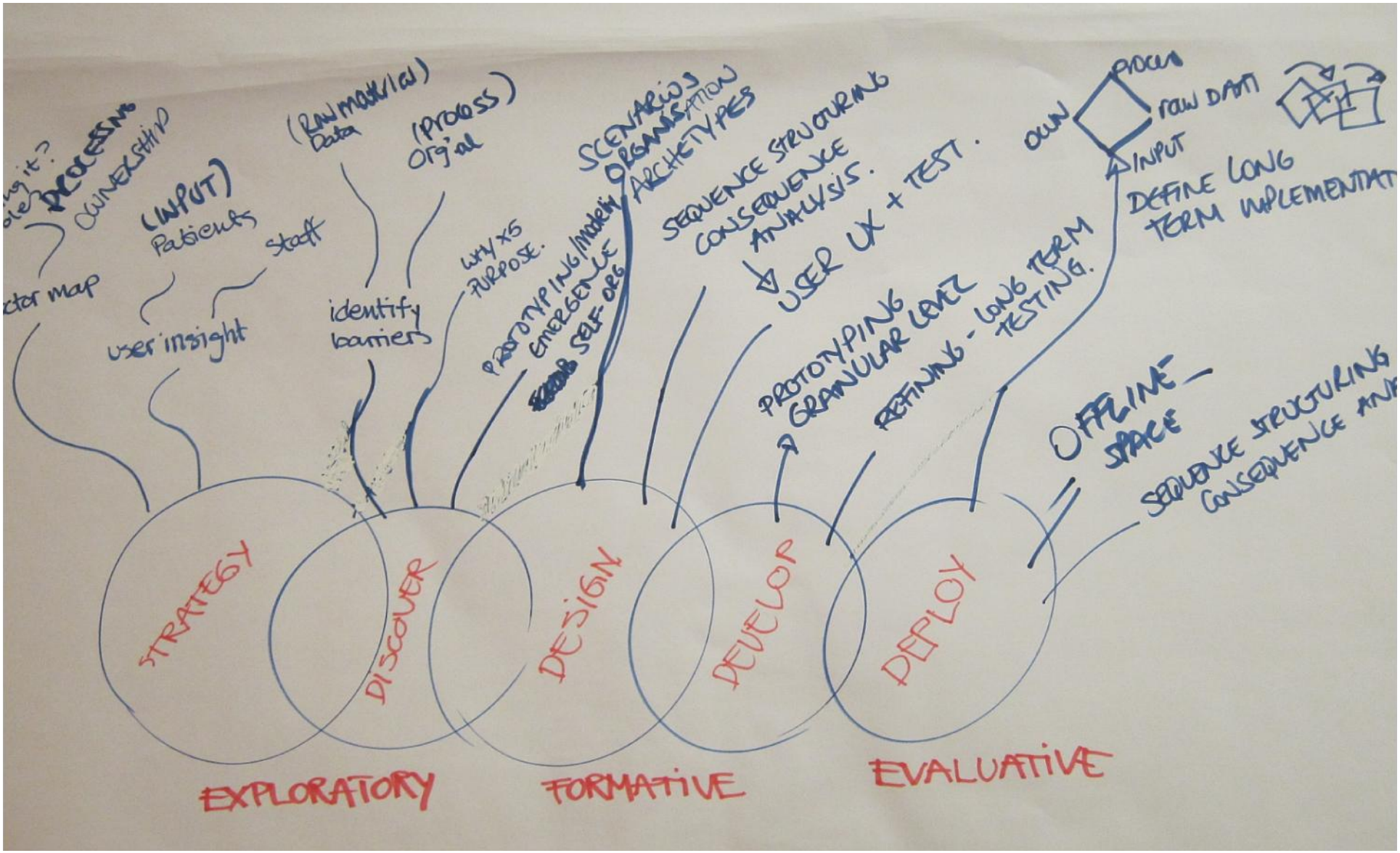
(Some) *systemic methods*

Principle	*Systemic* Methods
1. Idealization	Idealized design
2. Appreciating Complexity	Problematique
3. Purpose finding	Function hierarchy
4. Boundary framing	Critical system heuristics
5. Requisite variety	System modeling
6. Feedback coordination	System dynamics
7. System ordering	Process models
8. Generative emergence	Simulation
9. Continuous adaptation	Intervention (leverage points)
10. Self-organizing	Dialogic design

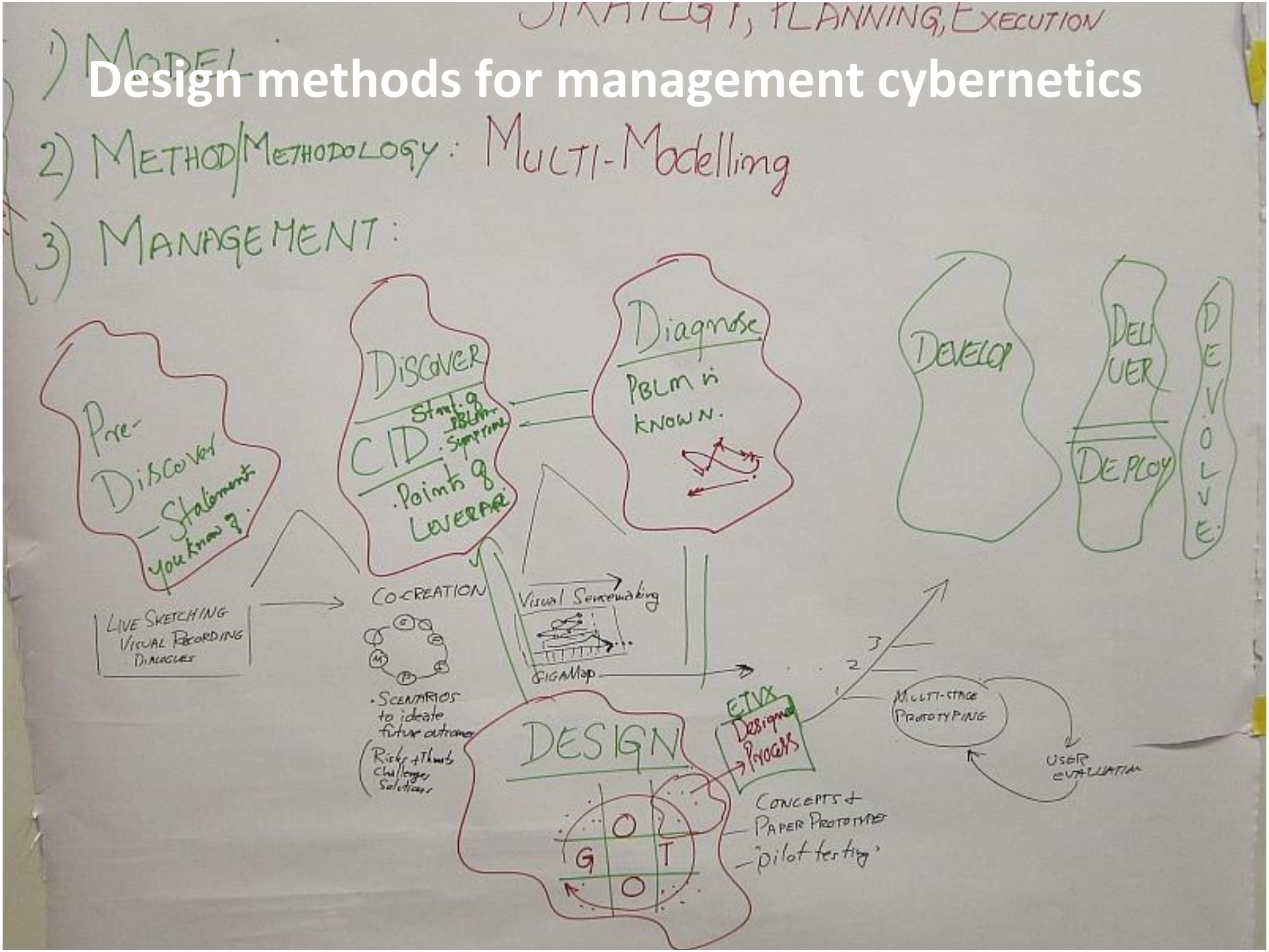
Possible system methods in design process



Open health data in public service



Design methods for management cybernetics



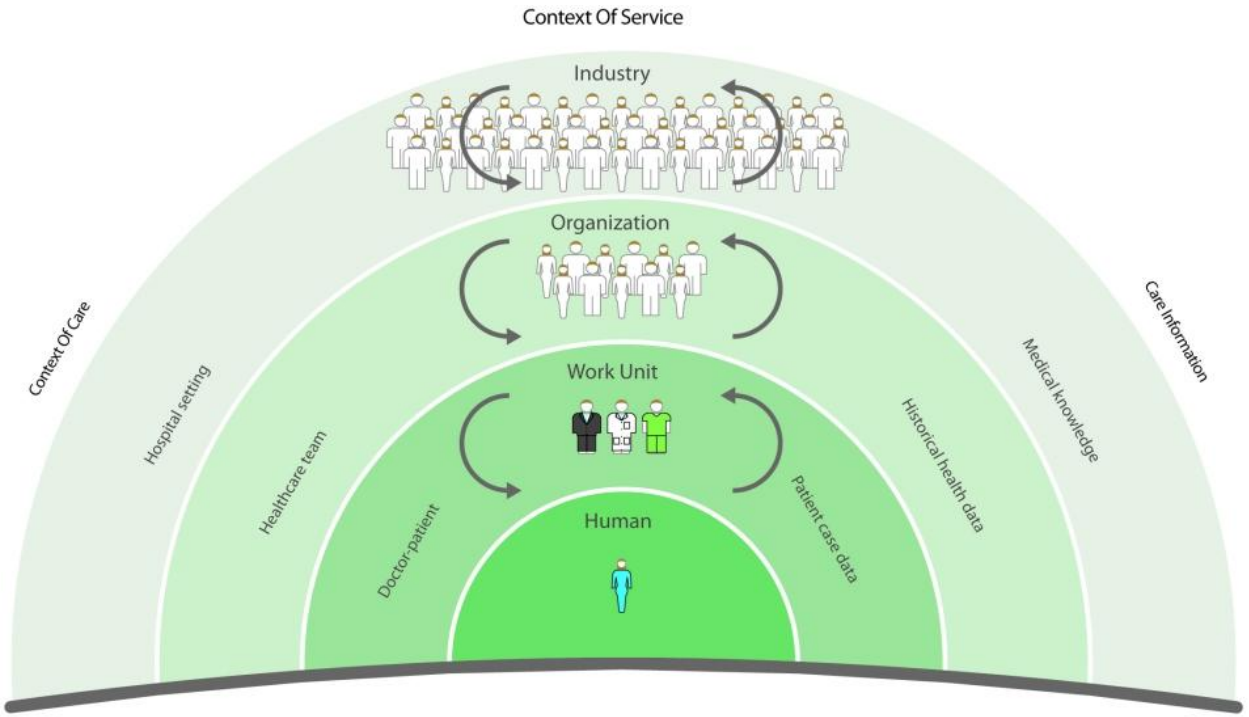
Design / Systems pairs

D4.0 Policy /
Dialogic Design

D3.0 Org Process /
Social Systems, Panarchy

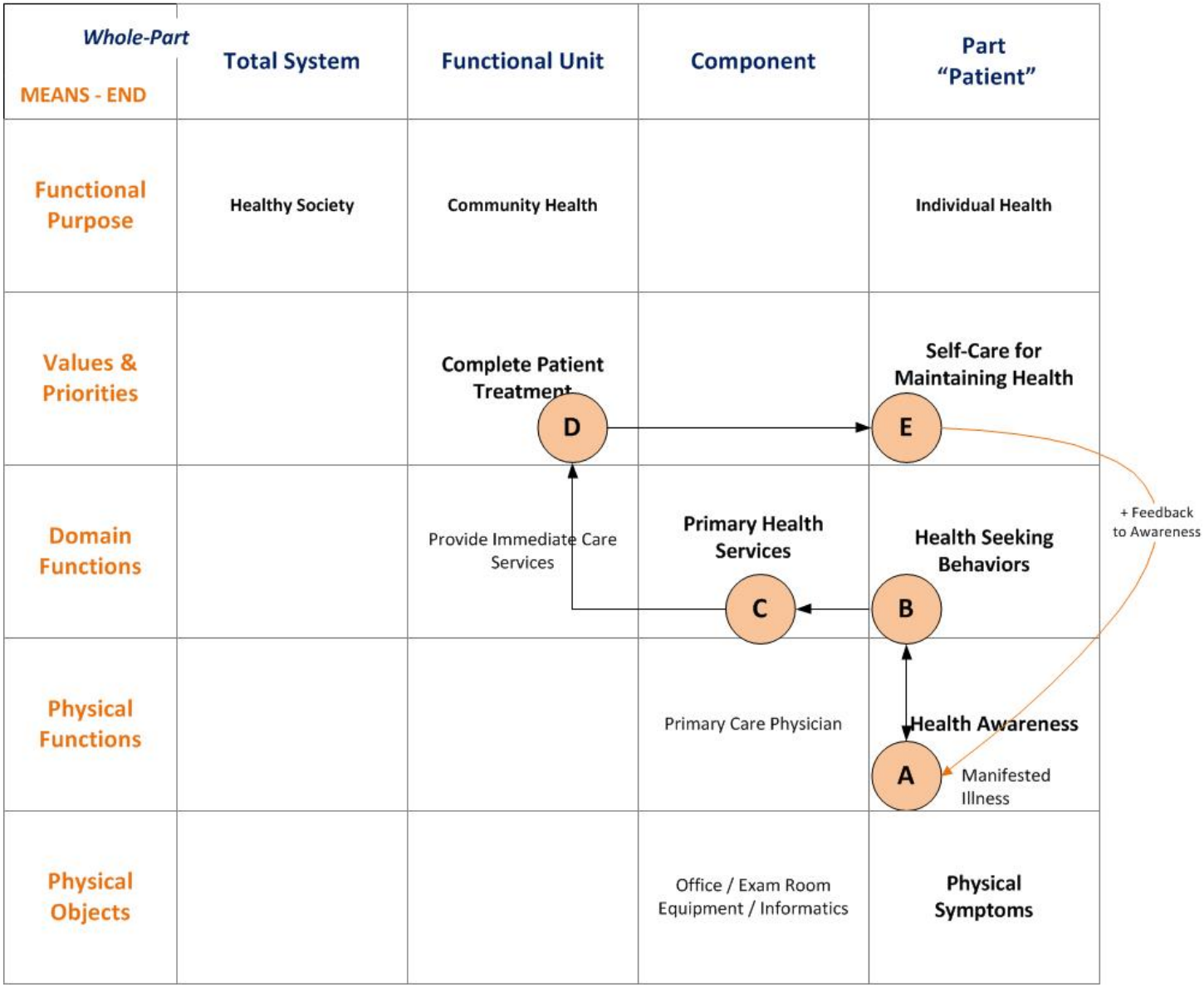
D2.0 Practice & Information /
Service Systems

D1.0-2.0 Product, Comm /
Activity Systems

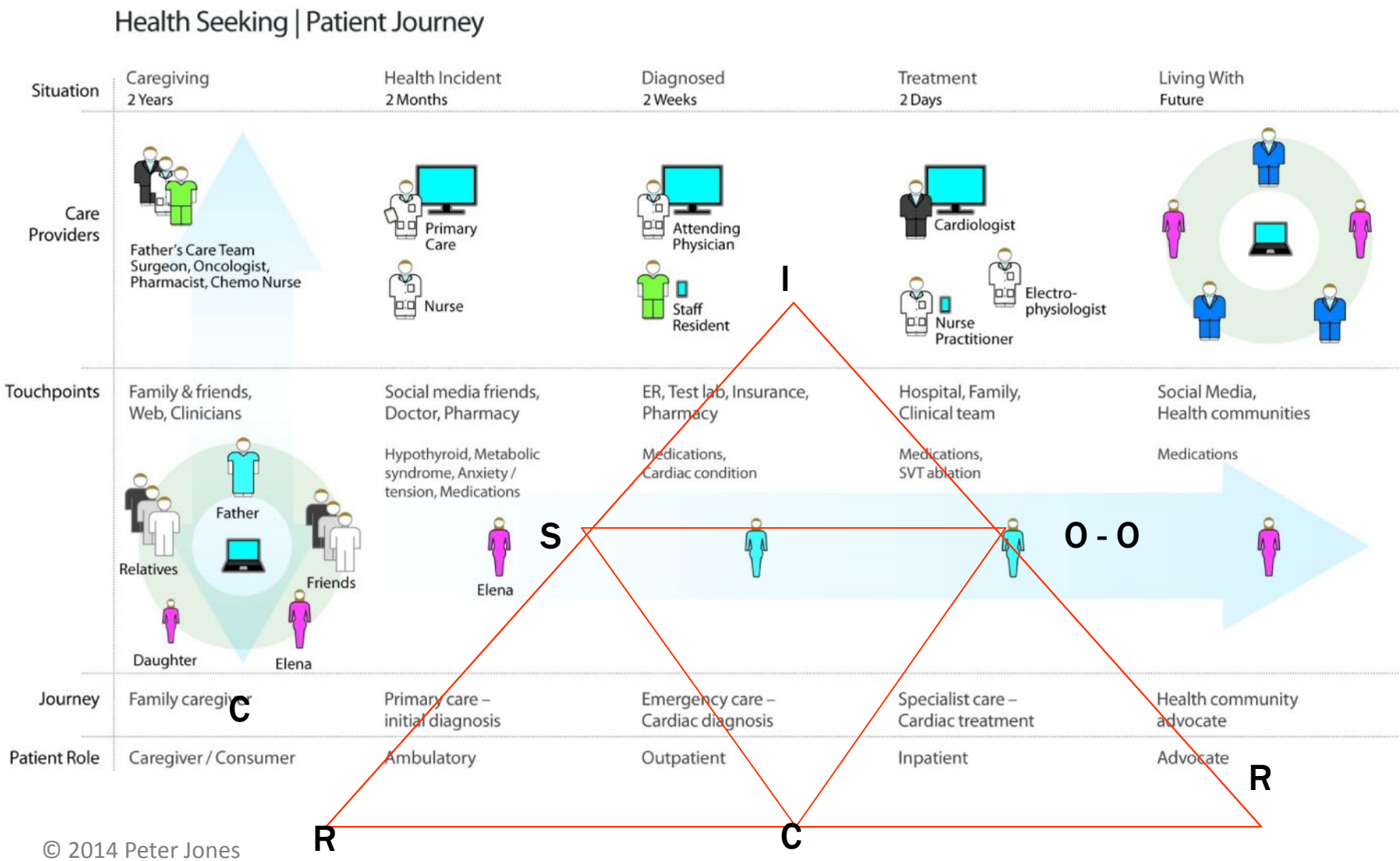


Service System Design / As Work Domain Analysis

What are the Functions of Primary Care in the Healthcare System?

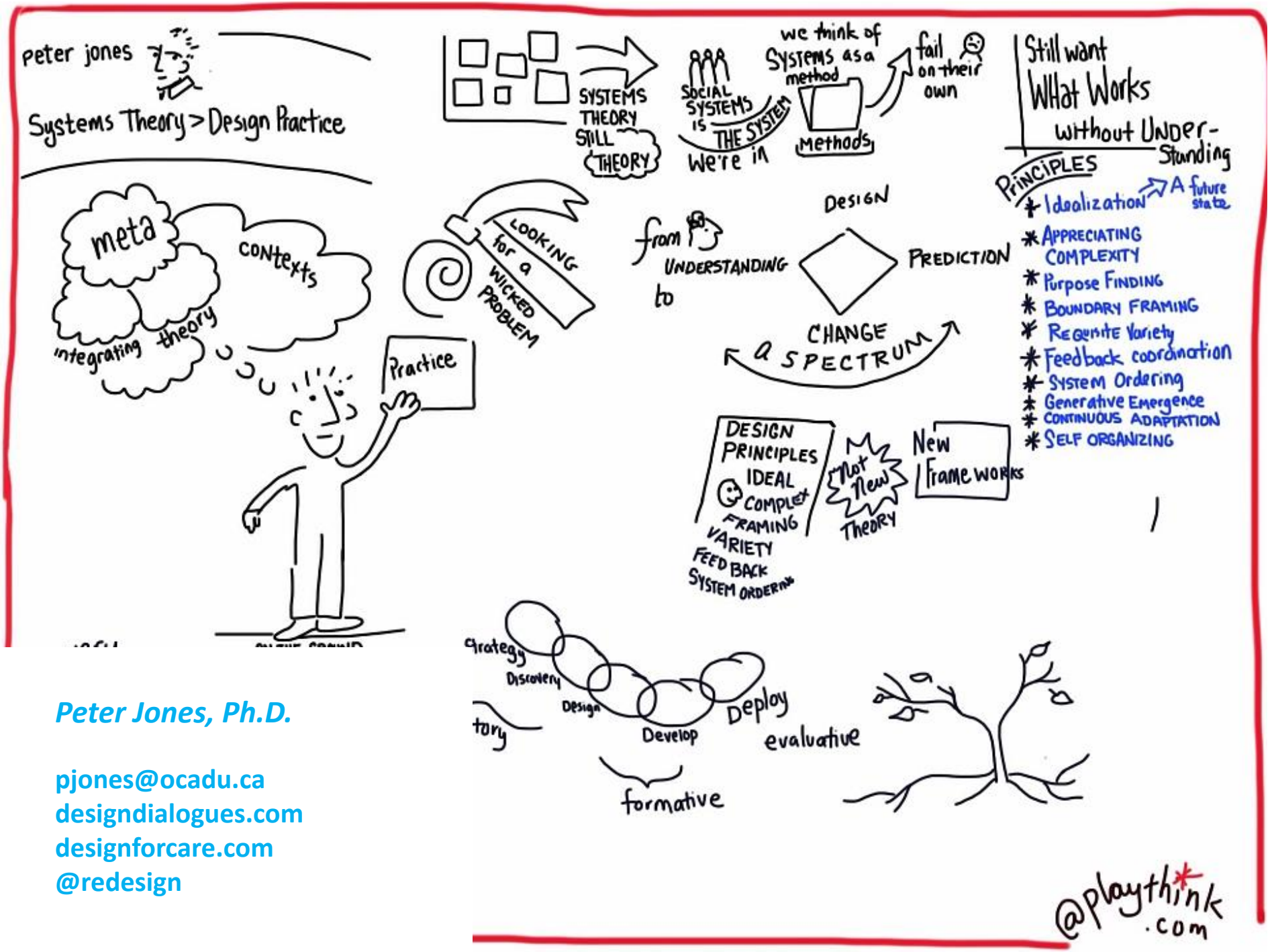


Activity Systems Analysis / as Service Journey



Compatible philosophies, different generations.

Generation:	*First*	*Second*	*Third*	*Fourth*
				Participatory
Philosophy	**Rational 1960's**	**Pragmatic 1970's**	**Phenomenological 1980's**	***Generative* 2000's**
Methods	Movement from craft to standardized methods	Instrumentality, Methods customized to context	Design research and stakeholder methods Design cognition	Generative, empathic & transdisciplinary
Authors & trends	Simon, Fuller Design Science, Planning	Rittel, Jones Wicked problems, Evolution	Schon, Don Norman User-centered & Participatory Design Reflective action	Dubberly, Sanders Generative Design Service Design Systemic design
Systems influences	Sciences, OR Cybernetics	Natural systems System dynamics Systems engineering	System dynamics Social systems Soft systems	Complexity Socio-ecological Dialogic



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