

Symphonic Improvisation: Creating a Culture of Innovation Competency

INNOVATORS' ROUNDTABLE SUMMARY REPORT

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CONTRIBUTORS

Malgorzata Glinska

Senior Researcher, Batten Institute
glinskam@arden.virginia.edu

Sean D. Carr

Director, Intellectual Capital, Batten Institute
carrs@arden.virginia.edu

Amy Halliday

Writer and Editorial Consultant, Batten Institute
hallidaya@aol.com

Like a finely tuned symphony orchestra, a high-performing company can execute prescribed processes with clarity, consistency and seamless efficiency. Well-practiced techniques that enable superb performances do not, however, lend themselves easily to improvisation, or “riffing,” such as you’d find among musicians in a jazz combo. And yet, extemporaneous, jazz-like flexibility is precisely what many big companies must master in order to innovate and remain competitive.

This challenge — simultaneously embracing orchestral excellence and jazz-inspired dynamism — was the main theme of the spring 2012 Innovators’ Roundtable, a periodic conversation among senior leaders from some of the world’s largest and most innovative firms. The Roundtable, an initiative of Darden’s Batten Institute for Entrepreneurship and Innovation, included executives from **Corning, Siemens, Northrop Grumman, MeadWestvaco** and **CSC**. During a daylong discussion at the University of Virginia, members debated issues related to workforce agility, strategies for managing global research and development, and the challenges of remaining innovative in a sluggish economy. The following briefing is a summary of the day’s conversations, highlighting the main themes, questions and conclusions of Roundtable members.

On Agility: Nimble Giants

CORPORATE MEMBERS

CORNING INC.

Gary S. Calabrese, Senior Vice President,
New Business Development

Charles R. Craig, Senior Vice President
of Science & Technology, Administration
& Operations

CSC

R. Lemuel Lasher, Group President,
Global Business Solutions Group; Chief
Innovation Officer

MEADWESTVACO

Alex Cedeno, Vice President of Global
Innovation

David Turpin, Vice President of Packag-
ing Materials & Processing

NORTHROP GRUMMAN

John Schmidt, Innovation Director &
Enterprise Technical Executive

SIEMENS CORPORATION

Silvano Dall'Asta, Chief Financial Officer,
Corporate Research & Technology

Kurt D. Bettenhausen, Senior Vice Presi-
dent, Corporate Research & Technology

Managers in large companies today are balancing two basic, yet competing demands: executing their current activities and adapting those activities to tomorrow's challenges. The former calls on all the advantages of size, including vast resources, well-established procedures and a wealth of experience. The latter requires what many large corporations don't have: the flexibility to respond to fast-changing market conditions.

To succeed, global companies must be, in effect, both large corporations and nimble, innovative start-ups. But is this possible? Can companies be big but act small, balancing resilience and stability with operational agility? Members of the Innovators' Roundtable focused on this conundrum.

“TOO MUCH AGILITY CAN CREATE TURBULENCE...[WE] HAVE TO CONTAIN AGILITY OR WE'LL DESTROY THE COMPANY. IF YOU DON'T HAVE ANY AGILITY—THAT WILL DESTROY THE COMPANY, TOO.”

R. Lemuel Lasher, Chief Innovation Officer, CSC

Whereas some Roundtable members felt that agility could be scaled throughout a large organization — that the full orchestra could indeed learn to play jazz — others disagreed. “Some parts of an organization are designed to be very flexible and are very adaptive,” said CSC's chief innovation officer, **R. Lemuel Lasher**, adding that those parts are charged with jazz-like exploration. Other parts of the organization must be devoted to stability, reliability and achieving economies of scale. “We separate them consciously,” **Lasher** added.

Darden's **Michael Lenox** challenged the participants to consider the benefits of constraints in large corporations. “There's some entrepreneurship envy when we look at all those small, agile businesses,” he said. But many entrepreneurial ventures fail, he added. “Perhaps constraints provide some advantages,” **Lenox** continued. “Maybe there is something about bureaucracy in a large company that is an advantage. Are we putting too much weight on the jazz team?”

Often too much emphasis is also placed on the “moment of invention” — which is just one aspect of the total innovation process — and not enough on the many organizational capabilities that turn an invention into a profitable business. As a result, companies might be going after flexibility and innovative capacities in a way that incurs costs and is not in shareholders' best interests. An organization must be responsive enough to experience moments of invention and opportunity without being inundated with more ideas than it can vet. It is possible, **Lasher** noted, to be saturated with innovation.

THE RIGHT STUFF: AGILITY'S ATTRIBUTES

Profound expertise is high on the list of key attributes of workforce agility, but, as many pointed out, it is not enough. Lasher, who defined agility as “improvisation based on deep capability,” emphasized that in addition to expertise and technical competency, organizations need “imagination and creativity to put it all together.” Corning’s **Charles R. Craig**, senior vice president of science and technology, administration and operations, articulated the challenge: “How do you create these deep competencies in a fast-moving interface?”

While some members said that agility in their organizations comes from extensive competencies and expertise, others suggested that depth may, in fact, impede flexibility, since technical experts might not be fully attuned to changing customer needs. “We’d be better served if we had less depth and more breadth,” said **David Turpin**, vice president of packaging materials and processing at MeadWestvaco. “It would help us with the challenge of how to move our workforce to where we see the most opportunities.”

THE RIGHT PLACE: AGILE ENVIRONMENTS

Management guru C.K. Prahalad once said that to compete in today’s turbulent environment, companies should “strive to become ‘Velcro organizations,’ in which people and capacity can be rearranged and recombined creatively and quickly without major structural change.”¹ **Kurt Bettenhausen**, senior vice president of corporate research and technology for Siemens Corporation, noted that it is especially important to ensure that the right people with the right expertise are in the right place at the right time. “How do you make use of the best resources in the best way?” **Bettenhausen** asked.

“FROM A MANAGEMENT PERSPECTIVE, WE HAVE TO FIND THE RIGHT POSITION FOR OUR PEOPLE TO USE THEIR EXPERTISE. THIS IS SUSTAINABILITY; THIS IS ABOUT HOW TO MAKE USE OF THE BEST RESOURCES IN THE BEST WAY.”

Kurt D. Bettenhausen, Senior Vice President, Corporate Research and Technology, Siemens Corporation

DARDEN FACULTY LEADERS

Sean D. Carr, Director of Intellectual Capital, Batten Institute

Everette W. Fortner, Executive Director for Corporate Relations

Yael Grushka-Cockayne, Assistant Professor of Business Administration

Edward D. Hess, Professor of Business Administration, Batten Executive-in-Residence

Jeremy Hutchison-Krupat, Assistant Professor of Business Administration

Michael J. Lenox, Samuel L. Slover Professor of Business, Associate Dean and Executive Director, Batten Institute

Jeanne M. Liedtka, United Technologies Corporation Professor of Business Administration

Saras D. Sarasvathy, Isidore Horween Research Associate Professor of Business Administration

¹ Prahalad, C.K. 2009. “In Volatile Times, Agility Rules.” *BusinessWeek*.

On Agility: Nimble Giants [CONTINUED]

“ULTIMATELY, IT COMES DOWN TO PROCESSES AND BEHAVIORS. WHAT BEHAVIORS EVIDENCE AGILITY, AND HOW DO WE PUT IN PLACE THE RIGHT ENVIRONMENT THAT PROMOTES THOSE BEHAVIORS?”

Edward D. Hess, Professor of Business Administration and Batten Executive-in-Residence, Darden School of Business

“IT'S EASY TO FORCE SLOWING DOWN, BUT IT'S HARD TO FORCE PEOPLE TO SPEED UP. WE DESIGN SPACE TO INVITE PEOPLE TO BE FASTER.”

Jeanne Liedtka, United Technologies Corporation Professor of Business Administration, Darden School of Business

“WHAT ARE THE KILLER APPS WITHIN AN ORGANIZATION — CULTURE, PROCESSES, ETC. — THAT CAN MAKE INNOVATION GO FASTER?”

Gary S. Calabrese, Senior Vice President, New Business Development, Corning Inc.

Some participants shared a view that high and sustainable levels of employee agility and flexibility require a supportive organizational environment, where employees are free to experiment and take risks. “The best we can do as executives,” **Lasher** said, “is to remove the constraints and not [undermine employees] too quickly.” Others suggested that HR policies and incentives, including financial rewards, are no panacea. Scientists, for example, noted Corning’s senior vice president of new business development, **Gary S. Calabrese**, don’t need special incentives. “They are driven,” he said. “Steve Jobs wants unbreakable glass for the iPhone, and our people are psyched — ‘Yes, we want to do it!’”

Participants grappled with the challenges of combining structure, processes, culture and individual behavior in a way that fosters agility and innovation and ensures a company’s long-term performance. As MeadWestvaco’s vice president of global innovation, **Alex Cedeno**, put it, “Before you become agile, you have to have the right processes, the right networks. How do you build the right infrastructure and capabilities?”

Siemens’s **Bettenhausen** also emphasized the importance of designing workspaces conducive to collaboration and the cross-pollination of ideas. His company, for example, literally knocked down barriers to communication by turning two-person offices into larger ones that can accommodate ten employees. It also introduced height-adjustable “sit-to-stand” workstations — a move that compelled employees to be flexible in their work habits and created an environment in which people would interact more than they did when they were sedentary. “After a couple of weeks, 80% of the people were standing at their desks,” **Bettenhausen** said.

Jeanne Liedtka, a professor of business administration at the Darden School of Business, mentioned Thomas Jefferson’s design for the University of Virginia’s Academical Village, which houses students and faculty in close quarters. This use of physical space, which was a dramatic departure from university design at the time, positively influenced how students learned from their professors and from one another.

AGILITY = FLEXIBILITY + SPEED

A number of participants commented on the imperative of speed. Several noted that the pressure to accelerate learning cycles and to reach profitable growth faster — all while driving down operating costs — were among their biggest challenges. “The problem is R&D is just too slow,” said **Calabrese**. “How do we do it cheaper and faster; how do we do more with less?”

Corning’s **Charles R. Craig** noted, “Our role is to direct deep competency quickly to targets. Scientists perform best when they are directed towards an opportunity.”

But how does one know which opportunities to pursue? It starts with “building a skill set to develop a deep understanding of market needs,” said Darden’s Liedtka. She explained that part of that skill set is a capacity to recognize that not all ideas are going to be winners — in fact, most likely only one in ten will succeed.

Liedtka articulated other challenges shared by many at the table. As companies try to increase the speed of innovation, she noted, they grapple with the following questions: “How do you build individuals with the repertoire for speed, especially those we put in charge of making decisions? How do we ease up on control and trust them? How do we groom people to thrive and prosper in that type of [speed-oriented] environment?”

Alex Cedenó pointed to slow decision making as a topic needing further exploration. “In my previous company, we looked at what was getting in the way of agility — it was decision making,” he said. Other Roundtable members agreed that rapid decision making and execution are among the defining attributes of an agile business and that improving speed requires some power-sharing practices aimed at moving important decisions into the hands of individuals and teams. “We want people to be agile, which brings a new level of autonomy to decision making, democratizing management,” said Liedtka.

SPEED = f(CUSTOMER ENGAGEMENT)

Many around the table noted that increasing the speed of innovation is a function of getting close to the customer. Because customer expectations are not static, organizations that are rigid and bureaucratic are at a disadvantage; in contrast, agile businesses are well equipped to meet and anticipate customers’ unarticulated needs.

SUSTAINABLY AGILE, GROWING SUSTAINABLY

The Innovators’ Roundtable ended the discussion about agility with a focus on sustaining profitable growth — a topic that has particular urgency in today’s difficult economic climate. While many companies experience bursts of high growth, only a few sustain steady and predictable growth over the long haul. Northrop Grumman’s innovation director and enterprise technical executive, John Schmidt, brought attention to a recent study of 4,793 publicly traded companies, only 8% of which grew their revenues by at least 5% year after year.² The study revealed that the growth outliers shared two seemingly contradictory traits: they were both more stable and more agile than their competitors. “Those companies focus management attention on strong corporate culture and values,” Schmidt said. “You have to change culture to be like those companies.”

² McGrath, R. G. 2012. “How the Growth Outliers Do It.” *Harvard Business Review*. 90 (1-2): 110-116.

“WHEN WE TALK ABOUT SPEED, WE ARE TALKING ABOUT GETTING A HYPOTHESIS TESTED AND SCALED. DID WE START WITH THE RIGHT HYPOTHESES? HOW DO WE GET PEOPLE A WINDOW TO THE CUSTOMERS’ UNARTICULATED NEEDS?”

Jeanne M. Liedtka, United Technologies Corporation Professor of Business Administration, Darden School of Business

“GET INTO THE CUSTOMER’S FACE AND STAY THERE AND GET THAT DIALOGUE GOING. GET THE TECHNOLOGY AND R&D GUYS INTO THE CONVERSATION IMMEDIATELY. THE BIG CHALLENGE IS, WHO WILL BE WORKING AT THE BENCH WHEN WE ARE ALL INTERFACING WITH CUSTOMERS?”

Charles R. Craig, Senior Vice President, Science & Technology, Corning Inc.

“PROFITABLE GROWTH IS ABOUT IDENTIFYING THE OPPORTUNITY AS OPPOSED TO DELIVERING IT, COMING UP WITH A BETTER OPPORTUNITY, RECOGNIZING AN UNMET NEED.”

David Turpin, Vice President of Packaging Materials and Processing, MeadWestvaco

Managing R&D Complexity: Global Innovation Networks

“WE HAVE 12 R&D LABS AROUND THE WORLD. WE ARE THERE PRIMARILY BECAUSE WE WANT TO BE CLOSE TO CUSTOMERS. EIGHTY PERCENT OF OUR SALES ARE OVERSEAS. IT’S ABOUT CUSTOMER ACCESS — CUSTOMER INTIMACY.”

Gary S. Calabrese, Senior Vice President, New Business Development, Corning Inc.

Research and Development (R&D) is often part of an intricate, dynamic innovation ecosystem, characterized by globally dispersed R&D functions, “open” innovation processes, and a high emphasis on collaboration. All Innovators’ Roundtable companies have geographically distributed R&D networks that include internal and external laboratories, universities and entrepreneurial ventures — some overseen by a strong central function, others completely decentralized. After addressing the broad concept of agility, Roundtable members focused on the opportunities and challenges of leading complex R&D networks.

Several interwoven themes emerged from this discussion, suggesting a few top-of-mind concerns in R&D decision making: access to new knowledge, customer engagement, collaboration, intellectual property loss, knowledge distribution, crowdsourcing, language and cultural barriers and dealing with failure.

GLOBAL R&D: OPPORTUNITIES

For many Roundtable companies, global R&D dispersion presents opportunities to access new knowledge and technologies. “We are trying to use [our R&D labs] as our overseas research institutes,” said **Charles R. Craig** of Corning. Establishing strong relationships with universities is another way to access the best ideas. “It’s about how do we take advantage of the environment in the U.S. or China,” said chief financial officer **Silvano Dall’Asta** of Siemens. “We cooperate with 20 to 30 universities, mostly based on relationships with individual professors. We’re doing government grants together in the fields we’re interested in,” he added. Northrop Grumman’s **John Schmidt** echoed **Dall’Asta**’s comment, saying that his organization has maintained 30-year-long relationships with universities. “We spend money to get grad students and technology,” he said.

Some participants emphasized their organizations’ reliance on innovative start-ups to commercialize new technologies. “We have six people in each of our sectors who focus on developing small companies,” **Schmidt** said, adding that his organization does not absorb those companies. “[Our R&D] is decentralized and a combination of internal R&D, university and small company.”

One particularly important benefit of having R&D facilities in multiple locations around the world is access to new markets and customers. As **Kurt Bettenhausen** of Siemens put it, “Having local R&D gives us access to customer needs.” Understanding customers, Roundtable participants agreed, is a critical component of their innovation efforts; innovation counts only if it meets customer needs.

As products, processes, services and markets become increasingly complex, even the largest firms are compelled to collaborate with an array of partners, often both at home and abroad, and to foster collaboration among business units within the organization. “We have to have people talking to each other. It’s about communication and collaboration, not about competition inside [our organization],” said **Bettenhausen**.

GLOBAL R&D: CHALLENGES

As the level of global connectivity increases, so does the risk of IP theft. For several Roundtable participants, intellectual property practices, especially efforts to protect IP when collaborating with non-firm partners and global enforcement, were pressing issues. “Our number one concern in China is IP protection. How much do we put out there?” said Corning’s **Gary S. Calabrese**. IP loss is most often caused by former employees, hackers or unscrupulous outsiders who “blatantly get hold of our materials and just copy them, disregarding the patents,” he explained.

Knowledge control is an issue for most participants, and outsiders’ interactions with employees and with critical intellectual capital demand thoughtful assessment: What can or should be proprietary? How much control of critical IP is needed, and how should it be managed? How should the negotiation of ownership rights and benefits be approached? As **Calabrese** pointed out, “It’s a matter of understanding what your top risks are and mitigating those risks.”

Cross-border R&D functions are complex, and they become only more so when they include globally dispersed professionals from diverse cultures who speak different languages. In such a context, the generation and sharing of new knowledge is a critical challenge. Not surprisingly, Roundtable members are constantly looking for new ways to manage the information flow in their organizations and make information available to those who need it.

Members described internal websites, for example, which help bridge geographic distance, foster collaboration and rapid problem solving, and serve as expertise locators. One organization successfully implemented the Jive technology, and another uses Microsoft’s MySite to exchange ideas across locations, identify experts within the organization and quickly solve problems. Some participants have also been using internal crowdsourcing successfully; others were rolling out external crowdsourcing initiatives. One of the challenges noted by many was how to interact meaningfully with the crowd.

“ IN DESIGNING THESE SYSTEMS [FOR COLLABORATION] IT’S IMPORTANT TO RECOGNIZE THAT A LOT OF GOOD SOLUTIONS COME FROM VERY LOOSE SOCIAL CONNECTIONS, NOT FROM THE PEOPLE YOU KNOW.”

R. Lemuel Lasher, Chief Innovation Officer, CSC

“ WE HAVE A HEALTHY INTERNAL CROWDSOURCING NETWORK. IN EIGHT MONTHS IT HAS HELPED US IDENTIFY EXISTING SOLUTIONS IN COMPANIES ACROSS MAJOR AREAS THAT DON’T TALK TO ONE ANOTHER.”

John Schmidt, Innovation Director & Enterprise Technical Executive, Northrop Grumman

Managing R&D Complexity [CONTINUED]

“ I CELEBRATE WHEN YOU KILL A PROJECT. SOMETIMES IT’S MORE IMPORTANT TO STOP. YOU’RE GOING TO GET JUST AS REWARDED AS IF YOU HAD SUCCEEDED. IT’S OKAY TO FAIL.”

Alex Cedeno, Vice President of Global Innovation, MeadWestvaco

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email: batten@darden.virginia.edu
www.batteninstitute.org

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There was a general consensus that communication and knowledge distribution were critical to agility and to fostering innovation. However, as many participants agreed, building up the lines of communication across large organizations is easier said than done. “Our main problem is that we don’t exchange information,” said Northrop Grumman’s **John Schmidt**. “Some business areas don’t know what others are doing.”

But even organizations with highly collaborative cultures and rich technical infrastructure for sharing knowledge have their problems. As CSC’s **R. Lemuel Lasher** pointed out, his global, linguistically diverse firm struggles with overcoming communication barriers due to a lack of language skills. “Communication and language skills are our issues,” **Lasher** said. “Getting the diffusion of knowledge at a reasonable cost is a challenge.”

GLOBAL R&D: SUCCESS THROUGH FAILURE

Successful innovation depends on a culture that does not inhibit risk taking and punish failure. Apple and 3M are classic examples of companies that have fostered a culture in which employees are encouraged to explore novel ideas, even at the cost of potential disasters. One way to deal with failure is for individuals to work on multiple teams simultaneously. As Darden’s **Michael Lenox** explained, “You don’t have this problem that people say, this is my baby, you’re killing my baby. People working on two to four projects don’t lose face within the organization if one fails.”

Tolerance for failure is good, up to a point. While encouraging experimentation is important, it’s equally important to know when to cut one’s losses and move on. One of the greatest challenges facing Roundtable organizations is finding low-cost, low-risk ways to test new ideas.

Looking Ahead

Topics proposed for research initiatives and future gatherings include the underlying organizational factors that drive a company’s approach to agility; best practices in program management; how business models should change to reflect technological advances; and the business and operating models that create the right environment for innovation. The next Innovators’ Roundtable will be held in fall 2012.

