

# Reflections

The SoL Journal  
on Knowledge, Learning, and Change



## FEATURE ARTICLE

### **A Platform for Innovation**

Dr. Frank Douglas

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Anthony Reese

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# A Platform for Innovation

By Dr. Frank Douglas

How can managers encourage innovation in the midst of change and uncertainty? Frank Douglas, a senior executive at the multinational pharmaceutical company Aventis, has found solutions to this managerial question in drug research and development, where the discipline of innovation is a way of life. Through direct observation and experimentation, says Douglas, managers can temper the impulse to mandate the structures and outcomes of the organization. Through years of research and managerial experience, and through several changes of corporate ownership, Douglas has advanced the practice of innovation, technically and organizationally. Here he describes his approach to building “hubs” for change within a complex global organization.<sup>1</sup>

— Paul M. Cohen, Senior Editor



Dr. Frank Douglas

**E**ven in a company that trades in the development of new ideas, executives cannot compel innovative thinking. In my experience, traditional management practices – reporting structures, goals, and incentives – do little to support most knowledge work. However, as a young medical researcher, I learned that there were three things you must do to advance learning. You observe. You develop hypotheses. And you experiment. That’s what I do as a manager. I spend a lot of time observing; then I develop a theory and design some experiments, which I implement and from which I learn.

That empirical approach to management sometimes frustrates colleagues who’d like to see, all laid out, a plan that predicts how a program will unfold. I tell them, “If I knew that, we would not be having this discussion. But what I do know, based on what I observe, is a *direction* we need to take.” I set up some transparent criteria that help me determine whether we’re going in the right direction. Everyone can participate in evaluating whether what we’re trying to do makes sense or not. We all learn from that and keep building the road forward. But I do not start off with a complete picture of how every stretch of that road should be built – I discover that as we go.

## A Team Becomes a Hub for Innovation

When I joined Ciba-Geigy in 1984, I led an eight-person group that eventually grew to 40 members and became a hub for cross-disciplinary thinking. Our group, which was rooted in clinical biology, became a place to which the discovery people, the toxicologists and pathologists, as well as the development colleagues, came for advice. Suddenly, the group that I led was being sought after by all parts of the organization. Each of the senior members of the group had both lab and clinical research experience. Each was focused on testing preclinical findings in target clinical groups – what we then called “human models of disease.” And, perhaps most important, each was able to collaborate broadly. All of these

elements, together, allowed them to translate preclinical findings into clinical research for the organization.

Later on, thanks to Max Wilhelm, the late head of global research and development (R & D), I discovered I had certain strengths I was unaware of at the time. In a poignant meeting about three weeks before he died, he told me, “You know, when we asked you to take over as head of Research in the U.S. in 1988, it was clear to us you didn’t want to do it. You kept insisting you were a lab guy. But there was something that we recognized in you, which clearly you didn’t recognize in yourself. And that is, you are able to think in systems – and that’s unusual

***How do you take the creativity that people demonstrate in their lives and tap into it within the workplace?***

even for many scientists.” He also thought I had a knack for seeing the clinical potential of compounds early in the development process, and for spotting individuals who have the capacity to grow and think differently when given the opportunity. As it turns out, I think Max was right. I cannot explain the gifts he observed, but most of them come from observation. I listen to and observe people and their work. Because of that, Max felt I would be a better manager than I would be a lab scientist.

As a manager I have really done only the three things that Max talked about. First, I think in systems. The establishment of Chemical Biology Knowledge Platforms, an interdisciplinary, dispersed scientific community within a highly structured company, is a recent example of this. Second, I try to get a sense of whether a compound will work in the clinic. And third, I find a way to get people to work together around an idea. Those things sound largely intuitive, but all of them, and building collaborative work forms, in particular, can be refined through observation.

One of my first experiments in innovative practice was a series of three-day workshops I designed with help from the Center for Creative Leadership. To each workshop I invited about 30 people – everyone who touched a project, including secretaries and technicians, which was unheard of at that time. On the first evening, we started off in a large room, with the arriving participants being greeted by the sound of Zubin Mehta conducting “Bolero.” After the participants had taken their seats, we showed a video of interviews with Mehta and the musicians. What came across was that each musician, although an individual expert, nonetheless had to be in contact with the other “individual experts” – to sense one another and play off of one another – in order to play as a team. It is the job of the conductor to make that happen.

It was a good metaphor for what people in any creative or technical enterprise need to do. After we watched the Mehta interviews we asked individuals to pair up and to tell each other something about themselves, and then to share with the group what they had learned about their partners. It was amazing. For example, one woman had walked up and down the Grand Canyon three times – though to look at her, one would say she hadn’t the physical ability to do it. We had a man who was a pilot; another young man was a rabbi in his community. Suddenly, we began to see people not as technicians doing assays, not as scientists working in particular areas, but as individuals who have capabilities beyond what gets seen in the work setting. The question then became: how do you take the creativity that people demonstrate in their lives and tap into it within the workplace?



COURTESY OF JULIAN BULLITT

## Take Three Months and Just Observe

Three years later, at the end of 1991, I was asked to work with Max in Basel, Switzerland. It was difficult to say no, but I did. I'd been offered the position of global head of R & D at Marion Merrell Dow (MMD). Marion and Merrell Dow had merged one year earlier, and it was my job to merge those two R & D operations.

Max was disappointed. He felt he had failed by not winning me over to come to Basel. But it was at Marion that, in a real sense, I came to realize what Max had subsequently described about my abilities. MMD had been successful in finding compounds, but not in developing them. In coming into that situation, I was given a rare opportunity by Fred Lyons, the CEO. He told me, "You don't have to start running things right away. Take two to three months and just observe." It was an alien concept, because I've always been called in, told "you're it" and the next hour, been on the job. I asked Fred, "How will we know when I'm ready to take on my responsibilities?" He said, simply, "We'll know."

I set about going to meetings and just talking with people. At one key meeting in Strasbourg, France, I brought together 47 key associates from the research and the development sides of the merged company (MMD), most of whom previously had never met each other. Beforehand, I sent them each a questionnaire that included the following simple questions:

- What do you see as the strengths in the company?
- What do you see as the weaknesses?
- What do you see as the barriers?
- If you were in my job, what are the one or two most important things you would do?
- How would you measure success?

Over the course of a week we agreed on an R & D agenda, and everyone committed to making that agenda happen. High on the list was doing something about Seldane, one of the company's key compounds, which was beginning to raise concern because of adverse reactions in some patients. The scientists agreed to identify and develop a new compound, derived from Seldane. This became the antihistamine Allegra, which in 2002 had worldwide sales of nearly \$2 billion. We went from developing a commercial chemical synthesis to the submission stage in just three years. To do that, we had to change a lot of things in the company; we had to build the road as we traveled on it.

We used that experience as an example of how to create lasting change – because the best way to make changes is to tackle something that is extremely important to the company. You have to put yourself on the line collectively. That allows you to develop a case for action in

which everyone can see the need to do things differently. Incremental efforts rarely transform an entire organization.

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### **Focus on Contributions**

In 1995, Hoechst acquired MMD, and I had an offer to join a major American pharmaceutical company as head of development. I decided to stay with MMD. We were getting close to the submission of Allegra, but that wasn't the main reason for my decision to stay with the new company, Hoechst Marion Roussel. I also felt a deep sense of continuity with the team we had built. To walk away from

that didn't feel right. It was not a moral judgment; it was a belief that we should focus more on what we contribute and less on what we control.

It is important to me that I am contributing to the organization, to the patients, and to the scientific community. But I have a larger responsibility to all of the individuals to whom I can contribute something. During this transition time at MMD, I felt there was more I could contribute: I felt a responsibility to see things through. The R & D teams that we had built were becoming a powerful hub in the new organization – a kind of creative, collaborative field. And once this collaborative field was established, I couldn't just walk away. The focus on contribution – what we can offer – links to something greater.

### **Turning Around a Bad Beginning**

In my first meeting at Hoechst I made a big mistake. It was my introduction to about 700 colleagues, and I got up and, of course, began speaking in English. After about 10 minutes, a block of people stood up and walked out. Many were members of the Workers Council (the shared decision-making body representing labor) who said they were tired of listening to people who could not speak their language. On the spot, I publicly declared my intention to learn German. I wasn't sure how I'd do, but I knew that the result was not as important as the journey.

To my surprise, I learned the language quickly. At another large meeting later that year I read my presentation in German. There was an interpreter and I had an earpiece translator for questions and answers, but it didn't work. I took it off and then spoke spontaneously in

German. People were astonished – and my effort to communicate in their language bought me a lot of goodwill. They saw that I was committed, and I think that began to bring people on board with the changes we were trying to make.

One of the keys to transforming the culture at Hoechst Marion Roussel was creating an open, transparent project-evaluation process across the three research sites: Frankfurt, Paris, and Bridgewater, New Jersey. For the first time, an external panel of scientists was brought in to judge our projects. Nobody had ever questioned the Hoechst scientists about their science, and they did not welcome the change. I invited our scientists to sit down with a consultant and design the review process. I asked only that the review process they designed be robust, and that they prepare documentation to help guide an open, scientific discussion during the review.

The panel, which our own scientists helped recruit, focused on several key questions, such as: What’s the mechanism of action? What is the basis of the hypothesis? What’s the status of the competition? How good are our compounds with respect to various clinical criteria? What are the clinical data from compounds that had moved into Phase I or Phase II of testing? At the end of the first panel, the facilitator told me, “I cannot believe you sat here for three and a half days and never stated your own opinion. You just let things run. And somehow or other, you were in control.” I said, “I wasn’t seeking control. The process was open and transparent; I can live with the results of it.” My view was not as important as the decision made by the body of scientists.

Nevertheless, over the course of those few days, many people resented me. I told the facilitator, “There’s something about scientists you need to know. They’re very proud people. At the end of the day, they want to be sure that they can get up in front of their peers and defend their science.” That was the human part of all of this – their pride about being scientists in front of their peers. This was the reason why I could look beyond their initial resent-





ment to my introducing this change: open scientific review.

## When Not to Debate

This experience helped prepare me for a bigger challenge. In 1998 there were a lot of problems in the company and great dissatisfaction among the staff. The head of the Workers Council, Arnold Weber, organized a debate to which he invited the members of the Workers Council, along with Lothar Klemm, the Minister of Finance for the Hessen region. Günther Wess, the head of the

Hoechst Frankfurt site, and I were asked to debate a famous, recently retired pharmacologist, Dr. Ernst Mutschler, who was representing the union. I told Günther beforehand, “We are not going there to win a debate. In fact, we’re not even going there to *have* a debate. We are going to use the opportunity to explain what we’re trying to achieve. Even if someone says something that is incorrect, we will not respond. Ten or fifteen minutes later, we may correct it, but without challenging the speaker. Most of the time, just listen.”

The professor and the union officer launched a bitter attack on me and Günther. When the moderator, Christian Schulte, asked for my response, I simply stated what we were trying to do – in German of course – and then turned to Günther, who continued the conversation without directly engaging the criticism aimed at us. Near the end of the session, Mr. Weber got up and said, “Okay, Dr. Douglas, I think you have convinced us that we need to work differently. We need to improve our innovation and productivity. You’ve also convinced us that we need new skill sets. Is there a way of doing that without reducing the workforce?” I told him that in the past, faced with similar situations, I had offered to pay the salaries of scientists who went back to university for two years to learn new skills, and then re-employ them. The only requirement was that in their new areas, they would have to operate at least at the level of a new PhD. If our scientists are prepared to do that, I said, we are prepared to support them. That was a breakthrough.

## Creating a Platform for Change

We began to see the benefits of this approach two years later, in 2000. For example, at that time we had a total of 250 scientists, at three sites, running 50 projects on different kinase enzymes. (Kinases are important in transducing information within cells.) I proposed bringing together this community of scientists into a new kind of hub, a chemical biology platform where biologists, chemists, and other specialists could think together and share knowledge. Some people thought I had a hidden agenda to change the structure of the company – that I was trying to do away with the chemistry department, the structural biology department, and so on. But that was not my intent. It was all about mindset, getting people to work together, because organizational change has more to do with mindset than with structure. And the

right organizational form derives from observation, hypothesis, and experimentation, not from having a grand plan.

Ultimately we created similar platforms in four different biochemical disciplines. Today, 70% of our projects are supported by one of these four platforms. I've found that you have to get three things right for these platforms to work. First, select the right people. In each platform, I look for good scientists with the right expertise. I also want people who are entrepreneurial – who have a tolerance for risk and the capacity to live with the consequences of their decisions. And I look for change agents, people who can articulate new paradigms and convey a sense of urgency.

Second, create visibility and take a personal interest. I review projects regularly – not to be intrusive but to learn and stay in touch. I also identify local sponsors of each platform. Günther Wess, the Frankfurt site head, sponsored the chemical biology effort, so I actually report to him with respect to those projects. And when he holds his meeting, I am just a member of the team.

Third, define the mission of the platform. For us the goal was clear, tangible, and meaningful: to enable the organization to find better compounds faster. That's become our watchword. It has helped us link the platform to the day-to-day life and fabric of the organization. It's not just another initiative; it's the way we do business.

Ultimate success depends on the health of the project team. The project team is the innovation ecosystem, bringing together associates from different global functions at the local site. The site heads, who are members of the global management team, must make tradeoffs among sites with respect to which projects to support. Members of the marketing or commercial departments also participate on every project team, providing the external physician with a patient and market perspective. Project teams also collaborate with academic researchers, to help them better understand the needs of customers.

***We are not going there to win a debate. In fact, we're not even going there to have a debate. We are going to use the opportunity to explain what we're trying to achieve.***

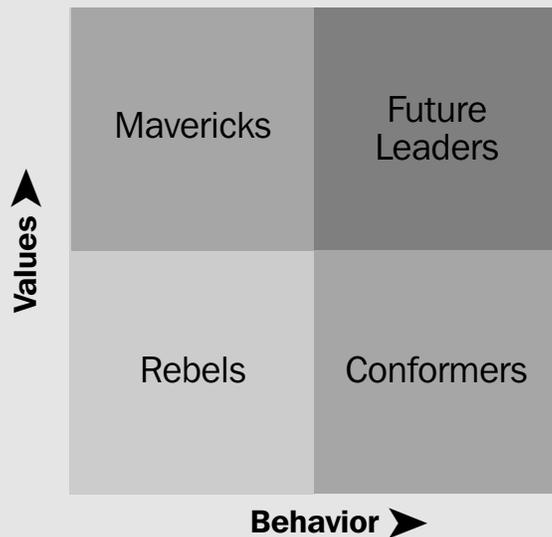
## **Leadership as Collective Art Form**

Leadership can be viewed as a collective art form of the present. You create conditions for a group or system to create collectively. Each episode of innovation is part of a larger journey, and leadership means waking up to that journey and relating to the mystery at its inner core. My job has always been to create an environment in which every individual can fulfill his or her potential. People who come to work, and who spend many hours after work thinking about their work, deserve an opportunity to make a contribution.

To enable people to contribute, you have to do three things. First, you have to make difficult resource and strategy decisions about what opportunities to pursue. That has to do with science, technology, and rigorous evaluation. The second thing is creating an environment in which people *want* to contribute. That is not necessarily a comfortable environment. It is one that answers for them the questions: Why am I coming to work? What are we achieving here together? And, then, how do we get our work done, individually and collectively, to achieve meaningful results? That's the "soft" part of leadership, which of course is really the hard part. Finally, with resources and processes in place to allow people to contrib-

## Measuring What Matters

Just as in research and development, managers in almost any discipline must rigorously measure outcomes. We can measure lots of things, and too often we try to measure them all. But what are the meaningful things to measure? Usually they include soft attributes, like values and behavior, which we can measure using appropriate models (see Figure). And with such models in place, we begin to sense who is likely to excel and what we can do to support them.



In any organization, what matters most are the values of the organization and personal behaviors. With those two attributes in mind, managers can observe four kinds of performers:

**Rebels** don't share the values of the organization and can't behave in ways that make the organization productive.

**Conformers** play by the book and put in their eight or nine hours, but don't really care about the organization's values. They're just doing their jobs.

**Mavericks** share the values and the goals of the organization, but behave differently, and have their own ways of doing things.

**Future leaders** model both the values and the behaviors essential to organizational success. They are the true go-to performers.

I look for both mavericks and future leaders. Especially in technical and creative organizations, you often find mavericks – innovators who don't want to manage, but have no other way to advance. Providing a dual career ladder allows them to be recognized and compensated for their contributions without having to fit a managerial profile. In any organization I run, there is a place for everyone except rebels. If people don't share the values and can't behave in ways that move the organization forward, they owe it to themselves to go elsewhere.

ute, you must lead the conversation about how to measure success (see sidebar, “Measuring What Matters”). The products, the processes, and even the company itself will undergo many changes. But a deep understanding of our purpose and values must remain clear. In the end, that is what provides a lasting platform for innovation.

### Endnotes

- 1 This article was based on an in-depth interview with C. Otto Scharmer, whose comments follow.

### ABOUT THE AUTHOR

**Dr. Frank L. Douglas** is executive vice president and member of the Board of Management of Aventis and has headed research departments for pharmaceutical companies since 1984. Douglas studied physical chemistry and medicine at Cornell University, trained in Internal Medicine at Johns Hopkins, held a fellowship at the National Institutes of Health, and directed the Hypertension clinic at the University of Chicago Department of Medicine.

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# Commentary

By C. Otto Scharmer



C. Otto Scharmer

Frank Douglas's story illustrates the practical essence of leadership. What is that essence? It's found in the word itself: *leadership* derives from the Indo-European root word *leith*, "to go forth," "to cross the threshold," or "to die" – that is, to progress from a world we know to another world that we do not yet know.<sup>1</sup> In institutions around the world, leaders are increasingly facing challenges that require them to progress from a world they know to a world they don't. So what can we learn from Frank Douglas's story about how to operate effectively amidst uncertainty?

Here are the seven key points that I took away from an intriguing two-hour conversation with Dr. Douglas at the headquarters of Aventis in Frankfurt, Germany:

**(1) To lead means to create a generative field of discovering and innovating across boundaries.**

The key leadership mechanism that Douglas put in place during the different episodes of his career remained the same: he identified, connected, and gathered key players that he felt had the potential to take the company into the future. The resulting group, through its web of connections, could both interact effectively and stay focused on the task.

**(2) There is nothing so powerful as a core group that knows what it wants to create.**

Every great story of innovation is driven by a small, highly committed core group. What are the critical criteria for composing such groups? Frank Douglas's experience suggests that the core should consist of people who have appropriate expertise, as well as change agents,

and people who are able to live with the consequences of their actions.

**(3) The power flows from purpose and intention.** The more deeply such a core group crystallizes and clarifies its vision and intent, the more it radiates a generative field that attracts other people, partners, and opportunities. Doors that otherwise would have remained closed, open.<sup>2</sup>

**(4) Innovation needs "helping infrastructures" to succeed.** One example of a helping infrastructure Douglas created was an external review panel, which allows researchers to assess their current work through others' eyes in order to speed the learning process. Another example is the playing of Debussy's "Bolero," and the presentation of the conductor's work as a learning infrastructure for important strategy and work sessions.

**(5) The core process of leading innovation is listening to what wants to emerge and then creating the context for that future to manifest itself.** Trained as a medical researcher, Douglas was at first hesitant to move into management or to take a leadership role. It took the strong encouragement of a mentor for him to do that. Once in a leadership position, Douglas stayed connected to his roots. He interprets his leadership task as a continuous learning process, and translates his experience as a medical researcher into leadership practices: first you observe, then you sense (develop) a hypothesis, and then you experiment. This core process of observing, sensing, and actual-

izing future opportunities is critical for both individual and collective leadership success.

**(6) Change is best initiated with a burning issue that is central to future survival or success.**

The key to starting a large-scale change initiative lies in picking a burning issue that is critical to the future success or survival of the company and focusing all change energies on this mission-critical project.

**(7) Each episode of profound innovation and change is part of a larger journey.**

Leadership means waking up to the mystery of the deeper journey. Stanford's Michael Ray says that creativity stems from two questions: Who is my self? What is my work? Being able to answer these two questions allows leaders like Douglas to operate from a deep place, where innovation ecosystems progress from the state that we know to an unknown state that we sense wants to emerge.

### Endnotes

- 1 Pokorny, Julius, *Indo-European Etymological Dictionary*, Alexander Lubotsky and Robert Beekes, eds. (Bern, The Netherlands: Francke, 1959): 672.
- 2 See also Peter Senge, C. Otto Scharmer, Joseph Jaworski, and Betty Sue Flowers, *Presence: Human Purpose and the Field of the Future* (Cambridge, MA: Society for Organizational Learning, 2004).

### ABOUT THE AUTHOR

**C. Otto Scharmer** is a lecturer at the MIT Sloan School of Management and visiting professor at the Center for Innovation and Knowledge Research, Helsinki School of Economics.

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## Commentary

By Anthony Reese



Anthony Reese

Frank Douglas offers important insights to other practitioners about how to support innovation. Three points, in particular, stand out. First, his use of the scientific method – observation, formulation of hypotheses, and experimentation – is a useful and under-appreciated management practice. That open-ended, inquisitive approach is at odds with most organizations' tendency to push for closure and certainty. But as Douglas recognizes, you cannot compel innovative thinking; you can only bring together the right people and explore opportunities to create something new. The article offers many examples of processes and structures for supporting shared exploration, and reminds us that these processes are sometimes uncomfortable for the people involved, including senior executives.

The second lesson I took from the story is the importance of measuring values and behaviors, not just quantitative outcomes. Such assessment builds on the manager's capacity to step back and observe. But Douglas recognizes important differences between the two performance measures. His "Measuring What Matters" matrix draws a line around the *values* that define an organization. Those with a future in the organization must share its values. But, Douglas suggests, there can be greater latitude in *behavior*. Being clear about organizational values provides greater latitude in behavior – the ways that people practice and approach the business. Without a diversity of styles and behaviors it is very difficult for organizations to innovate. Unfortunately, many organizations focus almost exclusively on behavior (seeking conformity) and fail to develop a sense of shared values.

Not coincidentally, many companies also get the innovation process wrong. Managers tend to treat it like a construction project – they estimate the time and intensity of each task, and attempt to allocate resources and outcomes in a predictable way. True innovators take the opposite approach. Accepting the fact that they don't know what they don't know, they say, in effect, "Let's put five people on this for four months and see what happens." These teams then continuously learn a little, do little. This approach to managing uncertainty cuts against the grain for most companies, but it is essential to the strategies that Frank Douglas describes.

The third lesson from "A Platform for Innovation" involves the platform itself. Aventis project teams bring together a mix of scientific disciplines, business functions, and geographic regions, within dispersed facilities. They mirror, in microcosm, the kinds of centralized product development centers that have helped other companies (including Harley-Davidson) innovate. This more holistic approach forces people across many functions, such as marketing, manufacturing, and purchasing, to engage in the creative process rather than abdicate responsibility to R & D or engineering. At Harley-Davidson, this has led me to the epiphany that the discomfort of innovation must be shared widely if the enterprise is to break new ground. Furthermore, there is a "conservation of discomfort" in an organization. People can experience discomfort early on, as they make difficult

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trade-offs in the product-development, or they can experience it later, when a product must be redefined deep in the development process or fails in the market.

Douglas's story highlights three fundamentals applicable to organizations working to innovate: using the scientific method, focusing on values and involving the broader organization. This article reminded me that finding ways for people to share methods, values, and responsibility is the surest path to ongoing innovation.

#### **ABOUT THE AUTHOR**

**Anthony Reese** is director, engineering planning, at Harley-Davidson Motor Company. He is a member of Founding SoL and a member of the Sustainability Consortium, product development conferences, and other groups in the SoL community.

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# Reflections

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