

The Connected Company

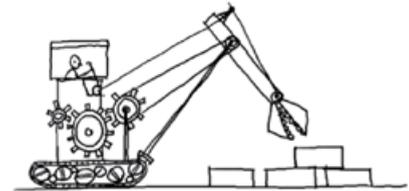
How Distributed Organism Businesses
are Rising Against the Machine
to Build a More Connected World

Dave Gray

Historically, we have thought of companies as machines, and we have designed them like we design machines.

A machine typically has the following characteristics:

1. It's designed to be controlled by a driver or operator.
2. It needs to be maintained, and when it breaks down, you fix it.
3. A machine pretty much works in the same way for the life of the machine. Eventually, things change, or the machine wears out, and you need to build or buy a new machine.



A car is a perfect example of machine design. It's controlled by a driver. Mechanics perform routine maintenance and fix it when it breaks down. Eventually the car wears out, or your needs change, so you sell the car and buy a new one.

And we tend to design companies the way we design machines: We need the company to perform a certain function, so we design and build it to perform that function.

The machine view is very successful in a stable environment. If there is a steady, predictable demand for a standard, uniform product, then machines are very efficient and productive. In such conditions, a machine-like company can profit by producing uniform items in large lots.

But over time, things change. The company grows beyond a certain point. New systems are needed. Demand changes. Customers want different products and services. So we need to redesign and rebuild the machine to serve the new functions.

This kind of rebuilding goes by many names, including re-organization, reengineering, right-sizing, flattening and so on. The problem with this kind of thinking is that the nature of a machine is to remain static, while the nature of a company is to grow. This conflict causes all kinds of problems, because you have to constantly redesign and rebuild the company while you also need to operate it. Ironically, the process of improving efficiency is often very inefficient. And the faster things change the more of a problem this becomes.

Companies are not really machines, so much as complex, dynamic, growing systems. After all, companies are really just groups of people who have banded together to achieve some kind of purpose.



A machine's purpose is designed into its structure. Once a machine's purpose has been set, it does what it has been designed to do. But if the environment changes, a machine does not have a way to become aware of the change and adjust to the new situation. It just becomes obsolete.

Organisms, on the other hand, control themselves. An organism's purpose does not come from an outside designer or controller but from within. An organism strives over time to realize its intentions in the world. As conditions in the environment change, an organism responds by adjusting its behavior and improving its performance over time. In other words, it *learns*.

“ Companies are not really machines, so much as complex, dynamic, growing systems.

For many years, the machine view has prevailed, and many companies are designed as information-processing and production machines. But information processing is not learning. Production is not learning. Learning is a creative process, not a mechanical one. Many critical factors in business cannot be easily counted, measured or controlled.

For example, what is the lifetime value of a happy customer? What is the multiplying effect of a happy customer that shares their positive experiences with friends, colleagues and family? What is the value of an authentic smile when greeting a customer, as opposed to a fake one? What is the value of a hundred, or a thousand, people who authentically and enthusiastically connect with customers on a daily basis? Imagine trying to measure something like authenticity. You can force people to say “have a nice day.” You can’t force them to mean it.

Especially in a service economy, the most important things—like authenticity, trust, and connection—are often the most difficult to measure, and they certainly can’t be controlled by traditional methods, like supervisors, policies, scripts and procedures.

This brings us to the topic of closed and open systems.

Closed and Open Systems.

Most natural systems are open systems. An open system is simply a system that exchanges information with its environment. For example you breathe in air, which provides your cells with oxygen. You drink water and eat food to survive. Companies are open systems too, because they exchange information with customers and suppliers.

A closed system is self-contained and isolated from its external environment. Most machines are designed as closed systems, with a hard shell to protect their delicate insides from the surrounding environment. For example, a watch has a hard case that protects its inner workings from the outside world. A watch can operate efficiently as long as that case is not violated. A factory works in a similar way. Like the inner workings of a watch, its internal processes are isolated from the outside world.

Because it is isolated from its environment, a closed system is easier to control. Performance is easier to measure because the environment inside the shell or system boundary is stable.



A CLOSED SYSTEM

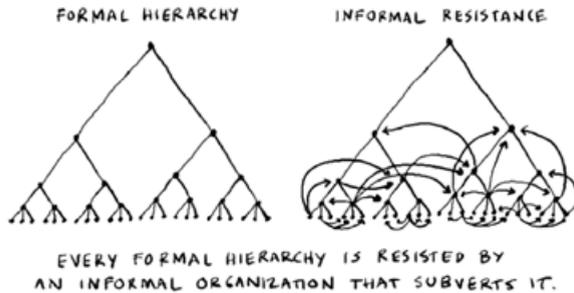


AN OPEN SYSTEM

In contrast, an open system is continually exchanging energy with its environment, taking in information and adjusting based on feedback. This constant flux makes open systems more difficult to measure and control.

Auto manufacturers in the U.S. have traditionally focused on building factories to efficiently produce cars in large quantities. These factories are closed systems: as long as they get a constant volume of input they produce a constant volume of cars. But the auto industry as a whole is an open system, subject to things like customer demand, which the companies

cannot control. The auto industry has outsourced the “open” part of their system to networks of dealers. The result is that automakers continue to push cars out of their factories even when demand drops. When this happens, the market becomes glutted with new cars and prices fall. Dealers can’t sell the cars, and manufacturers are forced to offer incentives and sell cars at a loss just so they can keep the factories running.



The auto industry’s focus on formal systems of control has also resulted in an equal and opposing force, organized labor, which rose naturally as a counterbalance to top-down, machine-like control systems. Labor relations in the auto industry have historically been some of the most contentious you will find anywhere.

The bottom line is that most people don’t like to be bossed around, and if you push them too hard they push back. They prefer to have control over their work. Organisms are open systems. Unlike machines, which can be controlled, organisms control themselves.

While parts of an organization can sometimes be isolated and treated as closed systems, all organizations are fundamentally organic, open systems, constantly exchanging energy and information with the outside world. They are made up of people, who have a will of their own. People can be guided and governed, but they don't like to be controlled.

Complex Adaptive Systems.

Complex adaptive systems are a special class of open systems, characterized by dynamic networks of agents interacting with each other and their environment. Complex adaptive systems are continuously evolving and shifting. Examples of complex adaptive systems include ant and bee colonies, the stock market, and biological ecosystems, as well as human organizations like political parties, companies and cities. One trait of complex adaptive systems is that the behavior of the whole cannot be predicted by analyzing the parts in isolation.

So what happens if we rethink the modern company, if we stop thinking of it as a machine and start thinking of it as a complex adaptive system? What happens if we think of the company less like a machine and more like an organism?

One possibility is to compare the traditional organization with other large-scale complex systems, especially human systems, like cities.

Cities are large, complex, adaptive systems, but we don't really try to control them. In Stephen B. Johnson's book *Emergence: The Connected Lives of Ants, Brains, Cities, and Software*, he quotes complexity pioneer John Holland:

"Cities have no central planning commissions that solve the problem of purchasing and distributing supplies... How do these cities avoid devastating swings between shortage and glut, year after year, decade after decade?"

No, we don't try to control cities, but we can manage them well, and for many purposes, cities seem to be able to organize themselves to get things done, without central planners or managers.



A COMPLEX ADAPTIVE SYSTEM

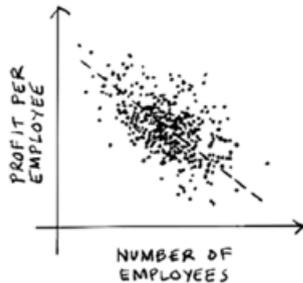
Yes, cities have planners and managers, but they don't try to control the activities in the city the way that managers try to control companies. What they do is manage the support systems—the infrastructure and essential services—rather than trying to direct the activity of every citizen. For good reason. Cities are far too complex, and have so many connections and interactions that it would be impossible to manage them in a top-down way.

If we start to look at companies as complex systems instead of machines, we can design and manage them for productivity instead of collapse.

Cities are also more productive than their corporate counterparts. In fact, the rules governing city productivity stand in stark contrast to the “3/2 rule” that applies to company productivity. As companies add people, productivity shrinks. But as cities add people, productivity actually grows.

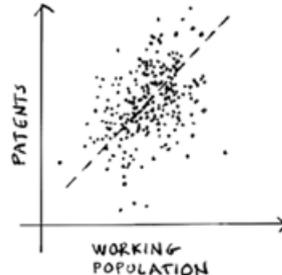
A study by the Federal Reserve Bank of Philadelphia found that as the working population in a given area doubles, productivity (measured in this case by the rate of invention) goes up by 20 percent. This finding is borne out by study after study. If you’re interested in going deeper, take a look at the recent New York Times article entitled “A Physicist Solves the City.”

AS COMPANIES GROW,
PRODUCTIVITY DROPS...



Source: CYRA Journal, Federal Reserve Bank of Philadelphia study

... BUT AS CITIES GROW,
PRODUCTIVITY INCREASES



Okay, you say, but cities are fundamentally different than companies. Just because this works for cities doesn’t mean that it will work for companies. Right?

The Long-Lived Company.

Actually, there's some interesting data there, too. Back in the early 1980s, right after the revolution in Iran, Shell Oil was concerned about the future of the oil industry. What might Shell look like after oil, they wondered? So they commissioned a study with some very interesting parameters:

1. First, they looked only at large companies with relative dominance in their industries, such as Shell had.
2. Second, they looked only at companies with very long lifespans—100 years or more.
3. Third, they looked at companies who had made a major shift from one industry or product category to another.

In other words, they looked at the immortals: the companies that didn't die.

The study was never published, but the findings were detailed in a book: *The Living Company* by Shell executive Arie de Geus. Shell studied 40 large, long-lived companies, some of which were still surviving after more than 400 years.

Interestingly, these companies had a lot in common with large cities:

Distributed control: Long-lived companies were decentralized. They tolerated “eccentric activities at the margins.” They were very active in partnerships and joint ventures. The boundaries of the company were less clearly delineated, and local groups had more autonomy over their decisions, than you would expect in the typical global corporation.

Strong identity: Although the organization was loosely controlled, long-lived companies were connected by a strong, shared culture. Everyone in the company understood the company’s values. These companies tended to promote from within in order to keep that culture strong. Cities also share this common identity: think of the difference between a New Yorker and a Los Angelino, or a Parisian, for example.

Feedback loops: Long-lived companies had their eyes and ears focused on the world around them and were constantly seeking opportunities. Because of their decentralized nature and strong, shared culture, it was easier for them to spot opportunities in the changing world and act, proactively and decisively, to capitalize on them.

To design connected companies we must think of the company as a complex set of connections and potential connections, a distributed organism with brains, eyes and ears everywhere, whether they are employees, partners, customers or suppliers. Most importantly, a connected company must be able to respond dynamically to change, to learn and adapt in an uncertain, ambiguous and constantly evolving environment.

Moments of Truth

Jan Carlzon, former CEO of SAS Airlines, pointed out in his book *Moments of Truth* that a service company's performance is contingent on its ability to deliver in "moments of truth:" critical time periods when companies have an opportunity to deliver a customer impression. That impression can be positive, if the company can respond quickly and decisively, or it can be negative, if the company fails to deliver. Either way, in these kinds of moments, emotions run high and will leave a lasting impression.

But moments of truth come in so many varieties that it's impossible to think of them all in advance. You can't possibly predict every situation and plan for it in advance. Even if you could, the manual of procedures would be so thick that front-stage workers could never look up the procedures in time.

For people to be effective in such situations, they need to understand the company's purpose. They need a good, holistic understanding of the job the company does for customers. They need to know what the company stands for. And they need principles to guide their decision-making. A moment of truth at Nordstrom and a moment of truth at Southwest Airlines will require different kinds of responses, because the companies do different jobs.

But even if employees understand the company's purpose, they can only respond effectively if they have the freedom to do so. Most companies don't give their workers the freedom and autonomy to act decisively and proactively to address customer needs.

The Problem With Procedures

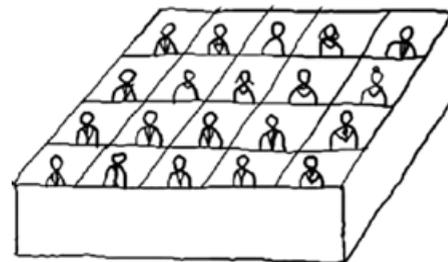
In many companies today, the people at the top try to design processes with rules and procedures that will predictably and reliably solve any problem that should arise. But processes are brittle. A new process breaks a lot. And when a process breaks, we usually fix it by changing the process, or adding a few more rules to handle exceptions. Over time, most processes become rigid, bureaucratic, and bloated with rules, regulations, and procedures.

The purpose of all these procedures, policies and rules is so that the rank-and-file employee doesn't have to make decisions. The rules are designed to reflect the decisions that top management would presumably make, given the same situation. The big idea is that for every problem there is one optimal solution that balances the needs of the company with the needs of the customer, and smart people can figure out that optimal solution and roll that information out to the rest of the company in the form of rules.

However, this requires that all possible problems be defined in advance. So there's a lot of work that has to go in to identifying and solving problems that don't exist yet and may never exist.

And the more problems and solutions we define in advance, the more difficult it becomes for employees to understand or even find the rules that apply in a given situation.

But imagine a company that trusts every employee to use their best judgment and act in the best interests of the customer and the company. A company where employees have all the information they need to make good decisions. A company where most of the policies and procedures that constrain and limit employees are unnecessary, because every worker is fully authorized to act as a representative of the company, to make decisions and to authorize expenses when necessary. If you can imagine these things, then you are imagining a learning company.



THE MORE IDIOT-PROOF
THE SYSTEM, THE MORE PEOPLE
WILL ACT LIKE IDIOTS.

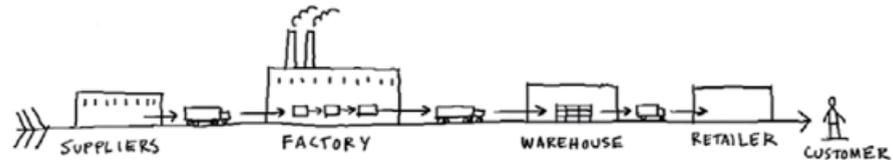
“The more problems and solutions we define in advance, the more difficult it becomes for employees to understand or even find the rules that apply in a given situation.”

The Front Line Is Not a Production Line

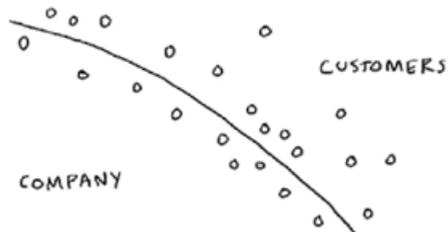
“No plan survives contact with the enemy.”— Helmuth von Moltke

In today’s networked, service-driven marketplace, the focus needs to shift from the line of production to a different line—the front line. The line of production is a one-way arrow, starting with raw materials and suppliers, and ending with the customer who buys the product.

THE LINE OF PRODUCTION



THE LINE OF INTERACTION



But the front line is not a one-way arrow, so much as a boundary, like the cold front in a weather pattern: it’s the edge of the organization, the interface where customers and the company interact.

Optimizing for the production line and optimizing for the front line require fundamentally different kinds of organization.

A production line requires efficiency. Inputs can be standardized, and environments and processes can be internally controlled.

But a front line requires optionality. Front line people deal with environments and circumstances that cannot be predicted. What they need are support systems that they can access as needed, like “call a friend” on *Who Wants to be a Millionaire*.

The Law of Requisite Variety.

The Law of Requisite Variety, also known as Ashby’s Law, states that any control system must be capable of variety that’s greater than or equal to the variety in the system to be controlled.

In other words, if there is variety in the environment, you need enough variety in your system to absorb it effectively. Imagine you are throwing balls at a juggler and the juggler is trying to keep them all in the air. No matter how skilled the juggler, there will always be a point where there are too many possible states for the juggler’s mind and hands to maintain control. At some point, you will either need to reduce the number of balls or you will need more jugglers.

There are two ways to deal with variety. You can reduce variety by standardizing inputs and controlling the environment as much as possible (fewer balls), or you can design a system that's capable of absorbing more variety (more jugglers).

Reducing Variety.

Reducing variety is a machine-like, factory approach to company design. This works when you can successfully constrain your inputs to a small number of possible states and control the environment where the service is delivered.

McDonald's is an example of a service company that succeeds because it is able to reduce variety. Consider the McDonald's drive-through experience: As a customer your orders are limited by what you can see on the menu. You order some quantity of menu items, which triggers a factory-like production process behind the scenes, while you pay at a payment window. You pick up your food at a delivery window. Purpose matches performance. Service delivered.

As a customer you are a willing participant in the factory experience. Your car is an item in an assembly line and you can be sure that the time between your order and the delivery of your food is carefully monitored by the company.



This works for McDonald's because they have organized their promise around something that can be consistently and reliably be delivered in a factory-like way. For this to work, customers must follow the process as prescribed. If you walk in to a McDonald's restaurant, you don't expect the kind of service you would get in a sit-down restaurant. If you sat down at a table and waited to be served, you would be waiting a long time. McDonald's works more like a giant vending machine. You wait in line until you get to the machine interface, you put in your order and your money, and the food comes out the slot. This works for McDonald's because they have narrowed customer expectations to match a factory-like service.

McDonald's is an excellent service provider in their niche, not so much because they are excellent at service delivery; but rather because they have reduced their promise to a very narrow window, reducing variety in their inputs and controlling the environment as much as possible. There is a cost to this approach, however. People in such tightly-controlled systems don't have a lot of autonomy and they have few opportunities to exercise creativity at work. So when a McDonald's employee says "Have a nice day," you might feel like it came from a robot. Because when people are treated like robots, they act like robots.

Absorbing Variety.

Most services cannot reduce the variety of their inputs and control their environment as easily as fast-food restaurants. Customer demand is not usually so easily standardized and regulated. Customers have many problems to solve in their lives. They have many jobs that need doing, and only a few of them can be easily reduced to a small set of standard inputs.

Customers have a tendency to resist standardization. The more you try to standardize their service requests, the more you will piss them off. Not a good recipe for customer satisfaction or long-term business growth.

The real world throws a lot of variety at you.

It's bound to throw things at you that you didn't prepare for, plan for, or anticipate. In most cases, service providers must reorganize to absorb variety rather than reduce or contain it.

Online shoe store Zappos' call centers are designed to absorb variety. Most call centers look at customer support as a cost. After all, if you have already been paid for a product and delivered it, then you already have your money and any additional effort on your part will cost you money, right? Zappos looks at the equation differently.

ABSORB VARIETY



Zappos knows that a customer call probably represents a very tiny fraction of their total interactions with the company. Unlike most online retailers, Zappos encourages person-to-person contact. Zappos publishes their 1-800 number on every page of their site. Online stores don't get a lot of chances for real human contact with customers, and Zappos does everything they can to turn customer calls into positive, human experiences that customers will remember. Their number one goal is to deliver experiences that are so great they are worth talking about.

The first step in creating a great customer experience is hiring the right people in the first place. After four weeks of training, Zappos call center reps are offered \$3,000 to quit immediately. Remember, this is for an \$11-an-hour job. By offering people money to quit, Zappos ensures that the people they hire are really excited about working there.

At Zappos, there are no “customer service scripts” or pre-set time limits for customer support calls. Reps are encouraged to take as much time as necessary to solve the customer's problem, and their mission is to provide the best customer service possible. Zappos has a 100% satisfaction guaranteed return policy. After the call, service reps follow up and keep their promises, and send a personal note as part of their follow-up.

Good customers are profitable customers.

Zappos treats frequent customers well, with surprises like upgrades from standard ground shipping to next-day air. Making customers happy, says CEO Tony Hsieh, leads to cost savings elsewhere, like marketing. “We let our customers do our marketing,” he says. By making sure they get the right people and giving them the autonomy and authority they need to serve customers, Zappos call centers are designed to absorb variety, not contain it.

“The first step in creating a great customer experience is hiring the right people in the first place.”

Freedom to Experiment.

Service leaders like Southwest Airlines, Nordstrom and the Ritz-Carlton give employees wide latitude to resolve issues for customers. At Southwest Airlines, employees are expected to act immediately to take care of customers, and only to check with a supervisor if a customer asks for something that makes them feel uncomfortable. At Nordstrom, employees are told to use their best judgment in all situations. If a customer at a Ritz-Carlton hotel has a problem, any employee has the authority to spend up to \$2,000 to resolve it immediately, without

checking with a supervisor. One study found that employees who are given more latitude are more effective and learn faster than their peers.

The thing is, you can't learn in a box. Learning requires the freedom to experiment, to try new things, to step outside the lines. People learn through an ongoing process of trial and error. They learn by doing things. You learn to read and write by reading and writing. You learn math by solving math problems. You learn to ride a bike by riding a bike, to swim by swimming and so on.

Learning is fundamentally different than training. Training is when a company teaches people how to do stuff that the company already knows how to do. Learning is a way to deal with new, uncertain and ambiguous situations, a process of exploration by which you come to find and discover new things.

To the degree that your business environment is uncertain and variable, it's impossible to know in advance what kinds of actions will constitute good performance. There is no way to specify behaviors in advance when you don't know what kind of behavior will be required. Creative solutions must be generated by people thinking creatively within the context of their situation.

In *The Nordstrom Way: The Inside Story of America's #1 Customer Service Company*, Robert Spector and Patrick McCarthy clearly point out the secret of Nordstrom's success: "Nordstrom

gives its employees the freedom to make decisions. And Nordstrom management is willing to live with those decisions. Everything else flows from that premise.”

Giving employees this kind of freedom requires a great deal of trust. But without this kind of latitude they won't be able to learn and improve.

It's Time to Change

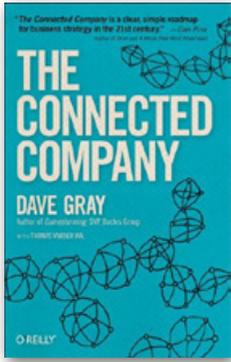
Connected companies learn faster and move faster. While others analyze risk, they seize opportunities. While others work in isolation, they link into rich networks of possibility and expand their influence. While others cut costs and lay off workers, they hire and expand. While others plan, they act.

In the future, every company will be a connected company. Although they may be able to survive for some time, eventually every company must give customers what they want, or they will die. Connected customers are already demanding more than divided, industrial-age companies can deliver. This future is inevitable and it's only a matter of time.

Can your company become a connected company? The challenges are substantial but there is really no choice. In the words of Jack Welch,

“Change before you have to.” 📖

Info



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ABOUT THE AUTHOR | Dave Gray, SVP Strategy, Dachis Group, is an author and management consultant who works with the world's leading companies to develop and execute winning strategies. His previous book, *Gamestorming*, has sold more than 50,000 copies and has been translated into 14 languages.

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