Imagine you’re in a forest, surrounded by majestic towering trees. Underfoot is the soft, leafy, damp forest floor. Taking a seat on a fallen log, you arch the kinks out of your hunched shoulders, shake off the stress of the office and take a deep breath of fragrant, moist air. You ask yourself why work feels like you are part of a never-ending rat race… and you wonder… will it ever stop? How are you going to spearhead that major project or work with a new cross-functional team and deliver great results when the organizational environment hampers you?

Much as I hate to interrupt your well-earned contemplation, I’m compelled to inform you that on the underside of the log you are sitting on is a life form teeming with insight about organizational behavior. Throughout the seemingly quiet forest, thousands of spores are performing an age-old dance, expressing quietly the tactics of surviving and thriving in this dynamic and ever-changing wooded environment. Say “hello” to slime mold. This lower fungus has evolved a clear set of survival techniques that are potent lessons for people grappling with challenges posed by shifting companies and markets. Who knew that insights into survival could be found literally under your feet?

For years, biologists, botanists, media moguls, artists, authors and technologists have been captivated by the sophistication and tenacity of the slime mold lifecycle and the slime mold’s ability to morph from plant-like to animal-like behaviors in constant sync with the environment. I’m not a biologist. I’m a designer working in the field of digital products, information architecture and interaction design. But over the past eight years, I’ve been entranced with slime mold as a compelling metaphor for organizational development. In my work as an employee, manager, director and consultant, I’ve observed how organizations and teams shift in response to external forces, and I’ve found trends and patterns for acclimating and adapting to change.

This article shares the examples that I’ve observed and explores possibilities and approaches for how businesses and people in them can better adapt to a rate of change that is rapidly becoming the standard for doing business. By using slime mold as a learning tool, we can identify practical tips and tools for surviving, thriving and doing great work in even the toughest of environments.

This fascinating life form holds intriguing lessons for today’s knowledge worker… from sensing and responding to environments that become hostile to using the power of signals to create alignment and collective action.

A Quick Look into the Slime Mold Lifecycle

Let’s get started by learning a bit about a specific type of slime mold: dictyosteliomycota, ( dik-tea-oh-stee-lya-my-coat-uh), also known as cellular slime mold. This organism lives in wooded areas and forest floors, feeding off of bacteria and other organic nutrients. When the environment is rich and there is food available, slime molds function as individual amoebas, feeding and dividing in a fairly regular lifecycle. In this phase of its life, cellular slime mold is in constant check with its environment, sensing and signaling the level of nutrients available.

However, as the nutrient base becomes exhausted, slime mold shifts gears. When the change in the food level is detected, the amoebas send out a specific kind of signal and band together to form a multi-cellular assembly (pseudoplasmodium) that resembles a slug. In this phase of its life, slime mold behaves as a unified organism, with a head and a tail and the ability to crawl. The slime mold slug then crawls to another location to find a sustaining food supply.

Kate Rutter is a senior practitioner at Adaptive Path. She blogs at www.adaptivepath.com or at her personal site www.intelleto.com. Her email address is kate<at>adaptivepath.com.
Lesson #1: Maintain a Constant Conversation between the Organism and the Environment

Slime mold has cracked an important code: It has figured out how to be in constant conversation with its environment. Organizations can become immediately more adaptive by 1) understanding the relationship between the organism and the environment, 2) adopting ongoing signaling and sensing behaviors and 3) triggering change.

Understanding the relationship between the organism and the environment.
Slime mold amoeba spread out as they grow. During this phase of their development they maintain a tightly coupled relationship with the forest floor. As the amoebas feed, the environment changes in response. It is this close relationship that allows the slime mold to respond rapidly to any shift in the food supply.

To understand this relationship it’s important to identify what’s the organism and what’s the environment. In organizations, it’s always a matter of context. From an employee perspective, the individuals are the organisms and the team or workgroup is the environment. For teams and workgroups, the collective is the organism and the department or division is the environment. For departments and divisions, the organization or company is the environment. For organizations and companies, the marketplace or industry is the environment. Using this model can help us understand the dynamics between people, their behavior and the environment.

Adopting ongoing sensing and signaling behaviors. The key to slime mold behavior is its ability to sense and signal the state of the environment to other amoebas. The collective survival of the organism is dependent on this sensing/signaling behavior, made possible by the tightly coupled relationship between the organism and the environment.
In contrast, institutions and companies don’t have this feedback loop. Most organizational structures define relationships and behaviors from the top down and promote behavior that keeps participants carefully shielded from areas outside their direct realm of participation. The most common organization model, that of top-down hierarchical divisions, was created in response to an industrial-age environment and is designed to optimize decision-making. Both divisions of labor and information flow from the top down. Thus, current structures restrict the flow of information, and as a result companies are unable to respond to emerging needs and opportunities in the marketplace. Centralized, hierarchical structures are great for making decisions and rolling out new initiatives, but decision-makers at the top are not able to sense and assess the shifts that happen on the fringes of the organization.

The result? In order to adapt, companies are forced to restructure from the top down. Wholesale reorganizations take significant time and effort and cause severe disturbances in the teams, communications and productivity of workers. Worst yet, by the time the people in the organization have acclimated to the new roles, responsibilities and processes, the landscape may have shifted again. The cost in organizational effectiveness is too high, and we need to look at different models...models that are in tune with environmental changes and institutions that can adapt and evolve in a more fluid, responsive way.

Clear and strong signals increase survival ability and alert other organisms in the environment about what’s happening. In order for signals to be effective, they must be reinforceable and trigger an awareness of a response or call to action. So how do we make great signals? Great signals are sticky, high-volume and visual. Let’s look a little deeper.

In their book *Made to Stick* [1] Dan and Chip Heath outline a set of criteria that they attribute to making memorable or sticky viral signals. The book is informative, engaging and highly recommended. Dan and Chip identify six characteristics of memorable messages: simple, unexpected, concrete, credible, emotional and stories.

- Simple – keep the heart of the idea easy to grasp
- Unexpected – catch people off guard and grab their attention
- Concrete – include tangible, clear elements to ensure that people connect and remember
- Credible – make an idea believable and trustable
- Emotional – ensure people see the importance of an idea
- Stories – use narrative to inspire and empower people.

*High volume* signals carry with them intensity and resonance that make them likely to be passed on. High volume signals are often related to specific ways the organization communicates. For example, a one-on-one casual conversation with a co-worker may have low volume. An annual shareholders meeting with the full executive team would have a high volume. Volume is about amplitude...the strength of the signal and where and how it is applied can dramatically affect the impact it has.

*Visual signals* use images and pictures to communicate meaning in compelling ways. Visual ideas get through faster; they activate the holistic, “all at once” side of the brain. Also, pictures communicate a more complete idea. They show relationships, highlight connections and reveal spaces that are impossible to see with written and spoken forms of communication. Images have also proven to be durable and memorable. They literally show people a picture of the signal, which aids in recall and promotes the ability to share it with others.

*Triggering change*. What’s the purpose of these clear and re-enforceable signals? Let’s head back to the forest floor. We last left the slime mold happily munching on biomass. But now the amoeba notices a change. The food supply has thinned. The environment has shifted, and it’s time to become very aware of the signals coming in. The slime mold has the ability to send a signal of its own: a chemical called cAMP (cyclic adenosine
monophosphate) that is sent out to the slime mold community. As other amoebas recognize the change in the food supply, they reinforce and amplify the signal. By sensing and signaling, the chemical message begins to spiral through the slime mold community, becoming stronger as the environment continues to trigger warning signals.

This signaling behavior begins a phase change for the slime mold. This change happens when the environment becomes tough and the organism is at risk. When the overall level of alarm reaches a threshold, it triggers the collective action, and the aggregation begins.

A tough environment is one where the nutrients are disappearing. These environments have these characteristics: limited resources, power imbalances, heightened competition, shifting landscape and unclear paths. For organizational environments add in lack of shared vision, intense politics, disagreement of purpose, ambiguous and fluctuating power structures, disconnect on values, lack of respect and low levels of trust. Organizations in tough environments require hypersensitivities and increased awareness.

Organizations in shifting markets exhibit this behavior, yet often choose denial rather than adaptation. The inability of the auto manufacturers to address their changing market is a prime example. Despite signals that the economic landscape has permanently shifted, the approach taken is one of “let’s get through these bad times, and when things improve we will be okay.” The reality is that when things get better they will also be different, and old behaviors won’t be enough. Instead, these organizations need to adopt new behaviors in order to adapt to the new economic drivers.

Lesson #2: Have a Clear Set of Roles and Behaviors in Times of Change

Sometimes tough environments turn good again. Crisis averted. Sometimes they get worse and turn into hostile environments…calamity ensues. Unlike the complexity of tough environments, hostile environments are very simple: Something is trying to kill you, and you need to change or you will cease to exist.

In hostile environments slime mold does something very special – it changes state completely. No longer a group of motley, starving, cAMPing signalers, the slime mold amoebas aggregate into a slug to make a getaway. This transformation happens wholesale. The slime mold is not a colony or a swarm, but a multi-cellular organism working together with differentiated parts and roles, all focused on escape and survival.

This collaborative and emergent behavior intrigues biologists: how does this transformation occur? How do individual amoeba know what to do? Who is in charge? The answer: It’s a collective action. The roles the amoebas play are partially predetermined, but roles adapt and adjust based on the other participants in the aggregate.

In the human view, there are various roles in organizational transitions, and in order to participate intentionally and effectively, it’s important that individuals consider in advance the parts they wish to play. How will you participate when things get rough? How much do you want or need to take part in the collective action? In order to make an informed, intentional choice, you need to know what you won’t give up and what you can leave behind.
Change is difficult, disruptive and disorienting. It’s common for organizations to make it very difficult to have thoughtful and honest endings to company participation. Looking to slime mold, there are three key roles that emerge during this transition: cheaters, martyrs and survivors. All are valid ways of participating in change, and all can have positive outcomes for both the individual and the organization when planned and managed for mutual benefit. As individuals, the smartest thing we can do is decide ahead of time what role we believe we will play and not be caught unaware.

In the slime mold world, certain amoebas are pre-destined to participate only reluctantly. These cells have a genetic mutation that prompts biologists to call them cheaters. During the slugging, crawling and spore phases of the slime mold lifecycle, these cheater cells just go along for the ride. They are able to disregard the calling to participate as martyr cells, which are those that form the stalk during the spore phase.

However, cheaters are not a given. Chris Thompson of the University of Manchester’s faculty of life sciences explains, “Interestingly, we noted that cheaters only cheated in the presence of non-cheaters – when they could get away with not ‘bailing water.’ When surrounded by other cheaters, they contribute to the group effort again, ‘aware’ that if no one does, all of them will die” [2].

Human systems have cheaters as well. But unlike the pejorative term applied to the slime mold behavior, the role of the cheater can turn out well for both the individual and the organization. Most cheaters maintain course during much of the transition, providing much-needed stability to the social fabric. When they do leave, they take old organization behaviors and expectations with them. People leave a company during tumultuous times for all kinds of reasons: lack of stability, layoffs and downsizing, frustration and political turf wars.

When cheaters leave and start new companies or join other organizations, they act as industry pollinators, bringing their experiences and lessons into new environments. Overall in the scheme of things, cheaters are natural and valid participants in the landscape of shifting markets.

So who’s doing all the work? Martyrs bear the brunt of it. In the slime mold world, a select number of cells are predisposed to form the muscle that enables the organism to move. Martyrs power the slime mold as it moves to a new and fertile environment, then form the structure of the stalk that supports the fruiting body. But these cells die during the last phase of the lifecycle, in essence “taking one for the team.” [3] In human terms, these martyrs are the people that work to ensure that organizational change happens. They support and drive the strategy and the direction during difficult times. But there’s a catch: as change-agents, they bear the brunt of the effort to change and leave the organization before reaping the benefits of their work.

I call this phenomenon the Moses Paradox, which is “the ironic reality that whoever is the key to building a new worldview doesn’t get to experience it.” The paradox is that in many cases, these people believe in and support the organizational change and participate fully in the transition. Yet because of this level of involvement, they are often in a position where they must use all their organizational and political capital to keep the team moving in the right direction of change. When the situation stabilizes, all too often they are either personally burned out due to their efforts, or forced out by the new leadership structure.

Finding yourself in the Moses Paradox can be a powerful and informative experience. That said, it’s crucial that you realize it’s happening, else you are being set up for a very surprising and disappointing close.

How do you know if you are subject to the Moses Paradox? Keep an eye out for these patterns: You work hard to protect the people on the team. You are pressured (and willing) to speak truth to power. You stand up strongly for the values of the culture. You recognize and embrace the need for change. You are willing to have difficult conversations with stakeholders and executives. You are asked to provide leadership and judgment in a severely volatile environment. You use your political capital to negotiate for the time and resources needed to make it through the change. You are held accountable for hard-line outcomes and measurable impacts in an environment that is ambiguous and unknowable.

Like cheaters, when martyrs leave, they carry with them their valuable experiences. Many times, people who have played this role are affected significantly by the experience, and in their new environments they work to create company structures that are more adaptive and resilient to market forces.
Who is left after the others are gone? The survivors – those tasked with the difficult challenge of acclimating to the new environment and defining new norms of behavior. After an organizational disruption and phase change, the relationships between people in teams, departments and other organizational divisions are ruptured and must be remade. It’s important to rally morale after such a change and look to the future for how the new relationships and environment will function. This moment is a golden opportunity to put in place mechanisms that help maintain healthy signaling and sensing behavior and to fully adopt an organizational competency in adapting to change.

Lesson #3: Foster Behaviors That Promote Healthy, Rich Environments

A rich environment is one where an organism can thrive and flourish. These environments can be described as nourishing, resource-rich, plentiful, un-metered, open, expansive and diverse. For slime mold, a rich environment means a high amount of bacterial food supply and plenty of room to expand. For organizational environments, a rich environment is one in which people have a shared vision and purpose, hold strongly shared values, are participatory, inviting, supportive and purpose-driven, and where high levels of trust exist.

In a harsh environment, sensing and signaling behavior was the alert for survival. In rich environments, how teams and individuals sense and signal creates ways for participatory, collaborative environments to thrive. When used in combination with models that support individual exploration, an organization’s ability to rapidly sense changes, signal new opportunities and capitalize on environmental shifts in positive ways is dramatically increased.

Techniques for sensing, signaling and exploring include listening platforms, working out loud and temporary autonomous zones.

Listening platforms: What do you hear? Technologies for signaling and sensing are on the rise. The democratization of publishing has created an unprecedented ability to share ideas widely and cheaply. Blogs, wikis, texting and other forms of sharing bits of information are shifting the social norms of how communities communicate and how collective activity is fostered and matured. But with so many signals washing over us all the time, how can we keep up? Where do we look for good signals? Personal listening platforms, communicating at the joints of an organization and getting the view from the heights are tools that are useful in ongoing signaling and sensing.

Personal listening platforms include any technology that scans the landscape and sniffs out keywords or influential people that you want to keep tabs on. Twitter, the developing social ecology of messages, updates and alerts allows people to keep a light connection in 140 characters or less per message. The core twitter service is more of an idea than a service…and the resulting services landscape has spawned a wide variety of applications that make Twitter and the volumes of messages it spawns more digestible. The older but no-less-important tools for listening are RSS and Google alerts. Keeping up with keywords on Google alerts is a fast and quick way to keep tabs on the pulse of a topic.

Communicating at the joints helps capture information across organizational boundaries. Like water-cooler conversation, sometimes the most meaningful signals are ones that happen at the edges of departments and divisions. Talk to people at the joints – the people who work on multiple projects, support multiple groups or have visibility into multiple departments. Find out what the priorities are for the work, what challenges are currently being addressed and what ideas are taking off with decision-makers. The nature of signals is based on human contact…something has to touch, so take some time to talk business with the people who see what kind of communications and touch points happen across organizational divides. Be thoughtful about respecting the source. Approach these dialogues as a way to foster relationships that are mutually beneficial to understanding and aligning to the important trends going on in your organizational community. Be willing to share information in both directions for the security and wellness of the whole.

In addition to connecting with people at the joints, most companies today have a leadership hierarchy where managers, directors and senior executives have broader visibility to wider organizational topics. Knowing the strategies and goals of the people in leadership – getting the view from
the heights – helps smaller units such as departments and teams align with these broader goals. Ask to read the strategy documents that pertain to the work you are doing. Although strategic goals are often confidential when in development, once they are put into action, many of the working documents can be widely shared. Yet it is surprising how few people ask to see them. Organizations that have a responsibility to public markets, shareholders, political constituencies and institutional investors are required to share information publicly. Knowing where to look for these documents can be difficult, so ask. In very large organizations, human resources, development departments and investor relations can help you navigate the public information sources to find the strategic documents that can help to articulate the strategy and help you understand the signals that your organization sends out to stakeholders.

Working out loud: Seeing what you mean. Another technique for sensing and signaling is working out loud. Working out loud involves collaborative activities to come up with concepts, socialize ideas and create a broader base of support through visible, transparent working processes. By enabling inclusive processes, working out loud helps teams develop open and participative ways to share ideas, so that sensing and signaling happens in real time and contributes to the success of the work.

Open design sessions are a technique used at Adaptive Path. As a consulting company, each engagement has a dedicated team of practitioners, yet we want a way to take advantage of the skills, knowledge and insights from people outside the dedicated team. Open design sessions are one-hour sessions where a team opens up participation to others. Design teams schedule them in advance, and the staff keeps these times open to participate. For an hour, the project team has access to additional people, brains, ideas and experiences to help think through a design approach, give critique and feedback on the work, or address a specific challenge through discussion, ideation or sketching. The resulting work leads to positive experiences for everyone involved: the project team avoids getting trapped in a single mode of thinking; the wider team gets exposure to the challenges and details of project life and can make a contribution to the project through their skills and experiences.

This open working style encourages the free sharing of ideas and approaches and serves as a pollinator across engagements. Working together as an ad hoc team enables collaboration for people who don’t frequently work together. Getting early exposure to each other’s working styles makes it easier to hit stride when these people share a project. When the project kicks off, team members start out with an understanding of the different personalities and perspectives. This running start can be crucial on fast-moving projects, and helps a new team get up and run quickly.

Information radiators are physical displays of project artifacts. They keep the team up-to-date on the quickly moving set of tasks in progress and keep everyone in sync on the as-it-happens status of the project.

Alistair Cockburn, who defines it as follows, coined the term: “An information radiator displays information in a place where passersby can see it. With information radiators, the passersby don’t need to ask questions; the information simply hits them as they pass.” [4]

Information radiators work because by definition, it takes very little energy and effort to view the display; people can view them just by walking on their usual paths. Another important characteristic is that the information changes over time, rewarding people for paying attention. Placing the work of a team in a visible place is a simple yet surprisingly powerful way to share information, foster interest and invite questions.

Walk-by contributions are similar to information radiators in that they are physical, visible and invite viewing. Walk-bys take it an additional step by inviting participation. People contribute as they walk by the display. Sticky notes, a pen and a simple call-to-participate are all you need to get started. Complexity can range from simple information-gathering questions (What job titles have you held?) to more complex idea generation (What is User Experience?). Walk-by contributions open up participation to be inclusive and transparent and to meet people where they are rather than requiring people to contribute only within constraints or norms. Where are good places to put walk-by contributions? Wherever the traffic flow can foster participation: outside of offices, on the outside of office doors, in kitchens, bathrooms and hallways.
Temporary Autonomous Zones: Structured time for unstructured exploration. In 1985 writer and anarchist poet Hakim Bey coined the term T.A.Z: Temporary Autonomous Zone, a temporary space outside the formal structures of control. [5] This idea inspired social and anarchist collectives to foster highly engaged (and often highly outrageous) happenings that broke open the unexpected and created opportunities for new ideas to take form.

Organizations that create spaces for this self-determined, exploratory curiosity are rewarded with new and inventive ideas to consider, develop and pursue. What do these TAZs look like? Here are three examples, ranging from the social to the organizational.

- **Burning Man** is a large-scale social experiment in community, radical self-expression and radical self-reliance that takes place every summer on a dry lake-bed in Nevada. In 2008, almost 50,000 participants collected on the desert for the weeklong event. A characteristic of the event is the large-scale art that is created at and for the event. Many of these visionary and outsider works have been added to public art collections. (That is, if they weren’t burned at the end of the event.) But the ongoing message of the Burning Man experiment is this: Anyone and everyone can create; making things is a crucial part of being human and should be part of everyday life; shared safety and caring for others trumps competitive behavior; and collective action is the lever that changes the world.

- **Wieden + Kennedy Slime Mold Award**: Dan Wieden, co-founder of the famously creative advertising firm of Wieden + Kennedy is a known fan of slime mold. [6] The company created the aptly named Slime Mold Awards to encourage and support employees to realize their creative potential in any medium. Anyone can submit a proposal for the financial award. The only major criterion is that it be off-topic…no ad-related ideas allowed. By explicitly supporting ideas outside the core purpose of the company and fostering creative passion in members of the team, Wieden + Kennedy ensures that topics of exploration and creative fodder are constantly expanding… not slowly dying under the heavy burden of organizational groupthink and norms. This ad hoc and temporary way for people to explore and expand their curiosity with the support of the organization is one way to include the TAZ idea in a more structured environment.

- **Google 20%**: What happens when you bake creative exploration into how a company functions? Let’s look at Google and the 20% factor [7]. At Google the freedom to work on projects of personal interest has become core to the culture and to the business success of the company. In a nutshell, all engineers can (and are encouraged to) spend 20% of their work time (that is, a day a week) on projects of personal interest. It’s estimated that approximately one-half of the new product launches are based on products that emerged from the 20% time. This approach to ongoing, self-determined innovation is being called innovation time off.

The concept of unstructured, creative time isn’t new in innovative cultures that thrive on new ideas. 3M’s culture has long had a 15% version. [8] For example, *skunk works* is a term “widely used in business, engineering and technical fields to describe a group within an organization given a high degree of autonomy and unhampered by bureaucracy, tasked with working on advanced or secret projects” [9].

As this trend grows, it will be interesting to see how other companies adopt and adapt this practice. One thing is certain: many individuals pursuing projects of personal interest can explore and expand ideas much more rapidly than a single executive or management team. In the race for adaptability, the company with an exploratory and inventive staff is better suited to survival.

As these ideas percolate from anarchist poetry and Burning Man into everyday experience and work-life, people in organizations are embracing these new behaviors and shifting the organizational competencies for adaptation.

**Companies Are Made of People**

These examples are only a few ideas for how companies can evolve into organizations adept at flexing and adapting to constant change. These new behaviors are going to take some work to get used to and to get good at.

Working collaboratively with others is difficult. Constantly signaling and sensing requires that we cooperate and partner with co-workers, team
members and organizational leaders. It also means that we need to know
ourselves, recognize environments that support our goals and needs and
have the forthrightness and confidence to communicate clearly and openly
about our individual needs, concerns and goals.

We need to realize that this work may never feel easy. To quote
community organizer Alison Barrett, “It doesn’t get easier, you just get
faster.” And that’s what’s needed…the ability to sense and adapt in tempo
with environments that are constantly changing.

That said, we can start with small steps. Learning from slime mold and
adopting just a few of its lessons are enough to change our behaviors, to
improve our organizations and to create positive change in the world.

After all, if slime mold can figure it out, can’t we? ■