360°

The Creative Shift

Solving 21st century problems

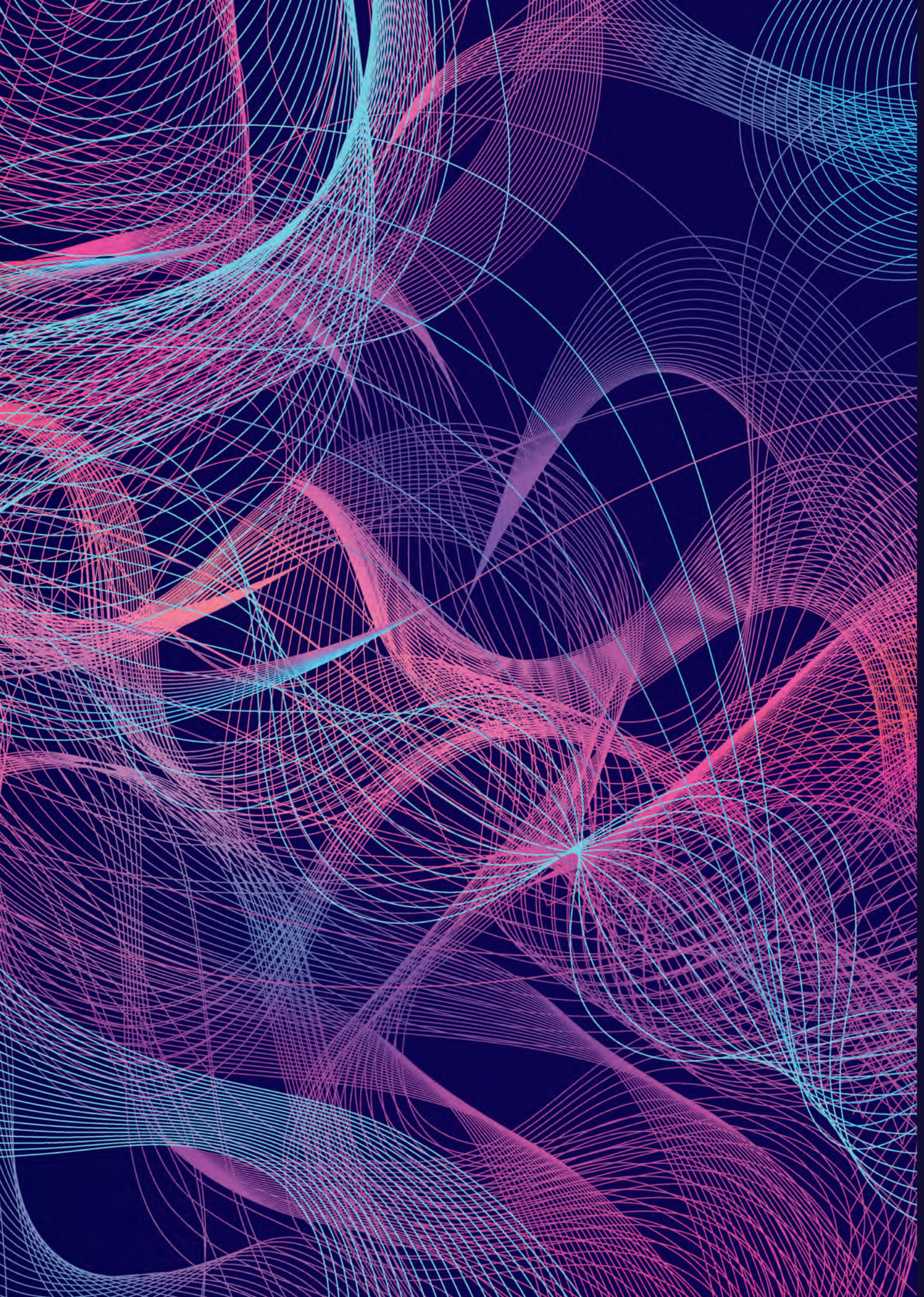
Q+A: IDEO's Tim Brown
Creativity and how organizations can encourage or kill it

Restoration Office
How biophilic design restores wellbeing

The Race to Digitize
Rethinking the role of IT

Exploring workplace research, insights and trends

Issue 72



360°

Exploring workplace research, insights and trends

The shift has happened.

We all saw change coming. Then suddenly it's upon us and work is something fundamentally different.

Today, we face problems too big, too complex to solve with yesterday's ideas. The demand and desire for creativity at work is stronger than ever before.

This issue of 360 explores and celebrates the innate creativity in all of us that's essential for organizations and people to thrive today… and tomorrow.

360°

Exploring workplace research, insights and trends

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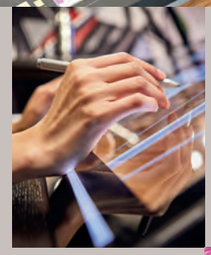
A decade or so ago, it was a prediction that was easily ignored. Now the trend toward more creative work is an idea whose time has come, and workplaces need to move forward, too. See how Steelcase and technology leader Microsoft have combined efforts to envision a workplace that accelerates the shift to creative work by supporting all the conditions it needs to thrive.



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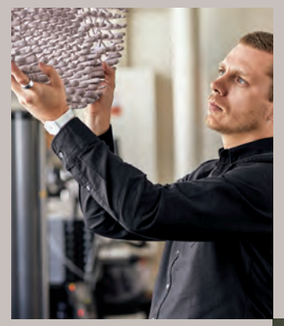
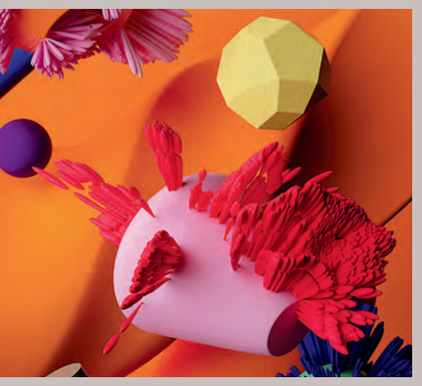
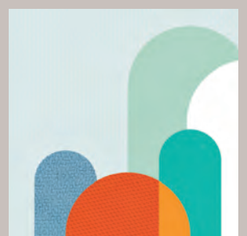
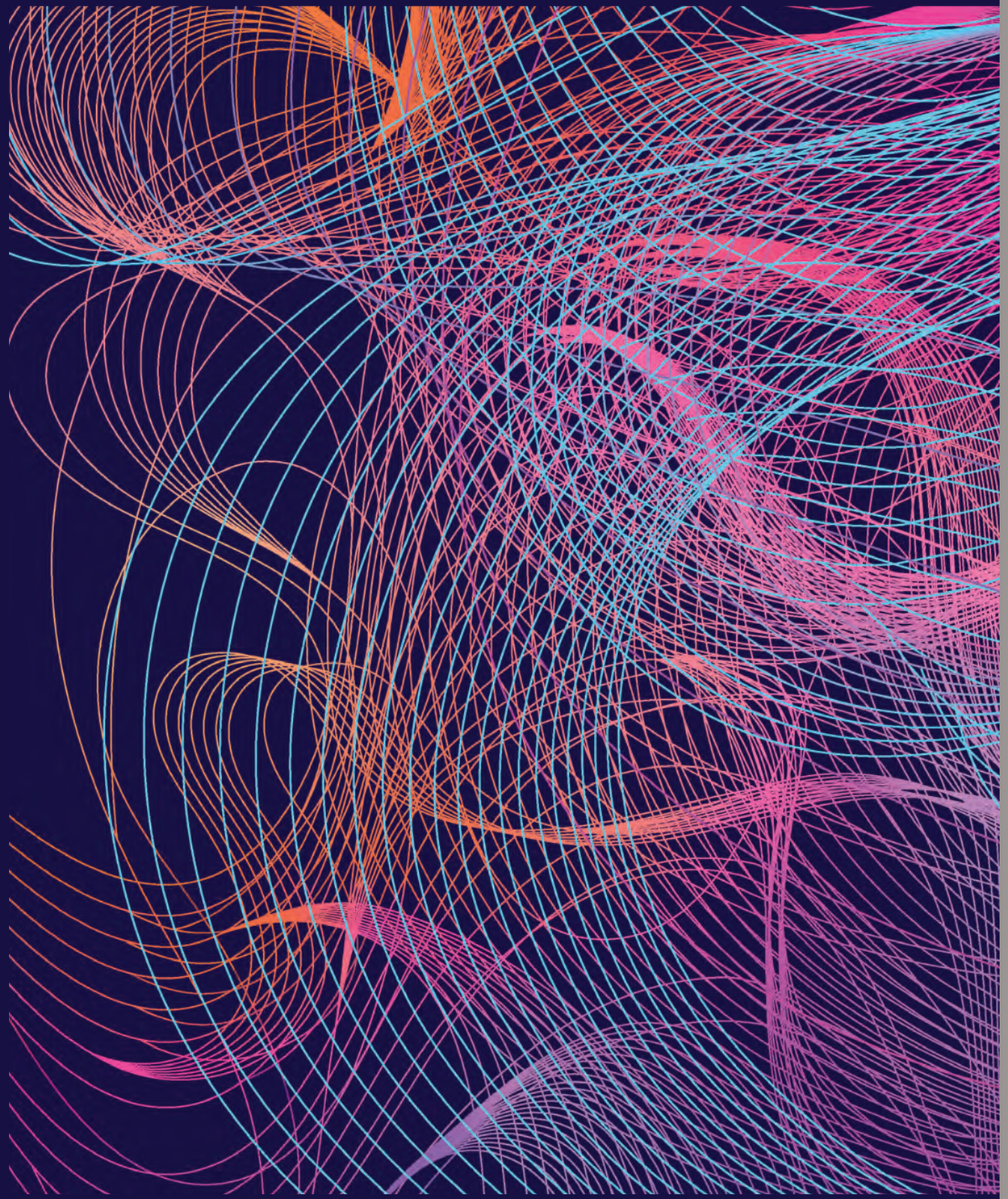








A 360 View

Man + Machine: Embracing Our Creative Future

There's a 5.5 percent chance my job can be taken over by a computer.

There's been so much news about the role of emerging technologies, like artificial intelligence and robotics, and predictions of how automation will affect jobs in the future, I couldn't help but wonder what it means. Not only in a macro sense — but also, at a very personal level – could a computer do my job?

So I went looking for answers. I'm not alone in feeling a little anxious about this question. A recent survey we conducted found that 76 percent of people also feel like emerging technologies will impact their job in some ways. But how?

I told myself that being an editor requires skills that can't be done by a bot… right? Yet today, the Associated Press publishes thousands of stories written by computers. They're not exactly works of literary genius, but the technology is in its infancy. Who knows what could happen in the future.

McKinsey Global Institute's report on automation says that jobs comprised of predictable, repetitive physical tasks are the most likely to be partially or fully replaced by automation in the near term. But we all know that technologies exist today that are able to accomplish cognitive tasks. It begs the questions:

What's left for human beings?

If I want to stay gainfully employed in the next decade and beyond, what skills do I need to grow and develop?

As it turns out, one of the things that defines us as human beings is the very thing that computers don't possess – our innate creativity. Researchers studying the evolution of creativity in our earliest ancestors found that our ability to think up novel solutions to complex problems was what separated us from other species. People developed the ability to share knowledge, build on each other's ideas and grow large social networks, which turned out to be a catalyst for creativity.

Just as early humans learned to create and work with tools to solve problems, emerging technologies combined with places that support them can offer people the same opportunity today.

In our recent work with Microsoft, we developed a range of technology-enabled spaces designed to help fuel creative work (see The Creative Shift: How Place + Technology + People Can Help Solve 21st Century Problems, pg. 68.) We looked at the uniquely human behaviors that are required for creativity and how space and technology could help. The first time I walked into one of the spaces I was a little intimidated by the sheer size of an eighty-four-inch computer embedded in the wall. Yet the room was designed to promote active idea generation. Once my teammates and I started playing with it — moving around the space while we moved content around the device — I started to realize that a computer wasn't going to take over my job, but technology in a well-designed place could help me do the very organic, messy job of creating something new.

Creativity defines us as human beings. Working together with other people helps fuel better ideas, faster. And embracing technology-enabled spaces as tools to support creative work offers all of us the possibility to solve big, wicked problems... and a few everyday issues too.

Christine Congdon
Editor, 360 Magazine

If you're interested in seeing how likely your job is to be taken over by a computer, check out these sites.

http://www.npr.org/sections/money/2015/05/21/408234543/will-your-job-be-done-by-a-machine

https://features.marketplace.org/robotproof/

Perspectives

Meet the people behind this issue.

Beatriz Arantes
WorkSpace Futures Senior Design Researcher and Psychologist, Steelcase

"There is obviously a necessary comfort to working indoors, but it deprives us of natural elements that give us energy and vitality. We've learned from our research that nature doesn't need to be explicit or literal. It's about tricking our brains to feel like we're in a natural environment, by triggering underlying patterns that we're programmed to recognize and feel good in."

James Ludwig
Vice President, Global Design and Product Engineering, Steelcase

"The future will be powered by ideas. How we create, identify, foster and make ideas tangible—that's how value is created. Our spaces and technologies need to help us solve problems, not cause friction or get in the way."

Ralf Groene
General Manager, Microsoft Device Design

"We're no longer coming to work because that's where our files and phone and computer are, or because it's the only place where our laptop connects to the corporate network. Now we're coming to work because it's where we share, collaborate and build on each other's ideas."

John Hamilton
Director of Global Design, Coalesse

"Incorporating biophilic factors into fabric design allows a designer or architect to apply a vision of something that is refined and distilled from nature across a variety of surfaces, to make a space feel more special to the user."

Terry Lenhardt
Vice President and Chief Information Officer, Steelcase

"Instead of being there at the end when the problem has been identified and the plan has been created, IT is getting involved in the upfront design thinking. What problem are we trying to solve? What customer are we trying to help? That really changes the skill sets you need to be successful."

Donna Flynn
Vice President, WorkSpace Futures, Steelcase

"The way to support people is to provide the ability to move between individual time and collaborative time, having that rhythm between coming together to think about a problem and then going away to those ideas gestate."

To Be Human Is to Be Creative

As problems become more complex we see that our innate creativity more and more is becoming the essential element in how we work.

What does being creative at work mean to you? From Pixar to soccer fields, from nanobots to outer space, we polled people who work in various realms and places and discovered some inspiring and maybe even universal truths.

Creativity is in the details.

"If you do the things no one sees, with as much pride and enthusiasm as the things that everyone sees, then it will be a good job."

Peter Cranston

Civil Engineer
United Kingdom

Creativity pushes boundaries.

"Creativity is a must —from innovation, to breakthroughs, to new devices or uses of what we already do. One must be at the edge of science to be visible. If you stay still in the office, inspiration definitely won't come."

Samuel Sánchez

Group Leader,
Stuttgart/Max Planck Institute
for Intelligent Systems
Spain

Creativity builds experiences.

"The mission of the National Park Service is to provide visitors enjoyable experiences and protect the resources. We need to get creative to get our message out to people, so that they have a safe and enjoyable experience."

Linda Veress

Yellowstone National Park
United States

"If everything is going smoothly, you're likely missing something. I never stop my mind from reconfiguring a problem in search of a better solution."

Jason Elg

Manufacturing Engineer, Space Systems
United States

Creativity sees possibilities.

“Soccer is about problem solving. The beautiful thing about the sport is that the field is so large that it truly takes a team effort to score or defend a goal.”

Estelle Johnson

Professional Soccer Player,
National Women’s Soccer League
United States

Creativity fosters teamwork.

Creativity asks why.

“Being creative allows for finding new solutions. With all the technology out there simply being creative enough to have a ‘what if’ idea, could very easily become a reality.”

Cal Krome

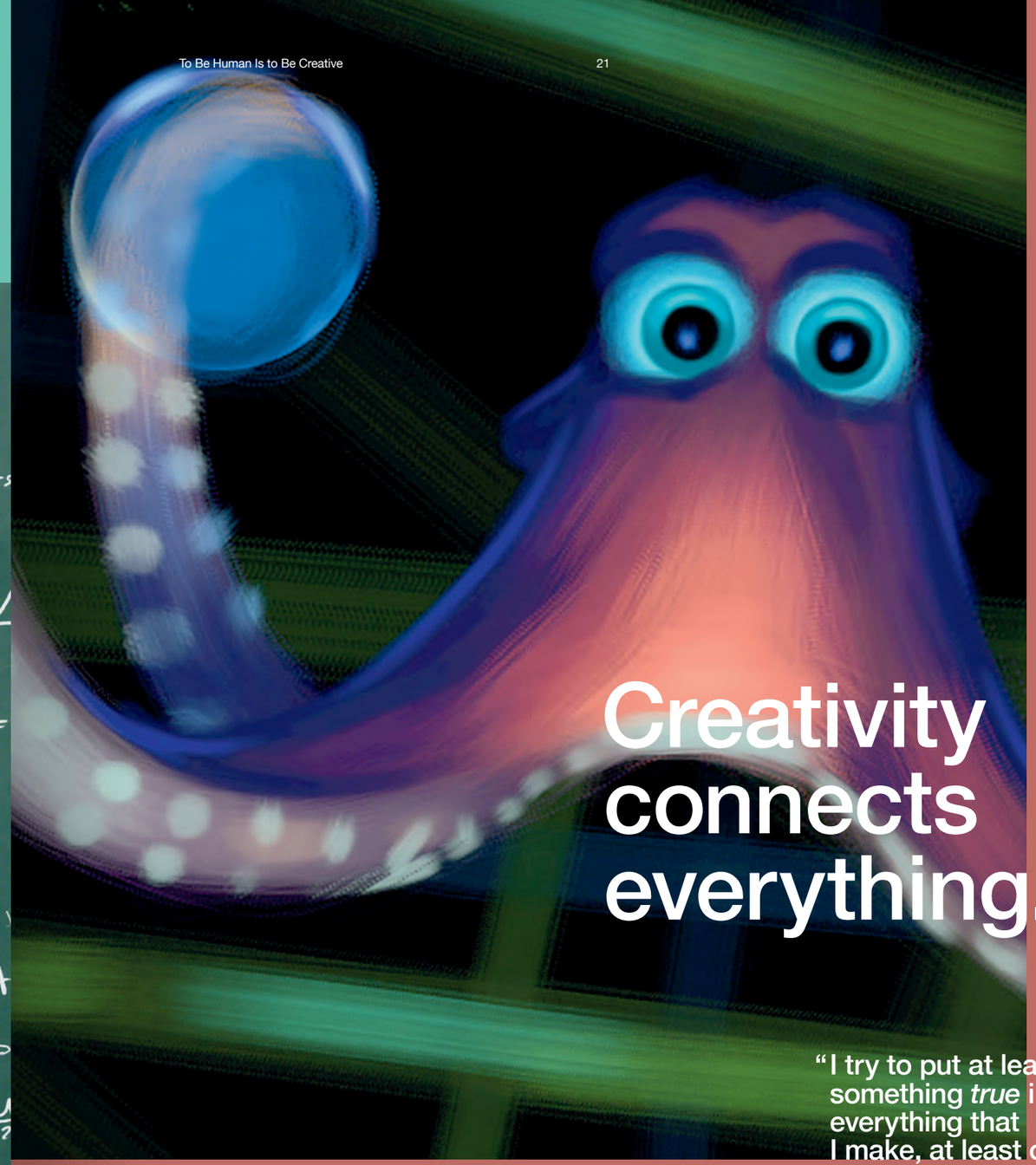
IT Manager, Lyft
United States

Creativity constantly adapts.

"It's a different way of thinking. The different ways that people learn require different concepts and approaches to how we help them understand."

David Gordon

Associate Professor
De Montfort University
United Kingdom



Creativity connects everything.

"I try to put at least something *true* in everything that I make, at least one element that the viewer can connect with. It's easiest to find truth in human behavior and real life interactions."

Angus MacLane

Co-Director, Pixar Animation Studios
United States

Trends 360

Man, Machine and Creativity

Robots, AI, automation—many jobs will change as a result of these technologies. Some may even disappear. But if history is right, most changes will be good ones.

Between 1982 and 2012 employment grew significantly faster in occupations that embraced the use of computers. As automation eliminated routine, repetitive work, humans had more time to do what machines can't do—creative work. The future will need everyone to unleash their creative potential to solve complex problems, make new connections and generate ideas. The future is creative.

Sources: (1) McKinsey Global Institute Analysis (2) UK Economic Outlook, PwC, 2017 (3) Think Act, Les Classes Moyennes Face à La Transformation Digitale, Roland Berge Strategy Consultants, 2014 (4) 20th CEO Survey, PwC, 2017 (5) Adobe State of Create 2016 (6) 20th CEO Survey, PwC, 2017 (7) 20th CEO Survey, PwC, 2017 (8) Steelcase Creativity and the Future of Work Survey, 2017 (9) Adobe State of Create 2016 (10) Steelcase Creativity and the Future of Work Survey, 2017 (11) The Future of Work Report, World Economic Forum, 2017 (12) McKinsey Global Institute Analysis (13) Steelcase Creativity and the Future of Work Survey, 2017

Technology: Promise or Peril?

50%

Activities people are paid to do in the world's workforce that could potentially be automated by current technologies.[1]

42%

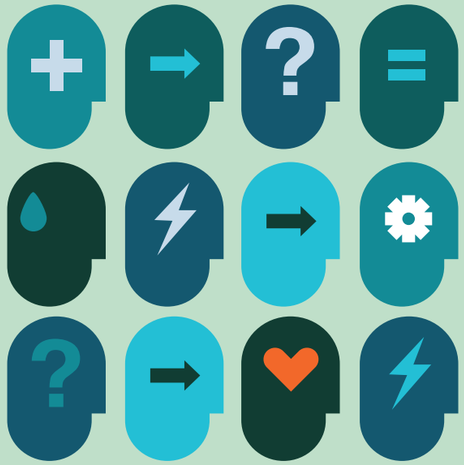
Percentage of jobs predicted to be transformed by digitalization in France in the next

5%

Less than 5% of all occupations can be entirely automated.[12]

Regional Job Impact from Automation in the Next 15 Years [2]

A Leader's Perspective



77%

CEOs concerned that key skill shortages could impair their company's growth.[4]

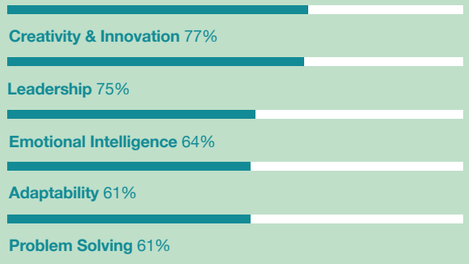
61%

Leaders that don't believe their company is very creative.[5]

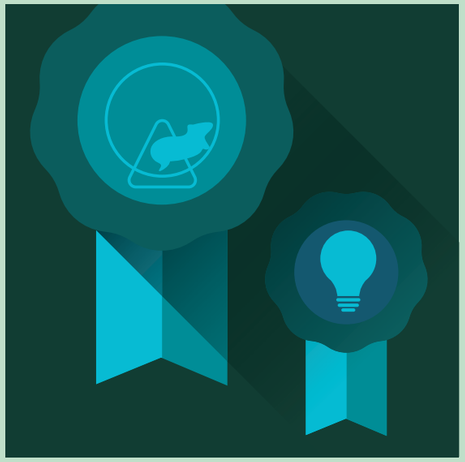
52%

CEOs that plan to hire more employees, but the skills they consider most important are those that can't be replicated by machines.[6]

Skill Shortage According to CEOs[7]



The Creativity Gap



42%

of employees say their company measures productivity by how much work they produce.[13]

34%

of employees say their company measures productivity by how creative their ideas are.[13]

77%

Workers who believe creativity will be a critical job skill in the future.[8]

69%

Employees who say they are not living up to their creative potential.[9]

40%

Employees who say their company has a culture that encourages creativity.[10]

By 2020, **more than 1/3** of the desired core skill sets of most occupations will be comprised of skills that are not yet considered crucial to the job.[11]

65% of kids entering school today are going to be doing jobs that currently don't exist.[11]

The New Office

Ideas to Fuse Inspiration and Performance

There's no question about it.

Employees around the world are rejecting standard, bland offices and demanding something fundamentally different. This anti-corporate backlash is loud and clear. But the solution isn't as clear.

Organizations have added spaces that feel more like home, which are emotionally comfortable, but can become physically uncomfortable and often lack the tools required to get work done. So, what's the "recipe" for a high-performance space that is informal and inspiring? Why are some spaces always busy, while others remain empty?

Here's what we're learning:

1

Healthy Postures

You don't have to sit up straight all day, regardless of what your mom told you. People need to be encouraged to shift postures throughout the day, move around and sometimes even given permission to put their feet up—research shows a more relaxed lounge posture promotes creative thinking. Make sure to provide a broad range of options so people can sit, stand, perch, lounge and move.

2

Bring the Outside In
People thrive in environments that incorporate natural sunlight or provide accessibility to the outdoors.

5

Consider Proxemics
When people need to collaborate, provide enough space between them so the space feels comfortable.

3

Materials Matter
Activate people's senses with a wide range of textures, patterns and colors that can be soothing and relaxing, or energizing and stimulating and choose a variety of products and materials that display a level of craftsmanship.

4

Make it Real
Place meaningful artifacts and accessories to encourage innovation and playful thinking.

9

Make It Personal
Allow people to personalize the space and make it feel their own.

6

Create Boundaries
Use screens, walls, other furniture or even plants to define spaces. This will create spaces that feel more permanent, and provide a place for focus when needed.

7

Location, Location, Location
Be intentional about where to locate a space based on what type of work will happen there and what behaviors you want to encourage. Areas for socialization and informal collaboration should invite people to interact.

8

Power Play
Beautiful spaces get even better when they provide access to power that's within easy reach.

10

Nourishment
A well-designed café can invite spontaneous collaboration or offer an energized place for individual work.

Work Day

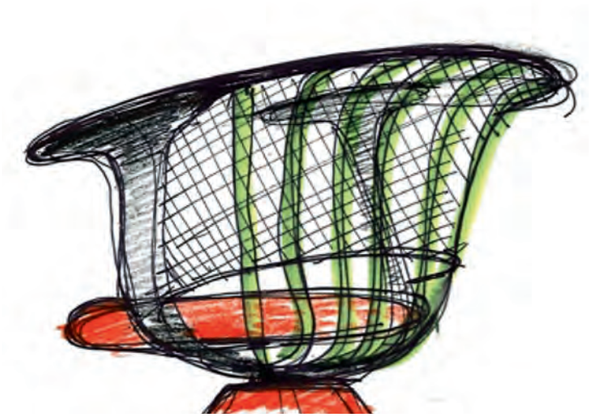
Brainfood

Movement is proven to stimulate the brain. If you're trying to solve a difficult problem, take a walk and let your brain wander. Diffused thinking can connect ideas in new ways.

Exposure to nature releases endorphins that improve mood and helps you attain a creative state of mind.

Environments can offer subliminal cues to the brain. If you want to expand your thinking, try sitting in a room with a high ceiling or a far-reaching view.

Try lying down when you need to get creative. It reduces the flow of the fight-or-flight hormone, norepinephrine, and helps your ability to absorb and connect ideas.



Things I Love

"What I love about i2i is the moment of surprise and delight it creates to the people experiencing its unique motion for the first time."

Alban Morinière
Industrial Designer, Steelcase

A Nomad's Life

Mobile workers rely on technology to stay connected, but often end up in pain from text neck. Some ideas to help:

Choose a Brody WorkLounge for individual work. The work surface can be easily adjusted to bring your laptop or tablet up to eye level.

Try a mobile laptop support when working at desk or table to give your device a boost and keep you from looking down.

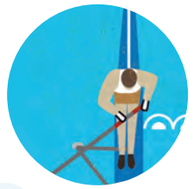
Find a Gesture chair, which was specifically designed to support new postures people find themselves in when working with technology. Avoid the "strunch!"

In Focus

Too many distractions at work? Blame your eyes. Humans have acute peripheral vision and are hardwired to detect motion. Find a place that shields you - a screen, a wall or even some plants can help you avoid eye contact and stay focused on the task at hand.

Need to get stuff done, but don't want to feel isolated? Steelcase research found that people can seek strategic anonymity—meaning a place where people don't know you well so they are unlikely to stop and chat. Avoids disruptions and lets you sit in a high energy space.

Avoid email if you want to stay focused. The average worker checks their email 30 times an hour, which not only eats time, but makes it harder to get back into a state of flow once the distraction happens.



Culture Club

Thoughts about place & company culture

"Our team has embraced the WorkCafé. You see people who work in different areas meeting for a break and getting to know their colleagues. The space has helped build a more cohesive team."

Kalie Olson,
Director of Finance & Sales Operations, Integreon, United States

"It is important that our company's purpose become more visible in our new workspace."

Federico Francini,
CEO, Fujitsu, Italy

"If you love coming to work every day because you have the flexibility to work in a setting that matches your work style, mood and task, everyone benefits."

Mike Rodriguez,
Design Principal, HDR, United States

Pushing Possibilities

MIT's Self-Assembly Lab shatters the barriers of 3D printing

Google the name Skylar Tibbits and you'll find TED Talks on creating things that make themselves without humans or machines. Intrigued? Type his name into YouTube and see for yourself.

Components spontaneously assemble into structures. Materials reconfigure, go from liquid to solid and act like actuators.

Photography by
Jeremy Frechette

As founder and co-director, along with Jared Laucks, of the Massachusetts Institute of Technology's (MIT) Self-Assembly Lab Tibbits and team's exploration into melding design of the physical and digital worlds has produced numerous innovations that appear mind-blowing to the untrained eye. One of the Self-Assembly Lab's latest experiments, in partnership with Steelcase and designer Christophe Guberan, broke the three main constraints of 3D printing: speed, scale and material properties. They created an intricate lattice tabletop for turnstone's Bassline table.

Tibbits and team, Steelcase and Guberan asked: Can we print a chair in minutes? A chair, most likely. A tabletop, most definitely—28 minutes in fact. The team successfully developed a new 3D printing technology called rapid liquid printing. This technology prints a design through drawing in 3D space within a gel suspension and enables the incredibly fast creation of large scale, customized products with high-quality materials.

"Execution and implementation of 3D printing has been limited by three main factors," Tibbits describes. "One of them is speed: Printing tends to be slow compared to other industrial processes. The second is scale: Printing is usually fairly small scale. The third is material properties: Printing today tends to have low quality materials." According to Tibbits, rapid liquid printing is the perfect example of design and manufacturing changes symbiotically working together, an area of exploration that the Self-Assembly Lab continues to push.

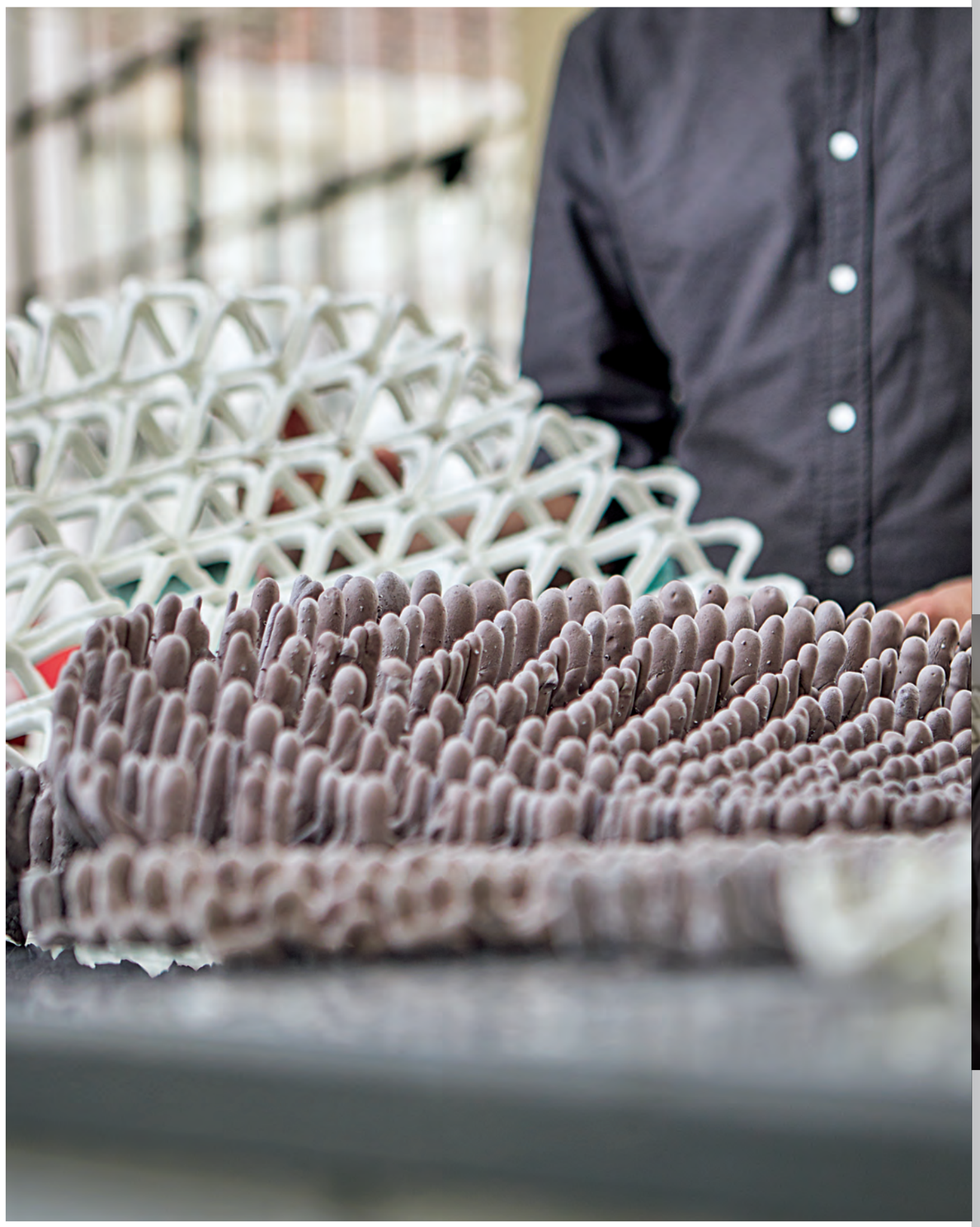
"I think creativity is about experimentation and research. Our goal is to push the boundaries of what's possible and invent things that weren't possible before," says Tibbits. To stay inspired, the lab, made of students and researchers from many different backgrounds, constantly critique themselves. "Every time we do a project there are ten new ideas for new projects and those projects make the previous ones obsolete. We say, we need to make it smarter, faster, better; it needs to have less complexity, but more functionality."

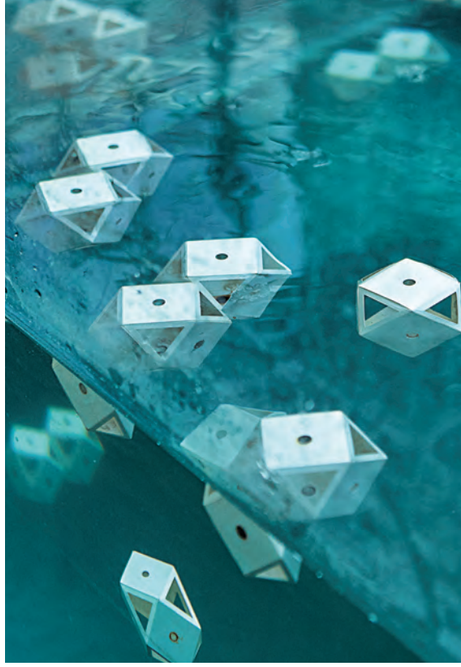
A crucial element to creativity for the Self-Assembly Lab is collaboration; their work shows openness to collaborate with many different industries and disciplines. "The collaboration with Steelcase is really the perfect synergy between our research and really pushing the envelope of what's possible, as Steelcase is the leader in space and interested in what's next for materials, human comfort and new manufacturing principles," notes Tibbits.

After one month of intense development, the 3D printed Bassline tabletop went from concept to a tangible industrial furniture piece. This rapid iteration was fostered by using printing as a "design fabricator," Tibbits explains. "Design can emerge through the process of making and a new design language can form. Functionality can emerge in the same way."

As the Self-Assembly Lab continues to advance what's possible in new construction systems, manufacturing processes and material properties, they continue to find new quests to conquer. "We're really on more of a quest of exploration than a specific vision," says Tibbits. "We operate on things like surprise. How do we surprise ourselves? How do we break things, test things and design through making?"

No one knows, but the world will be watching.





“Every time we do a project there are ten new ideas for new projects and those projects make the previous ones obsolete.”

Skylar Tibbits

Above
Laucks and Tibbits in the Self-Assembly Lab.

Top
Self-assembly modules from the fluid crystallization project.

Skylar Tibbits talks about what inspires his team and how the Self-Assembly Lab supports the team’s creative work in a Steelcase 360 Real Time podcast (available on iTunes and SoundCloud).

The Beauty of Choice

Human beings crave personalized experiences. We value the sense that something was created with our ideas and preferences in mind.

It says, “This is for me,” and more importantly, “I matter.” At work we seek out spaces that integrate bespoke, curated pieces designed and selected to express individuality.

“Our intent was to enable the creation of thousands of one-of-a-kind pieces,” explains Markus McKenna, director of global design for turnstone, as he described the new Bassline table. “In this way, we took a backseat and let people’s individual tastes drive.”

Inspired by the unique rhythms of musical basslines that hint at genre and establish tempo, Bassline tables are personalized, allowing people to essentially create a unique table each time with a broad range of tops and legs, including the ability to create a custom top out of almost anything.

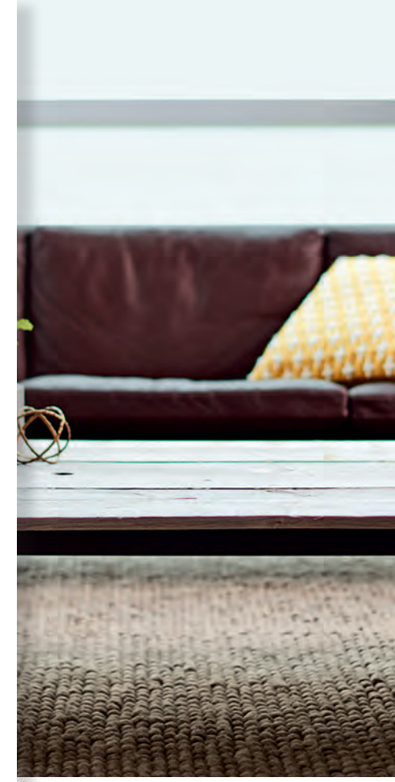
Turnstone and Steelcase have explored custom tops from barn doors to basketball courts, and marble to manhole covers. Each one is nuanced and storied, nodding to its origins, embracing nature’s imperfections and celebrating a vast array of styles.

“We quite intentionally chose to make the legs very modest, almost invisible. We wanted the focus to be the tabletop — whatever a person might find particularly meaningful,” says McKenna.

A vehicle for personal expression, Bassline brings out the designer in us all.

Building a Personal Connection

Turnstone designer Yuka Hiyoshi shares her thoughts on craft, inspiration and personalization.



Bassline's low profile, modern design anchors lounge spaces with beautiful materials and finishes.

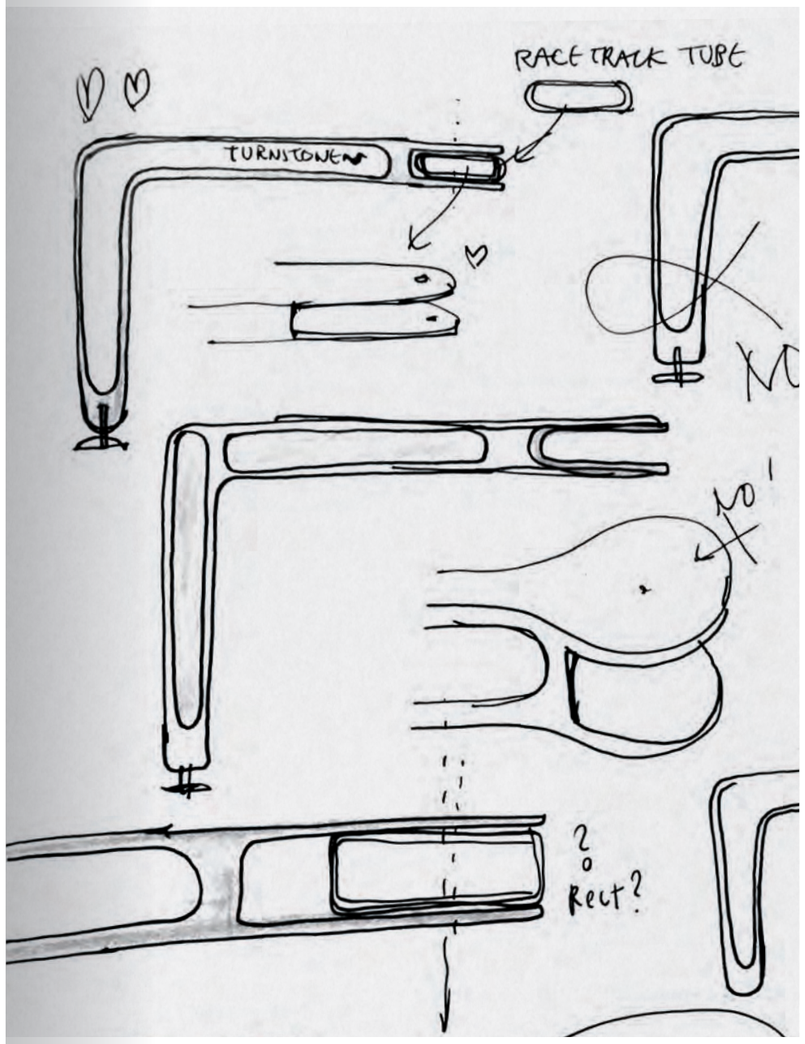
Born and raised in Japan, Yuka Hiyoshi, senior industrial designer at turnstone has lived most of her life in places where space is limited. “Living in New York City I didn’t feel freedom architecturally. You can’t have many things in a small space, so being intentional about each item is what made my space unique to me,” explains Hiyoshi. These experiences cultivated a high value for personal connection with the things she owns and creates.

Personalization is a capability Hiyoshi baked into Bassline, the new table from turnstone that encourages customization. “The instructions are easy enough that customers can apply their favorite top to the table in their own space.”

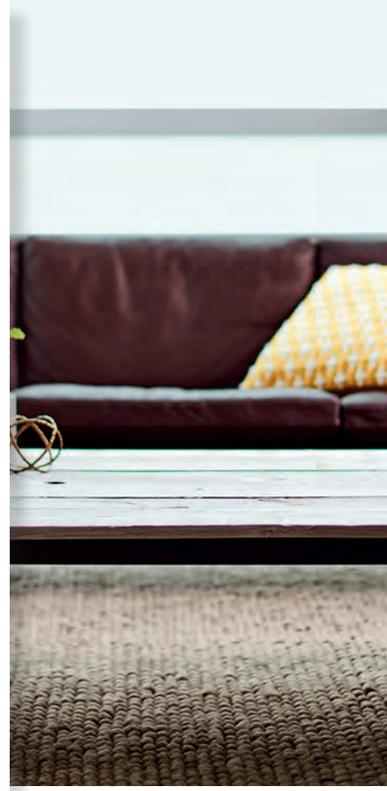
It’s an innate desire for personal expression that Hiyoshi believes is creating an ever intensifying craving for personalization. “I draw inspiration from my husband who is a bespoke tailor. I appreciate the craft and individualized thinking he brings to my life. The Bassline top satisfies this kind of customer focused approach.”

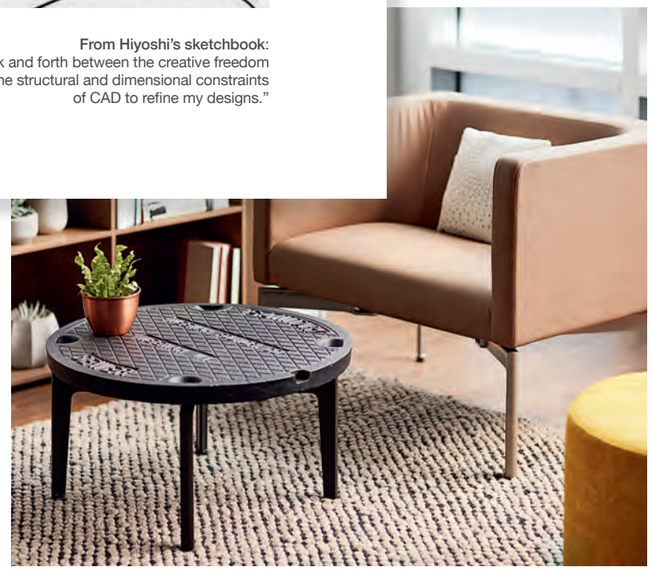
It’s a balance between industrial design and intricate craft by hand that grants artistry, creativity and authenticity through an endless range of table options.

As Hiyoshi says, “I think Bassline is a nice merge between two industries. People really crave objects that are uniquely meaningful to them. Bassline allows people to apply their favorite top that’s unique to them to a piece that is accessible.”

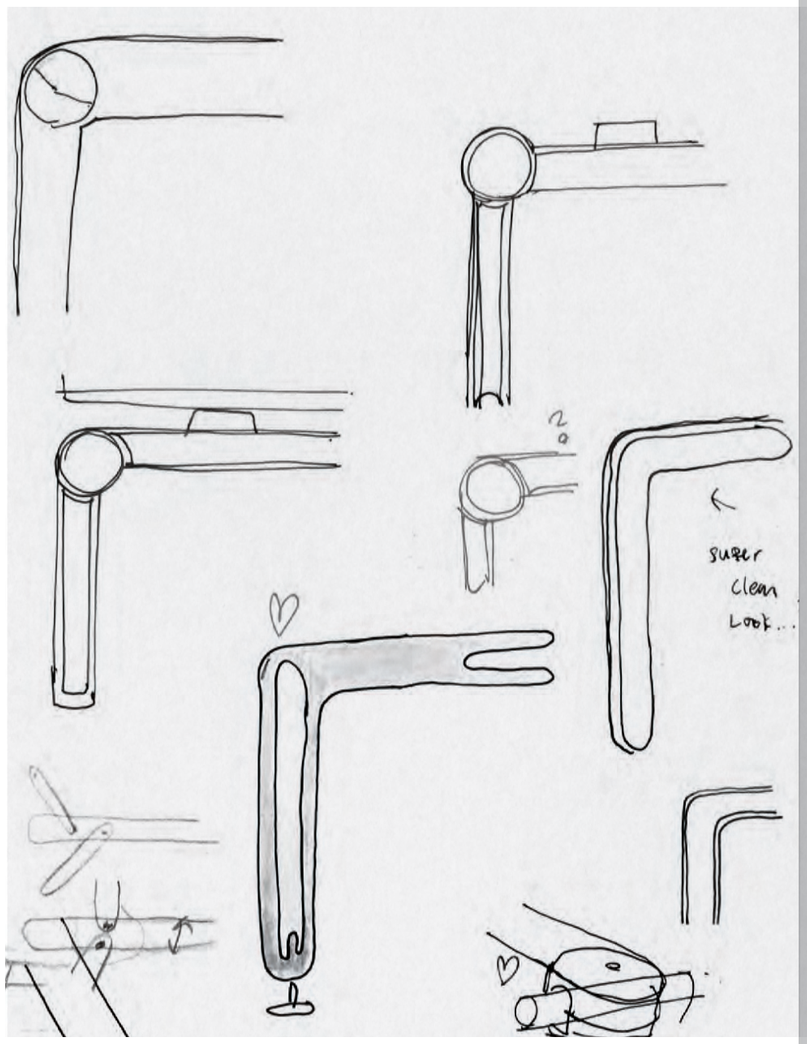


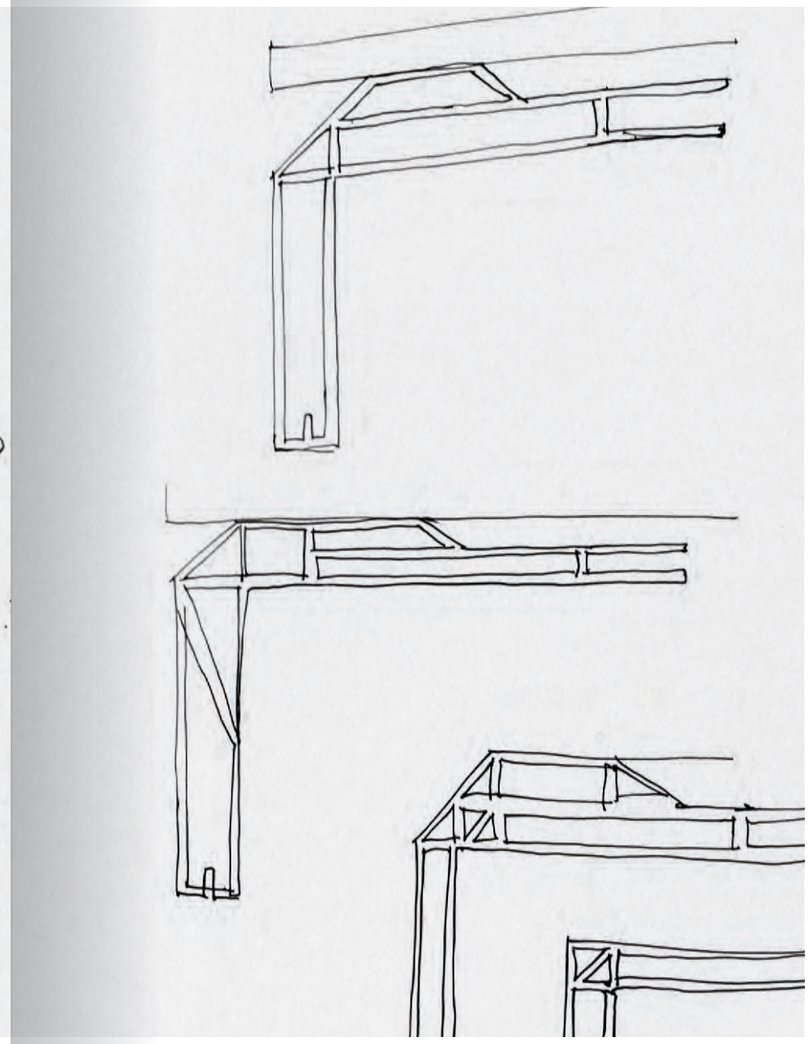
From Hiyoshi’s sketchbook:
“I like to go back and forth between the creative freedom of sketching and the structural and dimensional constraints of CAD to refine my designs.”

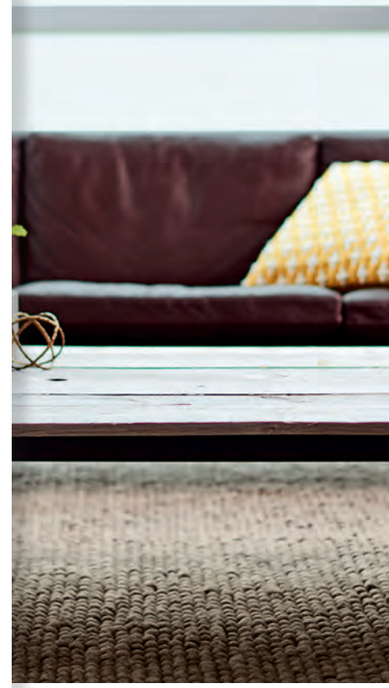


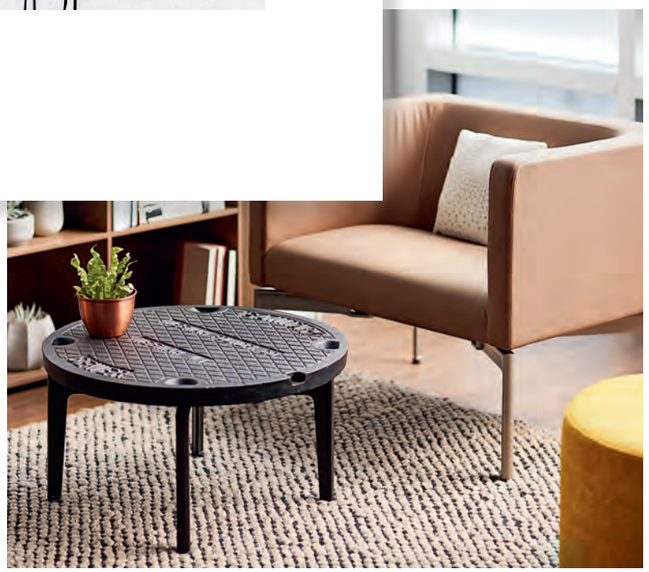


Bassline’s low profile, modern design anchors lounge spaces with beautiful materials and finishes.









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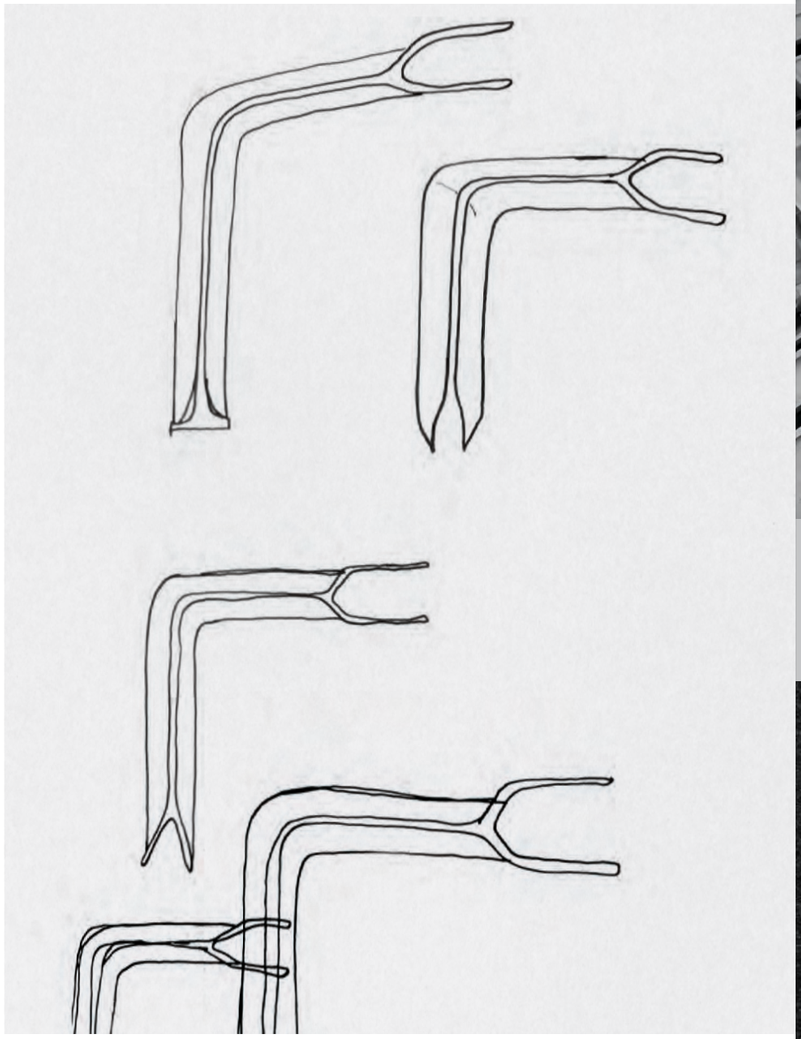
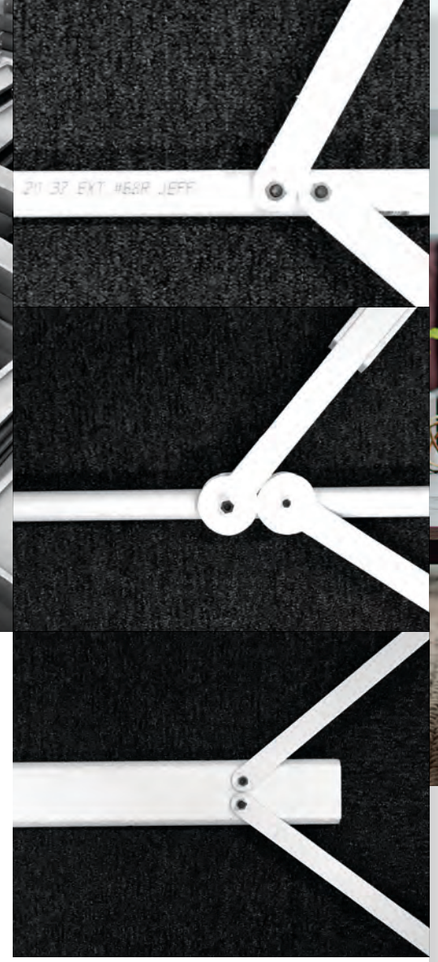
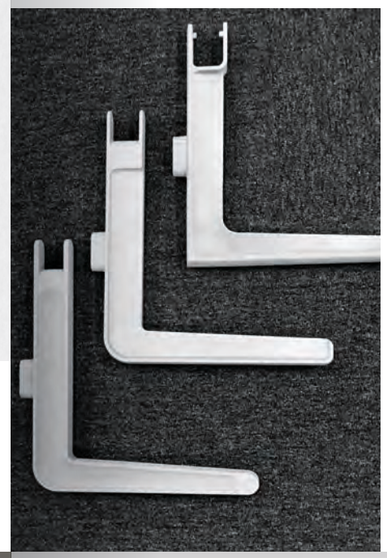


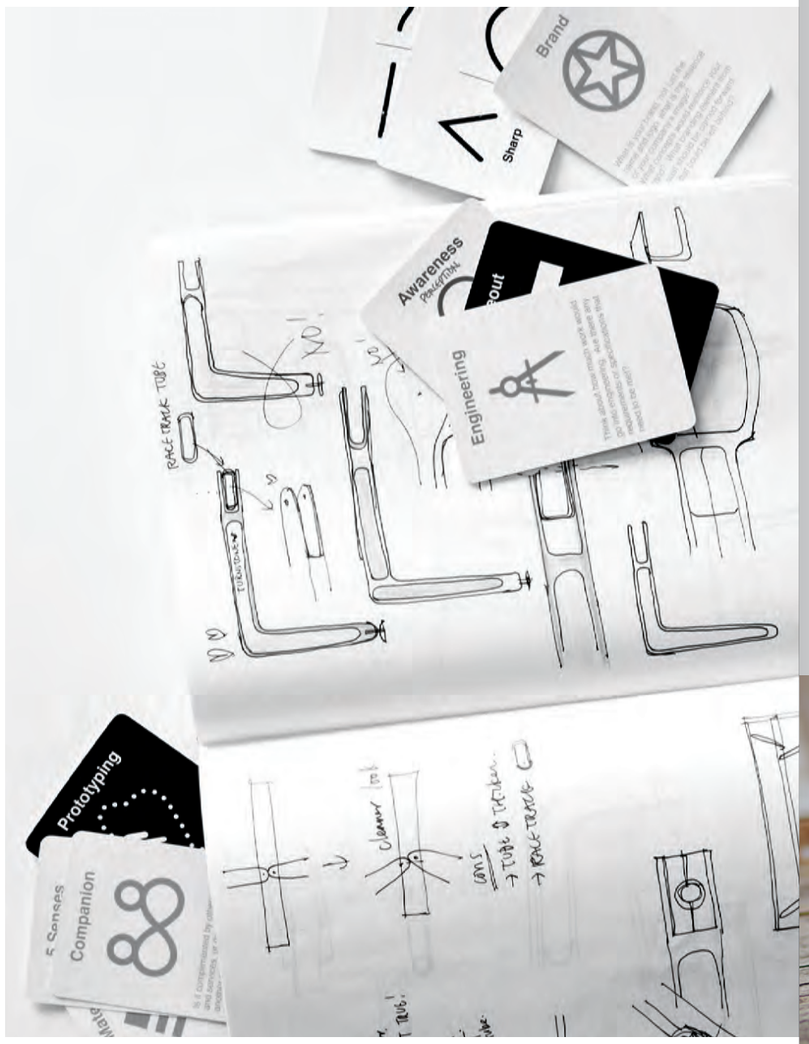


3D Printed Models



Quick models for structural study:
"It's amazing how much you can learn and how fast you can make critical design decisions from these crude models."

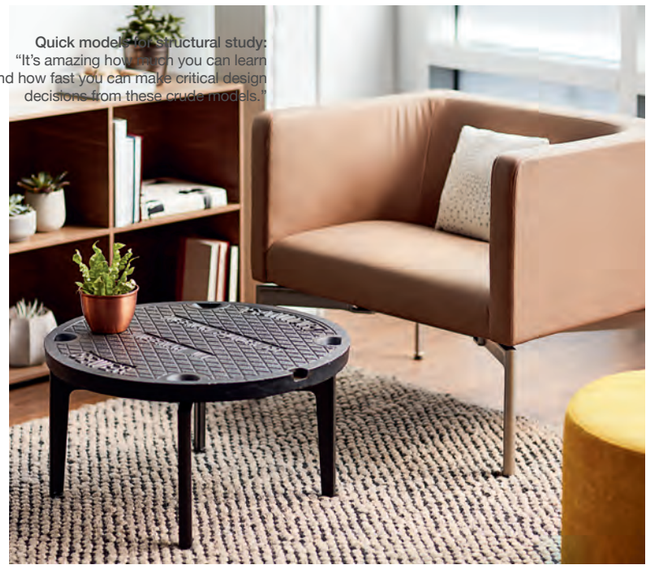
Bassline's low profile, modern design anchors lounge spaces with beautiful materials and finishes.

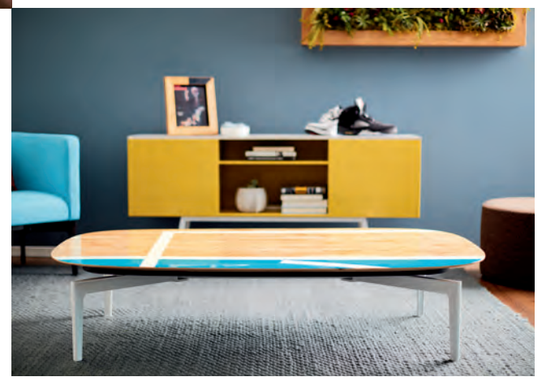


"During my career, I've developed my own design method into a deck of cards I use as a creative catalysis. The cards help me evaluate every aspect of the design in a holistic way."

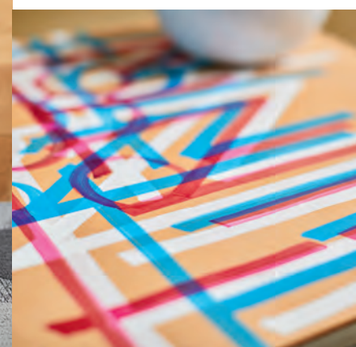
Bassline's low profile, modern design anchors lounge spaces with beautiful materials and finishes.

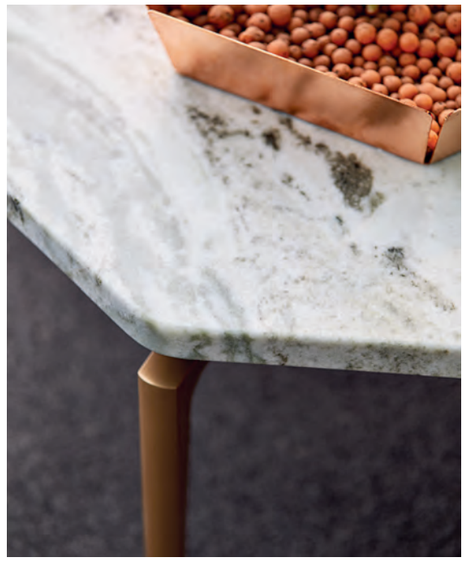
Quick model for structural study: "It's amazing how much you can learn and how fast you can make critical design decisions from these crude models."





Bassline's custom top platform makes it easy to personalize your workplace and showcase your style.





No custom top? No problem.
Bassline offers dozens of
standard options.

Creating More With Less

How constraints can be a creator's best friend.

Blank page syndrome is real. It's daunting to make something from nothing.

Luckily, we're hardwired to take on a challenge—we take pleasure in solving puzzles. Limitations harness our highly-evolved problem-solving and logic skills alongside our imagination and survival instincts. They give our tools a purpose. Just look around—we're often at our creative best when we're solving problems.

In some places, this happens with little fanfare. In India, cheap, quick fixes for everyday problems are called Jugaad, a Hindi term for clever improvised solutions. Think a broken car door handle replaced with a fork, a two-liter bottle cut in half as a planter or a milk crate converted to a kid's bicycle seat—lifehacks India-style. Websites collect amazing Jugaad. There's even a documentary film, "Supermen of Malegaon," about making a blockbuster superhero movie with improvised everything, including a homemade green screen on the street for shooting special effects. Today, global companies look to Jugaad's frugality and flexibility as inspiration for innovation.

In outer space, there's no hardware store, so ingenuity is a must. NASA astronauts have duct-taped a broken lunar rover fender and repaired a stuck power module on a space walk with a modified toothbrush. In 1973, NASA whipped up a solar sunshade overnight on earth to send up the next day with astronauts to repair SkyLab. What can businesses learn from this kind of agility?

Constraints can feed creativity — literally as well as figuratively. An unlikely mecca of "locavore" cuisine (which encourages us to eat what's grown closer to home) emerged in Copenhagen, Denmark. Noma, a local restaurant, developed a menu based on geography, featuring delicacies created from foraged and indigenous ingredients sourced mainly from the wilds of Norway—scurvy grass, samphire, beach beets, arrowgrass—some not unlike what Vikings ate. With unusual flavors like smoked bone marrow, wood ants and sea cucumber—plus trusty local fish, Noma set the culinary world on fire.

Artists and designers see the benefits of limitations—even self-imposed. Economic constraints can lead to creative problem solving and ingenious ideas. In a quest for record sales, Motown Records used an in-house band and team of songwriters on its singles and recorded them upstairs from its offices—all for efficiency and quality control. Its inventive engineers maxed out the possibilities for analog technology on complex recordings. The result? An unmistakable signature sound.

Punk rockers exploited the cheap and available medium of Xerox art and collage for their handbills, even record sleeve designs, resulting in an organic visual expression of its DIY ethic. It's still influential today.

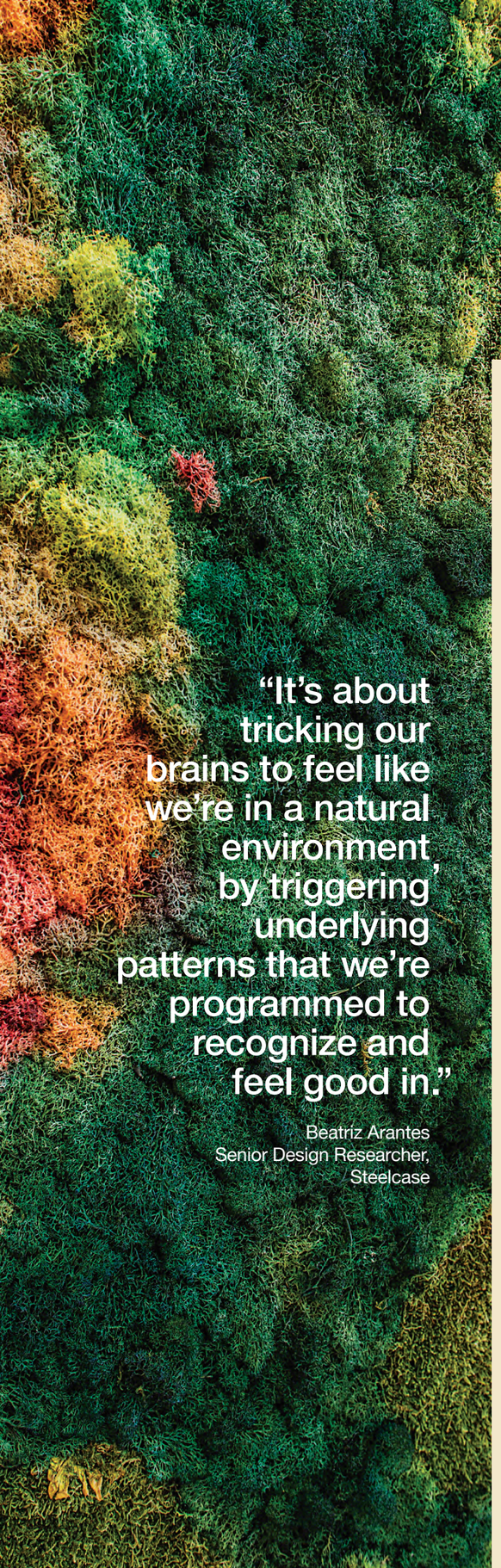
When architect Richard Meier refers to each limitation as an "opportunity," he's onto something.

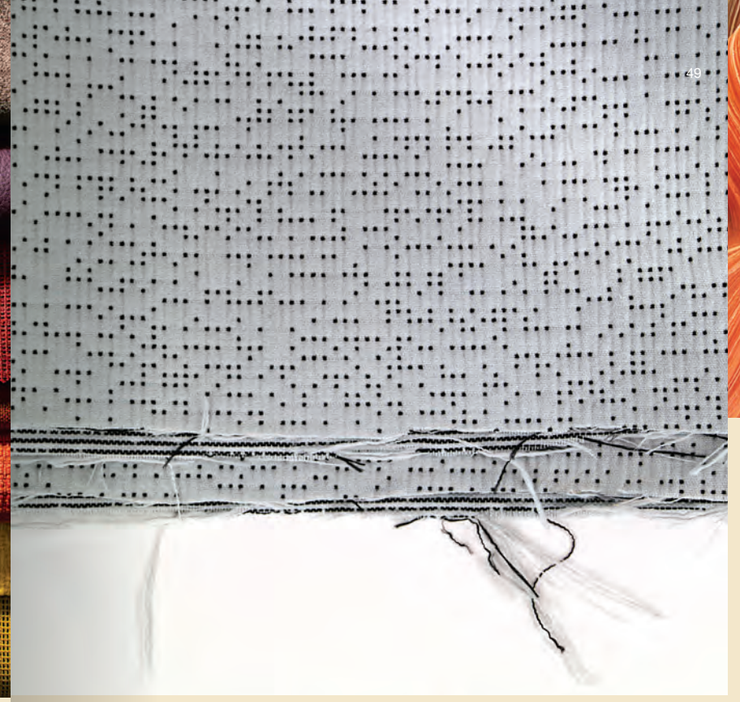
Illustration by
David McLeod

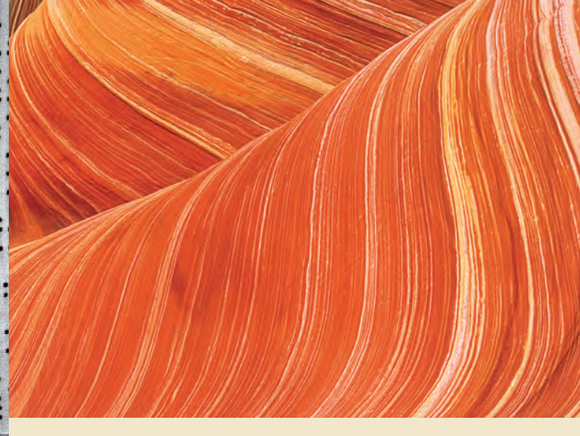
Restoration Office

How biophilia reduces stress and promotes renewal at work

Today, more than half of the world's population lives in urban areas, and according to the U.S. Environmental Protection Agency, the average American spends nearly 90 percent of their time inside. Yet nature and the outdoors have a powerful hold on our wellbeing.







Fractals are the curving or geometric figures which exhibit a repeating pattern at every scale. When they occur in nature these shapes create visual complexity, which is automatically accepted as order and form by the eye. A fabric from the Coalesse-Designtex collaboration, whose pattern abstractly evokes the irregular rippling of water, sand or wood grain, engages and calms the senses without being consciously recognizable as natural.

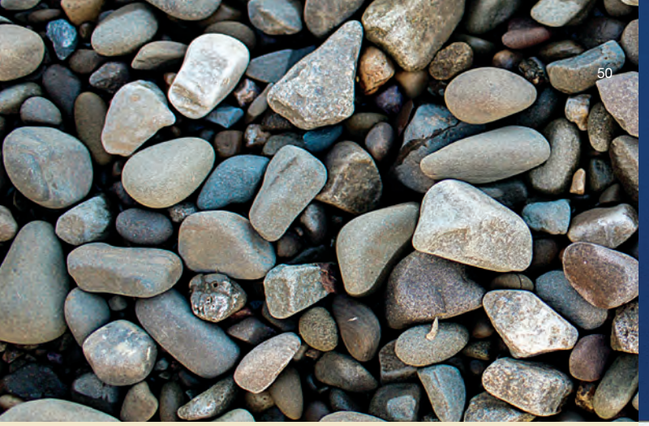
These are the places we’re drawn toward, the elements that we recharge in and that bring us respite. Humans evolved in nature’s rich, varied environments. So how do we learn from nature and create equally varied environments inside? As modern work is evolving to require more creativity and connection, designers are turning to biophilia, the principle that human beings have an innate desire to connect and bond with nature, to help workers thrive. The elements of biophilic design have been found to be building blocks of emotional, cognitive and physical wellbeing, including productivity, happiness, stress reduction, learning and healing. One study of workers in Europe (Human Spaces Global Report by Interface) reports levels of wellbeing and productivity increase by 13 percent in environments containing natural elements. Far from being superficial or ornamental, nature is an integral factor in the creation of vital workplaces.

Researchers at Steelcase studying wellbeing discovered that the presence of nature was a predominant advantage that could be explored for healthier outcomes in the workplace. Based on the work of pioneers E.O. Wilson and Stephen Kellert and culled from other wide-ranging sources, Steelcase researchers and industrial designers developed a framework for the range of ways humans interact with nature. This led to recommendations about design inspirations and applications specifically for the work environment.

The problem is that workplaces have become draining, dull and disconnected over time as they’re optimized for efficiency and scale. The average antiseptic, gray office can literally signal to the deepest part of the brain that it’s a barren place that won’t sustain life, which is why people generally can’t wait to get away from them. A surprising number of workers are still deprived of simple access to nature: According to the Human Spaces Global Report, 42 percent of office workers have no access to natural light, 55 percent have no greenery and seven percent lack a window within their environment. “We wanted to see how the restorative effects of nature could reverse that deprivation and inform our approach for designing healthy work experiences that are both creative and productive,” explains Beatriz Arantes, senior design researcher at Steelcase.

According to environmental psychologist Stephen Kaplan, nature powerfully engages the mind with “involuntary fascination,” which actually helps to restore directed attention and focus. The result is an effortless mindfulness that promotes stress reduction and renewal while stimulating curiosity and imagination. Kaplan further holds that people can concentrate better after spending time in nature. The Human Spaces Report confirms that people with a view of natural elements, such as trees, water or countryside, report greater levels

Biophilic design will help people gain the feeling that they have the places to settle, explore, adapt and be creative.



of wellbeing than those looking over more urban settings of buildings, roads or construction sites.

Design is the tool that can interpret nature in many more accessible ways, to activate our innate sense of places that are calming, pleasurable and secure. Arantes adds that these expressions of nature aren't limited to an explicit or literal translation. "It's about tricking our brains to feel like we're in a natural environment, by triggering underlying patterns that we're programmed to recognize and feel good in."

It is striking to consider that sizable worker absences can be attributed to office design that provides no contact with nature. Spaces developed with properties of biophilic design consequently make a compelling business case. By reincorporating the pull of nature into multi-sensory experiences, businesses can attract and retain talent in evocative environments that alleviate many modern stressors and improve employee perceptions. Biophilic design will help people gain the feeling that they have the places to settle, explore, adapt and be creative. Those benefits lead to stronger connection and collaboration, as well as trust in the ability to rejuvenate at work.

The Four Facets of the Human Experience With Nature

Many attempts to integrate nature into workplace design remain shallow or literal: a screened print of a field of grass; leaves etched onto a glass tabletop. The following facets offer a more nuanced perspective:

Sensory Richness

Sensory-rich environments include layers of color, pattern, texture and other elements that surround the senses. Engaging multiple senses creates experiences of renewal and inspiration and many design sources of sensory richness will boost attention and reduce stress. For example, the severe right angles and flat colors often used in office spaces don't appear in nature. Instead, nature provides a vocabulary of beautiful organic shapes, such as hexagons, spirals, spikes and spheres. Rounded forms like domes, arches and vaults provide psychological comfort. Natural colors and materials drawn from the landscape and the elements add depth and feel refreshing and grounding. Live elements within an office space, such as plants, have been shown to help prevent fatigue around tasks that demand high concentration.

Natural Rhythms and Signals

People will acclimate to the indoor environment better and experience improvements in mood and sleep when factors such as views, or fluctuations in light, length of day and temperature are more attuned to what's happening outside. Natural light and color of light can support these rhythms by counteracting the flatness of artificial lighting and the overstimulation of bright screens. Where windows are not available as a primary light source or view, new technologies can help provide the spectrum of light we need to feel alert, optimistic and well. Air flow is a dynamic natural element that connects us to a sense of climate, freshness and seasons.

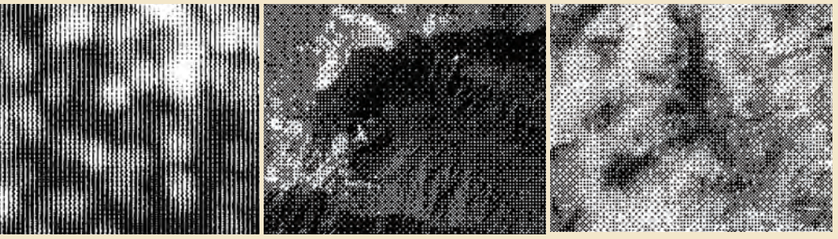
Challenges In Nature

Encountering challenges in natural settings, from navigating a landscape to creating shelter, is part of how humans learned to overcome adversity and build resilience, according to social ecologist Stephen Kellert. Facing challenges inspires us to creatively solve problems with resourcefulness, empathy, teamwork and awareness. In the physical workplace, wayfinding through environments helps people to build cognitive as well as perceptive skills. Encouraging movement with an element such as an "irresistible staircase" rewards those who forgo an elevator with a spatial experience.

Local Distinctiveness

Celebrating locally distinctive features, people and events help to create grounding in place and community. In this way, local natural colors and materials have long been part of the architectural and design character of most places. From wood to stone to clay, people instinctively prefer natural to artificial or foreign materials. These elements can provide positive associations and an antidote to the antiseptic, anonymous look of standard offices and office furniture. Showing past presence and preserving local symbols adds more attachments to community, especially in spaces such as renovated and repurposed buildings.

Through these applications, biophilia is on its way to defining fuller possibilities and priorities for a new wave of workplace design. Ultimately, more creative potential will be unlocked in a replenishing work environment—where nature fosters mindfulness and vitality, and people can find a sense of meaning, belonging and wellbeing.



A Biophilic Design Partnership

Biophilic design is increasingly being integrated into furnishings as well as architecture. Steelcase brands Coalesse and Designtex have co-created a series of patterns, color palettes, textiles and print capabilities in North America that bring the principles of biophilia to core product applications for the design community.

“This process isn’t just about a fabric or an isolated thought about biophilia,” says John Hamilton, director of global design at Coalesse. “We’re interested in subtle cues we can design into products, because the brain is wired to see abstract representations and fill them in. What are the key triggers that we can introduce that will create a deeper emotional experience? With Designtex we’re developing solutions that will suggest nature across a variety of surfaces. We want our fabrics and furniture to make a space feel more connected and emotionally satisfying to the user.”

The collaboration was symbiotic. Designtex had a variety of technical applications that it wanted to implement, such as quilting, embroidery, woven pattern, print methods on a variety of films and material surfaces and leveraging new techniques with non-natural fibers. Coalesse had been developing and employing printed pattern in more colors in its product line, leading to a deeper exploration of natural inspirations and palettes.

To create a biophilic pattern, the process has been one of progression, from direct natural sources through many steps of manipulation and reduction. Ultimately, the motifs have the resonance of a natural form or rhythm, but are experienced as a simple geometric or dimensional texture.

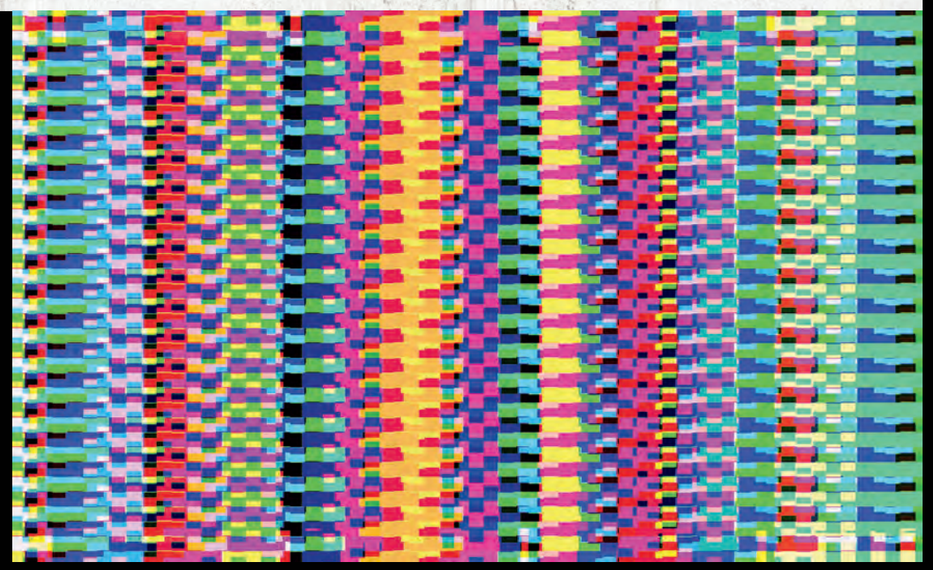
In designing fabrics for upholstery, the partnership has also uncovered practical information about the preference for small-and-large-scale patterns that can meet irregularly at seams. These scales avoid visual disturbance, echoing the uneven repetition of visual signals in nature.

“We can now weave or embroider or quilt those patterns in right sizes, for example, into Designtex’s fabric,” adds Hamilton. “There’s a whole series of fabrics that are coming out in new more natural colors, and other ground cloths with a variety of patterns woven into them.”

For prints and printed surfaces such as film on glass, patterns can be further manipulated digitally, or designers can provide their own pattern work for production. Responding to the growing trend for more customization as well as the need to make choices simpler, the Coalesse-Designtex collection is offered as a set of standards to work from. “For a designer, the blank slate can be its own challenge. So, we’ve done the research for our clients around these colors and patterns. They can be used as starting points for further customizing,” notes David Siegel, director of Surface Imaging, Designtex. “That process of theme and variation happens to echo exactly how pattern exists in nature.”

“Solid wood planks or veneer will be less dissonant for the brain than a simulated wood grain printed on tile.”

John Hamilton,
Director of Global Design, Coalesse



Make Room for Error

Recognizing the beauty of disorder and the value of failure

Above
Glitch art draws from both natural distortions of the expected and embracing the random and uncontrollable.

Illustrations by Frédérique Gravier

Opposite
The Echo (1868)
by Julia Margaret Cameron

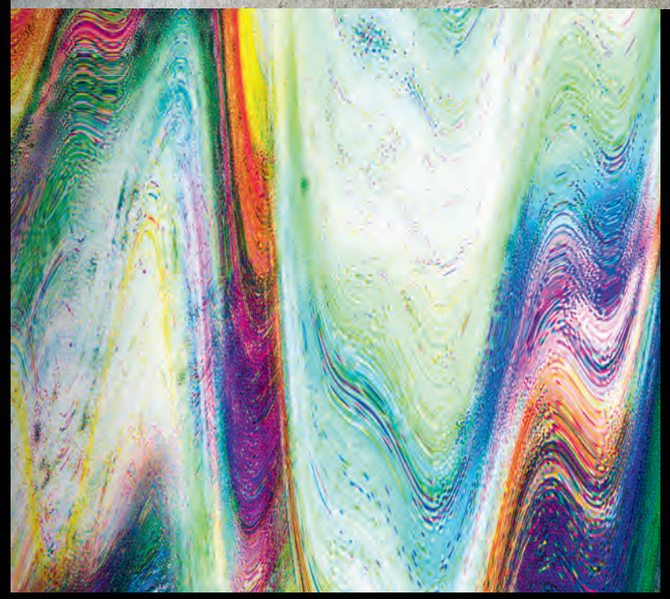
The universe, science says, is ruled by order… and a bit of chaos, but we tend to live our lives rationally and see predictability and success as our friends. Thing is, they're not. Well, not always. Consider the invention of the pacemaker, Post-It Notes, even Cornflakes—they all emerged from failure. Mistakes have value, even beauty, and we'd be wise to recognize it.

Below
Kate Keown Reading (1867)
by Julia Margaret Cameron

In the digital age, we just don't expect machines to make mistakes. So digital errors take on an exotic quality. Glitching, a technique in digital art in which software bugs, data editing and hardware malfunctions are harnessed to produce inexplicable beauty, is a flourishing scene. Glitch artists find the beauty and the spiritual where we don't expect it, humanizing the unfeeling technology that surrounds us. A torrent of source material coming from video games, hacked apps, bots, malware and OS snafus is transformed into video art, textile patterns and twisted 3D-printed sculptures.

But error has long been valued in the arts—the Victorian photographer Julia Margaret Cameron discovered her accidental out-of-focus initial efforts had a beauty sharper images did not. The ghostly effects and shadows in her portraits of family, friends and artists may look like the Instagram filters of her age, but critics were split on the work. Some dismissed her images as amateur celebrity work, while others thought it brought photography closer to high art.

Wabi-Sabi, Japanese art of finding beauty in imperfection was inspired by pensive poetry that emerged after a brutal war and matured into an almost philosophical reaction against ornamentation and fancy materials in the 15th Century. Crudely put, wabi came to mean solitary and sabi an acquired beautiful patina. It's about appreciating things that are flawed, aged or incomplete with a deep melancholy recognizing the ephemerality of life.



Top
Highlighting natural imperfection, such as the crack in a wall or the patina time creates, is a core tenent of Wabi-Sabi.

Bottom
Steelcase is experimenting with glitching patterns on fabric applied to furniture.

The embrace of nature's seemingly random beauty was given a boost by the machine age. Industrialization inspired the Arts and Crafts movement and an embrace of local handicrafts. The Irish gardener and journalist William Robinson decried French formal gardens and advocated for "the wild garden" in spirited debates and books—folks got fired up about gardening in those days. Robinson believed gardens should develop naturally and celebrate the plants in their natural state rather than box greenery into geometric layouts. Perhaps the wild way is better for us, too?

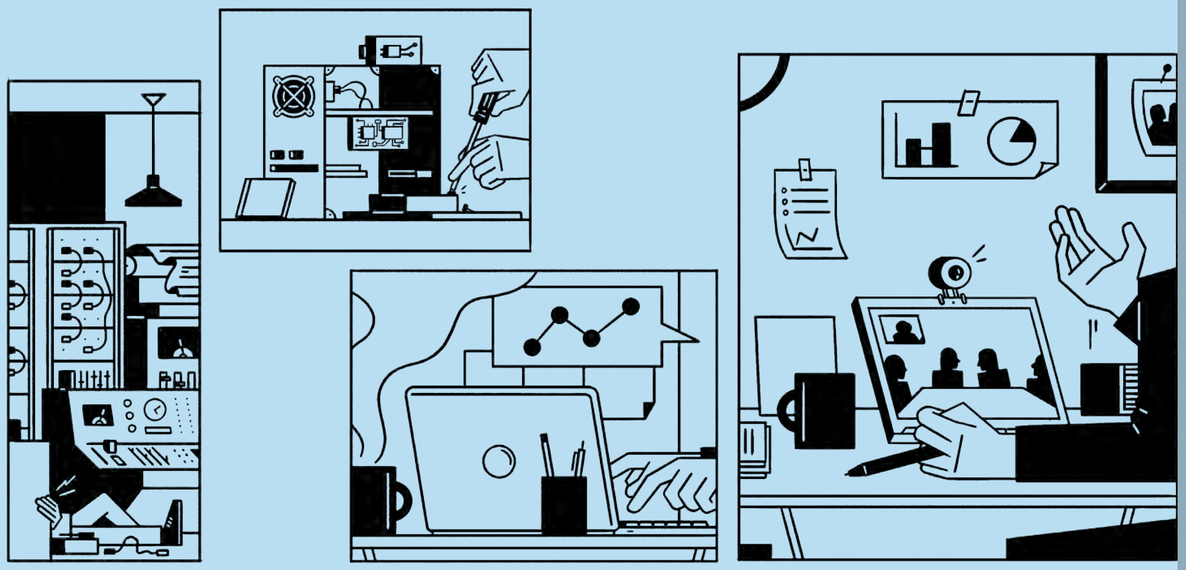
Disorder, in fact, can be a good thing for people says economist Tim Harford. In his book Messy: The Power of Disorder to Transform Our Lives, he writes that creativity and resiliency often benefit from a degree of messiness. A pile on a desk can be more efficient than an elaborate system of organization and can generate new ideas and opportunities. Some comfort amidst chaos can also be an advantage in standing out from and running away from the predictable pack.

The Race to Digitize

Data is the new oil. The race to digitize is well underway and the companies that figure out how to win will be more profitable and able to make faster, strategic decisions.

Illustrations by
Lennard Kok

Technology has become part of our wardrobe. You can't leave the house without a shirt or smartphone. Technology is so integrated it's changing people's expectations and the way that IT is responding to it.



As leaders accelerate the digital transformation of their organizations, those who want to compete are rethinking the role of IT.

IT teams need communicators, collaborators and creators.

“Every business will become a software business,” Microsoft CEO Satya Nadella told his company’s annual Convergence Conference.

That was in 2015 and, in typical digital speed, much has happened since then. Amazon delivered a package by drone. SpaceX landed a rocket vertically in the ocean. Artificial Intelligence, digital storage and hyper-speed mass transportation all leapt forward.

Recent research from Harvard Business Review Analytic Services in partnership with Microsoft reports 84 percent of respondents have either already had their industry disrupted by digital trends or will by 2020. In less than three years, nearly half believe their traditional business model will be obsolete.

Yet, most organizations are still forming digital strategies. According to The Case for Digital Reinvention, a report by McKinsey, less than 40 percent of industries are digitized. The race has really just begun.

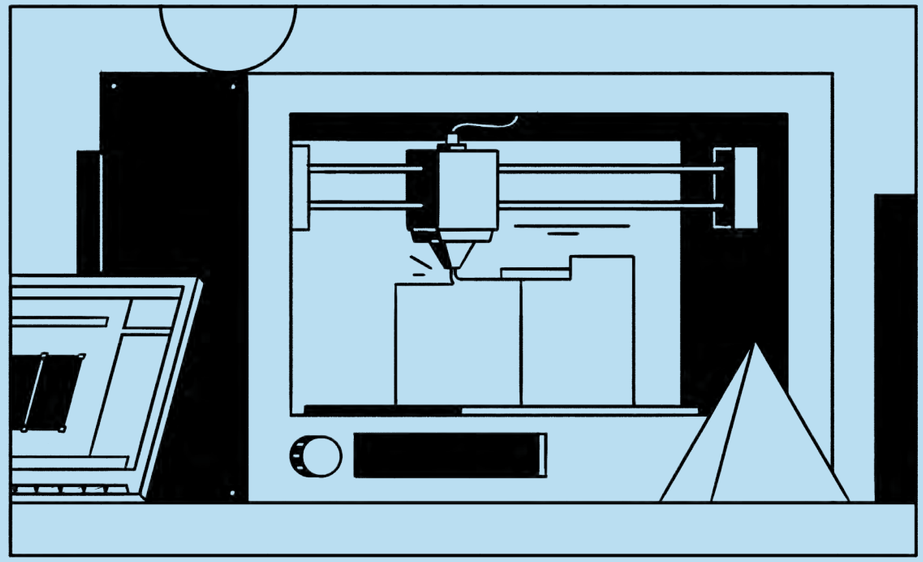
“The most successful companies will not only have access to data – market, customer, operational – but they’ll derive unique, actionable insights from that data to help them better serve customers, improve business operations and transcend current business models,” says Rimes Mortimer, general manager of applied innovation at Microsoft.

As leaders accelerate the digital transformation of their organizations, those who want to compete are rethinking the role of the information technology (IT) team, and fostering a new set of skills and behaviors. Companies are looking to build a degree of agility, creativity and responsiveness not previously demanded.

Transforming IT

“Information technology as we used to know it is dead,” says Luis Palacios, technology director at Cisco in Spain. “It’s all about people, helping people transform, use and consume technologies in a natural and transparent manner.”

Forget the “factory farms” of IT professionals with their heads down at a single workstation fixing a piece of code, or IT departments in the basement next to the servers they’re required to protect. Now, IT is driving business growth. They are analyzing patterns within data,



Using an Agile process, teams are more customer-centric and deliver iterative work quickly, learning more about their customers as a result of the process.

extracting insights, communicating, pitching and planning future projects. They are highly adaptable and flexible.

“Instead of being there at the end when the problem has been identified and the plan has been created, we’re getting involved in the upfront design thinking. What problem are we trying to solve? What customer are we trying to help? That really changes the skillsets you need to be successful,” says Terry Lenhardt, CIO at Steelcase.

Now, there’s a need for more than traditional technology skills. Information technology teams need communicators, collaborators and creators. People need to have emotional intelligence to empathize and respond to a customer. The fervor to attract and keep this top-grade talent is greater than ever as competition in the digital realm grows exponentially.

“Digital transformation at its core is business transformation enabled by IT,” says Mortimer. “Finding the intersection of business and technology will turn the modern IT pro into a ‘chief collaborator’ working across many groups.”

The Journey to Agile

These new teams will need to work in new ways as well. Many technology development groups have already adopted “Agile Software Development”—drastically changing the old ways people would get work done. A collection of software developers first applied the term “Agile” to a collection of methodologies in 2001. The Manifesto for Agile Software Development expresses 12 principles designed to help teams create and respond to change in an ever-changing environment. Agile is a set of methods where solutions evolve through collaboration between empowered, cross-functional teams.

Instead of a team working on a project for years or even months, and then delivering a perfect solution to the customer, Agile is customer-centric. It involves a rich, empowered team that learns with their customer producing incremental effectiveness, incorporating feedback and delivering iterative work quickly.

Customers today expect fast development and frequent updates—just look at your smartphone: its software updates every few months. Cisco’s Palacios describes an example of Agile development:

“In the past, we might wait for 20 features to be created before delivering a product. Now, we start with what we need tomorrow. For example, we may decide we need to make a phone call over the internet. We might start with audio and one ‘call’ button, launching it in 15 days. We put it into the market, receive feedback and begin working on the next stage simultaneously. Revenue begins right away and we get to design the next feature using customer feedback.”

When you’re used to spending years getting the details just right, Agile is a drastic shift in behavior. It’s about people swarming a problem, and requires an interactive team. Agile’s ideal state has people working physically in the same space so speed isn’t compromised and learnings are easily shared. Projects can’t stand still waiting for an email response, a return call or for someone to get back from vacation. The Agile process is an organic, collective journey where work is visible and transparent.

“As digital transformation takes shape, business leaders must rethink how to empower employees.”

Rimes Mortimer,
General Manager, Applied Innovation, Microsoft

Less Predictability: A New Normal

To succeed at these new ways of working, the environment needs to support new behaviors and processes. People are no longer completing their specific task and then passing the project down the line to the next person. Creative problem solving is an iterative process. Teams move between convergent and divergent thinking — resulting in people doing different kinds of work throughout their day. This process is less predictable, but an organization can use its environment to enhance it.

“It’s a meld of culture, human resources, facilities and technology,” says Palacios. “It has to be done together. If you buy our technology and that’s it, people might not use it. You have to offer them the right culture, right affordances and right spaces to use it.”

Palacios says people need different spaces depending on how they need to work at the moment. They may need a place for a big team conversation, or a two-person space where they can display technology. They may need time alone to concentrate, or time with their small group to iterate.

Mortimer agrees. “As digital transformation takes shape, business leaders must rethink how to empower employees to support the cultural and workforce shifts digital transformation brings. The process starts with designing a workplace where every work style can thrive – one that harnesses digital intelligence to improve experiences and enables the flexibility of mobility, while keeping the organization, people and information secure.”

It’s something Lenhardt is thinking about as well. With the mix of highly desired skills sought for today’s global work environment, people are looking for spaces that perform — places that help them work at their very best. These workplaces should be inviting and inspiring as well, because every company is now competing with the likes of Silicon Valley for top tier talent.

“More and more, how do you put a team together and give them control over their space so they can have some flexibility to have the space work for them, depending on the problems they’re trying to solve?” asks Lenhardt.

There’s a lot to consider. But, the stakes have never been higher for those that get it right.

How is data leading to dollars?

Here’s a few examples from companies getting it right.

La Liga
Spain’s top professional soccer league broadcasts to a weekly audience of 2.1 billion. Artificial intelligence and cloud services allow La Liga fans to specify their favorite teams and players, and then access only the content, videos and statistics that matter most to them.

Tetra Pak
Service engineers at the packaging giant use HoloLens headsets to more quickly diagnose and fix machine issues, even remotely. Digital tools and cloud-connected machines predict equipment maintenance needs and avoid costly breakdowns.

Delta Air Lines
The airline is using a mobile strategy by starting to equip its 19,000 flight attendants with mobile devices, increasing incremental revenue from in-flight purchases.

Boeing
Asset tracking technology keeps tabs on billions of small parts. Tags on every part labeled “valuable” allow an object’s exact position to be located. Boeing is saving money and time looking for lost parts.

General Motors
Remote monitoring alerts factory workers before a problem happens. Monitoring, diagnostics and proactive maintenance reduce downtime that can cost automakers anywhere from $15,000-$50,000 per minute, according to Nielsen.

National Basketball Association
Sensors on the ball and each player allow NBA coaches and players to analyze which plays are most successful.

City of Chicago
More than 600 data sets can help the city predict, prepare and solve problems in real-time in emergencies or for a big planned event.

Copenhagen
Increased convenience and reduced congestion with real-time lighting and parking management. Reduced the use of CO2 emissions with a connected city infrastructure.

University of British Columbia
Linked Wi-Fi analytics with building control systems to lower gas emissions 33 percent and create 5 percent energy savings equating to $200,000-$400,000 annually.

K-Opticom
Japanese company uses next-generation policy and subscriber management solutions to offer data service plans as low as one-third the cost of competitors’ plans.

Get creative, get messy and forget the word failure.

Portait by
Steven Wohlwender

Designer, author, TED speaker, IDEO CEO and recently appointed member of the board of directors of Steelcase, Tim Brown talks about creativity and how organizations can encourage it—or kill it.

360
How do you define creativity?

Tim Brown
In general, it's the capacity to generate new ideas. For organizations, it's creative competitiveness, or creative fitness: the capacity to have new ideas and to act on them, the ability to do something with the creative capacity that you have.

360
Business leaders don't usually include creativity in their list of priorities. Why not?

TB
The focus for management for the last 50 years has been on operational excellence, which is all about optimizing systems. Conditions have obviously changed rapidly in the last decade or two, and the business environment is so much more volatile. So the idea of creativity, to be able to respond to unknown situations in ways that are generative, that create new kinds of solutions rather than just repeat solutions of the past, becomes more and more important. We're going to see it on the agenda of many more businesses, at least the ones that don't want to succumb to the disruption that's around them.

360
Where would you place creativity on the list of priorities for a company today?

TB
I think it's close to a 50/50 thing. Companies need to be equally operationally effective and creatively competitive. In some industries it's even more extreme than that. In many digitally driven industries, in industries where creativity is already a focus, then arguably organizations need to be even more creative than half and half.

360
You've written that it's the leader's responsibility to provide spaces and tools that encourage creativity and collaboration. What are those spaces and tools?

TB
Unlike in the world of analytical or process-driven work, in a creative or creatively-driven organization, we need a greater variety of environments. We need environments that support different energy levels, whether that's active ideation and brainstorming or reflection, or conversation and review. We also need different kinds of spaces from an acoustic standpoint. We need different types of seating, so that people can bring different energy levels to different parts of work. One of the things that people tend to notice when they come to IDEO is our spaces and our environments. They're not complex and they're not necessarily hugely expensive to create, but they're varied. They support teams, they support individuals. They support different kinds of work modes. They're also often playful, because we want people to be in an optimistic frame of mind when they're working on creative problem solving.

360
Is there a certain look and feel to a creative organization?

TB
For me it's not just lots of colorful furniture and foosball tables, it's more about evidence that people are trying ideas out. Are there prototypes lying around? Do I see work posted on the walls, so people can share ideas and talk about them? There's a certain level of messiness to the creative process, that tends to get reflected in truly creative environments. It's one of those slightly paradoxical things, if we're too precious about our space, we don't always create the kind of creative environment that we want. One of the biggest challenges for the folks who look after the environments in our offices is trying to manage the chaos, and not let the mess get too out of hand because there's stuff changing all the time.

Photo: Garry Belinsky

"You want a culture where they ask for forgiveness rather than permission."

360
Leaders need to give people permission for a certain amount of chaos, don't they?

TB
Yeah. You want a culture where they ask for forgiveness rather than permission. In other words, the permission is already pervasive, to the point where it seems like it might step over the line occasionally but the culture is one where it's a conversation about forgiving rather than having to get advanced permission for every risk you take. It's clearly related to risk taking. If you want a creative organization that's great at innovation and problem solving, you want them to take risks. If they have to get permission to take every risk, including making a mess of the wall or whatever, then the chances are they're not going to be taking risks over the things that really matter. Highly permission-based cultures might be great operational cultures, they might be low variance cultures if you like, but they're not great creative problem-solving cultures.

360
Failure is part of the creative process. How can leaders help people in organizations understand and accept failure as part of the process, and learn from it?

TB
I think it's unfortunate that the word "failure" became what we use to describe this weird condition of learning through things not going how you thought they were going to go, because that's really what we're talking about. Obviously we can think of failure as being the kind of catastrophic failure of something: failure of a bridge or failure of a new venture which goes out of business. There are learnings that come from those but they are learnings you would love to have not happen too often, particularly if human safety is involved. That's a bit different from what is the constant process in creativity of learning from things not going how you expected them to go. We label that failure but it's not really failure at all. It's actually the richest form of learning.

One of my colleagues talks about how learning happens through disequilibrium, that moment when you suddenly just don't know what's going on. You're confused because the world is not behaving how you thought it should behave. That is when your brain opens up to learn something; new neurons, connections are made. Creativity relies on that. It relies on those moments of disequilibrium. So you sort of have to seek failure at some level, to seek those moments when the world is not how you thought it was and that you then have a new insight about it. That is your new idea and then you move forward again. At the same time, the goal is not to fail at the catastrophic level too often. I would argue that if you do a really good job of failing as a learning process, by the time you get to the things that really matter, you've actually designed most of the risk out, so the likelihood of catastrophic failure goes way down.

"The constant process in creativity of learning from things not going how you expected them to go: we label that failure but it's not really failure at all. It's actually the richest form of learning."

Tim Brown talks about the three roles leaders have in creatively-competitive organizations, and how to assess the creativity of a company in a Steelcase 360 Real Time podcast (available on iTunes and SoundCloud).

1
What To Do When Machines Do Everything: How to Get Ahead in a World of AI, Algorithms, Bots, and Big Data

Malcolm Frank, Paul Roehrig & Ben Pring

2
Creative Confidence: Unleashing the Creative Potential Within Us All

Tom Kelley and David Kelley

3
Zig Zag: The Surprising Path to Greater Creativity

Keith Sawyer

4
The Creative Spark: How Imagination Made Humans Exceptional

Agustín Fuentes

5
Your Creative Brain: Seven Steps to Maximize Imagination, Productivity, and Innovation in Your Life

Shelly Carson

6
Corporate Creativity: How Innovation & Improvement Actually Happen

Alan G. Robinson

7
Wired to Create: Unraveling the Mysteries of the Creative Mind

Scott Barry Kaufman & Carolyn Gregoire

8
Seeing What Others Don't: The Remarkable Ways We Gain Insights

Gary Klein

9
The Biology of Brainstorming: Speed up your mind!

Henning Beck

10
Collaborative Creativity: Innovative Methods for Joint Idea Generation in Teams

Martin J Eppler, Friederike Hoffmann & Roland A Pfister

11
Free Your Creativity

Julia Cameron

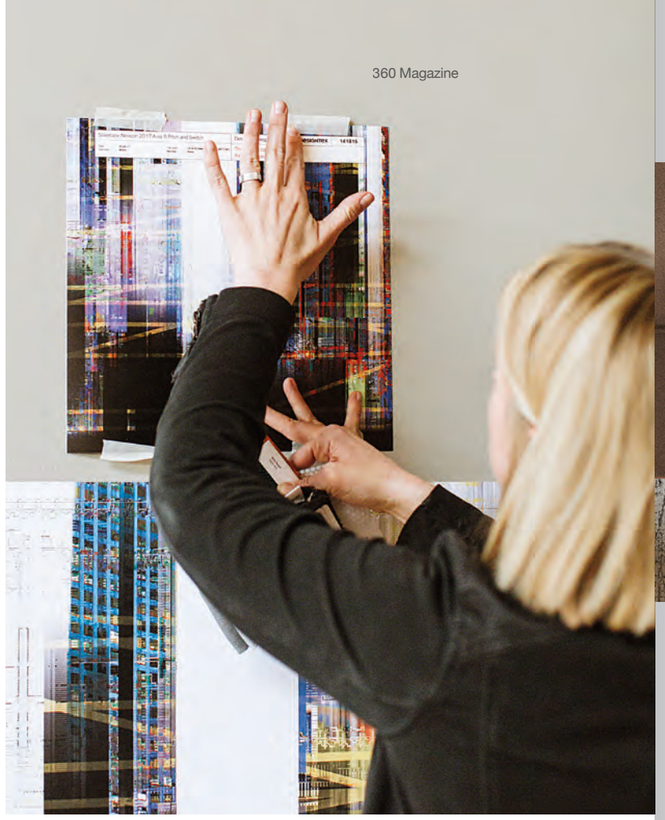
12
Creativity: Flow and the Psychology of Discovery and Invention

Mihaly Csikszentmihalyi

What We're Reading
Creativity

The Creative Shift

How Place + Technology + People
Can Help Solve
21st Century Problems



“Ideas are the currency of the new economy.”

That quote came from Richard Florida, an economist and social scientist who authored The Rise of the Creative Class... over fifteen years ago in 2002.

Florida argued that creative work is not exclusively about artistic pursuits but rather a focus on generating new ideas and solving complex problems. He maintained that creativity was a critical skill for people to develop and for cities and businesses to foster if they wanted to thrive in the coming century. It was an idea that took time to build momentum.

Design thinking, the notion of using the same creative strategies designers employ to solve problems, was gaining traction around the same time. Ideas about creative work generated plenty of conversation – and Florida’s work spawned its share of debate — business leaders weren’t losing a lot of sleep over the creative output of their organization. They were far more focused on efficiency, getting lean and going global.

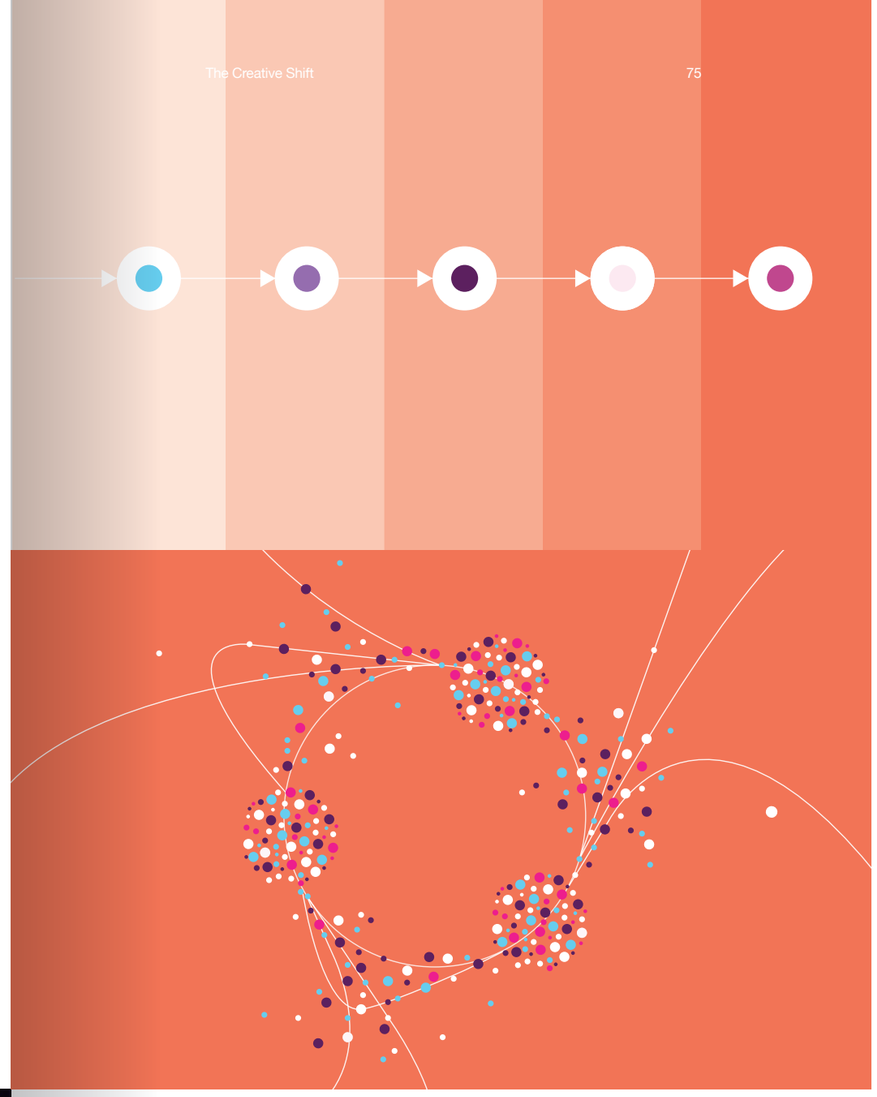
Fast forward to today and creativity is an idea whose time has come, on multiple fronts. Cities around the world that fostered great environments for creative work have

"Creativity isn't a linear process. It's not even a predictable process. It has a rhythm of different activities and requires both convergent and divergent thinking."

James Ludwig,
Vice President,
Global Design, Steelcase Inc.

thrived, as Florida suggested. People who lived through the cost squeeze of multiple recessions are looking for a deeper sense of meaning and purpose from their work, and stretching their creative muscles helps scratch that itch. Meanwhile, recent college graduates aren't content to sit in a beige cubicle and do routine work just to make a paycheck, causing employers to rethink their strategies for attracting new talent.

At the same time, emerging technologies have grown so exponentially that they've ushered in "The Fourth Industrial Revolution," according to Klaus Schwab, founder of World Economic Forum. "We stand on the brink of a technological revolution that will fundamentally alter the way we live, work and relate to one another," he states. "In its scale, scope and complexity, the transformation will be unlike anything humankind has experienced before." Faced with these kinds of advances – which offer opportunities as well as stiff competition and disrupted markets – businesses realize that they can't cost cut their way to growth. They need to refocus on innovation. And it's this drive for innovation, in increasingly complex conditions, that is causing a macro shift toward more creative work.



Creativity is an Iterative Process

Linear Work
Segmented tasks completed in a progression

Creative Work
People and ideas diverge, converge and iterate

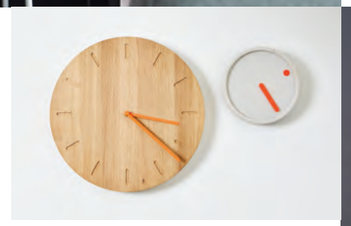
Understanding Creativity

In many organizations, however, creativity isn't bubbling up spontaneously. Most employers say their organizations aren't creative enough and most employees say they're not living up to their creative potential on the job, according to Adobe's State of Create 2016 study. Contrary to popular myth, creativity isn't about a "Eureka!" moment that happens among truly brilliant people. Creative work is a process in which everyone can engage, if the conditions are right.

Steelcase and Microsoft joined forces to begin thinking about the challenges organizations and people face as they try to engage in more creative work. Understanding that both space and technology have a role to play in supporting this work, it was critical to begin with insights on how creativity happens.

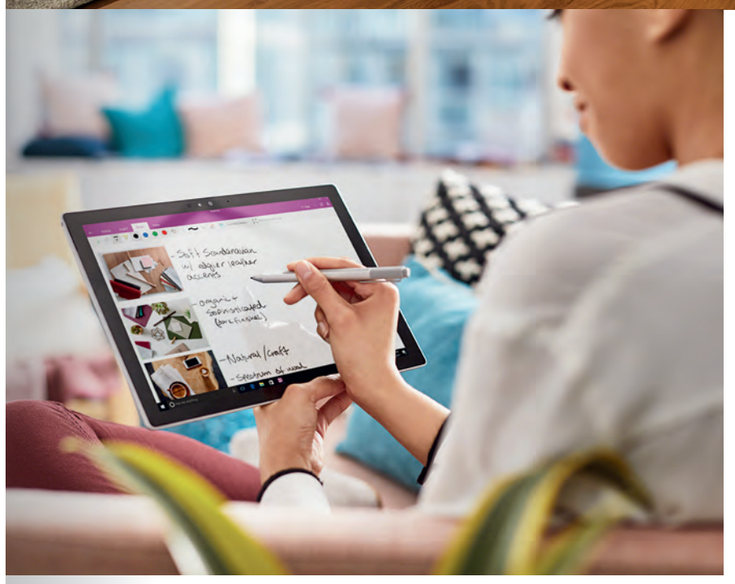
"Creativity isn't a linear process. It's not even a predictable process," according to James Ludwig, head of global design and product engineering at Steelcase. "It has a rhythm of different activities and requires both convergent and divergent thinking, with people coming together in small or large groups, and moving apart to do work alone."

"Creativity is an inclusive process in which something new emerges," says Ralf Groene, general manager of Microsoft Devices. "As creativity becomes central to our work, the importance of where we do it is being reaffirmed. The cloud and mobile technologies may be untethering us from the office, but our need and desire to do creative work is luring us back in."



Yet, despite the desire to be more creative at work, the majority of people don't believe they're living up to their creative potential. The solution is finding the right balance between convergent and divergent thinking, and having the right range of spaces and technology to support all the diverse stages of creative work. In a recent Steelcase and Microsoft study, people reported the things that would help them be more creative are to have more time to think and time to be alone without disruptions.

"The way to support people is to provide the ability to move between individual time and collaborative time, having that rhythm between coming together to think about a problem and then going away and let those ideas gestate," says Donna Flynn, vice president of WorkSpace Futures at Steelcase.



Maker Commons

Socializing ideas and rapid prototyping are essential parts of creativity. This space is designed to encourage quick switching between conversation, experimentation and concentration.*

*Part of the Creative Spaces Ecosystem, developed by Steelcase and Microsoft, to support the different stages of creative work (see pg. 86 – 87).

The collaborative side of creative work is not without its challenges either, despite the investments organizations are making in group work spaces. The vast majority of leaders feel they're providing the right kinds of spaces for group collaboration, but only 25 percent of respondents in the Steelcase/Microsoft study said their spaces for groups and teams are good places for creative work.

"We've come to realize there's so much value in people coming together," notes Groene. "We're no longer coming to work because that's where our files and phone and computer are, or because it's the only place where our laptops connect to the corporate network. Now we're coming to work because it's where we share, collaborate and build on each other's ideas. That makes supporting the modes of thinking, communicating and creating a super relevant task."

Creativity is fundamentally about problem solving. This means it's difficult, iterative and messy – an often nebulous exploration of unknowns. It also means creative work is intensely demanding – physically, cognitively and emotionally. Just one type of solution can't support the range of people's needs.

Focus Studio

Individual creative work requires alone time to focus and get into flow while also allowing quick shifts to two-person collaboration. It's a place to let ideas incubate before sharing them with the group.*

*Part of the Creative Spaces Ecosystem, developed by Steelcase and Microsoft, to support the different stages of creative work (see pg. 86 – 87).

“We’re starting to see movement away from the traditional corporate office toward workplaces that are more like creative studios—a plurality of spaces, each designed to support people and the technologies that can make their work easier.”

James Ludwig,
Vice President,
Global Design, Steelcase Inc.

*Part of the Creative Spaces Ecosystem, developed by Steelcase and Microsoft, to support the different stages of creative work (see pg. 86 – 87).

Ideation Hub

A high-tech destination that encourages active participation and equal opportunity to contribute as people co-create, refine and share ideas with co-located or distributed teammates.*

Creating the Conditions for Creativity at Work

Steelcase and Microsoft are collaborating to explore how the workplace can more successfully drive creative performance. Accelerating creativity, they say, starts with understanding the behaviors and modes of creative work, and then envisioning how place and technology can help.

"It's really all about the intersection of the digital and the physical – having the right place and the right technology at the right time," says Ludwig. "That's why we're starting to see movement away from the traditional corporate office toward workplaces that are more like creative studios —a plurality of spaces, each designed to support people and the technologies that can make their work easier."

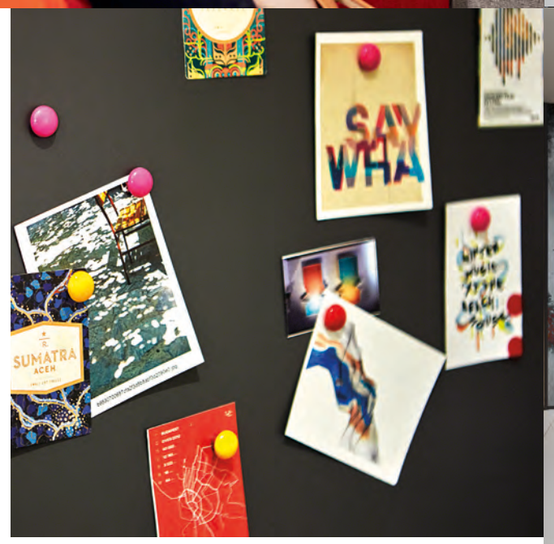
"Traditionally, technology has not always been leveraged during the early stages of the creative process," says Groene. This can put people and teams at a disadvantage. Something arises in our heads. It's usually incomplete and we jot it down, find a whiteboard and pull in colleagues. Computers usually came in at later stages. But now technology can be a tool to amplify our thinking throughout the entire process. We can take our content with us wherever we want to work. It will always be there, with the right security and the speed of light," he explains.

The Creative Spaces Ecosystem

To help organizations accelerate the shift toward more creative work, Steelcase and Microsoft co-developed Creative Spaces, an interdependent ecosystem of spaces and technologies designed for the diverse modes of creative work, such as uninterrupted individual focus, developing ideas in a pair, generating solutions as a group, converging around ideas and allowing time for diffused thinking – allowing the mind to wander. They are places that build trust, inspire new ways of thinking and fuel experimentation. This initial collection of thoughtfully-curated destinations bring together design and materiality without compromising performance to enable creative work.

Duo Studio

Working in pairs is an essential behavior of creativity. This space supports a trust relationship in which two people can co-create shoulder-to-shoulder, while also supporting individual work. It includes a lounge area to invite others in for a quick creative review or to put your feet up and get away without going away.*



*Part of the Creative Spaces Ecosystem, developed by Steelcase and Microsoft, to support the different stages of creative work (see pg. 86 – 87).

"Technology is a tool that can amplify our thinking throughout the creative process."

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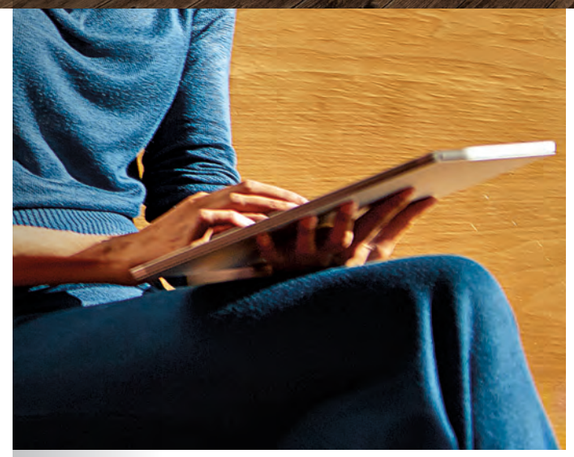

Respite Room

Creative work requires many brain states, including the need to balance active group work with solitude and individual think time.*

"The future will be powered by ideas," says Ludwig. "How we create, identify, foster and make ideas tangible – that's how value is created. Our spaces and technologies need to help us solve problems, not cause friction or get in the way. When space and technologies come together to really support people's work and really support their wellbeing — then we're removing the drag on their experiences. They can naturally be centered on ideas instead of what's not working for them. And, as a result, ideas will flow through the organization faster."

To learn more about our research on creativity and the creative process, read 360 Focus: The Relationship between Creativity, Work and The Physical Environment. To see more Creative Spaces, steelcase.com/microsoft-steelcase/creativity

*Part of the Creative Spaces Ecosystem, developed by Steelcase and Microsoft, to support the different stages of creative work (see pg. 86 – 87).

The Creative Spaces Ecosystem People + Place + Technology

To help organizations accelerate the shift toward more creative work, Steelcase and Microsoft co-developed Creative Spaces, an interdependent ecosystem of spaces and technologies designed for the diverse modes of creative work.

These spaces deliver key spatial attributes that address:
Privacy: acoustic, visual, territorial and psychological
Posture: seated, standing, lounging and perching
Proximity: people-to-people, people-to-tools + technology

Maker Commons

Posture:
This space supports a full range of posture —seated, standing, lounging, perching— encouraging movement without breaking flow.

Privacy:
Brody® WorkLounge is a micro-environment for privacy and focus in open areas with included amenities, like integrated lighting, power and bag storage. The Brody screens create a cocoon within the open plan to sketch or take notes on your Surface Pro4 between brainstorms.

Proximity:
Centrally located in the ecosystem, this space is a communal atmosphere to gather and play with new ideas. It allows people to shift easily from “me” to “we” activities and different stages of the creative process.

Focus Studio

Posture:
The Gesture™ chair supports the wide range of postures people take when using the Surface Studio to create; The AirTouch™ table lifts with just a touch to switch quickly and effortlessly from sitting to standing to encourage movement and boost energy.

Privacy:
The space is configured to keep information private and reduce visual distraction. V.I.A.® walls keep ambient noise out so you can stay in flow.

Proximity:
The AirTouch™ table facilitates brief, shoulder-to-shoulder collaboration. Storage with integrated lighting slides open to secure your bag and become an extension of the work area.

Ideation Hub

Posture:
Stool height seating encourages movement and quick shifts from interaction with personal devices to group collaboration at the Surface Hub™.

Privacy:
V.I.A.® walls integrate the Surface Hub and provide unparalleled acoustic privacy to prevent disruptions and enhance remote user participation.

Proximity:
The furniture elements are scaled to allow ample circulation and the ability to engage or step back from the action and reflect or gain a different perspective.

Duo Studio

Posture:
Ology™ height adjustable tables are side-by-side, making it easy to sit or stand, work individually in parallel or lean over to collaborate, maintaining flow and consistency using Suface Studio. Umami™ lounge creates a place to relax and re-energize during intense work sessions.

Privacy:
V.I.A.® walls help mitigate distractions from ambient noise and allow private conversations — in the room or with remote participants. The “I’m Done” security feature on Surface Hub safely removes all content from the previous session to encourage rapid starts for new collaboration.

Proximity:
The configuration is an intimate environment that supports easy access to technology, storage, analog content and your teammates. It offers an informal, theater-like setting for reviewing work at the integrated Surface Hub™.

Respite Room

Posture:
Relaxed postures can help support diffused attention and allow the brain to wander which can lead to ‘eureka!’ insights. It also supports active brainstorming while away from your personal workstation.

Privacy:
Boundaries create visual relief reducing external stimuli, and allow the brain to rest, form new connections and access spontaneous ideas.

Proximity:
Thread™ Modular Power makes it easy to charge devices.

How BMW Group is Driving Innovation

As the world's best-selling manufacturer of luxury cars, creativity has been important to the success of the BMW Group. A century-old company, it has achieved an impressive tradition of innovation.

Now, however, as a tidal wave of change is sweeping through its industry, the need for rapid innovation at BMW has become more urgent than ever before. For example, as a result of autonomous driving, they expect their business to change more over the next decade than it has during the past 30 years. The escalating reality of cars without a human driver means coming to terms with new customer habits and expectations, changing global markets and all-new competitors as tech companies foray into their industry.

To stay ahead, BMW realized the importance of accelerating its innovation process into a more systematic approach, and they also quickly understood that the workplace could play a pivotal role in that effort.

The BMW Innovationswerk facility, in a suburb just north of the Munich headquarters, is a new center where innovations and new technologies can occur in a novel way. With the help of their design partner for spatial strategies Die Planstelle, Steelcase and IDEO, it was purposefully planned for cross-functional teams doing forward-facing explorations into the cars of the future. Here, the essential modes of creative work — focusing, collaborating, socializing and respite – are optimally supported.

"We wanted to create a special place to innovate with users at the center to support the process. And this is exactly what the space does," says Sebastian Schelper, who headed the Innovationswerk project for the BMW Group from 2013 until 2016.

The BMW Innovationswerk facility provides an ecosystem of spaces that nurture creative work and support both individual work and collaboration.

A Human Place

According to Schelper, to reinforce the importance of fluid thinking, there are no right-angle walls anywhere at Innovationswerk. Natural materials such as wood walls blend with industrial surfaces such as concrete floors. The furniture was carefully chosen to add stimulating color and texture. Most important, Innovationswerk was designed to holistically support the creative process across the full spectrum of their workplace needs. "It's a human place," is Schelper's simplest explanation for why Innovationswerk works so well.

The heart of the facility is three large enclosed team rooms. They are the primary workspaces for teams that iterate a project over several months or up to a year. Integrated large-scale boards provide persistent visibility for photos, notes, sketches, reactions and ideas – a wealth of informational and inspirational content gained during primary observational research. The boards become a tangible, immersive context for the work of the team. They also serve as an interactive canvas where the teams can synthesize diverse streams of information into actionable opportunities.

Nearby, a small "tinker lab" allows teams to quickly prototype their concepts, and a videoconferencing room means they can easily connect with people outside the facility to collaborate and gain expertise.

Supporting I & We

Just outside the team rooms is a large open area where smaller groups can break away to focus on specific problems. Alternatively, an entire team can use this space as a secondary focus area if the scope of their work has outgrown their room, or if they want to put their work in a different context to gain a different perspective. There's plenty of room for prototypes here—even an entire car can be driven into the space.

A much smaller space that's equally important to the creative process is an enclosed meditation room offering inspiring views of nearby trees and fields. "When you're dealing with so much information, it's easy to feel overwhelmed," explains Schelper. "You can go into the meditation room to take a break, center your thoughts or get connected with your intuition. You can even take a nap here. It's part of the whole ecosystem of spaces that support people's needs."

Near the entrance is an open kitchen and lounge area. This is a place for informal collaboration and socializing, with teammates as well as colleagues from BMW Munich locations who use Innovationswerk as an occasional drop-in workspace. In this way, the facility is "a unique magnet," says Schelper, where serendipitous interactions often result in gaining useful knowledge and perspectives.

As important as each of the Innovationswerk spaces is to the process of creative work, it's their immediate adjacencies that assure a holistic solution. When spaces are too far away from each other, Schelper notes, they don't get used often. As a result, some important aspects of creative work are underserved. Nurturing creative work means supporting a multiplicity of thinking modes and needs, without prioritizing one over another.

"A key thing I've learned from this project is that creativity is really a combination of analytical pondering of a problem as well as letting your inspiration and intuition flow," Schelper concludes. "It's the combination of both that is facilitated by this space and makes it a success."

A Startup Mindset

Pushing Boundaries in Large Organizations

Innovation. Ten letters packed with expectation and possibility. Ten letters sparking creativity, driving decisions globally and propelling startups into a world of burgeoning, billion-dollar valuations. The marketplace is captivated by innovation, leaning heavily on the promise of disruption to deliver new, inspiring products and services.

Sometimes called “entrepreneurs in residence,” intrapreneurs are the boundary-pushing, out-of-the-box innovators in large organizations. These big thinkers flourish and fully flex their creative muscles when specific conditions are met within their organizations. To fuel their work, they often lead their own teams, desire control when hiring, strive to set their own project parameters and actively work around traditional corporate hurdles to move the needle on innovative endeavors.

For several years, turnstone has been studying intrapreneurs and the conditions they need to thrive. Here’s what they’ve learned:

Research conducted by turnstone from 2015 - 2017 included interviews from dozens of participants in the United States and Canada, as well as a survey conducted in partnership with Steelcase, Inc. and Qualtrics.

Five Lessons From Startup Cultures

83%
say being able to problem-solve is very important to their success at work.

72%
say their ideal workplace includes exploring innovative solutions.

1

Possess a Transformation Mindset

Intrapreneurs have a healthy disregard for conventional ways of working and thinking. They work together to solve complex problems and positively transform the industry. This transformational mindset gives the intrapreneur a sense of purpose and optimism to take extraordinary risks, fostering a “make” culture bent on delivering game-changing results.

71%
strongly agree that being held accountable specifically helps them to innovate.

84%
say learning is part of their personal work style and important to their success.

2

Accountability Fuels Innovation

Like kindling in a fire, innovators depend on accountability to further their work. With clear goals and metrics in place, prototypes are presented for additional funding, timelines are adjusted and ideas are refined, each of which is critical to maintain the speed to innovate. During this process, intrapreneurs use storytelling to encourage broad buy-in and maintain forward movement.

3

Innovation Requires Leadership

Change starts with the leader. Leaders not only shape the culture of innovation, they drive the culture based on their own views about failure, risk and disruption. The level to which the innovation-driven team feels empowered comes directly from the top and eventually trickles down to the rest of the organization, creating a domino effect built on trust and the freedom to create new solutions.

96%
of respondents agree that leadership drives change.

66%
say autonomy in creating teams and choosing projects is important or very important.

73%
report that adaptability impacts their success a lot or a great deal.

61%
value agility in business structures and physical environments.

4

Navigate an Environment of Constrained Agility

Innovation-driven teams are highly collaborative and agile, depending heavily on design thinking and divergent viewpoints to grow ideas. Ironically, the team’s agility is hemmed in by the corporate policies and hierarchy governing their organization. Progress achieved quickly by innovation teams must eventually wait for buy-in, approval and funding from executives, creating “constrained agility.” Intrapreneurs balance these shifting dynamics with an empathetic, customer-centered approach that gives meaning to their work.

5

Thrive in a Culture of Empowerment

Intrapreneurs thrive in a culture of trust and empowerment. Fueled by an intrinsic motivation to solve sticky problems, they often seek an independent charter that would allow them to experience freedom in hiring and the exploration of new frontiers. Leaders at all levels, both within the innovative group and in the greater organization, have the power to push boundaries when their work begins with trust.

72%
say empowerment directly affects their success.

60%
say their ideal workplace culture would be transparent.

Flashback

Celebrating 150 years of Frank Lloyd Wright

Steelcase proudly partnered with Frank Lloyd Wright in the late 1930s and continues to be inspired by his timeless architectural and furniture designs.

This iconic multilayer desk designed for S.C. Johnson Wax Company, and shown in what the company called The Great Workroom, is considered a forerunner of what would become the modern workstation. The desk and chair were manufactured by The Metal Office Furniture Company, which would later become Steelcase.

"Organic architecture designed this great building to be as inspiring a place to work as any cathedral ever was in which to worship."

Frank Lloyd Wright
An Autobiography

More Ways to Experience 360

360 Focus
For readers who want to delve more deeply into the topics we feature in 360 Magazine, we've launched 360 Focus. It offers in-depth examination of our research into topics and trends that have powerful implications for workplace design.

360 Real Time Podcasts
Listen to interviews from experts at IDEO, MIT, Microsoft and more and get a behind-the-scenes view of the research into the places where people work, learn and heal.

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360 Events
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