In conversation with

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“Innovation for the sake of innovation is not the goal. Innovation to solve a problem at a relevant scale, is the goal.”

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Innovation with impact at 3M

It’s one thing to create an innovation that is technically brilliant and solves a problem in a unique way, says Mike Vale, head of 3M’s Safety & Industrial Business Group. But if it doesn’t solve that problem at scale, it’s not helpful to society.

Vale’s views are based on a career as diverse and broad as 3M itself. He began with the company almost 29 years ago as a research chemist before taking up a variety of roles abroad and at home, heading up manufacturing operations and company acquisitions. In 2011, he moved to 3M’s Minnesota headquarters to lead the Consumer group, then the Health Care group, before taking on his current role 18 months ago. “In some ways it was an atypical path because I spent most of my career at 3M working outside of the headquarters in St. Paul and across all parts of the company, from our labs to our subsidiaries,” says Vale. But it is Vale’s science and engineering background that remains at the core of how both he and the company as a whole approach the fundamentals of innovation—and the drive behind 3M’s commitment to spend approximately 6 percent of sales on research and development each year.

“Innovation has to be relevant to the end user, clearly visible during use, and hard to replicate,” says Vale. A solution might be disruptive and based on real insights, but a solution is not a true innovation unless you can take it to scale. “Innovation is in the eye of the user,” says Vale. “And if you only have one person using it, it’s really not making an impact.”

We talked to Vale about bringing connectivity to the right products, how to empower your staff to do their best work, and the four dimensions of digital transformation at 3M.
What one word describes you best?

What I strive for is a combination of two words, if I can have a bit of license here: curious, and approachable. Any person that aspires to any level of leadership in any organization must have an innate curiosity to deal with what’s in front of them and reinvent themselves as the landscape changes. I’m always looking for insight and perspective, I’m always curious about how people see problems, and I’m very open with giving views on how I see things when I seek feedback. At the same time, I try to be approachable, invite discussion, and have others follow with me. The next generation of leaders will need to be capable of getting an organization to enthusiastically go where they’re not going to want to go naturally. You do that through curiosity, engagement and approachability.

What is your approach to innovation?

For the longest time our tagline was “3M Innovation.” I think today’s tagline more authentically captures how this company approaches society’s problems: “3M Science. Applied to life.” Our company has four business groups, 22 operating divisions, 51 technology platforms, and tens of thousands of products sold in 200 countries—how do you manage that level of diversity? I challenge our teams to think about the problems we’re trying to solve and talk through them with customers. A lack of technology is not our challenge—our challenge is framing the problem, then applying insights to create a solution; a solution that can disrupt and be differentiating. But even that’s not innovation. Because then you have to take the solution to scale in the market. And that’s why I spend a lot of time talking about science applied with impact. We’re a science-based company with tremendous technical depth and breadth, and we’re constantly seeking perspective and insight to frame problems our scientists can attack. Sometimes it can take years to find the solution. But when we find it, we have the resilience, commitment, intent, intensity, and focus to take that solution to scale across a wide range of potential applications, market segments and geographies. Innovation for the sake of innovation is not the goal. Innovation to solve a problem at a relevant scale, is the goal.
Can you give examples of groundbreaking innovations at 3M or in the industries you serve?

There’s 3M technology everywhere, even inside your phones, including light enhancing film technology that reduces the number of LEDs needed to provide a bright display. It directs the light and fractures it in different directions, so you get a very focused light. That in turn reduces the amount of power required and extends battery life. The film has 200 micro layers, each thinner than a human hair, very carefully engineered and positioned, and extruded on a die running at two hundred feet per minute. This is a good example of how we create a new solution and apply it at scale.
How is 3M differentiating itself from peers in the market?

You can make something technically different, and it might even be technically elegant or challenging. But if it’s not addressing a real pain point in a way that’s clearly visible to the user, then it’s not differentiating. It has to be relevant to the end user, clearly visible during use, and hard to replicate. Some of our strongest businesses in the group are built on clear differentiation. We’re a market leader in respiratory protection, able to take, model and manufacture highly proprietary, non-woven materials that have unique and incredibly effective filtration properties. We’re seeing that right now during the COVID-19 pandemic, with our disposable N95 disposable and reusable respirators. With our adhesives and tape portfolio we ended up creating products with a spectrum of properties, from materials that will bond oily surfaces to materials that help hold an airplane together.

Our abrasives portfolio is also no longer just using amorphous, irregular rocks for sanding products, but engineered materials with specific shapes, orientations and functions arranged into different form factors.
What digital technologies are you embedding in your products?

3M has been a technology company since our beginning in 1902. That said, we recognize the need to continue to undergo a digital transformation. We’re not a pure software services business, like Google or Facebook. But digital today is about how you capture and use information. I think about digital transformation across a number of different dimensions.

01
In our internal operations: connecting 240 plants, distribution centers, and the flow of our products between these hubs. How we are monitoring operations data happening in hundreds of thousands of different places in the company, then using it to streamline, optimize, improve, and accelerate.

02
Is how we use that data to change the customer experience - how they connect with us—whether that’s on our website, ordering platform, customer service platform, or via our engineers in the field. How are we becoming more interconnected so we can do business in real time with our customers?

03
Which a lot of people jump to innately, is connected solutions. There are seven different businesses inside Safety and Industrial, and six are deep into smart, connected programs working on the interface between material products and data-driven systems. One is in connected safety, and the ability to know if you’re using personal protective equipment (PPE) correctly—is it in good working condition; has it been tested and certified? Our connected solution in abrasives is focused on how to teach robots to become better at surface conditioning and surface application.

04
Is how we connect with our employees across our network. We’re a company of products and technologies. But at our core we’re a company of people—dedicated and passionate people. During the pandemic we have become much more connected internally. We’ve learned to interact in new and different ways in real time, across time zones in ways that we were doing before—but now it’s supercharged. How do we continue to give our employees the systems, tools and permission to connect more closely? Because that’s where you uncover the best innovations—when we get the minds and passion of our employees working together to solve a problem.
How do you approach bringing connectivity to a product?

The first question doesn’t change—what problem are you trying to address? Then we ask, what data do you think you need to capture on that journey to make it better? There are several different monetization paths. You could just create this smart, connected product at a different price. Or you could offer a tool to analyze and use the data as a separate service. Or you could offer the data separately to be monetized in a different way. We have more and more groups that are starting to realize the value is in the analytics of the data the product is capturing. It’s early for us, but we’ve had businesses that have made that jump. The best example is in our health information systems that record information flow inside most of the major hospital networks around the country. That’s a significant software services business for 3M.

How did we end up there? Back in the late 1970s, 3M supplied microfilm to hospitals for document retention and storage. Then some very insightful person realized everything would go digital and need large-scale standardization. So, they found some companies to partner with and we eventually acquired them. That became the genesis of a software system of coding, grouping, and documenting hospital procedures. That’s the earliest example of 3M making a move to a pure software services model, and it’s a very strong business for us today. Today, we have businesses that are looking to augment their core businesses and material product lines with a potential avenue of software services, data capture or monitoring of utility grids for fault prevention, fault analysis and fault repair in electrical lines underground.
How are you and your team contributing to the acceleration of 3M’s transformation journey?

Fundamentally, we’ve aligned around our common business models. We’re driving a globally directed operating model, with a clear line of sight through countries from an execution perspective. We went through a very successful period over the last three decades that relied on a lot of autonomy in our local country subsidiary structure. But now we’re reaching a point in the different worlds coming closer together, so we need to drive more alignment and standardization. That’s allowing us to make decisions and execute on those decisions much faster. With that comes a very strong mentality of empowerment in the organization: shared goals, shared directions, shared framework and guardrails, all empowering people to act as they see fit. There will be stumbles, but that’s okay. We have a shared operating model, so none of those mistakes or challenges would be a material to the enterprise.

With that combination of alignment and empowerment, things happen a lot more quickly and more powerfully than before—despite our old model being very successful.

Agility is, to use the Midwestern phrase, the hockey player that is charging across the center who suddenly flips onto the back of his skates and is going backwards in a different direction, flawlessly, without losing a beat. That sense of agility, changing direction in your rotation at speed without missing a beat, is what we’re trying to get to. As with all changes it takes a while to do it—you have to get used to operating in a new rhythm. But I think we’re getting there.
Where do you see 3M five years from now?

Five years from now I see us being an even stronger, diversified multinational. I see us being a more digitally enabled company across the four dimensions I mentioned—a company that’s able to span its great diversity internally with standardized digital tool sets that operate and report in real time, seamlessly connecting with customers. We will develop more products that leverage the interface between the material and digital worlds. We’re a technology driven, product associated company. But the whole point of customer experience is services. I think that’s an incredible area for us to improve and take the 3M brand to an even higher level. Finally, I think we will be an even more diverse company in the businesses and technologies we invest in, the technologies that we play with, and the employees that are the foundation of our organization.

What inspires you most?

There are four differentiating, competitive strengths of this company: the depth of our technology, the breadth of our manufacturing capability, the intimacy of our global and market reach, and how the three of those come together. When I ask customers what 3M stands for, I hear a combination of the same three words: innovation, quality, and trust. That comes from the depth of our assets, our ability to take technology and insights and meld them into a product, to build products at scale, and to have trusted experts in the field. We deliver a high-quality product every day, all year long, with the same level of consistency anywhere in the world. I get so excited and inspired when I’m touching those levers and seeing them in action. When I go into our product development labs and see the passion and possibility of what our people are working on. I get inspired when I go into our manufacturing plants and see equipment running at scale, pushing the boundaries of what’s physically possible. And I get inspired when I go into other countries and see how our teams are helping customers solve problems everywhere in the world. I get inspired every time I hear a customer or channel partner sit back and tell me: “I’m with 3M because you represent innovation, you bring me quality, and I trust you.” That’s super inspiring to me, and it’s where I get a lot of my energy to lean into the challenges.
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