

# Evolving a Patterns Culture

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## Overview

Interest in using and creating patterns has been growing throughout the software development community since the “gang of four” first proposed the concept in 1994. However, much of this interest exists only among individuals. Unfortunately, very few organizations have embraced patterns. This is most likely due, at least in part, to the fact that patterns are viewed by many organizations as a proactive effort whose value cannot be easily quantified and observed.<sup>1</sup>

The spark for patterns in an organization often begins with one person or a small group who has observed and/or heard about the benefits. They may have used a pattern or two, explored the web, read books or journals, or have attended one of the many conferences where patterns are a topic of conversation. However, despite all of the web pages, literature, and discussion, there is little information to help individuals lead an effort towards *evolving a patterns culture*.

This topic was first considered by Linda Rising and David DeLano of AG Communication Systems during their *Introducing Patterns into an Organization* workshop at OOPSLA'96.<sup>2</sup> Since this event, AGCS found that introducing patterns is an instance of introducing a new technology so they have updated the collection to *Introducing Technology into the Workplace*. While these patterns form a strong and extremely useful foundation, the emphasis is on the *introduction* of a technology, with only a few patterns considering how one can sustain (**Keep It Going**) the momentum begun during the **Grass Roots** introduction. Keeping the momentum going is vital if an organization is to achieve a patterns culture.

Therefore, the patterns presented here expand on the “introducing patterns” work with the addition of patterns to facilitate introduction *and* to help one or more individuals move an organization towards *evolving a patterns culture*.

## Context of the Patterns

The context of this work-in-progress system of patterns is an organization, of any size or type, that can benefit from the use and/or the creation of patterns. All patterns can be applied in this general context. The specific context for each pattern appears in the individual problem statements.

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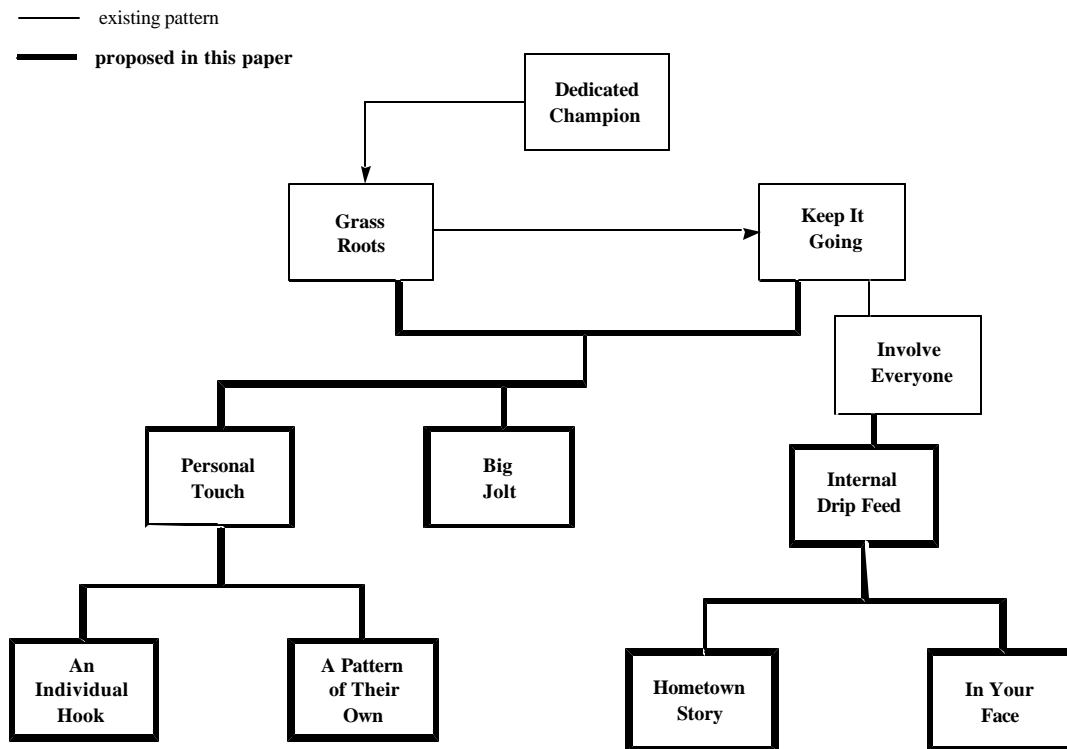
<sup>1</sup> Over 30 years of innovation diffusion work by E.M. Rogers (and others) has revealed that observing the relative advantage of an innovation is vital in persuading people to make a positive decision about adopting that innovation [Rogers 1995:163].

<sup>2</sup> <http://www.agcs.com/patterns/oopsla/intro.htm>

## The Patterns

The following diagram illustrates four of the sixteen *Introducing Technology into the Workplace* patterns<sup>3</sup> with the seven patterns (shown in bolded boxes) proposed in this paper. The objective is to make progress towards building a system of patterns titled *Evolving a Pattern Culture*.

The connections between the patterns imply a *uses* relationship. Therefore, those “higher” in the diagram appear in the description of the context in the problem statement of those “lower” in the diagram.



### **Evolving a Patterns Culture** (a work-in-progress)

<sup>3</sup> <http://st-www.cs.uiuc.edu/~plop/plop97/Proceedings/delano.pdf>

## **Personal Touch**

**Context and Problem:** Grass Roots states that a Dedicated Champion should begin introducing patterns by getting a small group interested, giving them as much information and training as possible. While training and other information sessions will help create curiosity and interest in the individuals in this grass roots group, **what can be done to Keep It Going, ensuring that individual curiosity and interest is strong enough to stimulate the momentum needed to build and sustain a patterns culture?**

### **Forces:**

- It is easier to convince an individual than an organization of the value of patterns.
- Making individuals curious and even interested in patterns will not maintain the momentum and build a patterns culture like creating excitement in these individuals will.
- Individuals are more likely to be excited about an innovation when they can see personal advantage it.<sup>4</sup>
- A personalized approach may be the only way to capture the interest of some individuals.<sup>5</sup>

**Solution:** In addition to providing information about patterns, include opportunities that allow each individual to see how using and writing patterns can be *personally* useful and valuable to him or her. Encourage others to help with this effort, especially those who are known to and respected by the individuals you are trying to convince. Consider using An Individual Hook (using patterns) and A Pattern of Their Own (writing patterns).

**Resulting Context:** While it takes extra time to use an individualized approach, it has more potential to build a group of enthusiastic individuals who will then help to carry on the effort. The grass roots group of individuals will be more likely to continue the effort begun in the training and information sessions because enthusiastic people can't help displaying and sharing their enthusiasm.

**Rationale:** When individuals see that a new idea can increase the quality of their personal lives, their interest and support of that idea is more likely to be sustained. This will encourage them to move past curiosity and interest towards enthusiasm, creating the momentum needed to stimulate the patterns culture. The Price Waterhouse Change Integration Team (in the book Better Change) notes that people take change personally and therefore should be helped to understand the "legitimate personal wins resulting for them from the changes you envision."<sup>6</sup> Rogers also supports the personal touch approach by showing that success in securing the adoption of innovations is positively related to the amount of effort in communicating with individuals.<sup>7</sup> He points out that this communication is most effective when the "two individuals share common

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<sup>4</sup> [Rogers 1995:216]

<sup>5</sup> It is likely that the effort required in this pattern will be most worthwhile for encouraging two categories of adopters, labeled by E.M. Rogers as "late majority" and "laggards." Usually composing approximately 50% of the population in a social structure, these individuals must have most or all of their uncertainty removed before they become willing to adopt an innovation [Rogers 1995:265].

<sup>6</sup> [Price Waterhouse 1995:51]

<sup>7</sup> [Rogers 1995:339]

meanings, beliefs, and mutual understandings” because people enjoy the comfort of interacting with others who are similar.<sup>8</sup>

**Known Uses:**

- I have used this technique with my students. I have observed, over the years, that I can spark the interest of students who do not appear particularly interested in a topic by showing how that topic is personally relevant to their lives. These students are then more likely to stay interested in the topic.

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<sup>8</sup> [Rogers 1995:287]

## **An Individual Hook**

**Context and Problem:** The **Personal Touch** approach to building a patterns culture strives for creating excitement for patterns in each individual in a grass roots group and later when the organization is attempting to **Keep It Going**. One of the ways to do this is to allow the individual to see how he or she can personally make use of existing patterns. **How can an individual be led to experience how he or she can personally make use of patterns, thereby creating excitement for patterns within that individual?**

### **Forces:**

- Individuals are likely to find more value in, and therefore be more enthusiastic about, things that are personally useful to them.
- It may not be apparent to all individuals how they can make use of patterns.
- Old habits die hard, and often not without special effort.

**Solution:** Discover a problem the individual has encountered in his or her work. Locate and discuss with him or her one or more patterns that have the potential to address that problem. Attempt to discover other problems and patterns until the enthusiasm is sparked in this individual. To use this pattern, one must keep current on the many existing patterns, both in and outside the organization. It is important to have the ability and willingness to listen to others, and even consider “eavesdropping” on discussions of problems when appropriate.

**Resulting Context:** The use of patterns is now seen as personally beneficial for the individual. He or she is more likely to remain interested and spread the word about something that is viewed in this way. However, the organization can begin to rely too much on the person(s) who finds the “solutions” to “problems”. This is likely to wear out this person and take too much time away from his or her primary responsibilities.

**Rationale:** When individuals see that a new idea can be personally useful in solving some of their problems, their interest in and support of that idea is likely to be stronger. Rogers writes, “The relative advantage of an innovation ... is positively related to its rate of adoption.” One dimension of relative advantage is the savings an individual realizes in time and effort.<sup>9</sup> Rogers has also shown that success in securing the adoption of an innovation is positively related to the degree in which that innovation is compatible with individuals’ needs. With supporting stories of change projects that were unsuccessful because needs were ignored, Rogers stresses the importance of a change agent (**Dedicated Champion**) seeking to determine and meet the needs of individuals.<sup>10</sup> Price Waterhouse agrees: “It is the task of the change leader and the change project team to identify and link the needs (and wins) of each stakeholder to the benefits of the project”.<sup>11</sup>

### **Known Uses:**

- Linda Rising claims that “this pattern is essential to keep any new technology (or process improvement) going” [email 05 Jun 1999]. At AG Communication Systems, she uses this during postmortem sessions. When she hears about troubles in a project, she is quick to point out patterns (design, organizational, customer interaction, etc.) that may help.

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<sup>9</sup> [Rogers 1995:216]

<sup>10</sup> [Rogers 1995:340]

<sup>11</sup> [Price Waterhouse 1995:52]

- I use this technique when teaching programming. Students are taught a programming technique, but do not truly understand or see value in that technique until they have to use it to solve a programming problem of their own.

## **A Pattern of Their Own**

**Context and Problem:** The **Personal Touch** approach to building a patterns culture strives for creating excitement for patterns in each individual in a grass roots group and later when the organization is attempting to **Keep It Going**. One of the ways to do this is to allow the person to see that he or she can create a pattern. **How can an individual be led through creating a pattern in a way that is likely to ensure a successful experience for the individual, thereby encouraging enthusiasm for patterns and for writing more patterns?**

### **Forces:**

- Individuals are more likely to be enthusiastic about things they can do successfully.
- It may not be apparent to all individuals that they can be successful writing patterns.

**Solution:** Guide the individual in writing a pattern of his or her own. To encourage a successful experience, suggest that the individual write about something he or she knows and loves. Upon completion of the draft, provide immediate feedback, making a special effort to help the individual see the value in his or her work. While immediate feedback and encouragement can be given by the person leading the pattern writing session, the leader should also provide the writer with the opportunity to continue improving his or her pattern through the shepherding and writers' workshop process.

**Resulting Context:** The individual has the potential to be excited about writing more patterns when he or she is allowed to appreciate value in the first one.

**Rationale:** This pattern is supported by Virginia Satir's six stage change model;<sup>12</sup> it states that appreciating the value in one's effort is an important stage in encouraging change to take place. Individuals who see value in what they do will be more enthusiastic about continuing to do it, and encourage others to do the same.

### **Known Uses:**

- AG Communication Systems has a pattern writing class where individuals have to write patterns and workshop them.
- ChiliPLOP uses this technique in their tutorial track.
- Introductory-level patterns tutorials by such people as Jim Coplien and Dick Gabriel includes time for attendees to write and review their own patterns.

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<sup>12</sup> (more information forthcoming)

## **Big Jolt**

**Context and Problem:** With the **Grass Roots** approach, the **Dedicated Champion** captures the attention of those who are receptive to patterns and are willing to take the time to learn and do more. However, the **Dedicated Champion** would occasionally like to expose a large group of individuals in the organization to the importance of patterns. **How can an individual expose a large group to patterns in a way that will catch the attention of people who are too busy to attend other patterns events?**

### **Forces:**

- Even when curious about learning more about patterns, some individuals perceive themselves as too busy to attend information sessions.
- Individuals are more likely to find time to attend a one-time event.
- Individuals are more likely to attend an event that has a “big name” speaker.
- Individuals are more likely to believe and become enthusiastic about what a “big name” speaker says.

**Solution:** Periodically invite a well known (or rather well known), “big name” patterns speaker to do a presentation. Be certain that this person is willing to speak at a level the organization can absorb. (“Big name” people usually have a large amount of experience and therefore may wish to talk about something that the organization is not prepared to understand.) If funding is not available to pay the speaker, entice them by pointing out that this is an opportunity to get publicity for their latest book or project. Increase the probability of a significant audience with a large amount of publicity before the event and, if possible, **Do Food**.<sup>13</sup> If the speaker permits it, videotape the presentation and hold one or more follow-up viewing sessions for those who could not attend the real thing.

**Resulting Context:** This will raise awareness and credibility of patterns among even the busy people. An impression is also likely to be made on those who do not attend the presentation because of the publicity before the event and the talk about it afterwards. However, this can also create more excitement than can be handled. Juiced individuals that aren’t given some guidance can be worse than unenthusiastic individuals.

**Rationale:** Big names sell!

### **Known Uses:**

- AG Communication Systems has used this pattern quite successfully.
- The interest in and inquiries about patterns increased significantly at U S WEST Advanced Technologies after Jim Coplien and Neil Harrison did a presentation there.

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<sup>13</sup> <http://st-www.cs.uiuc.edu/~plop/plop97/Proceedings/delano.pdf>



## **Internal Drip Feed**

**Context and Problem:** To **Keep It Going**, the **Dedicated Champion** and other supporters must be pro-active, constantly doing things to sustain the technology. In order to evolve a patterns culture, more than just the dedicated champion and the willing supporters should be involved in this. It is important to **Involve Everyone**. **How can those who are involved in building the patterns culture promote it to others?**

### **Forces:**

- Failing to maintain involvement and to reinforce the benefits of patterns can run the risk that excitement and interest will fade.<sup>14</sup>
- The patterns culture will be strongest if everyone, or almost everyone, in the organization plays some part in sustaining it.
- The pattern experiences of individuals can go a long way to keep others in the organization interested in patterns.

**Solution:** Continually confirm individual decisions to use and/or write patterns while striving for new converts to the effort. Do this by “drip feeding” individual patterns experiences into the organization, whether the experience is in using them (see **An Individual Hook**) and/or writing them (**A Pattern of Their Own**). Continue to acknowledge the benefits of using and writing patterns. Consider using **A Hometown Story** and/or **In Your Face**. If some individuals are hesitant to share their experiences with patterns, it will be up to the **Dedicated Champion** and other supporters to help these people see that their experiences are interesting and valuable to others in the organization.

**Resulting Context:** Everyone, even those who don’t want to make a great amount of effort, is given the opportunity to become involved in growing and sustaining the patterns culture. Their work with patterns is kept in the mainstream, providing reinforcement of their decision to use and/or write patterns. Those who are not yet involved with patterns are continually reminded of what others are doing and the benefits that can be gained. The **Dedicated Champion** is also reminded that the work he or she is doing is of use and of interest to the organization.

**Rationale:** Rogers notes the importance of “confirming” decisions already made and/or making certain that previously positive decisions to adopt an innovation are not reversed. One way to do this, he states, is to be certain that those who already use the innovation promote it to others.<sup>15</sup> Using those who have been successful with patterns to help keep the concept visible in the organization will ensure that patterns do not fade from memories. As Price Waterhouse notes, “Newton’s Third Law was never so true: An object at rest tends to stay at rest until acted upon by external forces. ... Stakeholders need continuous invitations to become involved, continuous reassurances that they will get their wins”.<sup>16</sup>

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<sup>14</sup> Periodic confirmation is important to reduce the possibility that support will not be withdrawn from an innovation [Rogers 1995:20; Chew & Leonard-Barton 1991].

<sup>15</sup> [Rogers 1995:190]

<sup>16</sup> [Price Waterhouse 1995:60]

## **Hometown Story**

**Context and Problem:** In order to evolve a patterns culture, it is important to **Involve Everyone** in the organization. One of the ways to do this is to **Internal Drip Feed** individual experiences with patterns into the organization. Some individuals will be willing to talk about their experiences, but usually don't want to take the time to prepare and deliver a formal presentation. **How can opportunities to talk about patterns experiences be made available to individuals who do not want to do a formal presentation?**

### **Forces:**

- Individuals are not likely to adopt patterns if they haven't done anything with them.<sup>17</sup>
- Not all individuals in an organization are willing to take the time to try using or writing patterns.
- Hearing experiences of other individuals with a new idea can be the next best thing to trying it personally.
- It is time-consuming for an individual to prepare a formal presentation about his or her experiences with patterns.
- Informal, interactive presentations require little preparation and can be just as, or even more effective.

**Solution:** Seek out individuals who you think are willing to talk about their patterns experiences. It is best if these individuals are known to and respected by others in the organization. Encourage them to present their experiences by:

- assuring them that their talk does not need to be prepared and delivered in a formal way
- doing the "leg work" necessary to prepare an informal session
- promoting the event as in informal and highly interactive session

The person organizing the event does not need to strive for a large audience. Small group settings are usually better than large groups for creating an informal, interactive atmosphere. Attendance can be encouraged with **Do Food** and **Brown Bag**<sup>18</sup>.

**Resulting Context:** Individuals who are willing to share their patterns experiences with others in the organization will have the opportunity to do so with very little effort on their part. Those who attend the session(s) will see that patterns can indeed be useful to others in the organization and therefore have the potential to be of use to them too.

**Rationale:** Individuals are more likely to talk about experiences when they can do it in an informal way with little or no prep work. Offering these informal opportunities can also help those who are hesitant about speaking in front of a group. For those who attend, hearing the experiences of respected peers is the next best thing to personally having the experience. Rogers has shown that, "the trial of a new idea by a peer like themselves can substitute, at least in part, for [an individual's] own trial".<sup>19</sup>

### **Known Uses:**

- This pattern was used at U S WEST Advanced Technologies. Meetings were well attended and filled with discussion.

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<sup>17</sup> Rogers states, "Most individuals will not adopt an innovation without trying it first ... in order to determine its usefulness" [Rogers 1995:171].

<sup>18</sup> <http://st-www.cs.uiuc.edu/~plop/plop97/Proceedings/delano.pdf>

<sup>19</sup> [Rogers 1995:171]

## **In Your Face**

**Context and Problem:** In order to evolve a patterns culture, it is important to **Involve Everyone** in the organization. One of the ways to do this is to **Internal Drip Feed** individual experiences with patterns into the organization. Individuals who believe the patterns they write have some value to the organization (see **A Pattern of Their Own**) will be encouraged to write more. Those who see patterns that others have written can become inspired to write their own. **How can an organization provide the opportunity for individuals to display their patterns in a way that facilitates discussion, thereby allowing the author to get feedback while engaging others to become authors too?**

### **Forces:**

- People do not always take the effort to periodically look at the pattern repository.
- However, people will notice, and are likely to discuss, things that are put in places they frequently encounter during a typical work day.
- White boards and bulletin boards are often found in high traffic areas in an organization.

**Solution:** Post a pattern written by a person in the organization on a white board or bulletin board, preferably in a high traffic area, in the organization. Create a special area (with a title such as “Pattern of the Week”) that will call attention to people passing by. The area must be designed to be highly visible, yet very pleasing to the eyes of those who display their work and those who will read it. The patterns can be “ready for prime time” ones (that also appear in the organization’s repository) or “proto” patterns that are not in the repository because they are still in need of review; if a “proto” pattern is displayed, it should be marked as such. Change the pattern on the same day each week (or other time period) so that people know when to look for a new one.

**Resulting Context:** Patterns will stay “in the face,” and in the memory, of the organization. Those who get their pattern(s) displayed on the board will be encouraged to take pride in their work and will get the opportunity to have their pattern(s) discussed and reviewed. Those who see the patterns may begin to believe that they can write patterns too. The area near the pattern can also be used to advertise upcoming patterns events; however, this material should be smaller and secondary to the pattern being displayed.

**Rationale:** People remember and are more likely to talk about things that are visible to them. There is likely to be some element of pride in those whose patterns are displayed, possibly encouraging them to write more.

### **Known Uses:**

- This technique was used at U S WEST AT in the form of a white board placed in a rather high traffic area.

## References

[Chew & Leonard-Barton 1991] Chew, W.B., Leonard-Barton, D., Beating Murphy's Law, Sloan Management Review, 32, Spring 1991, pp. 5-16.

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[Rogers 1995] Rogers, E.M., Diffusion of Innovations, 4<sup>th</sup> Edition, The Free Press, 1995.