

community₁

A community is a system of people who interact within an agreed set of rules—conventions.

Typically, members of a community share a common location or common interests. They may be related by birth or may come together for social or business reasons. Communities rely on individuals to provide the variety necessary for survival—to share perspective, insight, ideas, and inspiration.

Over time, new members join and existing members depart. These changes can affect the conventions the community keeps.

convention₁

Every convention exists within a community.

A convention establishes a relation between a community and its context. It defines a way the community expects its members to behave in a given situation. It prescribes the tools they can use, even what they can think.

Every innovation has a precedent in a previous convention.

context₁ (environment)

Every community exists within a context.

Context is the environment in which a community lives. To survive, a community must have a stable relationship with its environment. Maintaining that stable relationship is the purpose of conventions.

innovation

Each innovation is a link between two conventions: the one it replaces and the one it becomes. An innovation is a pivot; it transforms one period into the next.

community₂

Of course, the convention resulting from a successful innovation differs from the convention that preceded it. Likewise, the community that exists after an innovation is likely to have changed from the community that preceded it. The context, too, is likely to have changed beyond the change which created the misfit leading to an innovation.

convention₂

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may fail to recognize

pose long-term threats to any

each faces

disturbs relations among

is imbalance in relations among

can be superseded by

frames possibilities for

that is large enough gains

requires

(a bit of luck)

preparation

aids

insight (seeing opportunity)

comes from

individuals

drive

Some organizations have processes by which their members build (or buy) new ideas at a small scale. The organizations vet (or select or destroy) ideas, moving a few to the next stage. They "incubate" new ideas in "hatcheries" long enough to launch them into the world. Examples include (perhaps most notably) Royal Dutch Shell, some religions (such as Catholicism), venture capital firms, and technology companies such as Google.

Some communities (some ecologies) seem to have the variety and structures needed to raise the probability of innovation (within certain domains). For example, Silicon Valley, Route 128 around Boston, Austin, Research Triangle, and Seattle all currently enjoy this advantage.

as it diffuses becomes

must be shared through

must be proved through

evaluates

preserves status quo by resisting

creates new

is balance in relations among

reforms relations creating

all deliver

pressure (external) decay (internal)

Entropy always increases. Resisting entropy requires energy and variety. Inevitably, both are limited.

change (disturbance)

Pressure from outside or decay inside changes the relationship between a community and its context. That relationship—formalized as a convention—is no longer comfortable, no longer a fit.

A disturbance upsets an existing convention. This is a root cause of innovation.

A disturbance has variety of its own. Unless a community has corresponding variety to cancel it, the variety in a disturbance will overwhelm the community. Variety cancels variety.

misfit (pain)

A misfit arises when a convention no longer maintains a desired relation between a community and its context.

Misfit manifests itself as pain. It exacts a cost—physical, mental, social, or financial—on members of the community.

recognition (definition)

Recognition of misfit comes from observation and experience. Research methods—such as ethnography—help.

But identifying a problem requires definition. Definitions are constructed—agreed to. They have constituencies. Thus, definition is a political act, an exercise of power.

insight (seeing opportunity)

Insight begins a process of restoring fit. Insight remains the most mysterious part of the innovation process. It may be irreducible, but it can be aided. Immersion within the context is almost always essential. Experience with other domains helps (by increasing variety). For example, applying patterns from other domains can help solve new problems. This is the promise of Genrich Altshuller's system known as TRIZ.

Insight is a type of hypothesis, a form of abduction. Insight may come from juxtaposition and pattern matching.

György Polyá suggests asking:
What is the unknown?
What are the data?
What is the condition? (What are the constraints?)
What is the connection between data and unknown?
What is a related problem?
How could you restate the problem?
What could you draw to represent the problem?

articulation (prototyping)

For insight to matter, it must be articulated—given form.

It might be a Hypothesis, Model or diagram, Outline, Script or story, Sketch, Mock-up, Prototype, Pilot.

simple iteration (trial & error)
Creating variations in the first model iteration at a resolution and design.

design process (artificial evolution)
Natural phenomena (i.e., Darwinian) partly performing variations in the second mechanism of evolution and design.

helps improve

that fails may lead to new

may prompt a new

demonstration (testing)

No innovation arises fully formed.

Articulation provides a means of sharing an insight. Demonstration proves (or disproves) the insight's value. Demonstration provides a basis for adoption; it is a key to creating change.

Demonstration enables evaluation. Testing discloses errors, increases understanding, and provides a basis for improvement.

Iteration is always necessary.

adoption (counter-change)

The scale of change varies. Many people have proposed models, for example:

Michael Geophegan:
- Recognizing a new domain of invention
- Creating new opportunities for discovery within the domain
- Improving the efficiency with which the discoveries are applied

Horst Rittel:
- Simple problems, where the goal is defined
- Complex problems, where the goal remains unclear
- Wicked problems, where constituents cannot agree on the goal

Parrish Hanna:
- Tactical or incremental
- Strategic or punctuated
- Cultural or process-oriented

fit (gain)

is reflected as increased

value

a model of innovation

Innovation is a holy grail of contemporary society, and especially business. A flood of books and magazines promote it. Design firms promise it. Customers demand it. Survival, we're told, depends on it.

But what is it? And how do we get it?

We used to ask the same questions about quality. Then Walter Shewhart and Edward Deming answered. Today, statistical process control, total quality management (TQM), kaizen, and six-sigma management are fundamental tools in business.

Organizations have become much better at managing quality. Quality has become a commodity, or at least "table stakes," necessary but not sufficient. Now, innovation matters more—because you can't compete on quality alone, whether as a business, a community, or a society. The next arena of global competition is innovation, but the practice of innovation remains stuck some 40 years behind the practice of quality.

Quality is largely about improving efficiency, whereas innovation is largely about improving effectiveness. Improving quality is decreasing defects. It's about measuring. It's making processes more efficient. It works within an existing paradigm.

Business Week design editor Bruce Nussbaum has suggested you can't measure your way to innovation—measurement being the hallmark of quality processes. And though some six-sigma advocates disagree, Nussbaum is pointing out a fundamental difference between managing quality and managing innovation. Innovation is creating a new paradigm. It's not getting better at playing the same game; it's changing the rules and changing the game. Innovation is not working harder; it's working smarter.

This poster proposes a model for innovation. It takes the form of a concept map, a series of terms and links forming propositions.

The model is built on the idea that innovation is about changing paradigms. The model situates innovation between two conventions. Innovation transforms old into new. It is a process—a process in which insight inspires change and creates value.

The existing convention no longer "fits." Perhaps the context changed. Or the community. Or even the convention. Someone notices the misfit. It causes stress. It creates enough friction, enough pain, to jump into people's consciousness. Perception of misfit almost simultaneously gives rise to proposals for change, for reframing. These proposals compete for attention. Most fail to inspire, are ignored, and fade away.

The changes that survive are by definition those a community finds effective. They spread because they increase fit (gain) and lower pain or cost (delivering value).

We rarely recognize innovation while it's happening. Instead, innovation is often a label applied after the fact, when its value is clear and a new convention has become established.

Ethnography and other research techniques may help identify opportunities for innovation. Design methods may increase the speed of generating and testing new ideas. But new ideas are still subject to natural selection (or natural destruction) in the political process of the marketplace.

Innovation remains messy. Even dangerous. Luck and chance, being at the right place at the right time, still play a role. But heightened sensitivity and persistent alertness may increase luck.

This model is not a recipe. At best it suggests ways to increase the probability of innovation. Our goal is for it to spur discussion. Our hope is that increased understanding will spur innovation and increase the greater good.

if strong, raise calls for efficiency, dangerously reducing

creative destruction (unplanned consequences)
Conventions exist in a web of culture. Innovation in one place often related conventions and may reduce their fit, creating or adding friction to the web. Conventions are not comfortable, so they are being surprised and consequences unplanned. Joseph Schumpeter describes creative destruction as "the process of instituting a new method of production that necessarily obsolesces the old one, necessarily creating a new one."

increases the likelihood of

learning process (refining goals)
Testing a prototype may raise the question about the framing of a problem or definition of goals. Reframing or shifting opens the possibility to trying other approaches.

possess

motivates

benefit from (increase efficiency by) sharing skills within a

beliefs

may lead to

actions

may lead to

artifacts

all deliver

Individuals who are prepared to innovate possess:

- Optimism
- Belief they can improve the world
- Openness to change
- Confidence to make it so
- Tenacity, persistence to seek it through
- Passion, desire, even obsession
- Variety
- Experience, skill, and talent
- Domain expertise
- Knowledge of other domains
- Understanding of the process
- Methods and techniques
- Management, rhetorical, and political skills
- Practice (Doing it a few times helps.)

They also know what is not known but necessary for progress; they understand how to find it; and they recognize who can provide that knowledge.

Dubberly Design Office prepared this concept map as a project of the Institute for the Creative Process at the Alberta College of Art and Design. The Institute exists to focus and organize activities, enterprises, and initiatives of ACAD with regard to the cultivation of dialogue, research, and special projects that directly address the nature of the creative process and design thinking. ACAD is a leading centre for education and research, and a catalyst for creative inquiry and cultural development.

Please send comments about this model to icp@acad.ca

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