

Diffusion of Stuff (Not Fluff)

by Jeremy Deane

The rapid pace of technological innovation since 1998 enabled many organizations to dramatically increase productivity while at the same time decrease overall headcount. However, the anemic recovery since the financial crisis of 2008 combined with "change fatigue" within organizations has resulted in a risk averse culture. In such an environment how can one possibly introduce and inculcate the latest technology or process within an organization? The answer is to have a solid understanding of Diffusion Theory and to leverage Patterns of Change.

As technologists we tend to be the first ones on the block to have the latest iPhone or to try out some nascent social media channel. But while we are masters of our own destiny at home it is quite different at work. The excitement of a new programming language or framework from GitHub is quickly diminished when faced with organizational resistance from skeptics or worse management. Even if you are able to win over the skeptics and gain financial support from management there is still a good chance adoption will judder along ultimately failing to take hold. Yet there is a way to change this self-fulfilling prophecy.

Diffusion is the process by which an Innovation is communicated through certain channels over time among the members of a social system - Everett Rogers [Diffusion of Innovations]

Adoption of any innovation by an individual is a process broken into a set of stages that includes learning about an innovation's advantages, deciding to adopting or reject the innovation, and finally using the innovation (if not rejected). The rate at which an

individual completes this process depends on their Adopter Category [Diffusion of Innovations]. The adopter categories, Innovators, Early Adopters, Early Majority, Late Majority, and Laggards directly correlate to specific patterns for introducing new ideas [Fearless Change]. In short, successful organizational adoption of an innovation relies on using established change patterns targeted towards adopter category.

Innovators

Without change something sleeps inside us, and seldom awakens. The sleeper must awaken. - Duke Leto Atreides [Dune]

It is often said the first step to wisdom is to admit you know nothing. This state is a precursor to starting your innovation adoption campaign. The next step is to learn more about the innovation:

Learning Technique	Reinforcement
Reading books, articles and blogs	Subscribe to authors blog or twitter account
Attend a conference or user group	Network with speakers and attendees that have similar interests
Try out the innovation	Understand the innovations limitations by extending it (e.g. Fork the Code)
Reflect on the innovation	Create a Mind Map of the innovation or add the innovation to a Technology Radar [Fourthought Pattern][Presentation Patterns]

Armed with a deep understanding of the innovation you are now ready to target fellow innovators. Peek their interest by tweeting about the innovation, publish a blog to your organizations wiki, or have informal water cooler conversations [Plant the Seeds Pattern [Fearless Change]]. Odds are they will take little convincing to experiment with innovation and perhaps adopt it immediately. This is the greatest strength of the Innovators but also their greatest weakness. While they are inherently amenable to new ideas, they in turn have low credibility within the rest of the organization.

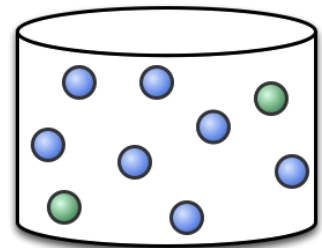


Figure DEA-1: Innovators

Adoption by your organizations innovators is a type innovation crucible. Your fellow change agents will provide invaluable feedback both negative and positive on the innovation. During this period you should start refining your argument for adoption (a.k.a. Elevator Speech) that concisely addresses the five factors that most influence adoption [Diffusion of Innovations]:

- What is innovation’s relative advantage?
- Will the innovation’s perceived complexity effect adoption?
- Can the innovation be piloted before wide-scale adoption?
- Are the benefits to adoption observable (a.k.a. Return on Investment)?

If you can convince a non-technologist using your argument then you are ready to move onto the next adopter category.

Early Adopters

Key to early adoption of an innovation is obtaining the support of the Opinion Leaders. These individuals are well known throughout the organization and highly regarded. Like Silent Bob they are cautious about offering an opinion but when they do it is thoughtful and provoking. Take care not to leverage Opinion Leaders too much otherwise their credibility will slowly erode overtime.

So, I’ve spent every day since then chasing Amy... so to speak. - Silent Bob [Chasing Amy]

In 2003, I was at a startup that had recently adopted an Agile Methodology. This iterative approach was only partially successful. We increased the software development rate but also exponentially increased the defect rate. Several of us believed Test Driven Development (TDD) would reduce our defect rate. This was a hard sell since automated unit testing was new to the junior developers and anathema to the more senior developers.

Despite this challenging environment we did over time adopt TDD and consequently dramatically reduce the defect rate. Two key factors lead to successful adoption. First, we started with unit test automation before adopting TDD. This phased approach won over many of the early skeptics. Second, and most important, we used respected Opinion Leaders from the Development, Quality Assurance, and Release Engineering teams to champion our cause.

Once you have won over the Opinion Leaders hold informational sessions during working hours, or after hours if you encounter scheduling challenges [Brown Bag Pattern [Fearless Change]]. Providing some type of refreshment, coffee, cookies, or beer (preferred) creates an amiable atmosphere and has proven to increase acceptance of new ideas. Avoid Death by PowerPoint [Bullet-Riddled-Corpse Anti-Pattern [Presentation Patterns]]; demonstrate the innovation providing factual advantages and disadvantages.

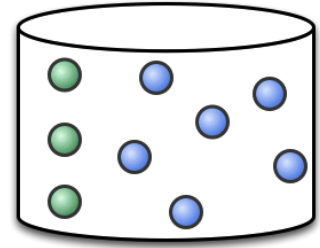


Figure DEA-2: Early Adopters

Leverage your converts by sponsoring a pilot initiative. The pilot must be significant enough to clearly demonstrate the advantages of the innovation but must not be mission critical. The success of this pilot is critical to adoption by the Early Majority and will create apostles out of your recent converts. Indeed, more than one pilot may be required before your recent converts completely accept the innovation.

Early Majority

Entire books are dedicated Early Majority innovation adoption, the most famous of which is Crossing the Chasm [Crossing the Chasm]. The voluminous amount of research dedicated to this subject is indicative of the difficulty faced during this phase of adoption. Even the most zealot change agent becomes fatigued and or discouraged at this point. Fortunately, having persuaded the Early Adopters, you will not face this challenge alone.

At this point you will need a financial sponsor to proceed [Corporate Angel Pattern [Fearless Change]]. Express your argument for adoption in terms of the value (\$) it will have the organization. The value must be measurable (e.g. reduce costs, increase revenue). Additionally use the results from the pilot initiative to further your argument. Finally, have your apostles deliver the argument for you.

In 2010 I joined my current organization and instantly realized that code quality was huge problem. Defects were found too late in the software development life cycle or worse after going live. Mandating more unit testing was not going to be enough. The solution

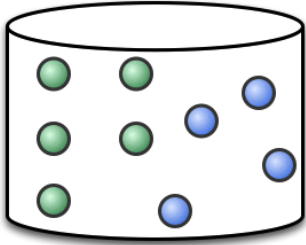


Figure DEA-3: Early Majority

was to create a multifaceted initiative that introduced unit test automation, continuous integration, and code quality analysis. The packaged solution easily received funding from management because of its comprehensive approach and its measurable value (e.g. reduced defects and rework).

Wide scale adoption by the Early Majority often requires some type of kick-off. Having an outside expert speak at this event will add credibility to your argument for adoption [Big Jolt Pattern [Fearless Change]]. If an outside expert is not available have one of our apostles speak, preferably the one with the most in common with the attendees [Homophily Principle [Diffusion of Innovations]]. During the kick-off reference the early success of your pilot initiative and case studies from other organizations. In addition, make sure to reiterate the innovation's value for the organization as well as the value for the individual.

Late Majority

To institutionalize the innovation you must bring on board the Late Majority. This category of adopters, often due to their seniority, requires a more formal approach. Leverage your financial sponsor to fund training, purchase related materials, and provide one-on-one mentoring. Furthermore, publish official step-by-step guidelines for innovation usage. Without such formal guidelines late adopters may misuse the innovation (e.g. using a weed wacker as a hammer). Formally reward or at a minimum thank individuals for adopting the innovation [Just Say Thanks Pattern [Fearless Change]].

Critical to the success of my current organization is our on-going adoption of User Experience (UX) Design Principles and Techniques. Creation of Wire Frames is technique that promotes cost-effective collaborative User Interface (UI) design. Adoption of this technique was rapid within our organization due to sponsorship of the larger package initiative, User Experience Design, and turning early converts into apostles.

Unfortunately, one group in the Late Majority decided to cherry-pick specific UX Principles and Techniques. Specifically this group skipped creating wire frames and proceeded to the next step, creating mock-up images.

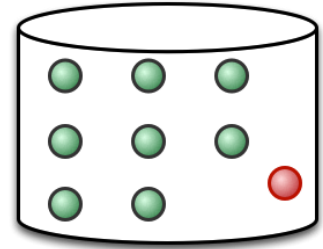


Figure DEA-4: Late Majority

Consequently, even minor changes to the UI design was costly since the mock-up images had to be updated rather than the more pliable wire frames. Ultimately, this cautionary tale was used to promote adoption by other individuals in the Late Majority.

Due to the passage of time you may need to refactor the innovation based on external events or internal feedback [Crucible Pattern [Presentation Patterns]]. In fact, during the adoption process you may find that individuals or groups have used the innovation in unanticipated ways. As long as these tweaks continue to delivery measurable value, embrace and incorporate them. In general ideas are better received when individuals have a personal stake in them. This personal affinity to the idea will in turn increase the rate of adoption.

Laggards

In their youth Laggards walked to school up hill, both ways, in the driving snow and got their first Atari Game System from a yard sale. Odds are no amount of cajoling, hand-holding, or chastening will get these individuals to adopt the innovation. So don't waste your energy on them unless they impede adoption of the innovation. If that is the case then let their supervisor deal with them or inform your financial sponsor whom by now has a stake in the innovations success.

And if you do not listen, then to HELL with you! – Conan [Conan]

Summary

Diffusion of innovations within an organization requires faith, determination, and perseverance. You must truly believe in the innovation in order to convert others. Furthermore, adoption of the innovation will not occur overnight. In fact, wide-scale adoption of an innovation may take weeks, months, or even years. However, steadfastness to innovation adoption will not only benefit your organization but ultimately benefit your career by making you a better influencer, writer, and speaker.

References

[Diffusion of Innovations] Diffusion of Innovations by Everett Rogers

[Fearless Change] Fearless Change, Patterns for Introducing New Ideas by Mary Lynn Manns and Linda Rising

[Presentation Patterns] Presentation Patterns, Techniques for Crafting Better Presentations by Neal Ford, Matthew McCullough, Nathaniel Schutta

[Crossing the Chasm] Crossing the Chasm by Geoffrey Moore

[Dune] Dune by Frank Herbert

[Chasing Amy] Chasing Amy Motion Picture 1997

[Conan] Conan the Barbarian Motion Picture 1982

About the Author

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Jeremy Deane has over 15 years of software engineering experience in leadership positions. His expertise includes Enterprise Integration Architecture, Web Application Architecture, and Software Process Improvement. In addition, he is an accomplished speaker and technical author.

