

High Performance Organizations in a Wicked Problem World

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Table of Contents

<i>Abstract</i>	3
<i>Keywords</i>	3
<i>Context</i>	4
<i>Five Key Characteristics of Wicked Problems</i>	4
<i>The Critical Outcomes: Learning and Productivity</i>	6
<i>Methods and Tools: Facilitated Collaboration and Work Place Design</i>	8
<i>Facilitated Collaboration</i>	8
<i>Insight, Problem-solving, Creativity, and Innovation</i>	10
<i>Work Place Design</i>	11
<i>Collaboration settings</i>	13
<i>The R&D Lab</i>	14
<i>Designing the ideal lab</i>	15
<i>Tools</i>	17
<i>Measuring the results</i>	17
<i>Examples</i>	18
<i>Summary</i>	20

Abstract

Businesses face difficult challenges related to increasing competition, accelerating change, and increasing complexity. These are sometimes referred to as “wicked problems.” Successful organizations develop new capabilities to deal with these kinds of problems. Three methods are particularly helpful in doing so: facilitation of the work process, collaboration involving many people, and design of the work place to support effective work. Outcomes of these methods include high productivity, faster time -to-solutions, and better quality results. Numerous examples are provided from the experience of the authors.

Keywords

Increasing competition; accelerating change; increasing complexity; wicked problems; creativity, problem solving, innovation; facilitation; collaboration; work place design; research and development (R&D); tacit and explicit knowledge; social design.

1

Context

Businesses around the world are facing the challenges of increasing competition, accelerating change, and increasing complexity every day. Authors E. Jeffrey Conklin and William Well call these “wicked problems,” as distinct from tame ones.¹

Wicked problems, which can also be referred to as wicked “situations,” have specific, identifiable characteristics, and attempting to solve them using conventional analytic means is almost certain to fail.

Five Key Characteristics of Wicked Problems

Wicked problems have to be solved for an organization to operate effectively, or even to operate at all, to survive. Finding good or excellent solutions to these problems matters for the future.

Wicked problems are highly unpredictable and can erupt from nowhere without warning and quickly turn into a major crisis. They interrupt to regular course of business and they have to be dealt with right now.

Wicked problems cannot be fixed with old solutions. Outside-of-the-box solutions are usually required, so it’s going to take new insights, new ideas, creativity, and innovation to deal with them.

Wicked problems consequently can’t be solved in a simplified, static, or sequential manner. If you put together a committee that works on them for a few hours a week, you probably won’t get what you need.

Wicked problems can’t usually be solved by one person working alone because they’re just too complex. Solving them requires the blending of many different kinds of knowledge and different points of view, and structured problem-solving methodologies can often help.

Wicked problems therefore present not just operational challenges for every company, but also thinking challenges for every leader and every manager. And actually the thinking challenges are the more critical ones.

A common wicked situation is the shift from one product generation to the next in any industry. This situation is so challenging, in fact, that commonly a company that was market leader before the change isn’t the leader after because the shift was so significant that a new company seized vital market share away from the former leader.

¹ Conklin, E. Jeffery and William Well. “Wicked Problems: Naming the Pain in Organizations.” Group Decision Support Systems, 1999.

For example, the first generation of North American autos was dominated by Ford, but in the 1920s GM's organizational and product innovations shifted the industry into a second generation and moved GM to leadership. Quality and efficiency became important factors in the third generation beginning in the 1970s, and Honda and Toyota became leaders not only in North America but throughout the world, a position they still maintain.

Change in the PC industry has been much faster, and leadership has shifted frequently. Xerox invented the PC but couldn't market it successfully. Apple copied Xerox and set a new standard. IBM surpassed them both, but then unintentionally ceded control of the industry to Intel and Microsoft, and then its own product was soon passed by Compaq, which was then acquired by HP in its struggle to compete with Dell.

20th century dominance in retail shifted from Sears, Wards, and JC Penny, to K-Mart and then to Target, Wal-Mart and Home Depot as computer technology has taken over inventory and supply chain management.

The same patterns are evident in almost every industry, including financial services, airlines, media, and telecommunications. Significant change in product/service generations in almost every case has brought new companies to the forefront, and many that were formerly leaders have lost their dominant positions.

One of the key insights we get by observing these kinds of changes is a sense of how important it is for managers to have not only clear thinking and clever strategy, but significant and deep insights, creativity, and innovativeness when dealing with change. And these qualities are needed on a continual basis, because change driven by the wickedness of increasing competition and complexity are now constant issues, not just intermittent ones. This is itself a change from how things used to be, and it's a significant one, but because the tools and methods appropriate to dealing with wicked problems are not well known or widely practiced, most companies continue to struggle and often fail to meet their challenges.

This paper describes methods that managers can apply when dealing with wicked problems to obtain not only robust solutions, but also significant improvement in how their organizations create new and better options for the future on an ongoing basis, and thus systemic improvements in organizational capability.

2

The Critical Outcomes: Learning and Productivity

In a world of wickedly proliferating problems, superior ability to deal with them may provide a key competitive advantage. This ability involves skills related to effectively understanding, diagnosing, analyzing, modeling, creating, inventing, solving, communicating, and implementing.

These are all attributes that we might consider facets of “learning,” and naturally enough any organization that thrives in a rapidly changing environment necessarily has developed the capability to learn and to apply that learning to keep up with the changes.

Hence we get Arie de Geus’ insight that the company that learns fastest - and is able to translate that learning into products, processes, and structures - wins.²

The advantage gains significance the faster a company can learn, the faster it can produce the next product, and by creating a positive self-reinforcing feedback loop of accelerated learning it attains shorter product life cycles, quicker learning, yet shorter product life cycles, etc. There’s of course a danger with this tightening spiral, which is that a product has to endure long enough in the market to return a profit. But the competitive dynamics of the market are compressing inexorably in spite of what may be good for any one company, and so like an arms race, there’s no choice but to keep up.³

In spite of the dangers, then, developing the capacity to systemically reduce the cycle time is a powerful force. Toyota perfected cycle time reduction in its many-decades drive to reduce the time required to change production models on its assembly lines, and the analogous process is now needed for the thinking challenges related to problem-solving and dealing with complexity.

At root what we’re talking about, then could also be called “the productivity of knowledge work.”

Productivity is the ratio of investment required to results obtained. In the auto industry this might be measured as person-hours-per-car-manufactured; in a bank, it might be cost per transaction; in a software company it could be person-years required to produce a new program.

But while these examples deal primarily with productivity in “production” environments, we are more interested in attaining improved outcomes in environment of unknowns, where the central task is to create new knowledge to solve new problems.

² De Geus, Arie. *The Living Company*. Harvard, 1997.

³ Von Braun, Christophe-Friedrich. *The Innovation War*. Prentice Hall, 1997.

This is not to say that building cars or managing banks are not complex activities, but the distinction is a critical one because there is a substantial difference between progressive refinements attained in a mature or proven domain, and the breakthrough kinds of insights that lead to competitive advantage, or better, sustainable competitive advantages.

3

Methods and Tools: Facilitated Collaboration and Work Place Design

Two methods are particularly useful in the quest to improve the organization's capacity to deal with wickedness: Facilitated Collaboration and the Work Place. I'll examine them in turn, and then give examples to show how integrating them creates a true system of high performance.

Facilitated Collaboration

As more and more of the work is knowledge work⁴, it requires people to apply their intellectual abilities to situations of novelty. At the same time, more and more of this work involves high technology, so much so that the people who do the work know more – possibly much more – than the managers who supposedly supervise them. So what does it mean to manage people when they know more about the work than the managers do? It means that the function of management is something other than directing, controlling, approving, or deciding.

So instead the necessary function is to help people to work more effectively, more creativity, more productively, and with greater satisfaction. The word we use to describe these functions is “facilitation.”

To “facilitate” means to make it easy, to remove obstacles, to smooth out the rough road, or otherwise prepare the way in advance.

“Collaboration” is many people working together so that their different points of view, bases of experience, and knowledge of the problem and its context can be blended together to yield actionable solutions. This is important because getting a comprehensive grasp on complexity typically requires the integration of many different points of view.

Collaboration can involve 2 people, ten, one hundred, or an entire organization. It can occur in many settings:

- Online, using very structured software programs
- Online, in unstructured instant messaging, email, and chat rooms;
- In highly structured face to face workshops, or
- In entirely unstructured encounters at the water cooler or coffee machine.

⁴ Drucker, Peter. *The Age of Discontinuity*. Harper & Row, 1969.

Facilitated collaboration is particularly important when we consider how easy it is for people to develop sub-optimal solutions to difficult problems, which happens so often simply because people don't understand the full complexity of the systems they're dealing with. Jay Forrester points out that we commonly design so-called solutions to complex problems that typically result in undesirable unintended consequences because true solutions are counter-intuitive, meaning that they're not the ones we would normally think of, or even ones that we would normally reject.⁵

Hence, facilitated collaboration can help people to see the whole system by structuring the creative process in way that encompasses all relevant factors, not just the obvious ones.

In our work we've found that carefully designed and facilitated collaborative process can lead to much more comprehensive solutions even while the time required to reach them is compressed from months down to days or weeks.

For example, we helped a software company reach consensus on a new product in 1.2 days by using a facilitated process. It was estimated that without the facilitation it would have taken 3 to 6 months to attain the same result.

The core of facilitation as a methodology is an understanding of how people solve problems, and how they can do so in a way that favors innovation rather than anti-innovation. Murakami and Nishiwaki point out that in the typical organization there are three different kinds of people, "idea generators," "idea promoters," and "idea killers."⁶ Unfortunately, the vast majority of people are idea killers, so the challenge of facilitation is to enable 100% of the people to be idea generators and promoters, and to use the process itself to turn idea killers into healthy skeptics who contribute critical insights, rather than people who suppress the creative process entirely. Our approach to facilitation does this by creating a structured learning pathways that allows people to explore the problem and the larger context in which it must be solved.

In do so we work to avoid one of the worst things that can happen to any group that's trying to solve a complex problem - getting an answer too quickly. While questions open doorways to new worlds of learning and possibility, answers cut off exploration. Hence, the core of facilitation method is to ask questions and by the very structure of the process to prevent people from getting answers too soon.

It's also important to overcome the tendency of people to avoid controversy, which Irving Janis has called "groupthink."⁷ Controversy is important in creativity, but common group dynamics suppress it in favor of congenial interactions. Facilitation can stir things up sufficiently to keep a group from settling for easy solutions that don't work.

⁵ Forrester, Jay. "Counter-intuitive Behavior of Social Systems." *Technology Review*, January 1969.

⁶ Murakami, Teruyasu and Takashi Nishiwaki, *Strategy for Creation*. Woodhead Publishing, 1991.

⁷ Janis, Irving L. *Groupthink*. Houghton Mifflin, 1982.

Insight, Problem-solving, Creativity, and Innovation

When facilitating, it's important to identify the idea killers and prevent them from stifling the process, and it's also necessary to distinguish between four different thinking processes, Insight, Problem Solving, Creativity, and Innovation.

- Insight is the spontaneous flash of awareness that a solution exists, or even the possibility that it might and the suggestion of where to look for it. The moment of insight is entirely unpredictable and generally cannot be predicted. But the conditions can be established through careful preparation and facilitation to encourage and nurture insight. As Louis Pasteur said, "Chance favors the prepared mind."
- Problem solving is when you're looking for new ideas to fix something that isn't working right or to design something new in response to a specific requirement. Problem solving always occurs in a particular context.
- Creativity is when you're searching for new ideas or new products not necessarily because you need to respond to a problem, but because you want to explore possibilities without preconceived notions. This happens outside of established contexts.
- Innovation is the studied, practiced, and repeatable application of "methods" to bring something new into being in a way that's meaningful and useful.

The key is that no idea comes to fruition without going through all four stages (although not in a linear way). Facilitators manage the process to ensure that the right people are engaged in the right part of the process at the right times.

Problem solving and creativity are two sides of a single coin, because you can't solve any complex problem without having a context to do it in, and because you have to be creative and explore for the sake of exploration to expand your pool of options beyond the already known possibilities. Hence, all problem solving requires creativity, and all creativity eventually involves problem solving. The coin of which they are the sides is therefore the coin of innovation.

Another way to frame this distinction, as one of our clients concisely noted, is that "creativity is when you use money to get ideas, and innovation is when you use ideas to make money."

Examples of facilitated processes include "idealized design," described by Russ Ackoff as a way to enable many people to participate meaningfully in envisioning the future state of an organization.⁸ Scenario building can help groups to understand change, and to grasp how the future might be different. Metaphors can be used to help people grasp complex topics, and to find unexpected solutions to challenging problems. Model building, whether using concepts, physical objects or computer-aided tools, is also effective for creating new options.

⁸ Ackoff, Russell L. *The Democratic Corporation*. Oxford, 1994.

For any type of facilitated collaboration involving people meeting face to face where the desired outputs are in some way creative or innovative, the actual work space in which they find themselves makes a difference, sometimes an enormous difference, and this is the subject of the following section on Work Space designs.

Work Place Design

The work place is the container for everything that doesn't happen in the virtual world. And actually in some sense it's even the container for that too, because in the end all virtual work involves a person at a computer clicking, reading, writing, and drawing, and that person is sitting in some room, somewhere.

One of the main reasons that the work place is so important is because of the difference between tacit and explicit knowledge. While explicit knowledge can be shared through verbal and written expression, tacit knowledge is that which we feel, believe, and experience, but which is beyond conscious awareness and we probably cannot articulate.⁹

Cognitive scientist George Lakoff puts it very simply: "One of the most fundamental results in cognitive science, one that comes from the study of commonsense reasoning, is that most of our thought is unconscious - not unconscious in the Freudian sense of being repressed, but unconscious simply in that we are not aware of it. We think and talk at too fast a rate and at too deep a level to have conscious awareness and control over everything we think and say. We are even less conscious of the components of thoughts - concepts. When we think, we use an elaborate system of concepts, but we are not usually aware of just what those concepts are like and how they fit together into a system."¹⁰

Why does so much of our experience lie beyond our conscious awareness? Studies of the human brain reveal that the sensory organs generate information at a prodigious rate, as the combined channel capacity of the nerves associated with the eyes, ears, skin, taste and smell systems is on the order of eleven million bits of data per second. Meanwhile, consciousness lags considerably behind at a paltry forty bits per second.¹¹ This means that the brain is processing approximately 300,000 times more information than consciousness is aware of.

Since the gap between tacit and explicit processing is so great at both the sensory and conceptual levels, we begin to understand why face to face interaction is so dense and so important. Nuances of tone, inflection, timing, cadence, body language, attention, smell, and facial expression are all

⁹ Nonaka, Ikujiro and Hirotaka Takeuchi, *The Knowledge-Creating Company*. New York, Oxford University Press, 1995.

¹⁰ Lakoff, George, *Moral Politics: What Conservatives Know that Liberals Don't*. Chicago, The University of Chicago Press, 1996.

¹¹ Zimmermann, Manfred, "Neurophysiology of Sensory Systems." *Fundamentals of Sensory Physiology*, Robert F. Schmidt, ed. Berlin, Springer-Verlag, 1986. p. 115.

richly present in any encounter, while they are captured only partially - if at all - in interactions via telephones and computers. From our own experiences, we know that these factors contribute enormously to the completeness of exchange, to our ability to communicate effectively with one another. This is not to say that telephones and computers do not have their uses, but it does say clearly that there is something unique about encountering each other in the flesh.

And what of the common experience of interaction leading to new insight? Physiology and cognitive science tell us that the brain in general and the memory in particular work by association,¹² and that interactions with one another stimulate new associations and new connections that can lead to breakthrough concepts. Face to face interactions also enable people to share experiences, which means sharing tacit knowledge and in the process creating new tacit and explicit knowledge. From this process we get the title of James Burke's best-selling study of innovation called *Connections*,¹³ which we also call "creativity."

To study unconscious behavior patterns in organizations as well as in communities and tribes, ethnographic methods¹⁴ are very useful because they expose the important tacit factors embedded in interactions and in entire cultures. These key factors also have to be taken into account in the design of work places for collaboration and creativity.

We can summarize the tacit aspect of this discussion by quoting a comment from Glaxo Wellcome chemist Dan Sternbach, who noted that, "Nothing replaces two people standing at the board and drawing things, which is the way we communicate a lot. It's an interactive situation where when somebody's drawing something up the other guy says, 'Well that reminds me of this thing.' As soon as you try to do that by email it takes more time. You can do some of it that way but the same conversation would probably happen in a day versus 20 minutes because of the give and take that goes on."

An example of tacit factors in product design is the car key. Today it's accepted that a single key both opens and starts the car, and since the key is symmetrical it works facing either direction assuring 100% success with the key in the lock or the ignition 100% of the time. But for decades, American car makers provided a key for the door and the ignition, and a different one for the trunk. These keys were non-symmetrical, so up and down were different, and the key only worked one way. So for decades American car owners were consigned to fumbling at random on a dark and rainy night with only a 25% chance of getting the right key in the lock correctly. Eventually the Japanese innovation also became standard, but very late.

The point of all this discussion is that tacit factors are critical to successful collaboration and creativity, and we're particularly interested in creating work places for great face to face

¹² Calvin, William H., *The River that Flows Uphill: A Journey from the Big Bang to Big Brain*. New York, MacMillan, 1986.

¹³ Burke, James, *Connections*. Boston, Little, Brown and Company, 1978.

¹⁴ Jordan, Dr. Brigitte, "Ethnographic Workplace Studies and Computer Supported Cooperative Work." Institute for Research on Learning, Report No. IRL94-0026, 1994.

collaboration. So what kind of room is it going to be? What are its critical attributes? What matters?

Collaboration settings

The essentials for survival in the wicked problem world are thinking, creating, problem-solving, and innovating, and we know that the work place that best supports them is not a traditional conference room, which is a proven creativity killer. It's deadly dull, inflexible, and made really just to support information exchange in a hierarchical setting. Avoid it at all costs!

But effective work place collaboration isn't just one thing. There are many different collaboration settings, among which we take these seven examples from everyday life:

- The kitchen table, where the family gathers to share conversation and meals, and where it meets to do its paperwork and discuss its "business."
- The art studio, where artists work, and where they gather to present their work to their peers for feedback and criticism.
- The stage, where actors, musicians, or dancers develop their performances, and then deliver them.
- The coffee house or pub, where people gather for spontaneous discussion.
- The marketplace, where sellers and buyers meet to collaborate in trade.
- The beehive, a collective (rather than collaborative) setting where the work gets allocated and accomplished almost spontaneously.
- The sand box, where children gather to invent and re-invent the world and their adventures in it.

Collaboration happens in all of these, and while a different kind of collaboration may occur in each, attributes of all of them are useful in solving wicked problems - at the kitchen table there is the laughter and joy of sharing, the pleasure of the family; in the art studio there is encouragement to explore and take ideas further, and perhaps also inspiration in the explorations of others; on stage there is interaction that drives the ensemble to new discoveries about each one and the whole; in the coffee house there's the anticipation of unexpected discovery because you never know who will walk in; in the marketplace there are always new ideas to discover, examples of the creativity of others; in the beehive there is constant focus and commitment; and in the sand box the imagination soars in new worlds to build and play in, and a medium so flexible that the castle at 2:15 is a city by 2:30 and a spacecraft on Mars at 2:40.

Our concept of the ideal setting for facilitated collaboration is the Innovation Center,¹⁵ the place where people and ideas come together to understand complex systems and create solutions to wicked problems that afflict them.

¹⁵ Morris, Langdon. *Managing the Evolving Corporation*. Van Nostrand Reinhold, 1995.

The business setting where these desirable characteristics may be most in evidence is the R&D lab, where grown-ups work together to create the products and services that will define the future of their companies. R&D is the microcosm of the creation of the future organization and its products and services, so it's worth studying to examine the interplay of all the critical factors.

The R&D Lab

The best labs produce incredible ideas that become great products and services - imagine what it was like in the coolest lab where the coolest stuff was invented - Thomas Edison's Menlo Park lab where the light bulb was perfected, or Ford's workshop where the Model T came from, Douglas Aircraft when the first DC-3 was built, or Xerox PARC when the PC was invented. Lots of brilliant, creative people solving difficult problems with astonishing levels of insight and inventiveness.

If you're going to be successful in a wicked problem world, this is the kind of environment you need to create

So how do you do it?

Not long ago we studied some of the best biotech, high tech, and pharmaceutical R&D facilities around the US, and we found that there are few work environments more complex than the research laboratory, and none that better exemplify the complex issues surrounding knowledge work.¹⁶ In a typical lab the knowledge workers are generally scientists, engineers, and technicians who design and conduct experiments in order to create useful new knowledge that is expected to be valuable to a company or organization. It may be knowledge of the uncharted physical world of chemistry or biology, or knowledge about the behavior of man-made products, or knowledge about how people interact with each other and with physical artifacts.

From the perspective of the architect, it turns out that the design of a research lab is quite a difficult problem. Numerous factors must be taken into account, some of which require resolving conflicting or contradictory requirements.

The most immediate issue is that in a typical lab facility each researcher normally has two different work settings, the lab itself and an office. Ideally, these two work locations should not be too far from one another, but they also should not be isolated from other offices and labs so that researchers can easily interact. Then again, cost considerations suggest that separating lab and office functions reduces construction expense.

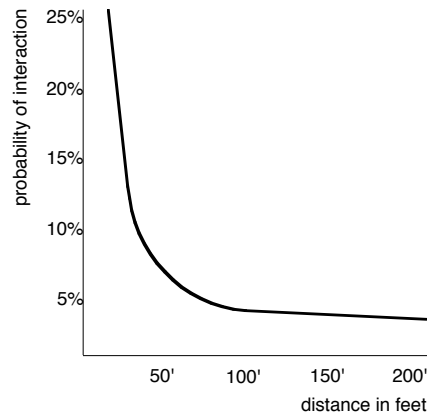
But all of it must be done to maximize interaction, because every researcher believes, as we do, that optimizing interaction between researchers is critical to R&D success. At the same time, though, all researchers are convinced that they have to have a lot of private space to think, write, and research in peace and quiet. (It's important to note, by the way, that the actual innovation

¹⁶ Morris, Langdon. "Social Design: The Link Between Facility Design, Organization Design, and Corporate Strategy." InnovationLabs, 2001.

process is as important to effective R&D as the work environment, because even a great environment can't necessarily overcome a broken way of working. A detailed examination of R&D process is found in Miller and Morris' book *4th Generation R&D: Managing Knowledge, Technology, and Innovation*¹⁷.)

Designing the ideal lab

In 1977, Tom Allen, Professor of Organizational Psychology and Management at MIT's Sloan School of Management, wrote what is still the definitive book on interaction in the laboratory, *Managing the Flow of Technology*.¹⁸ The book presents Allen's research into the factors affecting human interaction in the R&D process, and one of his key discoveries is shown in a graph of the probability of interaction between two people as a function of the distance between their offices.



“The probability that two people will communicate as a function of the distance separating them”

Adapted from: Tom Allen, *Managing the Flow of Technology*

Since face-to-face interaction is accepted as a critical design goal for an R&D lab, the obvious meaning of this research is that everyone should be no more than 100 feet away from everyone else. Which, of course, is quite impossible in organizations with more than about a hundred people. So the trick in designing labs is to apply strategies to optimize interactions, and Allen explores many of them in his book.

Our study of R&D labs led us to invent the term “social design” to describe these strategies, and the practices of designing labs and other collaborative spaces to optimize the quality and quantity of interactions. Implicit in this approach is the question:

¹⁷ Miller, William L. and Langdon Morris. *4th Generation R&D: Managing Knowledge, Technology, and Innovation*. Wiley, 1999.

¹⁸ Allen, Tom, *Managing the Flow of Technology*, Cambridge, MA, The MIT Press, 1977, 1995.

Can better buildings make for a better quality of interaction?

In our survey of 9 new R&D facilities around the US, we found that the answer was clearly yes. We identified about 70 different specific applications of social design, where the work place and the work process were both designed to optimize interaction and thinking and creative outputs.

Along the way we spoke with many people, and a story from Hewlett Packard is a particularly concise expression of the concept of social design. In our conversation, a former member of the R&D department at Hewlett Packard lamented what he felt was a marked decline in both the quality of HP's R&D output, and the lack of esprit de corps he noticed at the lab. He had thought about this a lot, and he attributed a lot of the decline to the departure of Bill Hewlett, who he had found to be great leader of R&D. He also felt that some of the decline was due to the invention of the small coffee maker and the change in corporate culture that it caused.

Back in the old days, it seems, coffee makers were big things, hot, noisy, and kept out of the way in the company kitchen. So down in the HP kitchen somewhere far from the R&D office they'd brew up a big pot and once in the morning and once in the afternoon someone would bring it around to R&D on a cart. If you were around you grabbed your cup and went and filled it up. There, you would of course find your colleagues doing the same thing, and you'd stand around for a few minutes and chat while taking a break and enjoying your coffee.

What you'd chat about, in addition to your favorite team or the news, was your work. More specifically, you'd talk about where you were stuck, and you'd brainstorm possible solutions to the wicked design and engineering problems anyone happened to be working on. If today's ideas didn't work out, tomorrow's morning's coffee break was another opportunity to get some creative input from someone who was by now aware of what you were doing and might even be thinking about it for you. A lot of problems got unstuck at the coffee cart.

But then coffee makers got small and cheap, and the kitchen staff didn't have to bring it around on a cart anymore because each part of R&D had its own pot that simmered all day. No more coffee break, no more spontaneous brainstorming, and as far as our friend was concerned, the beginning of the end for the great days of HP R&D.

Nearly everyone has had the experience of a chance conversation that opens new insights that later proved to be important, and at HP the shared coffee break was an organizational tool to promote that, and thus an example of social design.

Taking all of this into account, we recently worked a client to help them conceive of a new R&D lab. We started with a collaborative workshop involving 350 people, and we divided them in to 48 teams and asked them to think about attributes of their ideal lab. Then we asked them to design a lab and build a model of it using craft supplies that you'd find in a typical supply store.

We then took their ideas and synthesized them into a single design.

Tools

Some of the important characteristics of this design are the tools that support effective interaction. Among these we count white boards, mobile furniture, and re-configurable spaces.

Large white boards are important because they're the ideal collaborative work surface. It takes no emotional commitment to write on one, as it does on a flip chart where your marks are permanent, and large boards can enable four or five people to write or draw together at the same time for optimum productivity.

Mobile furniture is important because the space needs to fit the work, not vice-versa. The needs change as the size of the group changes, and as the challenges they're dealing with change, so the space has to change too.

Reconfigurable space is important because sometimes you're working with a group of 50 people, and sometimes you're working with 10 groups of 5 people.

Measuring the results

To know if we're succeeding, it's important to measure the results.

Four attributes of human interaction are highly pertinent:

1. Cycle time: Is there a reduction in cycle time from initial insight to application for new ideas and new products? This could be an indication that a high-performance facility is contributing to the productivity of knowledge in an organization. (And as with all four of these points, it could also be an indication of something else positive going on.)
2. Quantity: Is there an increase in the quantity of raw ideas and products, or of refined ideas and products?
3. Quality: Is there an increase in the quality of raw ideas and products, or of refined ideas and products?
4. Staff retention and recruiting: Is there an increase in staff retention and/or increase in the ability to recruit top level staff?

4

Examples

Chrysler Engineering Center, Michigan

This facility was designed to support Chrysler's platform teams to work most effectively, and the floor plan of the building models the organization and organizational linkages that are needed in the design and engineering of a new car. Since speed to market is a critical competitive factor in the auto industry, the platform team concept and the building that optimizes the work of the teams is a critical differentiator for Chrysler.

Boeing 777 Design Studio, Washington

The Boeing 777 design team produced this new airplane in record time. One of the methods that supported their work was a work environment optimized for the team approach. Each of the 250 teams had a dedicated work environment with large, wall-sized information displays to help them work effectively.

Giovanini Commons, Mendoza School of Business, University of Notre Dame.

InnovationLabs was design consultant to this collaborative work space, which provides the Mendoza school with a unique facility for collaborative teaching and workshops.

Auchan Innovation Center, France

InnovationLabs was design consultant to this collaborative work space, which enables 200 IT professionals to collaborate effectively in support of this global retailer.

St. Petersburg College, St. Petersburg, Florida

InnovationLabs was design consultant to this collaborative work space, which will provide the college with a unique work environment for teaching, workshops, and consultative projects in the local community.

Steelcase Leadership Community, Grand Rapids, Michigan

InnovationLabs was design consultant to this collaborative work space, which is used by the top 50 company executives to enhance innovation and collaboration.

AECF Portable Collaborative Workshops

High performance collaboration can even be done in a traditional hotel ballroom setting, especially when you have the right kind of equipment. For this project we shipped in a system of mobile, large-scale white walls to support teams of 25 - 80 people. The facilities included a former chapel, a high school cafeteria, and a Marriott ballroom.

American Heart Association Health Coach Project

InnovationLabs was facilitator of this collaborative project, involving about 350 medical professionals working around the US on the design of a new AHA education system. InnovationLabs designed a work process consisting of a series of face to face workshops, complemented by online collaboration.

Summary

All of these facilities and processes were created specifically to help people deal with wicked problems by enabling them to work very effectively, to achieve what we call high performance, to create compelling new ideas, products and services.

Our experience is that methods such as facilitated collaboration and careful attention to the design of the work place and proper tools can make a significant difference in the speed to results and the quality of the results, and can provide organizations with the means to consistently cope with wicked problems. In developing the capacity to handle such wickedness on a regular basis, these organizations do indeed become high performance organizations.

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