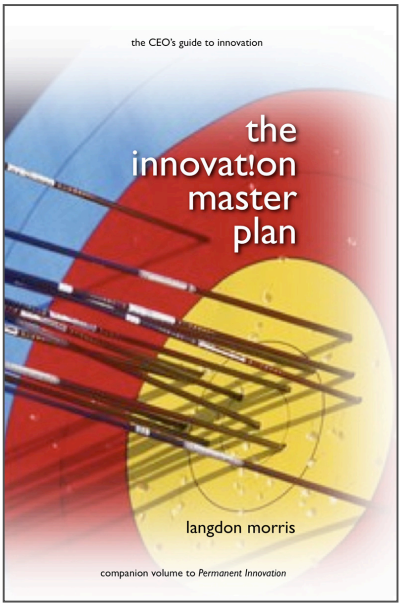
a special excerpt exclusive to InnovationManagement.se

the innovation master plan

the CEO's guide to innovation

by langdon morris



this excerpt includes

chapter 9

Langdon Morris is recognized worldwide as one of the leading authors and consultants in the innovation field. A new chapter of his latest book, *The Innovation Master Plan*, will be presented exclusively at InnovationManagement.se every two weeks throughout the summer.
It will soon also be available at Amazon.com (but not quite yet).

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The Innovation Master Plan

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where we innovate

the innovation infrastructure

"If you maximize the potential that people in an organization can and will communicate, you will vastly increase the likelihood of knowledge transfer, inspiration, and hence innovation. Organizational structure and physical space must be configured to encourage the very communication that spurs innovation. The success of the innovation process today depends on the employment of both tools."[1]

Thomas J. Allen and Gunter Henn

There have been many instances throughout the preceding chapters where I've mentioned that the tools to support the innovation process and the innovating people are critical elements of your infrastructure, and now I'll discuss it in detail.[2]

Traditionally, the term 'infrastructure' is often applied to information technology, telecommunications, road, and rail networks, but here I will extend the concept to include four key innovation tools: open innovation methodology, effective collaboration, the physical work place, and the virtual work place. Separately and especially together, these four can make a tremendous difference in the performance and the satisfaction of individuals, teams, and your entire organization.

open innovation and the innovation ecosystem

As you know, an ecosystem is an environment in which there are many living organisms interacting in the course of their normal process of living. They compete and cooperate to survive in a complex web of relationships, many of which are difficult to recognize or identify even though they're critical to every creature's and plant's survival.

Similarly, innovation happens in a market ecosystem that has countless

1 Thomas J. Allen and Gunter W. Henn. *The Organization and Architecture of Innovation*. Elsevier, 2008. P. 2.

2 This chapter is adapted from my paper, "The Innovation Infrastructure," published in the *International Journal of Innovation Science*, Volume 1, Number 1, 2009.

influences, as it consists of a firm and its customers, plus competitors, suppliers, and all manner of stakeholders who have something to say about what could be done, what should be done, and why.

As complexity increases in society and in the marketplace, an important determinant of success is the capacity to actively engage that ecosystem, which is largely people and organizations who are outside of our firm, in the innovation process that's going on inside our firm. That's what we mean by "open innovation."

While in the past many organizations kept the innovation process as a closely guarded domain that stayed entirely in house and was shrouded in secrecy, and some, such as Apple, still do, many companies have switched their viewpoint and found that openly seeking new ideas from outside, from customers and non-customers, suppliers, partners, experts, community members, and pretty much everyone else, and opening up the innovation process, can significantly improve the flow and quality of new ideas. "Open innovation" is a name for this new style of working that taps into other people, perspectives, ideas, critical thoughts, and advice.

Hence, P&G's CEO Alan Laffley became famous for insisting in 2002 that 50% of P&G's new product ideas should come from outsiders. This constituted a 180 degree reversal from P&G's prior practice, which had been deeply insular and mistrusting of the outside world.

P&G's web site describes it this way:

> "Historically, P&G relied on internal capabilities and those of a network of trusted suppliers to invent, develop and deliver new products and services to the market. We did not actively seek to connect with potential external partners. Similarly, the P&G products, technologies and know-how we developed were used almost solely for the manufacture and sale of P&G's core products. Beyond this, we seldom licensed them to other companies. Times have changed, and the world is more connected. In the areas in which we do business, there are millions of scientists, engineers and other companies globally. Why not collaborate with them? We now embrace open innovation, and we call our approach 'Connect + Develop.'"[3]

P&G put systems in place to make this happen, realizing that without tools that make the intent into reality it would be hollow, a platitude. Among those systems were the processes of measurement and reward, which are of course central to behavior and performance.

Another example of open innovation is entirely transforming the telecommunications industry. Apple's App Stores for iPhone, iPad, and Mac are also open innovation through which Apple provides an open platform (OK, so it's not totally open, but it's close; and there's that platform idea again), and individuals and organizations then develop applications for those devices using a standardized toolkit. Apps are sold or given away through the platform's storefront. There were 300,000 applications in the iPhone App Store as of October 2010, and a stunning cumulative total of more than 7 billion downloads over the 27 months since it opened

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3 https://secure3.verticali.net/pg-connection-portal/ctx/noauth/PortalHome.do

in July 2008. The applications themselves range from the most frivolous, such as Crash Bandicoot Nitro Kart 3D, to Google Earth and Facebook, and even serious tools such as a step by step lesson in CPR that has been credited as helping save the life of a young athlete who suffered cardiac arrest during a basketball practice; his coach had downloaded the CPR app only the day before, and put it to good use…[4]

By harnessing the creativity of people around the world in an open development environment, Apple has created tremendous momentum for the iPhone, and a new source of economic growth for the ecosystem that consists of the company, app authors, and app users.

The App Store is just one example of a new creative genre that's become common to internet companies, all utilizing the principle that a company with a sufficiently large customer network can create a business platform that promotes an entire ecosystem so that other individuals and companies can then use it to create content and transact their own business.

The term "crowdsourcing" describes this new way that many people can participate as contributors of content. The resulting breadth and depth of content is what makes many of the highly successful internet businesses so compelling. Wikipedia, eBay, YouTube, and Google are examples.

Google is now the world's largest advertising agency, but all the web sites that Google searches and indexes are created not by Google, but by others. In 2008 Google's indexing system was sorting more than 1 trillion different URLs, all created not by Google, but by the crowd, namely, us.

In Don Tapscott's recent book *Wikinomics*, he makes a persuasive argument that these companies are examples of an emerging economic model that supports knowledge aggregation and social networking, which suggests that open innovation is not only a business practice, but a new style of economic activity.[5]

Reflecting these principles and the powerful new capabilities that the internet provides, a broad range of companies in addition to P&G have set up online idea gathering systems. Among them are Dell, BMW, and even Shell Oil, as well as Lego, Electrolux, Kraft, and many others firms that invite people to share their ideas using the internet.[6] By "ideas" I don't mean just customer feedback, which nearly every company does today, but actual product suggestions and business concepts.

The South Korean cosmetics maker Missha has taken this even further by engaging 1.8 million of its customers as members of its innovation team. They play three important roles: as sources for new ideas, as participants in product development and testing, and as evangelists for the brand. The entire process seems to be handled on line.

I've already discussed the problems with random idea generation, including the deficiency that most of the ideas that come through an internet-based open innovation process aren't very good. So why do it? There's always the possibility that a good idea might actually come through every once in a while, enough to make

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4 http://rivals.yahoo.com/highschool/blog/prep_rally/post/Coach-uses-iPhone-app-to-help-save-collapsed-pla?urn=highschool-291472

5 Don Tapscott, *Wikinomics*. Portfolio, 2010.

6 To get a sense of the vast scope of open innovation examples, try http://www.openinnovators.net/list-open-innovation-crowdsourcing-examples/

the whole thing pay off. Furthermore, these efforts convey an important message about openness and the commitment to innovation that sets the right tone for both insiders and for outsiders to hear. For insiders it's a reminder that top managers know that their ideas are important, and that leaders are committed to looking for good ones throughout the business ecosystem. For outsiders it reaffirms a brand identity built on innovation.

Another benefit of the open process for innovation is that it can engage a more diverse group of people than a closed model. This is significant because diverse inputs to the innovation process tend to yield much better results.

And it's not just companies that have opened up their innovation thinking to the outside. New York City is looking for great ideas, too. "Have an Idea to Save NYC Money? Deputy Mayor Goldsmith is looking for innovative ways to save New York City money. If you have ideas for finding efficiencies in government, submit them today." You can share yours with Mr. Goldsmith through the city's web site, nyc.gov

Tools to augment and help accelerate the open innovation process include Innocentive, a pioneering open innovation software platform that was originally developed at Eli Lilly, and was subsequently spun out as a separate company. Its competitors include 9 Sigma and Innoget. Their web sites present success stories that explain how creative thinkers worldwide have been successfully engaged through these platforms to help develop solutions to complex business and technical problems.

They're are all defining new ways to collect knowledge and make it more useful, and also create new knowledge through open innovation collaboration.

Should your innovation infrastructure reflect these same open innovation principles to foster effective collaboration that connects insiders and outsiders? One way to address an issue such as this, a complex and open ended one, is through collaborative problem solving, the second major element of the innovation infrastructure.

effective collaboration

To deliver innovation consistently requires that people have the skills to effectively explore, understand, diagnose, analyze, model, create, invent, solve, communicate, and implement concepts, ideas, insights, and projects. These attributes are all facets of "learning," and any organization that thrives in a rapidly changing environment has surely encouraged its members to learn and to apply active learning results to keep up with external changes.

The link between learning and innovation is a strong one that has come up repeatedly in this book, and it's worth noting that speed definitely matters. The faster people learn, the faster they can apply that learning to create the next generation of products, services, business models, and process improvements. By developing a positive and self-reinforcing feedback loop of accelerated learning to create innovation, organizations then obtain more learning, leading to more innovation. The results are manifold: shorter product life cycles, which leads to quicker learning;

and then yet shorter product life cycles, better profits, etc., all contributing to competitive advantage. It is that supremely desirable, virtuous cycle that I described in the Introduction.

Involving more people in this process, and doing so very effectively, is one of the best ways to accelerate the pace and improve the quality at the same time. Alan Mulally, formerly a senior manager of Boeing and now CEO of Ford put it this way when he described the development of the company's new 777 aircraft: "We can't make a better airplane unless we can figure how to get everybody's knowledge included in the design."[7]

Innovation is thus a collaborative process, as it's absolutely necessary for people to work together to create and solve the problems that inevitably arise across a wide range of disciplines and areas of expertise. Ideas almost always get better as they are shared, discussed, and reworked, and then combined and recombined with other ideas on the way to becoming innovations. And this will be true regardless of the physical location where people are working, whether they're in the same room or thousands of miles apart.

Most of the organizations that we admire for their innovation prowess are also noted for the quality of collaboration that they carefully and continuously promote. Toyota, for example, has developed a distinct environment where employees are not just welcome to put forth ideas, but expected to do so. Year after year, literally millions of ideas build on one another to add tremendous value for the company and its customers. In contrast, Toyota's largest global competitor, GM, is known not for the quality of collaboration that it evokes, but rather for the confrontational nature of its labor relations. Decades of conflict between labor and management resulted in a culture of discord, which made it perhaps inevitable that the company would have to go through the trauma of bankruptcy to restore its viability.

A happier story is that of the 777. Through the early years of its history, Boeing Corporation developed a company culture that was at times very adversarial. Conflict characterized the relationships between the company and its suppliers, and the company and its unions.

With the development of its new 777 aircraft during the late 1980s and early 1990s, Boeing's leaders consciously chose to adopt a more collaborative approach. The goal was to enhance innovation to achieve a better result, and a milestone in commercial aviation. By reducing or eliminating the conflicts and choosing a win-win approach, Boeing achieved and perhaps even exceeded its goals, as the 777 team produced the new airplane in record time.

Developing new insights, testing new ideas, and developing them into innovations of value to the market are inevitably collaborative processes that may involve tens, hundreds, or even thousands of people. The 777 development team consisted of 5000 Boeing engineers, and many thousands more who worked in Boeing's supplier companies.

About their work together, Mulally commented, "The biggest problem with communication is the illusion that it has occurred. We think when we express ourselves that, because we generally understand what we think, the person that we're

7 Karl Sabbagh. *Twenty-First-Century Jet: The Making and Marketing of the Boeing 777*. Scribner, 1996. p. 70.

expressing it to generally understands it in the same way. When you're creating something, you have to recognize that it's the interaction that will allow everybody to come to a fundamental understanding of what it's supposed to do, how it's going to be made. We should always be striving to have an environment that allows those interactions to happen."[8]

One of the methods that supported their success was their office environment. The entire work force was organized into project teams, and each of the 250 teams had its own, dedicated work place to optimize their effectiveness. They also used an electronic drafting system that enhanced collaboration among the thousands of people involved, and to help assure that everyone was sufficiently informed and aligned, there were regular meetings of all 5000 Boeing employees on the project. But since the largest meeting room available could only hold 2500 people, the meeting was held twice, for consecutive half hours, once a week.

All is not rosy at Boeing, however, for success in one product does not assure success in the next. As of today their latest jet, the 787, has been beset by a series of significant design, engineering, and production problems that have left airplane deliveries 2 years late, and have cost the company billions in lost profits and billions more in the erosion of its market cap. During one difficult stretch, company officers were compelled to announce yet another delay in the 787 while boldly affirming that the problems would be resolved and the course righted, only to go back to the press six months later with the same message, and then again six months after that ….

One of the major differences between the two aircraft is that the 787 utilizes many plastic composite parts to reduce weight, replacing the traditional aluminum, but shifting to the new material has proven to far more difficult than anticipated for Boeing and its suppliers. Ironically, one of the key problems has been attributed to a lack of coordination between Boeing and key suppliers, which makes me wonder how much of the success of the 777 was due to Mulally, and what Boeing lost with his departure to Ford. It will be interesting in future years to read the inside story of the 787's troubles to learn where the process really broke down.

While Boeing may have addressed the obvious issues and problems, some non-obvious or hidden assumptions at the tacit level of the company's culture could turn out to be the root causes of many of the problems.

tacit knowledge in the collaborative process

In Chapter 5 we explored the differences between tacit and explicit knowledge, and examined why tacit knowledge research is so important as a way to expose the hidden factors that are critical to successful innovations. Now we need to return to this important tool, because identifying instances of tacit knowledge is also important for enhancing communication and collaboration throughout innovation teams.

The discussion in Chapter 5 noted that the difference between how our brains process tacit knowledge and how we process explicit knowledge is significant at both the sensory and conceptual levels, and this pertains not only to the learning we seek

8 Karl Sabbagh. *Twenty-First-Century Jet: The Making and Marketing of the Boeing 777*. Scribner, 1996. p. 36.

through research, but also to the way that people interact. Nuances of tone, inflection, timing, cadence, body language, attention, smell, and facial expression are all richly present in every face to face encounter, and these nuances can be critical to successful communication, design and problem solving activities when we depend on many people to integrate their unique knowledge and diverse vantage points to address complex problems.

The importance of these unspoken elements is one of the reasons that face to face interaction is so important for innovation, as the subtle nuances are captured only partially – if at all – in interactions via phones and computers. From our personal experiences we know that these factors contribute enormously to the completeness of communication, to our ability to dialog effectively with one another, to grasp new and difficult issues, to brainstorm and work through options, to be complete in our reasoning…. This is not to say that phones and computers don't have their uses, but we all know that there's something unique and irreplaceable about working together in the same room. So while we can't always work face to face, it is often preferable. MIT professor Tom Allen and architect Gunter Henn help us understand that complexity is the root cause:

> "Managers communicate by telephone far more than do engineers and scientists, and hence they tend to believe that the telephone (or email) will work as well for the engineers as it does for them. 'Why do they need to travel?" managers often ask about engineers and scientists. Managers must remember that, o average, they deal with less complex information than do the engineers and scientists reporting to them. Compared with technical information, a much greater proportion of management information can be communicated by telephone. Notably, when managers face a complex issue, they too recognize the need to meet with the other parties in the same room."[9]

And what about the very common experience, that interaction leads to new insights? As I've already mentioned, physiology and cognitive science tell us that the brain and the memory work by association,[10] and that interactions between people stimulate new associations and new connections that can lead to breakthroughs. Face to face interactions also enable people to share experiences, through which they connect as they share tacit and explicit knowledge, and in the process create new knowledge. From this process we get the title of James Burke's engaging study of innovation called *Connections*, which we also call "creativity."[11]

We can summarize the tacit dimension of collaboration with 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 the other guy says, 'Well that reminds me of this thing.' As soon as you try to do that by

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9 Thomas J. Allen and Gunter W. Henn. *The Organization and Architecture of Innovation*. Elsevier, 2007. P. 63.

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

11 James Burke. *Connections*. Simon & Schuster, 2007.

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."[12] Face to face interaction, that is, stimulates the associative powers of the mind, which I discussed in Chapter 4 (see page 104, linear processes and nonlinear thinking).

facilitating collaboration

In many situations, the effectiveness of collaborative efforts can be greatly improved through active facilitation, not only for small teams but also for groups of tens or even hundreds of people.

Facilitators (who are often innovation champions) guide groups through the stages of the creative process using many tools, including of course a deep understanding of the creative process itself, as well as psychology, which helps them anticipate how various individuals will participate throughout the process, group psychology which helps them understand and support the needs of large groups, and business knowledge, which of course provides the context in which many problems are to be solved.

There are many different collaboration techniques, ranging from tightly scripted and facilitated design sessions that are often used to address complex technical challenges, to more loosely structured or self-organizing processes.

Figure 27
A Facilitated Collaborative Workshop

One of these, Appreciative Inquiry, focuses on understanding what's working in organizations and building on success rather than on identifying and solving problems. The underlying rationale is that there are plenty of problems to solve, and we'll certainly find them if we go hunting for them, but focusing a specific effort on understanding what's working well and enhancing it is an affirming and effective way for people to build resonant organizational cultures.

Another technique called Open Space was developed by management consultant Harrison Owen when he noticed that the most interesting conversations at many

12 Langdon Morris. "Social Design: The Link Between Facility Design, Organization Design, and Corporate Strategy." An InnovationLabs White Paper, 1999. Downloadable at www.innovationlabs.com/publications

conferences were those that took place during the coffee breaks. He therefore designed Open Space as a way for groups of people to identify the topics that each member of the group is most interested in, and then organizing a fluid process to work through the topics and seek solutions.[13]

In addition to designing and leading the collaborative process, one of the biggest challenges facing any facilitator is creating an effective work environment for the people and projects. The design of the physical work place has a great deal of influence on the quality of the work not only in a workshop setting, but also in the day to day work, so it, too, is a key element of the infrastructure.

the physical work place

There's probably a conference room in your office, one that you've spent many hours in. And it's probably very similar to conference rooms you've sat in at other companies. Is it a rectangular room, with a longish table surrounded by chairs?

The physical environment has tremendous influence on our behavior, yet it's an unspoken assumption that our meeting room has to fit this traditional shape, size, and layout, which reminds us that hidden influences and tacit behavior patterns are prevalent in organizations just as they are in customer groups.[14]

Unfortunately, the architecture profession and office furniture manufacturers have standardized on this utterly drab and uninspiring concept of what "the meeting room" should be.

Figure 28
A Traditional Conference Room. Ug!

The style is derived from the corporate board room, and the single chair for the chairman at the head of the table conveys its primary social purpose, reinforcing hierarchical authority. Need I mention that this isn't a very good environment for innovation or creativity? Yet in most organizations, that's all there is.

Consultant and author Michael J. Gelb has done some work on this topic, and he

13 http://www.usfoundation.org/openspace.htm
14 Dr. Brigitte Jordan. "Ethnographic Workplace Studies and Computer Supported Cooperative Work." Institute for Research on Learning, Report No. IRL94-0026, 1994.

makes the following observation. "For many years, psychologists have known that the quality of stimulation provided by the external environment is crucial to brain development in the early years of life. Recently, however, brain scientists have discovered that the quality of environmental stimulation affects the continuing development of the adult brain." Gelb then goes on to lament the sterile office environments where most people work, and describes a project through which a team of people redesigned their own workplace. Among the changes that they made were removing photos of machines and replacing them with reproductions of favorite paintings, replacing fluorescent lights with full spectrum lights, bring in fresh flowers, and changing the coffee room into a "creative break room." They also instituted the practice of a ten minute "brain break" every hour, and over the course of the following year their organization studied the work effectiveness of the people in the new environment. They found that productivity had improved by 90%.[15]

That's an astounding difference, and it certainly affirms our experience that the work place is a pervasive influence, although its importance is often ignored. It's the container for everything that doesn't happen in the virtual world, and actually in a sense it's even the container for that too, because nearly all virtual work involves a person who's sitting at a computer or on a phone, clicking, reading, writing, talking, and thinking, and that person is inevitably in a room somewhere (if they don't happen to be on a beach or an airplane).

Tom Allen and Gunter Henn also address this issue in their lively book: "Most managers will likely acknowledge the critical role played by organizational structure in the innovation process, but few understand that physical space is equally important. It has tremendous influence on how and where communication takes place, on the quality of that communication, and on the movements - and hence, all interactions - of people within an organization. In fact, some of the most prevalent design elements of buildings nearly shut down the opportunities for the organizations that work within their walls to thrive and innovate. Hence, the implications of physical space for the innovation process are profound."[16]

So what are the learnings? To answer this question we'll consider characteristics of effective R&D laboratories.

what we learned from the best r&d labs

Imagine what it would have been like to work in the coolest labs where amazing stuff was being invented - Thomas Edison's Menlo Park lab where the light bulb was perfected, or Ford's workshop where he created the Model T, or the Wright Brothers' airplane workshop, or Douglas Aircraft when the first DC-3 was built, or at Xerox PARC when the PC was being invented. You'd be surrounded by lots of brilliant, creative people solving difficult problems with astonishing levels of insight and inventiveness. You'd be having rich and provocative conversations, making sketches and designing and making models, arguing, laughing, and building, testing, learning

15 Michael J. Gelb. *How to Think Like Leonardo da Vinci*. Dell, 1998. P. 138.

16 Thomas J. Allen and Gunter W. Henn. *The Organization and Architecture of Innovation: Managing the Flow of Technology.* Elsevier, 2007. p. 14.

with great enthusiasm and dedication.

And if you're going to provide today's innovators with that sort of work environment to help them succeed in today's challenging world, this is exactly the kind of place you'll create.

To explore the details and features you might include, we conducted a study of some of today's best biotech, high tech, and pharmaceutical R&D labs around the US, to find out how they're being designed and used.[17] In a typical lab you'll find scientists, engineers, and technicians preparing and conducting experiments, the purpose of which are to create useful new knowledge. 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 architect's perspective, designing a research lab is not a simple problem. Since optimizing interaction is central to R&D success, facilities should maximize person to person interaction, but at the same time private space for thinking, writing, and researching in peace and quiet is also essential. Figuring out the right space layouts to balance interaction and privacy gets tricky, and cost considerations complicate the matter further because separating lab and office functions reduces construction costs but may compromise the goal of enhancing collaboration.

Tom Allen's 1977 book on interaction in the R&D laboratory, *Managing the Flow of Technology,*[18] explores the linkage between lab design and researcher interaction, and offers some unique insights. One of his key findings is that the frequency of interaction between people is a function of the distance between their offices, and when their offices are more than 50 feet apart, the probability of unplanned interaction drops below 15%.

Since it's impossible to have everyone in a large group of people located less than 50 feet apart, and since frequent face-to-face interaction is accepted as a critical design goal for every R&D lab, developing strategies to optimize interactions is a primary architectural goal. We use the term "social design" to describe these strategies.

In the labs we visited, business leaders and architects had used 90 different specific design features, all applications of social design, and all intended to optimize interaction, thinking, and creative outputs. They converged into four major theme areas:

- **Organize for interaction**
  28 different organizational strategies and features intended to promote high quality interactions between people.

- **Design for interaction**
  54 features designed into the facilities to increase the frequency of person-to-person interaction, as well as its quality.

17 Langdon Morris. "Social Design: The Link Between Facility Design, Organization Design, and Corporate Strategy." An InnovationLabs White Paper, 1999. It is downloadable at www.innovationlabs.com/publications

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

- **Design for flexibility**
  8 design strategies intended to enhance the flexibility of a building so that over time it would be easier to adapt it to changing requirements.

- **Design for beauty**
  A persistent theme of importance to architects and building users alike. Everywhere we looked, we saw examples of the continuing quest to make buildings beautiful, uncountable in number but pervasive in influence.

Interestingly, even in these very costly facilities, where thought was given to every detail of the design and execution of the building, even here we found the same sterile, ineffective conference rooms that I lamented at the beginning of this section. The pervasive (and erroneous) belief that a conference room has to be deadly dull and boring is a strong and dysfunctional assumption that deprives individuals and organizations of productivity every day.

How could it be different?

innovation centers

There's a new type of work environment that's becoming more common, a great space designed specifically to support innovative and creative work, whether for day to day issues or for the facilitated collaborative activities I discussed above.

It is sometimes called an "innovation center" or an "innovation lab," and it's a place where people bring their ideas, where they work to understand complex systems and create innovative solutions to problems that impact their customers and their companies and their communities. In effect, it's a sand box for grownups, where people work together to create products and services that may become the future of their enterprises.

It contains lots of large vertical work surfaces, giant white boards, that make it easy to collaborate. The furniture is on wheels, making it easy to reconfigure to accommodate many small teams that are working at the same time, or one large one. Light, colors, and décor are relaxing and inspirational rather than sterile and lifeless.

An example of this relationship between innovation, collaboration, and the work place is the "Collaborative Labs" innovation environment operated by St. Petersburg College in Florida, specifically designed and equipped to foster dynamic interaction and spur creativity. The 10,000 square foot facility provides unique spaces for activities such as strategy design, leadership development, issue forums, and creativity and innovation projects with local businesses and the community.

Andrea Henning, Executive Director of the Labs, recently shared some of the keys to success that the Labs staff has learned from their work over the last few years.[19]

"We've found that getting the right stakeholders in the room to work

19 Andrea Henning, Executive Director, Collaborative Labs, EpiCenter, St. Petersburg College, Florida 33760. http://www.spcollege.edu/central/collaborative

together face to face is very important. These may include internal as well as external people, representing all levels of an organization, as well as all functions, and all aspects of organizational expertise. [open innovation]

"Asking the right questions through the medium of a well-thought out, facilitated design for the collaborative process is the key to a successful engagement, where we want to take complex, multidimensional issues and organize them into 'manageable information chunks,' helping design teams focus for the best results. [effective facilitation]

"Our uniquely designed facility includes furniture that enables groups to work very productively in creative tasks like brainstorming, decision making, and detailed design as well as in information sharing and even traditional meetings. [the work environment]

"We use collaborative tools and technologies to get the most robust, accelerated results from teams. We use collaborative brainstorming software that enables multiple teams to brainstorm hundreds of ideas and prioritize them into meaningful categories quickly. [virtual tools, see below]

"And our staff captures information as it's being created in a detailed real time document that includes every aspect of the collaborative project, which frees the participants from note-taking while providing a complete roadmap of all the ideas discussed.

"Together, all of these elements work together to help groups achieve exceptional productivity and innovation."

Andrea's comments show how these key elements of the infrastructure work together and reinforce one another. The right people drawn from inside and outside, provocative questions delivered through effective facilitation, good virtual tools, a facility specifically designed to support this work, and a complete record of the work that was accomplished constitute a system that leads to and supports high productivity.

At InnovationLabs we've been designing and using facilities like this for many years, and we have found that this approach to the infrastructure is an essential element in the innovation system that compresses weeks or even months of work into a matter of days.

Another recent project that gave us the opportunity to bring these concepts together came about when we helped a client conceive of its new R&D lab. We conducted a collaborative workshop involving 350 people, the entire research department. We divided the participants into teams of 7 people, and asked each team to identify the key attributes of their ideal lab. Each team then built a model of their ideal lab using craft supplies like you'd find in a typical art supply store. We then studied all 50 models and synthesized the key ideas into a single design, not in the expectation that it would ever be built as we drew it, but to help them think about what would in fact be ideal as they continued to refine their visions of how and where they would work. It will be no surprise to you that what they came up with was definitely not a bunch of traditional and boring lab spaces, offices, or conference rooms.

Instead, they developed a visually rich, multi-textured environment for

individual, team, and organizational creativity, a place where assuring optimal productivity in each setting was the central organizing theme.

Sometimes, however, you don't need an elaborate facility to help people do their best work together. A simple cup of coffee can also be an effective catalyst.

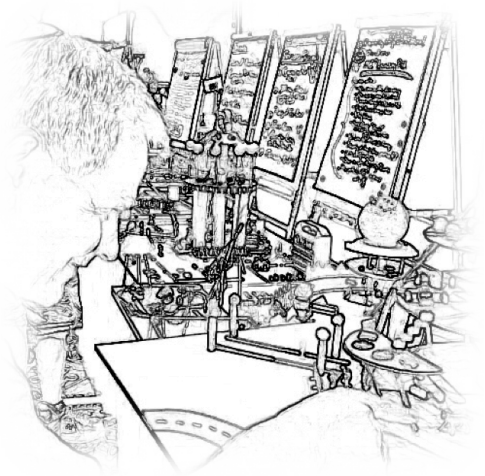

Figure 29
Designing an Ideal R&D Lab
350 participants worked in teams of about 7 people to design 50 models of their ideal R&D lab. The models were then displayed on a row on tables, in front of flip charts that explained the key design concepts. Each person then voted for the design features they thought most important. The design preferences were then synthesized into a single design, a shared vision of their future lab.

coffee and collaboration

One day not long ago I met with a retired former employee of HP Labs, the company's R&D department. He lamented the sad decline in the Labs' output, and the lack of esprit de corps he noticed there. This bothered him a great deal, and he had thought deeply about why it happened. He attributed some of the decline to the departure of Bill Hewlett, who had been a very effective leader of R&D, but he also said that the decline was due to the invention of the small coffee maker, and the change in corporate culture that it caused. I was frankly a bit skeptical about the coffee maker part, but I listened as he explained it to me.

During the best days in the Labs, in the 1950s, 60s, and into the '70s, coffee was brewed in big pots in a basement kitchen. Twice a day the kitchen staff would bring up the pots on a cart, and everyone would fill their cups and stand around for ten or fifteen minutes to chat while enjoying their coffee.

What they'd chat about, in addition to the weather, the favorite teams, or the news, was work. People often talked about where they were stuck, and sometimes your naturally-curious colleagues (this was an R&D group, after all) would help you by brainstorming possible solutions to design and engineering problems right then and there.

And if today's ideas didn't work out, tomorrow's coffee breaks were another

opportunity to get creative input from some very smart people who were by now aware of what you were doing, and might even be thinking about it for you. A lot of tough problems got unstuck at the coffee break.

This is yet another version of the story we all know, the chance conversation that opens new insights that later proves to be important; HP Labs' twice-a-day coffee break was an organizational tool that promoted this type of collaboration almost invisibly, and thus an elegant example of social design.

But when coffee makers became small and cheap (another industry's innovations), the kitchen staff no longer brought the big pots around on a cart because all over R&D there were personal little pots that simmered all day. No more structured coffee breaks, no more spontaneous brainstorming, and as far as our friend was concerned, the beginning of the end of the great days of HP Labs.

As I mentioned, I was a bit skeptical about this, but a couple years later I happened to read Steve Wozniak's autobiography, *iWoz*, and when I read the following comment about his days working at HP I found that my skepticism had been entirely misplaced:

> "Every day at 10:00 am and 2:00 pm they wheeled in donuts and coffee. That was so nice. And smart, because the reason they did it was so everyone would gather in a common place and be able to talk, socialize and exchange ideas."[20]

So there it was, confirmation that the structured coffee break is indeed a tool to promote effective collaboration, the exchange of ideas, useful at HP and nearly everywhere else.

We subsequently applied this principle in the design of a new workplace for a team of 200 software engineers. In addition to giving them dynamic spaces for collaborative work, we included a café, and insisted that personal coffee makers be banned. This caused everyone to frequent the café, and thereby increased the frequency of the chance encounters that promote innovative thinking.

The new, high performance work place is a flexible and inspiring place, not a boring one. There is a significant productivity increase to be gained by supporting the essential activities that constitute effective innovation: thinking, creating, problem-solving, and collaborating.

And we know that the work place which best supports these activities is not a traditional conference room. In fact, conference rooms are proven creativity killers, deadly dull, inflexible, and made really just to support information exchange in a hierarchical setting. Avoid them at all costs if your goals have anything to do with innovation and creativity.

Instead, astute innovation leaders and champions develop labs and innovation centers and idea rooms that offer stimulating and tool-rich settings for the important work of innovation.

Implicit in this approach is the question, Can better buildings make for a better quality of interaction and of innovation? Our answer: Absolutely.

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20 Steve Wozniak & Gina Smith. *iWoz: Computer Geek to Cult Icon*. Norton, 2006. p 122.

But it's not the entire story, of course. While critical aspects of the work will be done in face to face environments, like all business processes today and tomorrow, a great deal of it will take place online in the virtual work place.

the virtual work place

As we spend more and more time working and collaborating online with our internal colleagues and outside partners, customers, and vendors, the quality of our tools and our skill in using them can make a significant difference in the productivity of our innovation efforts, especially since the we are tending now to address issues via email that are more and more complex.

But since we shouldn't necessarily accept as a given that the IT department has chosen the right tools for us to use, and because the productivity stakes are too high to delegate the choice to someone who may not fully understand our needs, it's often helpful for an innovation champion be actively engaged in the selection and adoption of the right tools to support the innovation process.

There are a lot of tools available that may help you, including these:

1. Social Networking Tools help people connect with people.
2. Knowledge Repositories help assure that we don't waste time and money recreating work we've already done, and we can easily find the past results that we're looking for in an archive.
3. New Idea Repositories help us to gather new ideas and maintain the overview of the process as we develop each one of them.
4. Ecosystem Intelligence systems help us to gather and organize information on external changes, competitors, new technologies, etc.
5. Idea Voting Engines enable us to get quick feedback on ideas.
6. Wikis give us a tool to aggregate and organize knowledge.
7. Blogs provide individuals with creative outlets for their own explorations, and a way to share their interests and discoveries with others.
8. Archives & Directories are useful for giving access to all forms of digital content such as Reading Lists, Videos, Podcasts etc.
9. Innovation Tutorials are helpful for training.
10. Open innovation platforms, as we have discussed, facilitate connections between insiders and outsiders to bring new ideas and talents to solving problems.
11. Online collaboration tools, such as Skype, enable people to connect easily from anywhere, and the ability to chat with video is an improvement over voice-only communications.
12. Project management tools become important when planning and managing complex projects and multiple projects that occur simultaneously, a normal occurrence for innovation portfolio managers.
13. Creativity aids such as mind mapping tools to help organize our thinking around complex issues and problems.
14. And lastly, the innovation dashboard is an essential tool to help innovation

champions, portfolio managers, and senior executives maintain a good overview of the process, the details, and the results.

Software is a rapidly evolving field, and because it changes so fluidly I won't mention specific products or tools because by the time you read this the products available will probably have changed.

Further, choosing the right tools for you is like choosing the right innovation metrics for your organization; start with one or two, and add others. It may also be helpful to put a small task force together to design your ideal tool set, see what's currently available on the market, and decide the priorities for what could add the most value and work best for your organization.

taking action:
designing and implementing your master plan for infrastructure

These four elements of the innovation infrastructure constitute a "productivity optimization framework," a system for supporting creative and innovative people through the many phases and iterations of their work in the innovation process. When these methods are combined effectively they can make a tremendous difference by helping individuals and teams achieve much better and much faster results.

Should your organization invest in this infrastructure?

If you have offices, you already have. Are they as good as they can be?

And if you have software tools, you also have. So given the enormous productivity gains that can be achieved, it's usually a very fruitful investment.

Further, if you frame the question as an alternative between implementing the right infrastructure or not implementing it, then it's not really much of a choice at all; thoughtful investments in infrastructure are the right thing to do, so the question becomes one of prioritizing and planning.

Defining the specifics that are right for your organization is the work to be done, and a good first step is to assess the current status of your infrastructure through surveys, interviews, or discussions with people who are and will be the end users. Then you should experiment and learn by doing in small pilot groups, and scale up the elements that add the most value. This is, in effect, applying the research process to your own infrastructure.

Refining your infrastructure is a process that happens progressively over time, just as improving your total innovation system is also a progressive accomplishment.

Innovation Champions are often the ones who shepherd these tools, methods, and environments into reality, and thereby support the quest for high performance for their own organizations.

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Please return to InnovationManagement.se for the subsequent chapters of *The Innovation Master Plan* by Langdon Morris.

You can learn more about his work and access additional writings and his blog at www.innovationlabs.com

About this Book

This book is intended as a companion to my previous innovation book, *Permanent Innovation*.

During the four years since *Permanent Innovation* was completed, we've continued to refine our understanding of the innovation process through work with many organizations, and we've found that senior managers have a continuing interest in guidance in the design and management of their innovation initiatives. *The Innovation Master Plan* addresses many of those needs, and deals with aspects of the innovation process that *Permanent Innovation* didn't address.

In the course of preparing *The Innovation Master Plan*, I've also discovered some opportunities to improve *Permanent Innovation*, and as a result a revised edition is now available.

(You can download *Permanent Innovation* at
www.permanentinnovation.com)

About the Author

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Langdon Morris is a co-founder and partner of InnovationLabs LLC, one of the world's leading innovation consultancies. He works with organizations around the world to help them improve their proficiency in innovation.

He is Senior Fellow of the Economic Opportunities Program of the Aspen Institute, Editor of the Aerospace Technology Working Group Innovation Series, Associate Editor of the *International Journal of Innovation Science*, a Contributing Editor and Writer for InnovationManagement.se, and a member of the Scientific Committee of *Business Digest*, Paris. He is formerly Senior Practice Scholar of the Ackoff Center of the University of Pennsylvania and Contributing Editor of *Knowledge Management* magazine.

He is author, co-author, or editor of eight books on innovation and strategy, various of which have been translated into six languages, author of many articles and white papers, and a frequent speaker at workshops and conferences worldwide.

He has taught or lectured at universities in the US, France, Portugal, Taiwan, and Argentina, including Stanford University, the Ecole Nationale des Ponts et Chaussées and the Conservatoire National des Arts et Métiers, Paris, the University of Belgrano, Buenos Aires, and Chaoyang University of Technology, Taiwan.

early praise for

The Innovation Master Plan

"A fantastic piece of work, and a guide you must hold at hand when traveling in Innovation-Land. Use it as a reference in outlining your plan to future growth and profits. The business world has to be different, just start to build it ... with this Master Plan."

Léopold Demiddeleer
Solvay

"Authentic Leadership among the companies of the 21st century is naturally a commitment to sustainable growth, profit, and image. And this can only be achieved with a complete dedication to sustainable innovation at the core of the organization. Langdon Morris' intelligent, passionate and inspiring messages in his master plan make sustainable innovation possible. This dynamic, focused and simple process takes us from concepts and ideas to reality. It is hugely important and productive to guide us in creating valuable innovations for our organizations. Langdon is a true innovation leader, and wherever you are in your innovation journey it is wise to follow these best principles."

Signe Gammeltoft
L'Oréal

"*The Innovation Master Plan* is another revolutionary innovation masterpiece by Langdon Morris, a framework which brings practicality to the concept of innovation. This book will compel and inspire any executive reader to adopt an innovation culture and framework for their organization in order to survive and succeed in the 21st century."

Genevieve Bonin
PwC

"*The Innovation Master Plan* is one of those books that captures your imagination and keeps you grounded in reality at the same time. Langdon Morris describes the driving forces impacting our businesses and the worlds we live in everyday. He exposes how the 'great ones' have innovated, and provides one of the most simple and powerful models to transform your business and empower people to be more innovative; altering the innovation landscape. A powerful call to action!"

Jacqueline Byrd, Ph.D.
Creatrix, Inc.

"For anyone who is wrestling with the challenges of innovation in their organization *The Innovation Master Plan* is a must read. Langdon offers a comprehensive handbook that maps this uncertain territory by asking (and helping you answer) five key innovation questions; Why? What? How? Who? Where? Having taught "Needfinding" and design research methods at Stanford for the last 2 decades, it's clear to me that this book is a significant contribution to the field that will benefit students and experienced practitioners alike."

Michael Barry
Stanford University and Point Forward

more praise for

The Innovation Master Plan

"I love this book a lot.
I can be an innovation leader, because I keep providing my own industrial and educational visions to the related parties.
I can be an innovation champion, because I support all kinds of innovation activities in the industrial and academic societies.
I can be an innovation genius, because I learn, think and practice all sorts of innovation methodologies.
Most of all, I can be a master of innovation."

Justin Lin, Ph.D.
Chaoyung University of Technology

"Thought-provoking, enjoyable, and indeed inspirational! The key messages here are incisive and convincing. A very worthwhile achievement that deserves the widest readership."

John Holmes
RathBeau Technologies Limited