Negotiating Order with Generative Pattern Language:

A workshop at PLoP 2017

David Ing
Aalto University and
the International Society for the Systems Sciences

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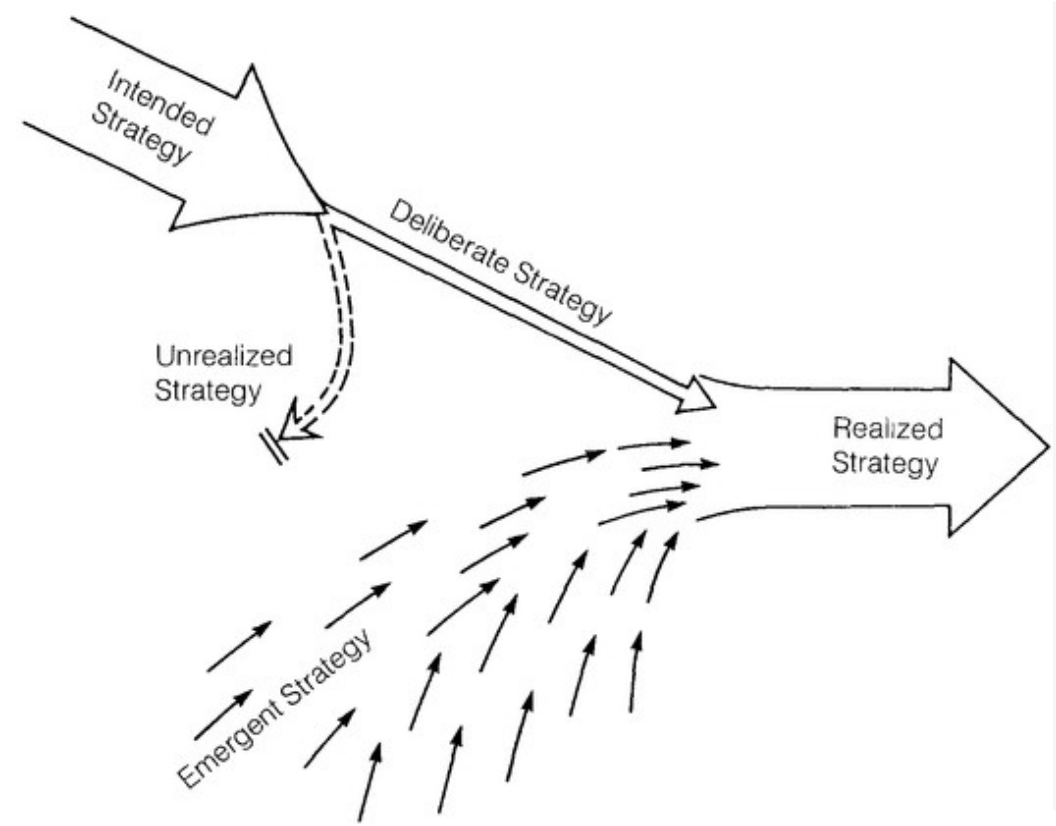
Agenda

1. Ordering: deliberate and emergent
2. [Creating order of ...] + [Negotiating order with ...]
3. Frames of reference:
   matching types of theories with types of ideologies
4. Frames of reference as a dual
5. Ordering, in practice (collaborating on exercises)

“strategy is a pattern – specifically, a pattern in a stream of actions” (Mintzberg 1987)



Intended action ~ realized behaviour

Intended plan
- Deliberate action

Inaction or misguided execution
- Unrealized plans

From or despite preconceived intentions
- Emergent action

Source: Henry Mintzberg. 1987. The Strategy Concept I: Five Ps For Strategy. *California Management Review* 30, 1 (1987), 11–24. DOI:10.2307/41165263

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Two frames originate from contrasting historical contexts

Creating Order Of ...	Negotiating Order With ...

Creating order of … originates with physical geometric structure

Creating Order Of ...

Negotiating Order With ...

The activity we call building creates the physical order of the world, constantly, unendingly, day after day. [….] Our world is dominated by the order we create.[….]

Our present idea of "order" is obscure. [….]

In physics and biology some progress has been made toward understanding the phenomenon of order, and the processes which create order. The creation of living organisms through the morphogenetic process, the creation of matter, the creation of stars and galaxies from nuclear fire, the constant creation by particles by interaction with one another – have been studied in the last seventy years. In these limited cases we now have a rudimentary idea of the way the order-creation works. [….]

… I shall argue, the process of building is an order-creating process of no less importance that those of physics and biology. (Alexander 2002, 10:1)

[When] I really ask myself "what is order" – in the sense of deep geometric reality, deep enough so that I can use it, and so that it is able to help me create life in a building – then it turns out that this "order" is very difficult to define.

[….] Perhaps one of the clearest statements so far has been expressed by the physicist David Bohm.

Bohm tried to outline a possible theory in which order types of many levels exist and are built of hierarchies of progressively more complex order types.

But *none* of this, suggestive as it all is, is directly useful to a builder (Alexander 2002, 10:10).

We were always looking for the capacity of a pattern language to generate coherence, and that was the most vital test used, again and again, during the process of creating a language. The language was always seen as a whole. We were looking for the extent to which, as a whole, a pattern language would produce a coherent entity.

Have you done that in software pattern theory? Have you asked whether a particular system of patterns, taken as a system, will generate a coherent computer program? If so, I have not yet heard about that. But, the point is, that is what we were looking for all the time. Again, I have no idea to what extent that is true for you and whether you are looking for the same thing when you work on software patterns (Alexander 1999, 75).

Negotiating order with … originates with institutions and social worlds

Creating Order Of ...

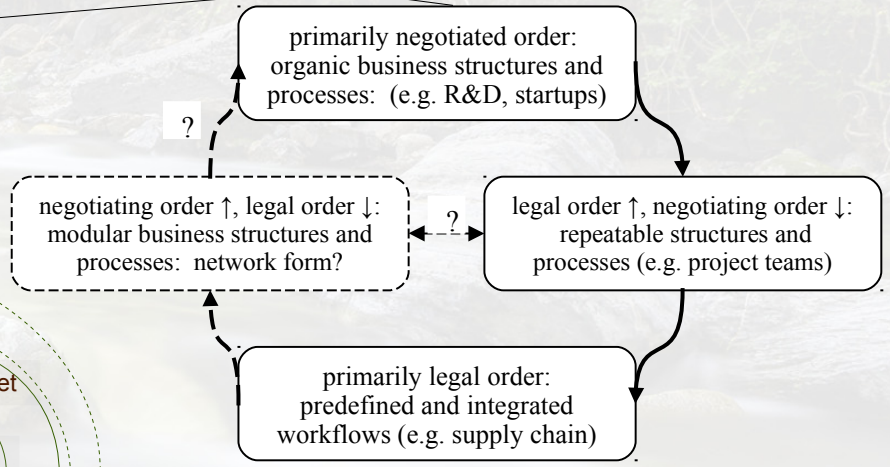
Negotiating Order With ...

1. We stated that **social order was negotiated order**: in the organizations studied, apparently there could be no organizational relationships without accompanying negotiations.
2. Specific negotiations seemed contingent on specific structural conditions: who negotiated with whom, when, and about what. So the negotiations were patterned, not accidental. They could be studied in terms of their conditions, character, and consequences for persons and organizations.
3. The products of negotiation (contracts, understandings, agreements, "rules," and so forth) all had temporal limits, for eventually they would be reviewed, reevaluated, revised, revoked, or renewed.
4. Negotiated order had to be worked at, and the bases of concerted action needed to be continually reconstituted. [….]

5. [….] 6. [….] 7. [….] 8. [....]

(Strauss 1978, 5–6).

Levels of interorganizational fields (Nathan and Mitroff (1991)



Changing emphases in negotiated order and legal order (Parhankangas, Ing, Hawk et. al. 2005)

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Six general elements constitute a Frame of Reference (table template)

Element of Frame of Reference
1. Cognitive elements
2. Cognitive operators
3. Reality tests
4. Domain of inquiry
5. Degree of articulation
6. Metaphors

Source: Paul Shrivastava and Ian I. Mitroff. 1984. Enhancing Organizational Research Utilization: The Role of Decision Makers' Assumptions. *Academy of Management Review* 9, 1 (1984), 18–26. DOI:10.5465/AMR.1984.4277749

Six general elements constitute a Frame of Reference (row 1 of 6)

Element of Frame of Reference	
1. Cognitive elements	"constitute the most basic units of a person's belief system. They include, among other things, cognitive categories and bits of data that are taken for granted or regarded as so basic that they are beyond doubt. These primitive cognitive elements may be regarded as the fundamental units of information that support a person's inquiring system or concept of the world".
2. Cognitive operators	
3. Reality tests	
4. Domain of inquiry	
5. Degree of articulation	
6. Metaphors	

Six general elements constitute a Frame of Reference (row 2 of 6)

Element of Frame of Reference	
1. Cognitive elements	
2. Cognitive operators	"refer to the methods by which individuals order and rearrange and make meaning out of large amounts of data. Cognitive operators include classification schemes, models, analytical devices, and common sense theories with which individuals approach inquiry".
3. Reality tests	
4. Domain of inquiry	
5. Degree of articulation	
6. Metaphors	

Six general elements constitute a Frame of Reference (row 3 of 6)

Element of Frame of Reference	
1. Cognitive elements	
2. Cognitive operators	
3. Reality tests	"guarantee or validate the "realness" of cognitive elements, cognitive operators, and knowledge or information itself. They validate knowledge and process of inquiry by expressing symbolically their legitimating connection with critical, shared, social, and cultural experiences. Collective social and cultural experiences form the basis of these reality tests".
4. Domain of inquiry	
5. Degree of articulation	
6. Metaphors	

Six general elements constitute a Frame of Reference (row 4 of 6)

Element of Frame of Reference	
1. Cognitive elements	
2. Cognitive operators	
3. Reality tests	
4. Domain of inquiry	"refers not to the limits of a specific instance of inquiry, but to the limits on the entire set of cognitive maps that individuals use in inquiry in generation. The breadth of inquiry is a function of individuals' knowledge base and their appreciation of alternative reference frames, that is, their reflexivity in inquiry".
5. Degree of articulation	
6. Metaphors	

Six general elements constitute a Frame of Reference (row 5 of 6)

Element of Frame of Reference	
1. Cognitive elements	
2. Cognitive operators	
3. Reality tests	
4. Domain of inquiry	
5. Degree of articulation	"refers to the degree to which the assumption in the other four element have been articulated and codified. It also reflects the degree to which the individual's FOR will be and can be shared by others".
6. Metaphors	

Six general elements constitute a Frame of Reference (row 6 of 6)

Element of Frame of Reference	
1. Cognitive elements	
2. Cognitive operators	
3. Reality tests	
4. Domain of inquiry	
5. Degree of articulation	
6. Metaphors	"embedded in the language and jargon used by individuals … permit the symbolical reconstruction of the organizational world in meaningful ways. They go beyond being mere embellishments of language by stimulating the understanding of assumptions through a creative process of comparison and crossing of images …. They describe unnameable characteristics of an individual's FOR by drawing implicit analogies with known objects and experiences, thereby explicating and clarifying obscure and nebulous aspects of FOR"

Six general elements constitute a Frame of Reference (summary)

Element of Frame of Reference	
1. Cognitive elements	"constitute the most basic units of a person's belief system. They include, among other things, cognitive categories and bits of data that are taken for granted or regarded as so basic that they are beyond doubt. These primitive cognitive elements may be regarded as the fundamental units of information that support a person's inquiring system or concept of the world".
2. Cognitive operators	"refer to the methods by which individuals order and rearrange and make meaning out of large amounts of data. Cognitive operators include classification schemes, models, analytical devices, and common sense theories with which individuals approach inquiry".
3. Reality tests	"guarantee or validate the "realness" of cognitive elements, cognitive operators, and knowledge or information itself. They validate knowledge and process of inquiry by expressing symbolically their legitimating connection with critical, shared, social, and cultural experiences. Collective social and cultural experiences form the basis of these reality tests".
4. Domain of inquiry	"refers not to the limits of a specific instance of inquiry, but to the limits on the entire set of cognitive maps that individuals use in inquiry in generation. The breadth of inquiry is a function of individuals' knowledge base and their appreciation of alternative reference frames, that is, their reflexivity in inquiry".
5. Degree of articulation	"refers to the degree to which the assumption in the other four element have been articulated and codified. It also reflects the degree to which the individual's FOR will be and can be shared by others".
6. Metaphors	"embedded in the language and jargon used by individuals … permit the symbolical reconstruction of the organizational world in meaningful ways. They go beyond being mere embellishments of language by stimulating the understanding of assumptions through a creative process of comparison and crossing of images …. They describe unnameable characteristics of an individual's FOR by drawing implicit analogies with known objects and experiences, thereby explicating and clarifying obscure and nebulous aspects of FOR"

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A straw man: differences and complements? (table template)

Element of Frame of Reference	*Creating Order Of – Frame of Reference*	*Negotiating Order With – Frame of Reference*
1. Cognitive elements		
2. Cognitive operators		
3. Reality tests		
4. Domain of inquiry		
5. Degree of articulation		
6. Metaphors		

A straw man: differences and complements? (row 1 of 6)

Element of Frame of Reference	*Creating Order Of – Frame of Reference*	*Negotiating Order With – Frame of Reference*
1. Cognitive elements	Primacy for a kit of parts, each pattern as a rule which describes what you have to do to generate the entity which it defines. Intellectual commitment towards wholeness, beauty and/or quality-without-a-name in a common pattern language across a group or a community.	Primacy for engagement with constituents, and adjusting plans situated in reality rather than modeled. Intellectual commitment to piecemeal growth, sequencing from broad primary features down through detailed secondary features.
2. Cognitive operators		
3. Reality tests		
4. Domain of inquiry		
5. Degree of articulation		
6. Metaphors		

A straw man: differences and complements? (row 2 of 6)

Element of Frame of Reference	*Creating Order Of – Frame of Reference*	*Negotiating Order With – Frame of Reference*
1. Cognitive elements		
2. Cognitive operators	Synthesizing form as assembling patterns from a semi-lattice structure toward generating a coherent whole. Converging on a collective subjective judgement that one configuration is superior to another (e.g. Turkish carpets)	Reviewing and adjusting pattern language with the wide variety of stakeholders, towards explicit approval. Fitting centers on the faster pacing layers (e.g. the buildings) on the slower pacing layers (e.g. the land)
3. Reality tests		
4. Domain of inquiry		
5. Degree of articulation		
6. Metaphors		

A straw man: differences and complements? (row 3 of 6)

Element of Frame of Reference	*Creating Order Of – Frame of Reference*	*Negotiating Order With – Frame of Reference*
1. Cognitive elements		
2. Cognitive operators		
3. Reality tests	Materially (hard) empirically observable and experimentally verifiable proofs. Superiority as consensus amongst experts.	Non-materially (soft) pragmatic value, liveability, maintainability over time. Enjoyment by beneficiaries / occupants / users.
4. Domain of inquiry		
5. Degree of articulation		
6. Metaphors		

A straw man: differences and complements? (row 4 of 6)

Element of Frame of Reference	*Creating Order Of – Frame of Reference*	*Negotiating Order With – Frame of Reference*
1. Cognitive elements		
2. Cognitive operators		
3. Reality tests		
4. Domain of inquiry	Ranges of contexts where experiences with desirable features have proven historically successful and replicable.	Situated conditions on which the work is platformed, priorities and preferences of the specific client.
5. Degree of articulation		
6. Metaphors		

A straw man: differences and complements? (row 5 of 6)

Element of Frame of Reference	*Creating Order Of – Frame of Reference*	*Negotiating Order With – Frame of Reference*
1. Cognitive elements		
2. Cognitive operators		
3. Reality tests		
4. Domain of inquiry		
5. Degree of articulation	High explicit articulation of a pattern language that forms rules for design, construction and maintenance. Low implicit articulation of pattern language methods, transmission through apprenticeship	Low implicit articulation of criteria for evaluation, client can refine preferences as appreciation deepens. High explicit articulation of desirable organizational and individual practices in iterative and/or cyclical procedures.
6. Metaphors		

A straw man: differences and complements? (row 6 of 6)

Element of Frame of Reference	*Creating Order Of – Frame of Reference*	*Negotiating Order With – Frame of Reference*
1. Cognitive elements		
2. Cognitive operators		
3. Reality tests		
4. Domain of inquiry		
5. Degree of articulation		
6. Metaphors	Timeless way, holism, aesthetics.	Living system, harmony, sequences.

A straw man: differences and complements? (summary of 6)

Element of Frame of Reference	*Creating Order Of – Frame of Reference*	*Negotiating Order With – Frame of Reference*
1. Cognitive elements	Primacy for a kit of parts, each pattern as a rule which describes what you have to do to generate the entity which it defines. Intellectual commitment towards wholeness, beauty and/or quality-without-a-name in a common pattern language across a group or a community.	Primacy for engagement with constituents, and adjusting plans situated in reality rather than modeled. Intellectual commitment to piecemeal growth, sequencing from broad primary features down through detailed secondary features.
2. Cognitive operators	Synthesizing form as assembling patterns from a semi-lattice structure toward generating a coherent whole. Converging on a collective subjective judgement that one configuration is superior to another (e.g. Turkish carpets)	Reviewing and adjusting pattern language with the wide variety of stakeholders, towards explicit approval. Fitting centers on the faster pacing layers (e.g. the buildings) on the slower pacing layers (e.g. the land)
3. Reality tests	Materially (hard) empirically observable and experimentally verifiable proofs. Superiority as consensus amongst experts.	Non-materially (soft) pragmatic value, liveability, maintainability over time. Enjoyment by beneficiaries / occupants / users.
4. Domain of inquiry	Ranges of contexts where experiences with desirable features have proven historically successful and replicable.	Situated conditions on which the work is platformed, priorities and preferences of the specific client.
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6. Metaphors	Timeless way, holism, aesthetics.	Living system, harmony, sequences.

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1985 Eishin Project – Creating Order Of, Negotiating Order With (template)

Activities	*Creating Order Of – F.O.R.*	*Negotiating Order With – F.O.R.*
1. Interview on hopes and dreams		
2. Make a “poetic vision” as first sketch of a pattern language		
3. Make the rudimentary pattern language physically coherent		
4. Refine the language through discussions		
5. Obtain approval of the pattern language		
6. Renegotiate pattern language with space and money within budget		
7. Find systems of centers in (i) the pattern language, and (ii) the places in the land. Combine them.		
8. Adjust the site plan on the site itself (not on models)		

Source: Christopher Alexander. 2012. *The Battle for the Life and Beauty of the Earth: A Struggle Between Two World-Systems*, Oxford University Press.

1985 Eishin Project – Creating Order Of, Negotiating Order With (row 1 of 8)

Activities	*Creating Order Of – F.O.R.*	*Negotiating Order With – F.O.R.*
1. Interview on hopes and dreams	Rough pattern language draft text of site placement and buildings	Engagement interviewing students, teachers, administrators
2. Make a “poetic vision” as first sketch of a pattern language		
3. Make the rudimentary pattern language physically coherent		
4. Refine the language through discussions		
5. Obtain approval of the pattern language		
6. Renegotiate pattern language with space and money within budget		
7. Find systems of centers in (i) the pattern language, and (ii) the places in the land. Combine them.		
8. Adjust the site plan on the site itself (not on models)		

1985 Eishin Project – Creating Order Of, Negotiating Order With (row 2 of 8)

Activities	*Creating Order Of – F.O.R.*	*Negotiating Order With – F.O.R.*
1. Interview on hopes and dreams		
2. Make a "poetic vision" as first sketch of a pattern language	Preliminary architectural text of campus precincts, streets, yard, great hall, buildings, lawn	Meaning and expressions of intent conveyed by teachers, staff and students
3. Make the rudimentary pattern language physically coherent		
4. Refine the language through discussions		
5. Obtain approval of the pattern language		
6. Renegotiate pattern language with space and money within budget		
7. Find systems of centers in (i) the pattern language, and (ii) the places in the land. Combine them.		
8. Adjust the site plan on the site itself (not on models)		

1985 Eishin Project – Creating Order Of, Negotiating Order With (row 3 of 8)

Activities	*Creating Order Of – F.O.R.*	*Negotiating Order With – F.O.R.*
1. Interview on hopes and dreams		
2. Make a “poetic vision” as first sketch of a pattern language		
3. Make the rudimentary pattern language physically coherent	Not-to-scale drawing of patterns, with seven principles ensuring completeness of the language	Visual representation reflecting inclusion of features from the dreams of interviewees
4. Refine the language through discussions		
5. Obtain approval of the pattern language		
6. Renegotiate pattern language with space and money within budget		
7. Find systems of centers in (i) the pattern language, and (ii) the places in the land. Combine them.		
8. Adjust the site plan on the site itself (not on models)		

1985 Eishin Project – Creating Order Of, Negotiating Order With (row 4 of 8)

Activities	*Creating Order Of – F.O.R.*	*Negotiating Order With – F.O.R.*
1. Interview on hopes and dreams		
2. Make a “poetic vision” as first sketch of a pattern language		
3. Make the rudimentary pattern language physically coherent		
4. Refine the language through discussions	Refinement and further detailing of the pattern language text	Discussions with constituents confirming concerns have been addressed
5. Obtain approval of the pattern language		
6. Renegotiate pattern language with space and money within budget		
7. Find systems of centers in (i) the pattern language, and (ii) the places in the land. Combine them.		
8. Adjust the site plan on the site itself (not on models)		

1985 Eishin Project – Creating Order Of, Negotiating Order With (row 5 of 8)

Activities	*Creating Order Of – F.O.R.*	*Negotiating Order With – F.O.R.*
1. Interview on hopes and dreams		
2. Make a “poetic vision” as first sketch of a pattern language		
3. Make the rudimentary pattern language physically coherent		
4. Refine the language through discussions		
5. Obtain approval of the pattern language	Eight key centers, 110 patterns	Acceptance that architects have appreciated concerns and interests
6. Renegotiate pattern language with space and money within budget		
7. Find systems of centers in (i) the pattern language, and (ii) the places in the land. Combine them.		
8. Adjust the site plan on the site itself (not on models)		

1985 Eishin Project – Creating Order Of, Negotiating Order With (row 6 of 8)

Activities	*Creating Order Of – F.O.R.*	*Negotiating Order With – F.O.R.*
1. Interview on hopes and dreams		
2. Make a “poetic vision” as first sketch of a pattern language		
3. Make the rudimentary pattern language physically coherent		
4. Refine the language through discussions		
5. Obtain approval of the pattern language		
6. Renegotiate pattern language with space and money within budget	Trimmed estimate of (i) indoor built space, and (ii) outdoor coverage of land, within the constraints of physical boundaries and financial constraints	Participation in reallocation of spaces to conform to available resources, through tradeoff decisions (only increasing trimmed totals when decreasing elsewhere).
7. Find systems of centers in (i) the pattern language, and (ii) the places in the land. Combine them.		
8. Adjust the site plan on the site itself (not on models)		

1985 Eishin Project – Creating Order Of, Negotiating Order With (row 7 of 8)

Activities	*Creating Order Of – F.O.R.*	*Negotiating Order With – F.O.R.*
1. Interview on hopes and dreams		
2. Make a “poetic vision” as first sketch of a pattern language		
3. Make the rudimentary pattern language physically coherent		
4. Refine the language through discussions		
5. Obtain approval of the pattern language		
6. Renegotiate pattern language with space and money within budget		
7. Find systems of centers in (i) the pattern language, and (ii) the places in the land. Combine them.	Geometric configuration of centers of the pattern language into a feasible, coherent whole.	Realities of the land (e.g. ridge and swamp) with abstractions of buildings yet to be constructed.
8. Adjust the site plan on the site itself (not on models)		

1985 Eishin Project – Creating Order Of, Negotiating Order With (row 8 of 8)

Activities	*Creating Order Of – F.O.R.*	*Negotiating Order With – F.O.R.*
1. Interview on hopes and dreams		
2. Make a “poetic vision” as first sketch of a pattern language		
3. Make the rudimentary pattern language physically coherent		
4. Refine the language through discussions		
5. Obtain approval of the pattern language		
6. Renegotiate pattern language with space and money within budget		
7. Find systems of centers in (i) the pattern language, and (ii) the places in the land. Combine them.		
8. Adjust the site plan on the site itself (not on models)	Surrogate visualizations (e.g. marks, flags) on the land to confirm pattern language	Progressive refinement of the pattern language into a physical reality

1985 Eishin Project – Creating Order Of, Negotiating Order With (summary of 8)

Activities	*Creating Order Of – F.O.R.*	*Negotiating Order With – F.O.R.*
1. Interview on hopes and dreams	Rough pattern language draft text of site placement and buildings	Engagement interviewing students, teachers, administrators
2. Make a “poetic vision” as first sketch of a pattern language	Preliminary architectural text of campus precincts, streets, yard, great hall, buildings, lawn	Meaning and expressions of intent conveyed by teachers, staff and students
3. Make the rudimentary pattern language physically coherent	Not-to-scale drawing of patterns, with seven principles ensuring completeness of the language	Visual representation reflecting inclusion of features from the dreams of interviewees
4. Refine the language through discussions	Refinement and further detailing of the pattern language text	Discussions with constituents confirming concerns have been addressed
5. Obtain approval of the pattern language	Eight key centers, 110 patterns	Acceptance that architects have appreciated concerns and interests
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8. Adjust the site plan on the site itself (not on models)	Surrogate visualizations (e.g. marks, flags) on the land to confirm pattern language	Progressive refinement of the pattern language into a physical reality

Disciplined Agile Delivery – Creating Order Of, Negotiating Order With

Phase	*Activities*	*Creating Order Of – Frame of Reference*	*Negotiating Order With – Frame of Reference*
Inception Phase	1. Identifying a Project Vision	?	?
	2. Identifying the Initial Scope	?	?
	3. Identifying an Initial Technical Strategy	?	?
	4. Initial Release Planning	?	?
	5. Forming the Work Environment	?	?
Construction Phase	6. Initiating a Construction Iteration	?	?
	7. A Typical Day of Construction	?	?
	8. Concluding a Construction Iteration	?	?
Transition Phase	9. Collaborating to Deploy the Solution	?	?

Source: Scott W. Ambler and Mark Lines. 2012. *Disciplined Agile Delivery: A Practitioner's Guide to Agile Software Delivery in the Enterprise*, IBM Press.

Service Systems Thinking – Creating Order Of, Negotiating Order With

Activities	*Creating Order Of – Frame of Reference*	*Negotiating Order With – Frame or Reference*
1. ?	?	?
2. ?	?	?
3. ?	?	?
4. ?	?	?
5. ?	?	?
6. ?	?	?
7. ?	?	?
8. ?	?	?

Source: David Ing 2014. "From Environmental Structure to Service Systems Thinking: Wholeness with Centers Described with a Generative Pattern Language." In *Proceedings of the 2014 Conference on Pattern Languages of Programs*. Allerton Park, IL: The Hillside Group. http://coevolving.com/commons/201501-from-environmental-structure-to-service-systems-thinking.

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Image CC-BY: Nelson Lourenço (2013) *Les Pyrénées 07*