360°

Fast Forward

How artificial intelligence, smart data and the gig economy will transform the future of work
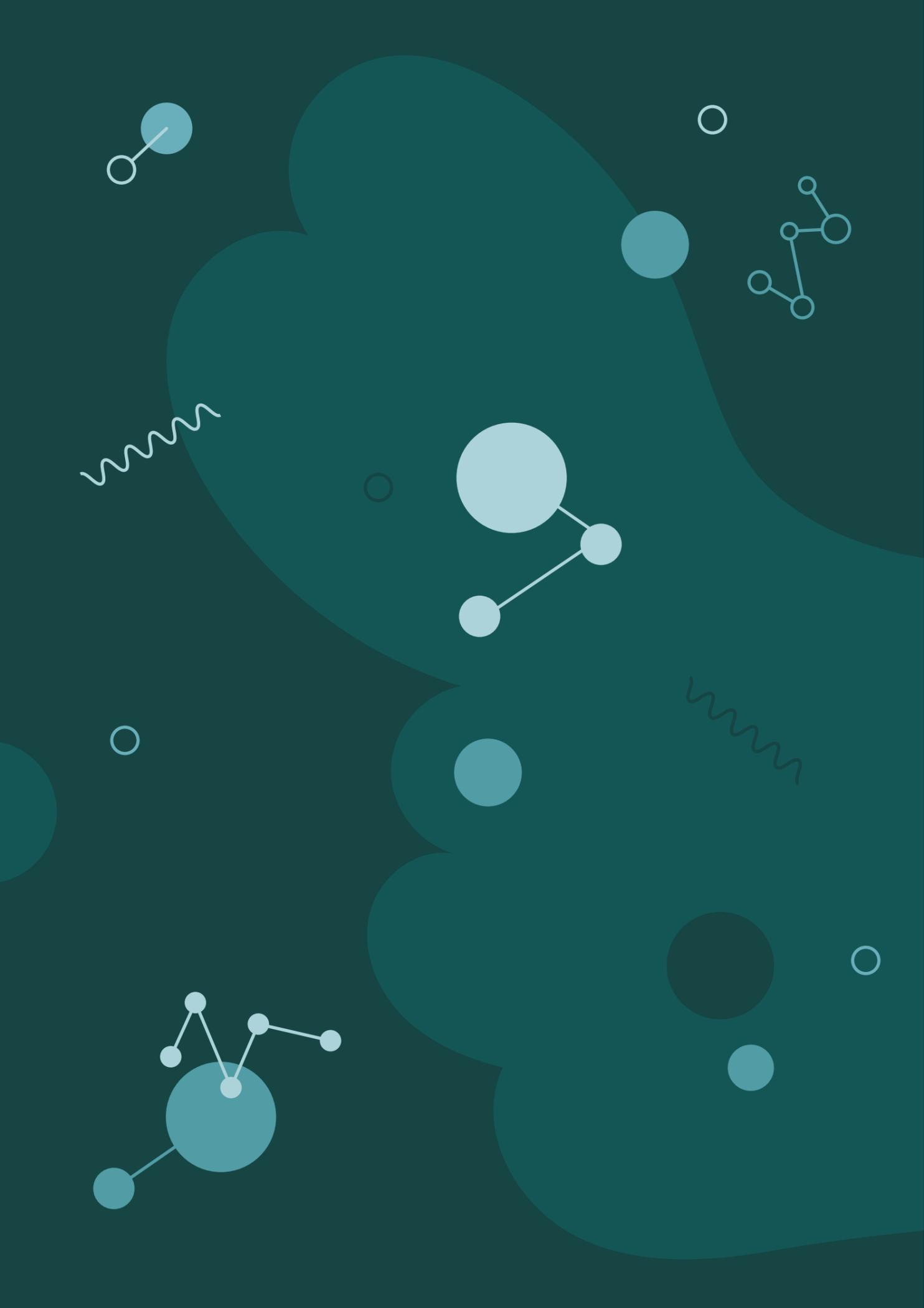
Be Agile. Hack Your Space.
How one team changed their space to accelerate new ideas

Data Privacy. By Design.
Big data comes with big responsibility

Talent Search
It's all about a great employee experience

360
Exploring
Innovation
at Work

360°

Exploring
Innovation
at Work

What does the future of
work look like? This issue
of 360 provides some
fascinating predictions.

The office you remember
is gone. Imagine in its place
a workplace in harmony
with the new ways in which
you work. An agile space of
rich colors and textures.
An immersive landscape
where artificial intelligence
and virtual reality come
together to help you solve
complex problems.
A place where you move
to intuitive workspaces,
connected conference
rooms, comfortable lounges.
Each day's demands are
different, and you wake up
excited to meet them.

This is the future and we
invite you to explore it with us.

360°

Exploring
Innovation
at Work

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what you're thinking:

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Departments

Features

Fast Forward

In another 10 years, your current office will
seem as quaint as a rotary phone on the
kitchen wall. By carefully analyzing the signals
of change that surround us today, Steelcase
researchers formulated seven fascinating
scenarios for how and where work might
occur just one decade from today. Thrilling
or sobering, they're sure to stimulate a
point of view about a future that will be very
different from what we're experiencing today.

About the Cover
A futuristic "day at work" inspired
by the forces that drive how
we interact with each other, our
environment and technology.
Executed in a bold surreal style,
it pictures a future that is human,
accessible and optimistic.

:

A 360 View

It Started With a Fire

In this issue of 360 we are celebrating several innovations that solve problems in new ways. In fact, we got our start more than 100 years ago doing just that.

For us it all began with a fire…and a car.

Working in offices wasn't always safe in the early 1900s. Buildings—made of wood and filled with paper—sprang up in cities, without a lot of thought about fire hazards… like people tossing cigar ashes into wicker wastebaskets. Which happened a lot. As cities grew, office fires became a serious problem.

Meanwhile, innovation in the early 20th century was fueled by the growing automotive industry. One new technology that emerged was the ability to bend and shape steel into a variety of new products, which was a big idea at the time.

And Peter Wege, an entrepreneur who was using this technology to make safes, had a big idea, too. He asked himself, "Why not make a metal wastebasket that won't burn?" No more fires ignited by errant ashes. It may seem like a simple idea now, but that's what innovation looks like: solving problems in new ways.

So Wege and a small group of disruptive thinkers in Grand Rapids, Michigan, created The Metal Office Furniture Company in 1912. At a time when most furniture was made of wood, Wege began exploring diverse product designs in metal, including the metal wastebasket. After creating steel file cabinets known for their sturdiness and quality (which also helped keep paper from going up in flames), the company eventually changed its name to Steelcase.

A lot has changed since then. Today, we are a company of makers, hackers, listeners, learners and global thinkers. We've created a diverse product portfolio—experimenting with all sorts of designs and materials that are never wasteful. We listen to people and observe how they work so we can deeply understand what they need today and in the future. But, through all these years, one thing remains the same—we put people at the center of everything we do and create innovative solutions that will help them love how they work.
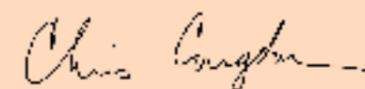
Chris Congdon
Editor, 360 Magazine

Perspectives

Meet the
people behind
this issue.

Elise Valoe
Global Research Manager
Steelcase

"In 2013 our researchers picked up the first glimmers of China and India's potential as hubs for ideas. This was the start of an unprecedented change in how they do business. China has a history of making parts and components for other companies. About five years ago, they changed their strategy and became increasingly focused on creating products of their own—leveraging their knowledge and manufacturing prowess to gain global recognition as technology leaders."

Stefan Knecht
Manager
it-economics

"Complexity has dramatically changed in just a few decades. Things used to be easier. Now, we have smartphones in our pockets that have more computing power than Apollo 11. Complexity requires a different procedure. Agile methods systematically reduce uncertainty in situations that you cannot plan for. Conventional methods can't do that."

Sonia Lagourgue
Senior Manager, Partner Success,
Corporate Engagement
MaRS

"We want to elevate the capacity for innovation across the whole ecosystem. Corporations and start-ups are both part of that value chain. By facilitating partnerships, we're helping both parties leverage each other's strengths in a joint solution that's mutually beneficial so they both can achieve more."

Robert Krestakos
Vice President, Global Operations
Steelcase

"Our approach with technology always will be to add customer value and augment our performance. It's possible that certain technologies could change the nature of work and make some types of work obsolete, but that's nothing new and that's not our main goal. We want to find better ways of working that improve our products from an aesthetic, quality and cost standpoint. It's not about trying to reduce the size of the workforce. Technology could very well add jobs in some cases."

Barbara Hiemstra
Privacy Engineer
Steelcase

"We know how important it is for companies and individuals to control their information. So before we developed any digital products at Steelcase, we established company principles of privacy by design, and data security by design."

Angela Nahikian
Director, Global Sustainability
Steelcase

"It's tempting for people to focus on a narrow set of sustainability problem areas like product waste. These are important, of course, but we need to see these problems for what they really are: symptoms of a much larger problem—an unsustainable economic model. The circular economy requires us to look at the design of the whole business system."

Work Day

Ideas for a better day at work

The Power of Sleep

When life is over-extended and over-scheduled, sleep is often the first thing to go. According to McKinsey, sleep-deprived brains lose the ability to make accurate judgments, learn, make new connections and seek different perspect-ives. Here are some tips that can help:

1. Incorporate naps into your day. Studies have shown that just 10-30 minutes of sleep can improve alertness and performance for up to 2.5 hours.

2. Follow the old advice to "sleep on it" when faced with tricky sit-uations at work. You'll avoid the regret that follows hasty late-night emails, emotionally charged responses or knee-jerk decisions.

3. Rest well before going into coaching situations or tough conversations. Ask clarifying questions and avoid jumping to conclusions.

Stress Signals

Overwhelmed and overworked? Your nose knows. According to scientists at the Bio-engineering Research Group at the University of Nottingham, a cold nose is a sign of think-ing too hard. When the

brain is overworked, your nose tempera-ture drops as it diverts blood to the neurons in need. So check your nose—it might be telling you to take things a little slower.

Break Time

Having trouble keeping distractions at bay? Practicing mindfulness or deep breathing is like physical exercise—skill gets stronger with prac-tice. Try setting a re-minder on your calendar to take a few minutes to focus on a simple activity like breathing or enjoing a meal—without multitasking.

Office Yoga

Doing a down-ward dog feels awkward in most offices. But these easy chair yoga poses can relieve stress and avoid uncomfortable moments at work.

Spine: Interlace your fingers in front of you, and with an inhale ex-tend your hands, palms out. As you exhale, reach your hands to the right so that you feel a stretch through the left side of your body. Hold for three to five breaths before returning to a neutral position. Repeat on the left side.

Neck: Begin by taking a deep breath in through your nose. On an exhale, allow your right ear to fall toward your right shoulder. Inhale and exhale for three to five breaths. Allow your head to roll down toward your chest and over to your left shoulder. Keep a long spine as you inhale and exhale for three to five breaths. Gently bring your head back up to center.

Wrists: Extend your right arm out in front of you, parallel to the ground, palm away from your body. Use your left hand to gently pull back on the right hand and forearm. Hold for three to five breaths. Repeat on the left side.

Embracing Personal Agility

It's not just organizations flexing their agility muscles—people have to practice this, too. To learn a new role at work or prepare for larger industry shifts, personal agility is key. McKinsey offers these suggestions:

1. Pause to move faster. Step away from problems that have you stymied.

2. Acknowledge what you don't know or understand and approach them as opportunities to learn. Work on listening with your heart—not just your head, and suspend judgment when in new settings.

3. Challenge yourself to reframe questions and consider other points of view. When tackling problems, ask yourself, "What am I missing?" or "What am I assuming that might not be true?"

4. Don't determine your destination, but your direction. Rather than setting your heart on a specific role or title, aim in the general direction you want to go, then work to gain the skills needed to make meaningful progress.

5. Test new solutions to activate your creativity and stretch your thinking. For instance, capture the attention of your audience with a story rather than showing another presentation.

Things I Love

"There is such a human instinct to joining a group around a central setting, spending time together either to make something or just to socially engage, and Potrero415 helps facilitate that."

John Hamilton
Director of Global Design, Coalesse

Creative Boost

Try these exercises to get your creative juices flowing:

Play: Building with a small set of legos or molding a new creation out of Play-Doh can get your brain moving before a big brainstorm.

Push: Simply asking, "What else can I do with this?" can push your exploration and encourage new thinking on a struggling project.

Doodle: Visualizing your work and sketching some ideas can get your brain into a new mindset when you're feeling stuck.

What We're Reading

The Employee Experience Advantage

Jacob Morgan

Research shows organizations that focus on employee experience far outperform those that don't. Read how this emerging topic is becoming the #1 priority for business leaders around the world.
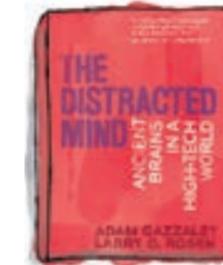
The Distracted Mind: Ancient Brains in a High-Tech World

Adam Gazzaley and Larry D. Rosen

Our brains aren't meant for multitasking. Gazzaley and Rosen provide strategies for fighting distraction and better balancing technology in our lives.

Purposeful: Are You a Manager or a Movement Starter?

Jennifer Dulski

Whether you're an intern or a CEO, you have the power to push the boundaries and make your mark on the world.

A Laughing Matter

Laughter really is the best medicine.

Brief comedic relief increases puzzle-solving by 20 percent and allows our brains to associate ideas, according to findings from Northwestern University and Drexel University study. Bonus: Laughter also helps teams drop their defenses, relax and be more creative.

Trends 360

Future Work

What today's trends are saying about tomorrow

Technology is rapidly altering how we live and work. We love the new conveniences that our devices deliver. But as technology becomes a coworker and even a personal companion, we aren't always sure how we really feel about it.

As the digital revolution gains momentum, it's important to imagine and prepare for what the impacts may be. Because it's not just about technology; it's also about our human experiences—including at work where most of us spend so many of our awake hours. The more we productively interact with machines, the more important our creativity, values and passions will become.

Are you ready to respond to tomorrow's possibilities? What patterns for the future can you see in these trends happening today?

The Rise of Machines

The hardest things to automate: managing and developing people and applying expertise to decision making, planning or creative work.[1]

20 billion digital devices will be connected by 2025, nearly three times the world population.[2]

About **60**% of all occupations could see **30+**% of their activities automated with today's technologies.[3]

84% of enterprises believe investing in artificial intelligence will lead to greater competitive advantages.[4]

Across businesses, executives indicated their investments in artificial intelligence would be **300+**% greater in 2017 compared with 2016. But one year later, more than 60% believe they are behind in their digital transformation.[5]

Sources: (1,3) McKinsey Global Institute, Future of Work Report, November 2017 (2) McKinsey Quarterly, January 2018 (4) Statistica/ Standford University AI100 Study (5) Forrester Research Predictions Reports, 2017 and 2018 (6) Deloitte 2017 Global Survey (7) Harvard Business Review October 2017 Survey (8) Washington University School of Business Report, 2016 (9) New York Times New Work Summit, February 2018 (10) Fei-Fei Li, Google Chief Scientist and Stanford Professor, at The New York Times New Work Summit, February 2018 (11) McKinsey Global Institute, May 2017 (12) Forrester Research, Predictions 2018 Report (13) The Future Computed: Artificial Intelligence and its Role in Society, Microsoft, January 2018 (14) Havas Meaningful Brands Global Study, January 2017 (15) Gallup State of the Global Workplace Report, 2017 (16) The Employee Experience Advantage, Jacob Morgan, Wiley, 2017

The Future Factor

Business leaders have identified building the organization "of the future" as their most important challenge.[6]

40% of today's Fortune 500 companies are predicted to disappear in 10 years.[8]

41% Less than half of respondents to a recent survey reported feeling hopeful about their future at work "most of the time" or "almost always."[7]

Illustrations by
David Weber

Machines Can't Do Everything

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100,000 robots have been built over the last five years, since Amazon bought robot maker Kiva Systems.

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300,000 people were also hired despite this increased investment in technology.[9]

"AI is made by humans, intended to behave by humans and, ultimately, to impact humans lives and human society."[10]

Fei-Fei Li
Google Chief Scientist
and Stanford Professor

The Talent Imperative

250K

shortfall in data scientists predicted in the U.S. within a decade.[11]

20% above market salaries are offered by companies struggling to attract scarce talent.[12]

"... skilling-up for an AI-powered world involves more than science, technology, engineering and math. As computers behave more like humans, humanities and social sciences will become even more important."[13]

Investing in People

Brands connected to human wellbeing outperform the stock market by

206%
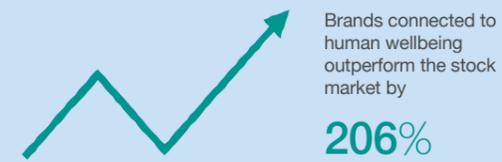
70% of employees are engaged at work among Gallup's best-performing companies.[15]

Companies that invest in employees' technological, cultural, and physical work environments have more than four times the average profit and more than two times the average revenue compared to companies that don't.[16]

The New Office

New solutions
for creating
places where
people want
to work

It's a
New Day

It's time to create new
ideas. Be agile and
make things happen
faster than ever.

It's time to find inspiration in every corner and accomplish
more than you ever thought possible.

The work we do has changed and so should our office.

And that's why we're approaching things in new ways.
At Steelcase, we've developed new products, new
partners and new technology to create destinations to
help you love how you work. With more choices than
ever before, we can help you design great places where
people thrive and ideas flourish.

SILQ
SILQ responds to the
unique movements of
your body. The perfor-
mance is intuitive. The
way you move is the way
it moves. A canvas for
personal expression,
its expansive range of
material combinations
allow you to to express
your unique brand vision.

MN_K
MN_K is the perfect solution for
the entire workplace—ideal
for areas for collaboration, focus,
connecting with colleagues and
hosting guests. The modular fresh
design responds to the new
ways people are working today.

B-Free Screen
B-Free is a full range of modular furniture aimed to design multiple and easily reconfigurable settings. Boasting a range of options and accessories like privacy screens, B-Free creates focal points where people can connect, collaborate and concentrate.

Steelcase Series 1
Steelcase Series 1 office chair delivers on what's important—performance, style and choice. It retains everything that's valued in a chair, while making it attainable for everyone.

B-Free Beam
New to the product family is the B-Free beam. It encourages a change in posture from sitting to perching or standing, promoting movement and wellbeing to keep workers engaged.

Lockers Collection
Whether owned by an individual worker, or placed in a nomadic space, the new line of lockers provides personal storage, privacy and space division. It fosters collaboration with the ability to display information and help keep team members connected.

Ology Height-Adjustable Desk and Bench with Rise App

Ology's Simple Touch control empowers users to effortlessly move the desk up or down, while Active Touch reminds workers to change posture with gentle desk motions. Active Touch pairs seamlessly with the Rise app allowing users to create a profile with preset heights and activity goals, and to track their level of activity over time.

Migration

Migration height-adjustable desk/bench allows users to transition from seated to standing height postures throughout the day, stimulating mental and physical activity.

FrameOne

FrameOne is a desk designed to be beautiful, functional and beneficial to your workday. Its clean, simple lines and neat design touches make people proud to own it. FrameOne offers a refined and refreshing solution from collaborative meetings to focus work, no matter what you ask of it.

Share It Collection

With inviting light, personal storage options and a height-adjustable desk option, Share It Workstation welcomes workers to a custom experience. Individual storage and screens define personal boundaries, allowing workers to pin-up inspiration that is unique to them.

Viccarbe Davos Bench
Elegantly contemporary, the Davos collection is a natural for social spaces. Configure the lounge with benches in a lobby, lounge or living room setting.

Umami
Umami seating, tables and screens offer an endless variety of configurations, sizes and materials options. Its flexible, modern design can be used to create spaces that are unique to organizations and the people who work there.

Bivi
Bivi desk system stands out in the workplace. Its modular design supports a range of postures from standing to sitting, and its many accessories bring a sense of startup culture to any workplace.

Viccarbe Wrapp Chair
The Wrapp chair combines a snug winged back with a generous contoured seat, inclined slightly for comfort and support. Its clean and elegant design can be used in a variety of settings. The upholstered seat is available in leather or fabric, with environmentally-friendly trivalent chroming.

Comfort
for All

When Mitchell Gold and Bob Williams, co-founders of the North Carolina-based manufacturing and furniture design company of the same name, say they stand for "Comfort for All," they don't just mean a luxurious and beautiful sofa—though that's certainly true. Comfort extends to their people, their families and their community. Driven by a strong ethos to make the world a more comfortable place for everyone, they've grown from a 23 employee startup in 1989 to a family of more than 900 today—proof that their values make good business sense.

360: How does your company's sense of purpose manifest itself in your business?

Mitchell Gold: Bob and I want everyone in this company to feel they have equal opportunity. We want everyone to know that at work there's no such thing as discrimination. We are a family business in the sense that we all care about each other. More than 20 years ago, we told our new head of human resources we wanted him to be an advocate for our employees, not a person they feared. People should know they can come and talk to his team. That's been a really great part of the company.

360: When you started your business, you considered housing your organization's corporate offices in a new building. Why did you end up deciding to keep them inside your manufacturing plant?

Bob Williams: We wanted everything that we do, whether it's finance, product development or marketing, to work together. People have to talk to each other. It's really worked for us. When you're in the cafeteria, everybody's together. In fact, in 20 years, I'll bet we've only had a lunch meeting in a conference room three times. When we have guests or board meetings, we all go to the cafeteria because we want to be together.

360: As your business has grown, you've emphasized investing in your people, adding benefits like an on-site clinic, a gym and scholarships for employee's kids. Do these benefits help you realize business objectives?

MG: We respect our employees and, in turn, they respect us. We have really low turnover. Our motto is "Consistently Good Quality, Consistently On Time." We can only do that with employees who know their job and are here. If you have high turnover, you're constantly training people. We are able to run very lean because we have a consistent workforce.

BW: How can you justify the cost of some of these things? Instead of looking at them as expenses, we see them as assets because of what they add to the bottom line in terms of productivity.

360: You have an on-site daycare center as well. Why did you decide to take that on?

MG: I was meeting with an employee at 4 p.m. one day and realized halfway through she wasn't paying attention. I asked why? She said "I have to pick up my son at daycare. If I get there past 5:30, they charge by the minute." It made me say, "We need a daycare here. We shouldn't have employees at the end of the day who can't concentrate." Lawyers, accountants, insurance people all

had reasons why we shouldn't. But, it's good for business. It's one of the best things we've done in our career.

BW: The daycare even attracts people who don't have kids. We've had job candidates say, "I figure if you have a daycare, this has to be a good place to work. That's why I wanted to come here."

360: You're both fierce advocates for the LGBTQ community and have received accolades for your bold marketing campaigns featuring diversity. How have you seen this inclusive culture impact your business?

MG: We get incredibly positive comments and I believe we do a lot of business because people have seen

"We believe we build on success by learning from failure."

"At the end of the day, we want to be role models for vulnerable kids."

our advocacy and philanthropy. They want to buy from a company like ours. Even the bank we borrow money from, our investors, our business partners, they all want to be part of doing good in the world. And, they see it's helped our profitability. At the end of the day, we want to be role models for vulnerable kids.

360: Do you see evidence that the open and inclusive culture you foster in the workplace encourages your people to contribute ideas and take risks?

MG: We think it's really important for people to feel comfortable failing. Work is a social activity and that takes trust. We let people know their voice and ideas matter, and ask them to speak their minds. We're always striving to do more of that, and I think that's a good thing. And, without a culture that breeds trust and a diversity of ideas, people aren't going to feel safe trying something even if it doesn't work. We believe we build on success by learning from failure.

360: You've committed to using sustainable materials since you started your company. Why was that so important?

MG: Within a month of starting the company, I read an article about how the ozone is being depleted and that the furniture industry in North Carolina was one of the biggest abusers. I remember calling Bob saying, "We're going into a business that's hurting the environment!" That led us down a road to

"We are a family business in the sense that we all care about each other."

understand what we could do. We tested new kinds of foam, rethought packaging and started sourcing wood from quick-regrowth forests. We wanted to be part of the solution.

360: You've said you wouldn't put anything in your office that you wouldn't also put in your home. Why is comfort such an important factor in workplace design?

MG: One of our mottos is, "When a home has been furnished successfully, just walking in the door is like getting a hug." That's what we think a lot of offices want to be like.

Steelcase offers a collection of Mitchell Gold + Bob Williams products throughout the United States and Canada. They are one of several new key Steelcase partnerships that provide greater choice and consolidated distribution. To hear why Mitchell Gold + Bob Williams chose to team up with Steelcase and what's inspiring their designs now, listen to our 360 Real Time podcast on iTunes and Soundcloud.

Fast Forward

How artificial intelligence, smart data and the gig economy will transform the future of work

It's rather incredible to consider the first iPhone was sold in 2007, a little more than ten years ago. The work you do has probably changed quite a bit since then—where and when you read your emails, how you contact colleagues, what social media sites you browse to keep tabs on your company's latest products and initiatives, maybe even the artificial intelligence-curated playlist you listen to as you work through a presentation or expense report.

In another 10 years, the integration of artificial intelligence, virtual reality and human analytics will make your current office look as quaint and unrecognizable to you as the rotary phone that once hung from your kitchen wall. In the future, you may walk about an office full of computers, but these computers will look and feel profoundly different: VR headsets will still create immersive holographic experiences, but more people will choose chic, less isolating augmented reality glasses that layer virtual information atop the physical plane. Rooms and furnishings will feel different, more intuitive and comfortable, designed to accommodate diverse networks of writers, programmers, designers and scientists who come together to solve difficult problems.

Perhaps the most noticeable change will be that the lines between technology and space will blur. Embedded with smart sensors and speech recognition software, your workplace will take care of much of the administrative day-to-day: transcribing meeting notes, scheduling conference calls, responding to routine emails and generally serving as a dutiful member of your team. Open, naturally lit spaces designed for your wellbeing will accommodate the varied work styles, privacy expectations and personality types of the teams that occupy them. Your office will feel more like a person, a colleague or life coach, who guides you toward your best self, or at least your best working self.

At Steelcase, we are keenly interested in how these and other plausible scenarios will affect the future of work, workers and the workplace. Our Foresight Practice, modeled after a design thinking process developed by the Institute for the Future, the world's leading nonprofit strategic futures organization, carefully analyzes and forecasts how signals of change observed in the marketplace today will frame future states. These predictive scenarios inform product development and manufacturing decisions that conceptualize and create the future. We've developed this practice as part of our culture of design thinking: deeply understanding the lives of people at work, as we continually work to improve the employee experience.

The edges of the future are visible today. We see its first blush in the growing number of workplaces providing flexible workstations—whether they are collaborative lounges, treadmills, bikes or adjustable-height sit-stand desks—to give workers a break from sitting, reduce fatigue and stiffness, and boost productivity. We recognize its beacon in a young Palo Alto analytics firm using microphones and sensors, along with email and calendar data, to track

employee activity levels, time spent multitasking and how often associates are in touch with key contacts. We smile at its gleam in the biophilic wood paneled walls and Circadian light arrays of retail stores—the bicycle stalls and changing stations that have become standard features of modern offices. These examples represent a small fraction of the ways today's companies are adapting spaces to align with human needs and the constantly changing workplace demands.

Tomorrow, organizations will be able to manage buildings, desks and computers as never before, supporting employees by giving them greater control over their environments. The data and AI brokered to orchestrate these changes will teach machines to anticipate and predict desired future states—to go beyond sensing and responsiveness to speak to us intimately, assist with our projects and tasks, and improve our workplace performance, productivity and wellbeing.

In the future, all companies will be tech companies, and your office will look astoundingly different. We invite you to look at what lies ahead.

Active Agents in the Gig Economy

Freelancers already make up 35 percent of U.S. workers, according to a survey released by the Freelancers Union, based in New York City. Another large study released by the McKinsey Global Institute found that 20-30 percent of the labor force in the European Union is made up of independent workers who are self-employed or do temporary work. As the gig economy expands, freelancers and salaried professionals will look for greater diversity in their work experiences and new roles that inspire and challenge them. Companies of all sizes will follow suit as the workforce fluctuates, experimenting with flexible office arrangements, modular workplaces, co-working spaces and new service models for using and provisioning space.

Consider this scenario in the not-so-distant future: Your company pays a monthly membership fee for a flexible workplace in San Francisco's Little Saigon to support its rapidly growing teams with the kind of spaces that fit your culture. You spend much of the first quarter in this custom-built office suite, looking out at a newly-revitalized city park as you sip your fruit water. There is not a PC to be found. What you see, instead, are touchscreen computers for small or large groups—some fixed, some mobile—in open studios. You meet a freelance data

analyst from Senegal, who moonlights as a Lyft driver, a tech writer whose byline you remember vaguely from Wired, and a Ph.D. candidate attending Cambridge, who specializes in "topic modeling," an algorithm used to categorize written text into substantively meaningful categories.

You review the terms of a two-week project in an informal space, where softly upholstered chairs, richly grained oak tables and plush rugs make everyone a bit more comfortable and relaxed. Two weeks later the data analyst is off to New Jersey for a consulting job in population healthcare, but you're connected on Upwork and he's easy enough to reach online. One early morning in April you work from home, getting dressed in a suit and tie and slipping on a mixed reality headset to present a detailed project pitch to a potential client in London whose day is halfway through. Their hologram-like images appear, as if by magic, in a virtual boardroom. The Ph.D. candidate is there, too—or at least her incredibly lifelike image is—ready with an impressive word visualization, clarifying past customers' perceptions of the potential client. You enjoy shifting between work at the new office and your home, feeling free to choose the places that best support the work you need to do.

Navigating Oceans of Data

We're already inundated by massive amounts of information bombarding us from seemingly every direction. And yet we will see more, more and more data being effortlessly collected by growing numbers of sensors and machines. How will we make sense of it all? The rapid growth of machine learning and artificial intelligence systems will move from being a far-away scenario to an everyday necessity as we increasingly rely on these backstage systems to analyze and apply data in meaningful ways to our work and lives. New forms of interaction with data will also emerge; in fact, many predict that AR and VR will become a primary mode of interacting with large data sets in new, visual and immersive forms. "Data" will no longer be 2D strings of information on a blinking screen; it will become embodied through immersive experiences that are powered by AI.

The primary advantage of this format over a typical computer interface is that displays will no longer be tethered to walls or flat surfaces. A virtual tree will be experienced, in three dimensions, just as a tree in the physical world. Since worlds have height, depth, width and distance, where information is hosted will matter. Digital spatial coordinates will map where content is placed in the virtual world, a representational analog of our own. Associations with places in our world will help us locate apps, programs and tools in the virtual world.

If you've ever tried to review a giant spreadsheet or book-length manuscript, while scrolling in and out of 10 open Internet tabs on your desktop, you understand the desire to develop such new interfaces. Imagine a future in which you can turn around in a circle and engage with only the data you need, reach out and touch it across three dimensions. This will radically change how information is displayed and manipulated in space. Flat screens and browser windows will become obsolete. We will explore volumetric visualizations of data worlds with broad gestures of our head, arms and bodies. Chairs and other furnishings will operate like joysticks, leveraging our actual body motions to change our physical orientation in virtual space. Numbers will become almost-physical objects that we can, quite literally, play with.

Imagine a future in which you can turn around in a circle and engage with only the data you need, reach out and touch it across three dimensions.

Intelligent Innovation Networks

As open platforms and digital networks grow, organizations will be pressed to evolve more rapidly, with greater precision and with increased participation from experts in the world at large. Signals of this change are already underway, transforming healthcare. Take, for instance, the development of The Cancer Genome Atlas, where researchers from institutions across the country are working collaboratively to catalogue all of the changes to DNA and molecules in more than 30 different cancer types. Or the development of OpenMRS, an electronic medical records platform bringing increased care coordination to parts of the developing world where it is needed to treat populations afflicted with AIDs, malaria and tuberculosis.

Consider how your office might evolve in a deeply connected, networked space of augmented human interaction in which 100 people contribute 10 minutes of work to a project—a scenario predicted by the Finnish sociologist Esko Kilpi. Spaces will need the flexibility to accommodate fluid teams and complex workflows, while ensuring transparency and access to information across vast net-works. In the morning, you'll work in a private space enclosed in glass that allows for concentrated solitary work but emphasizes a feeling of transparency. Later in the day, you'll talk to colleagues in Dubai and Berlin in a video-connected conference room where speech recognition and translation software allow you to hear them crystal clear in your native tongue. Large touchscreen monitors that allow for the manual manipulation of apps and programs will invite participation from everyone in the room, and for those who are feeling a bit sluggish in the late afternoon, a condensed synopsis and to-do list will be stored in the cloud, thanks to AI-informed office furnishings.

Healthy, Sustaining Spaces

Designing the workplace to support wellbeing is a recent focus of organizational behavior models and architectural practice. However, the intensification of work that comes with digital transformation means people will need new ways to maintain not only their physical wellbeing, but also to do their best thinking and feel an emotional connection to their work. Green walls to filter air, sleep pods and sensors to count employee's stair steps are already a reality in some workplaces.

As businesses plan for a more mobile workforce and increasingly rapid cycles of change, dedicated floors and wings for "resident employees" will give way to elastic concepts that invite change. Furniture will be light, mobile and modular. A diversity of bespoke products and materials—shade lamps, handsomely upholstered sofas, stools, hardwood tables—will make the workplace feel more like home. Your desk, if you choose one, will move according to the needs of a project cycle or team assignment. To assist with creative thinking, it may recline into recumbent positions associated with deep thought. To help your body get the exercise it needs to produce endorphins and burn cortisol, it may have pedals like a stationary bicycle. You'll see bright graphic murals and living walls of moss and succulents. Your back will feel better because you'll be standing, sitting, perching or moving for the better part of the day. You'll get more work done and feel better.

Bots, virtual assistants and other software agents will act as human proxies, not only querying data, but asking questions.

Room as Team Member

If you can imagine space as a participant on your team, you may be curious as to how that spatial persona will interact with you and your colleagues. At the far edge of this frontier, we can envision the development of environmental systems that operate like friendlier, more benevolent versions of Hal 9000 from Stanley Kubrick's classic "2001: A Space Odyssey": artificial intelligence platforms that, while not sentient and emotionally developed in a human sense, can detect our moods and impulses with facial-and-speech-recognition software and brain-reading devices. When we're losing energy and drifting off in a meeting, they nudge us to get a drink or eat a sandwich and refresh ourselves.

In the immediate future, we see the growing popularity of digital personal assistants, such as Cortana and Google Assistant, and smart furnishings, in the workplace. Imagine a conference table equipped with microphone arrays and speech-processing software, which comprehend and summarize conversations happening around it. Through such integrated, intelligent systems linked to the cloud, a room will be able to anticipate the needs of the team within it—bringing up past documents or project logs, for instance, or encouraging equal participation by nudging quiet team members to share their opinions.

Privacy standards will need to evolve, of course. As rooms begin to listen to us and data becomes easier to harvest, the security and privacy of employee information will become the concern of every organization. Europe recently has taken the lead in digital privacy by establishing the General Data Protection Regulation (GDPR), which lays out sweeping individual rights over your personal data. Controlling digital stimulation by providing places for privacy, rest and rejuvenation in the physical workplace also will become increasingly important.

Many open questions remain, but what can be said is that the age of robots has arrived. Bots, virtual assistants and other software agents will act as human proxies, not only querying data but asking questions and accomplishing tasks. Space will become intelligent and conversant. Where's that year-end report? "Right here," the tech-embedded room will say. "I'm happy to walk you through it if you'd like."

Spaces that Know Us

Brain science is rapidly advancing to detect and influence our physiological and psychological states. The science is evident in a host of human performance apps and multi-sensory environments that employ selective stimuli—from the visual cues of a beehive to the rhythmic tempo of a musical composition—to frame the state of our feelings, attention, memories and moods.

With this new level of detection and analysis, environments hold the potential to enhance human performance by coming to know us intimately. Rooms will become personalized to our software habits and preferences, knowing which platforms, news feeds and applications we gravitate toward. In the same way a FitBit tells us how many calories we've burned and hours we've slept, augmented rooms and surfaces will track our behaviors through data pulled from our devices and bio-informed sensors—adjusting lighting, visual privacy, acoustics and temperature with algorithms conceived according to our personal preferences.

Over time, the design of intelligent rooms and user interfaces will become more humanistic and intuitive, articulated in architecture and furnishings reflecting a range of postures, work modes, light levels and acoustic qualities. The introvert may find she does her best work in a private, solitary room encased in soundproof glass. The extrovert may prefer to prepare to do his year-end report in a heavily trafficked café, while listening to The Beatles. Both will come to see spaces as a partner in the generative process.

But innovations in biosensing technologies and artificial intelligence will do more than predict our personal preferences and desires; these augmented spaces will learn things about us, how sensory stimuli affect our habits and behaviors. As we gain a deeper understanding of how spaces affect our neural pathways and cognitive and emotional states, we'll be able to translate these ideas more fully into architectural practice. A multimodal mediated work environment known as Mediated Atmospheres now being studied at MIT's Media Lab suggests the direction we're moving: a kind of "consciousness hacking," in which intentionally designed offices with abundant natural light, distant views and pleasing acoustics inspire clear thinking and creativity. It's not far away, a future in which spaces prime us for behaviors and states of mind that improve performance.

You'll be able to stand shoulder to shoulder with colleagues in Rotterdam, Shanghai and Mumbai at an augmented reality white-board, moving about and speaking to others in the room as though they were in your office.

Virtual Social Spaces

Perhaps you'll recognize this familiar, if less than perfect, scenario. You're teleconferencing with your friend whom you haven't seen in years and who lives halfway around the world. His face looks a bit tired, tilted at a strange angle. The better part of you knows it's a pleasure just to be able to talk to him and see his face. Decades ago you wouldn't have had this luxury. But the voice in your other ear is less tolerant, dissatisfied with the way this interaction, like many interactions across distance, are mediated by technology. Today's connective "thin-media" (bits of content we consume on devices like a smartwatch, without opening our phone or computer, such as a notification) may attempt to draw us closer, but this closeness often seems fractured and incomplete.

But we believe recent technology is poised to reframe these interactions and build trust in the future through highly immersive and visual experiences. You'll be able to stand shoulder to shoulder with colleagues in Rotterdam, Shanghai and Mumbai at an augmented reality whiteboard, moving about and speaking to others in the room as though they were in your office. Distributed global teams are not going away, but the frustrating aspect of your interactions with these teams—the presence disparity created by a two-dimensional screen, ambient noise and distracted colleagues—will wane as meetings are held on equally experienced, common ground. What will be pre-served is a diversity of geographic and cultural viewpoints that inform strategic decision making and enrich the character of the workplace.

Telepresence holds us frozen to the camera and keyboard, much like being seated behind a steering wheel in a car. Now imagine a walk through a park, or a game night with your colleagues—our physical freedom will extend by orders of magnitude: from seated to standing to moving, as well as all the postures in between.

Get ready to say farewell to presence disparity. The future of space has arrived.

Talent Search

It's all about a great
employee experience

about their offices as a place to park their people. Instead the office should be strategically leveraged to encourage new social norms and a mindset that will lead to the behaviors that enhance innovation. Over time, this will shape the culture you desire, as well as create the type of work experience people are seeking."

Figure Out What Employees Want

But a great employee experience doesn't come easy. Companies with low engagement scores often implement experience initiatives before asking employees what they want. A recent Steelcase study of global office workers found just over half of people (51 percent) say they need an escape from working in the same place during their day, whether they were alone or with others. Yet, 53 percent of employees say they can't find the right types of space they need. What else are they looking for? They're seeking deeper relationships with colleagues and believe informal spaces can help build more trust (43 percent).

This data is telling; people are unsatisfied. Traditional perks like higher salaries aren't enough to convince people to join a new company or stay with the one they're already with. For Gen Z (born 1994–2008), the number on their paycheck isn't even a top-three priority, according to the 2017 Change Generation Report conducted by the Lovell Corporation. "One of the biggest shifts between generations is Generation Z's emphasis on passion in their work and career success," the study states. "For the first time, passion is ranked as one of the top three work values. Employers will be required to keep their spark alive in the workplace—ensuring work speaks to individual interests, provides growth and aligns with employee values."

A Holistic Approach

Jacob Morgan, author of "The Employee Experience Advantage: How to Win the War for Talent by Giving Employees the Workspaces they Want, the Tools they Need, and a Culture They Can Celebrate" is an expert on the topic. After extensive research and interviewing over 150 global leaders, he identified three factors that are critical for companies to invest in to create an optimal employee experience—physical space, culture and technology.

But very few organizations think about these three factors holistically. They are usually managed by separate teams with separate budgets. Human resources, information technology and facility leaders rarely sit in a room to talk through how their roles intersect to build the places where

Today, some "people shop for employers like they do for consumer products. It's not just the type of work, salary or a company's prestige that influence decision making. People are looking for a sense of purpose at work and ask themselves, "Do I love my job, or do I just like it? Does my employer share my values? What are others saying about where they work? My friend really loves it there; maybe I would, too. What is their office like?" There are so many factors at play when someone is trying to choose where they want to work.

At the same time, the competition for talent has never been more fierce. The global unemployment rate is as low as it's been in over a decade, according to the International Labour Organization, and is even lower among the world's wealthiest countries, which means people have options. Every industry is looking for new ways to lure top talent and keep them. The problem is even more heightened for STEM—science, technology, engineering and math—positions. For example, in India, the shortage of skilled STEM talent doubled from 2014 to 2018, according to job site Indeed, and the U.S. Bureau of Labor Statistics estimates the rate of growth for STEM positions is quadruple that of other jobs. At this rate, 1 million to 2.5 million jobs will go unfilled by 2020, most of them in the engineering and computer science fields.

"It's cliche to say people are our most important asset," explains Laurent Bernard, vice president, Global Talent Management at Steelcase. "But, without the right people there would be no new big ideas or game-changing products—your organization simply can't survive. Yet, sometimes we forget to think strategically about creating an employee experience that will influence people's decisions about where to work and how engaged they are likely to be. Traditionally, organizations have thought

Three critical factors companies should invest in to create an optimal employee experience: physical space, culture and technology.

people want to work. The magic happens, says Morgan, when "there is an overlap between employees' expectations, needs and wants and organizational design of employee expectations, needs and wants." This overlap requires looking at people, place and technology through a holistic lens.

Why It Matters

Morgan calls companies that prioritize all three aspects of the employee experience Experiential Organizations, defining each as, "one that has been (re)designed to truly know its people and has mastered the art and science of creating a place where people want, not need, to show up to work."

To uncover what Experiential Organizations do right, Morgan led the creation of the Employee Experience Index, a survey that measures companies on how well they invest in physical space, culture and technology, and conducted it at over 250 global organizations. Experiential Organizations had more than four times the average profit and more than two times the average revenue.

Creating a Great Employee Experience

The first step to creating a great employee experience is deeply understanding what people want. By listening to people and observing how they work, companies can then focus on a holistic approach to meeting people's needs for sustained wellbeing, smart and connected technology, and access to a diverse range of spaces. With this approach companies can create places where people want to work, gaining an edge over competitors when searching for the best and brightest.

Here are some ideas from Steelcase application designers that can help your organization create a great employee experience.

01 Offer Choice + Control

Give people the freedom to work wherever they want by providing a range of spaces with different tools and atmospheres that meet their changing needs throughout the day.

02 Make It Authentic

Create places where people feel free to be themselves. Lighting, materiality, informal spaces and natural elements are powerful influences on behavior and communicate company brand and culture.

03 Keep Them Nourished

Think about physical and emotional needs. Great coffee and healthy food options signal that wellbeing is a priority. WorkCafés and coffee bars give people a place to meet for coffee and get to know each other better. Stronger relationships create stronger ideas, both of which increase team synergy and creativity.

04 Provide Top Technology

Without easy-to-use, accessible technology, workers can't do their jobs and often get frustrated and distracted. It's important to provide both mobile devices and thoughtfully integrated large-scale technology in spaces to make it easy to share ideas and information—anywhere.

05 Support Solitude

Help keep distractions low with respite spaces where individuals can rejuvenate, take a private phone call or focus on heads-down work throughout the day.

06 Keep Them Connected to Coworkers and Community

Invest in diversity, inclusion and community outreach opportunities. These groups give employees a chance to form a sense of belonging to the company and feel that what they do and who they work for serve a larger purpose.

Listen to the podcast, Leadership for Innovation, where Johanna Frelin talks about the employee experience at Tengbom, one of the most innovative architecture firms in Scandinavia.

Data
Privacy.
By
Design.

The benefits of a
connected world—
greater innovation,
growth and prosperity—
will not be realized
unless people can
trust that data being
collected is managed
and analyzed
responsibly.

Illustrations by
Olivia Ward

"As data becomes the key resource for every business, the security and privacy of data becomes every organization's concern."

Stuart Berman
Steelcase IT Security Architect

Privacy in a connected world

Privacy is not a new issue for Steelcase. The company has conducted research on privacy in the workplace for over two decades, and three years ago began to study digital privacy issues.

"Organizations have made assumptions about digital privacy, but those assumptions had never been tested. The assumption was that people are willing to trade personal data in return for services, such as web searches or connecting with others via social media, so they would be willing to make the same trade at work. In other words, they would allow the collection of data in return for helpful business services. We wanted to test those assumptions," says Redman.

Steelcase surveyed 3,000 people around the world about privacy concerns in the workplace. A major finding: Employees' attitudes about privacy are remarkably consistent across geography, gender and demographics. This calls into question popular notions about privacy, such as assuming younger workers, who constantly share information via social media, are less concerned about data privacy. It turns out that privacy attitudes don't vary by age; they vary by the type of organization people work in, and by the ways people work.

Attitudes about privacy differ, for example, based on how mobile a worker is, how readily they adopt new technology or how collaborative they are in their work.
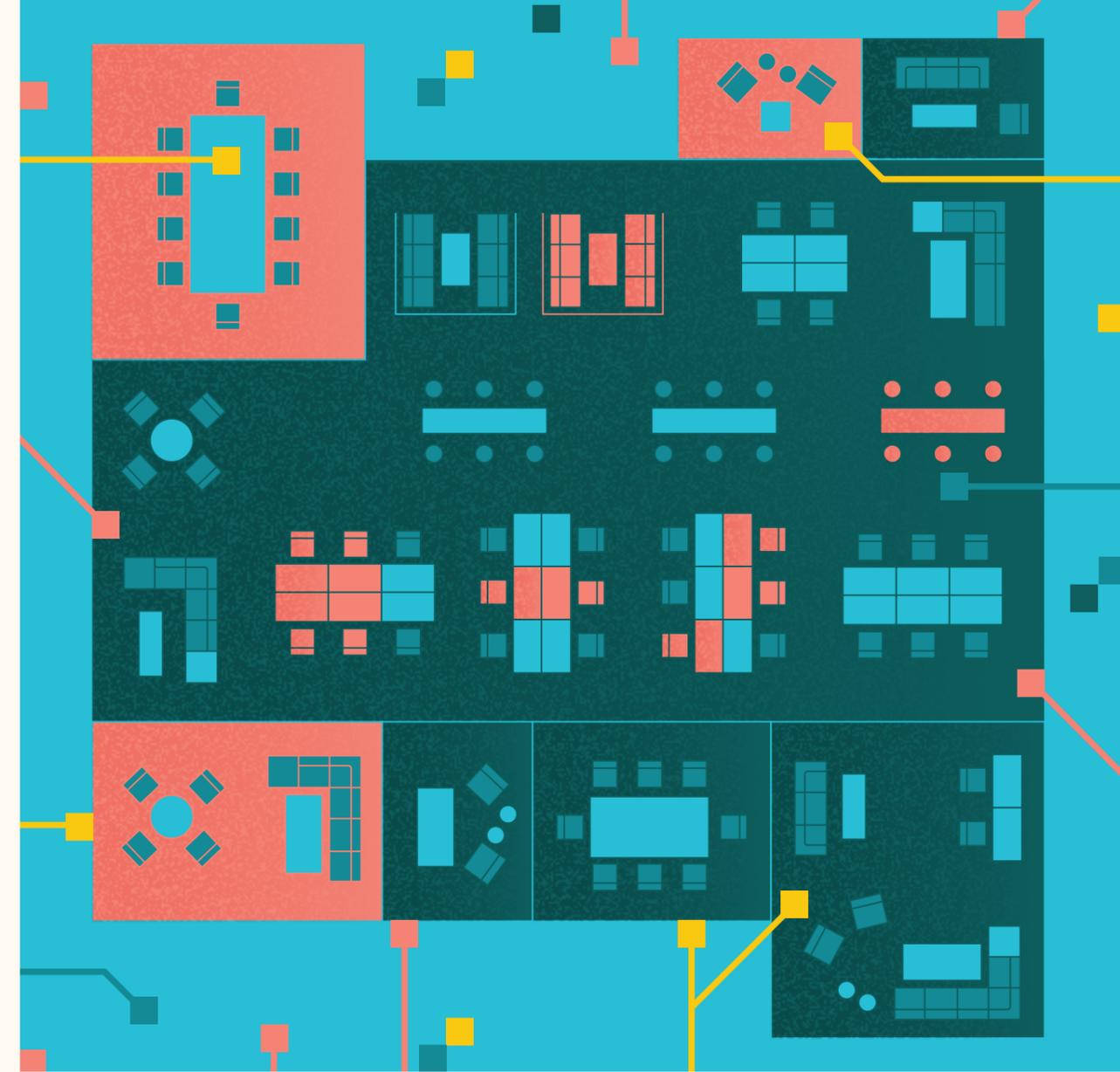
Two dimensions of privacy have moved to the forefront for employees. One is being able to control stimulation and distraction, a fallout from more open workplaces and the use of mobile devices. It's hard to find quiet, private time and harder to disconnect from work. Controlling stimulation can be accomplished through the physical workplace and Steelcase has many strategies to help companies provide places for privacy, rest and rejuvenation.

The second ascendant issue is controlling information. The proliferation of data and the increased ease of aggregating and deriving value from it mean it's harder to control who has our information and what's done with it. Losing control over your data causes anxiety because controlling your information is essential to privacy.

"The world is increasingly digital and data driven and we're rapidly entering a future where everything will be connected. As data becomes the key resource for every business, the security and privacy of data becomes every organization's concern," says Stuart Berman, IT security architect at Steelcase.

To ensure the responsible collection, analysis and management of data, Steelcase designs all of its technology products to strict privacy and security standards. "We know how important it is for companies, and individuals, to control their information. So before we developed any digital products at Steelcase, we established company principles of privacy by design, and data security by design," says Barbara Hiemstra, Steelcase privacy engineer.

(To learn more about this growing profession, see Meet Steelcase's Privacy Engineer on the opposite page)

The smallest actions can have the biggest implications

Every day we trade private information about ourselves in return for digital services. We make an online purchase, use a search engine, or download an app, and Google, Facebook, Apple, Amazon and others harvest data about where we go, what we buy, who we interact with online.

For many people this is a reasonable trade, data for services that make life easier, more interesting, more fun. Others are less comfortable about this tradeoff. Yet everyone expects their personal data to remain private and secure.

"Privacy in the workplace used to be about audio privacy, visual privacy, territorial privacy and informational privacy," says Steelcase Senior Design Researcher, Melanie Redman. "These are types of privacy people say they need in order to focus.

"What's changed is how we think about informational privacy: Now we think about data privacy and about psychological privacy, because our perception of privacy impacts all of our other experiences. Privacy is more contextual in the workplace, more personal and a topic of growing importance in every organization."

Space measurement and analysis tools designed to improve the workplace must include leading-edge privacy protections that anonymize user data.

Meet Steelcase's Privacy Engineer

High-profile security breaches, social media user tracking, protecting and securing data from cyber attacks: The realities of the connected world have led to an emerging profession, the privacy engineer, an increasingly common position at web and software companies. Barbara Hiemstra is one of the first privacy engineers in the office furniture industry.

"I'm part of the IT security team that interacts with researchers, designers, software developers, legal experts and others to help ensure that privacy is an integral part of the design process. We recommend privacy-enhancing technologies to mitigate privacy risks, conduct privacy-related risk assessments and help integrate privacy into the software engineering lifecycle," says Hiemstra.

Her team also informs users in cyber hygiene: individual behaviors to maintain a "healthy" (secure) online presence. This includes password maintenance, software and virus protection updates, data backups and other strategies. The content is made available to Steelcase dealers, who in turn can offer it to customers.

"Big data is an awesome tool, but it comes with big responsibility," warns Hiemstra.

User-centered design

This approach stems from Steelcase's longstanding user-centered design process for developing new products. "We don't create a chair, for example, based on what we believe the customer wants. We talk to them first, we go into the field, we observe how people work, the issues they have. We draw insights from those observations, and we engineer and design around those insights. So we do the same work before we develop our digital products," says Redman.

One of Steelcase's first digital products, introduced in 2017, is Workplace Advisor. It collects data about how the workplace is used in order to help organizations understand how to best use their real estate and create more effective workplaces.

"We are completely transparent about all the customer data Workplace Advisor collects, how we use it, how we secure it. We want our customers to completely understand the process," says Shawn Hamacher, assistant general counsel at Steelcase.

"Privacy by design means we build privacy into the product. You don't try to bolt it on afterwards. Privacy is part of each digital product's DNA."

To safeguard the confidentiality and privacy of the data collected by Workplace Advisor, Steelcase uses the Microsoft Azure IoT platform with its strong security and privacy guarantee. In addition, Workplace Advisor systems will be audited against the Service Organization Controls (SOC 2) framework. Developed by the American Institute of Certified Public Accountants, this includes third-party audits and reports available to Steelcase customers who use Workplace Advisor.

A global standard

Privacy standards evolve, of course. For example, Europe recently has taken the lead in digital privacy by establishing the General Data Protection Regulation, or GDPR, which went into effect in May. GDPR increases privacy protection for all individuals in the European Union. Steelcase will comply with GDPR for all of its digital products customers, not only those in Europe but around the world.

"It's the most stringent standard globally for data privacy and security, and we're using it for all our customers' data. It doesn't matter if you're a Steelcase customer in Europe, Asia, Africa, North or South America, any country—our digital products will comply with the GDPR," says Berman.

"We want all of our customers to understand that privacy and security by design means transparency in how we operate, how data is gathered and used, and how we protect that data," adds Hamacher. "There is no privacy without security. Privacy starts with secure data."

The same applies to all Steelcase digital products, including Steelcase Find, a mobile app that helps people quickly locate workspaces and colleagues, which makes it easier to connect and collaborate, the core work of the innovation economy.

"High expectations and tough requirements have always been part of development at Steelcase," says Steve Rodden, who heads the development team for Smart + Connected products. "As a company, we're used to dealing with regulatory guidelines, quality standards and different compliance issues for furniture. We want to not just meet basic standards. We want be excellent in those areas, so we set even higher design, engineering and manufacturing requirements of our own. It's the same with digital products. We want to lead in data privacy and security, so it was an easy decision for us to set stringent data privacy and security standards as part of our development process."

Business runs on data. Every time we trade information for a digital product, we help fuel the new global economy. Users must be able to rely on organizations to be fully transparent about how they collect, store and analyze that data.

"It's important that our customers understand that the everyday transactions of data in exchange for helpful services rest on a foundation of privacy and security," says Hamacher. "We've stood behind our products for over 100 years and that's not going to change because it's a digital product. How we operate is how we've always done business. It's all about trust."

"Privacy by design means we build privacy into the product. You don't try to bolt it on afterwards. Privacy is part of each digital product's DNA."

Shawn Hamacher
Steelcase Assistant General Counsel

Choice
Is the
New Black

How craft, data
and robotics
are reshaping quality

A lot has changed since Henry Ford said, "Any customer can have a car painted any color that he wants as long as it's black." As organizations evolve their cultures to meet new employee needs, they want products that are unique. Today, choice is the new black. Lots of choice.

But, is it possible for mass-scale manufacturing to create the goods consumers and organizations are seeking? We think so. In large part because we are learning how to behave like crafters—on a large scale.

But what impact will increased choice have on manufacturing and quality? We knew Steelcase Vice President of Global Operations Robert Krestakos would have some interesting things to say on the topic. And while we had his attention, we asked about the role technology is playing in quality today and what we can expect down the road.

Bob Krestakos (right) and Operations Manager Dan Spaak inspect a Steelcase Series 1 frame.

360: What does consistency look like in a maker movement environment where customers want to put their own signature on spaces?

Robert Krestakos: Making is a privilege. We all genuinely feel this way at Steelcase. Sure, we have to bridge the gap that exists between the world of high-end, high-volume, scale-based manufacturing and the demand for the truly distinctive, individual and bespoke. But we approach the task with a sense of crafts-manship and optimism.

Today, it's about much more than being able to offer lots of colors and configurations. I think quality means you design and engineer

for predictable and consistent outcomes, but that doesn't have to mean you make the same thing with little or no variation. In our industry, there's enormous compl-exity in the logistics of getting products to our customers in a complete, on-time, and damage-free manner. Using math and science is key to managing that compl-exity. Our data-driven tools and capabilities give us creative freedom and engineering flexibility. They allow us to be more predictive; we can look at a lot of different design options and know imme-diately whether or not we're on firm ground from a quality and life-cycle standpoint. Then, with confidence, we can layer scalability and agility onto that. Processes can be—and are—designed

to allow for a wide range of configurations yet still be extremely consistent in how they work.

360: How do you create that agility?

RK: First, we have to realize we're playing by a different set of rules. Today, we have to have processes that allow us to be nimble and make fast decisions. But, at the same time, we have to mitigate risk and keep products affordable. We have to think about things like whether a sup-plier is a normal part of our scale-based supply chain, or if the supply will be needed only for a specific need on the craft-based part of our business.

And how do we handle certification and liability

and warranty? How is it packaged? Packaging engineering and manu-facturing engineering and industrial design are all different disciplines. There has to be a high degree of coordination. We have to think about a complete solution, even for a one-time order. And we want to retain, when we can, some of the inherent advantages of our volume and ability to scale.

360: Why is volume and scalability important to a customer?

RK: One obvious benefit is lower cost. Our decades of experience and research allow us to share proven parts and materials across multiple products. The Steelcase Series 1 chair is a good example. The light-weight, compact chair incorporates many of the same performance, style, functionality and choice features of other chairs, but at a lower price. All that capability doesn't go away when we produce a less exp-ensive option for our customers. Our heritage and our holistic thinking come into play with everything we build.

Our data-driven tools and capabilities give us creative freedom and engineering flexibility.

360: Technology has to be part of almost any conversation today. Is there risk there or all reward?

RK: Data is, no doubt, driving manufacturing. In a world of advanced technology and big data, the ability to be more accurate about predic-ting failure points will be dramatically enhanced through simulations and data analysis. Will that capability replace the need for physical testing? Perhaps one day. In the foreseeable future, it will most certainly be an impor-tant complement to traditional approaches.

Important to note, too, is that we're making big jumps in the production process through the Industrial Internet of Things (IIoT). It's really changing the roles of people on the plant floor. Zone leaders are getting access to real-time data about how production activity is going and can make ongoing adjust-ments for example. And sensors can be deployed in various ways to watch for anomalies in our execution. If the settings for machine tolerances

on certain equipment starts to change, the IIoT can alert someone before it becomes a problem in the part we're making. We call this the Voice of the Process (VoP).

We're applying big data—data that before IIoT, we didn't have—and doing analytics in more discip-lined and rigorous ways across the board, looking for patterns that lead us to root causes and find-ing ways to get quality further upstream into the development and engineering process. It all makes our jobs easier.

360: Robotics is an exciting and changing area of technology. What about the concern, though, that robotics will displace workers?

RK: Our approach with technology always will be to add customer value and augment our performance. It's possible that certain technolo-gies could change the nature of work and make some types of work obsolete, but that's nothing new and that's not our main goal. We want to find better ways of working that improve our products from an aesthetic, quality and cost standpoint. Techno-logy could very well add jobs in some cases.

360: A few final words about what the future might hold?

RK: When we say "our quality is in the details," we're not talking singula-rly about product quality. We're talking about the entire experience of doing business with us—from placing an order and having it go through the plan, source, make and deliver phases, to getting the order all the way to the customer and chang-ing it, if necessary, at any point in the process. It all counts. And expect-ations will only increase next year, and the year after that—which, to me, is exciting. There is pride that comes with making something when there is an elevated level of diff-iculty and skill involved, and when all the pieces come together.

To hear more about how new approaches to quality and modern craft are influencing design at Coalesse, listen to the 360 Real Time podcast, The Evolution of Quality and Craft.

In a recent project, Steelcase worked with Natural Fiber Welding to strengthen recycled denim and produce a tabletop.
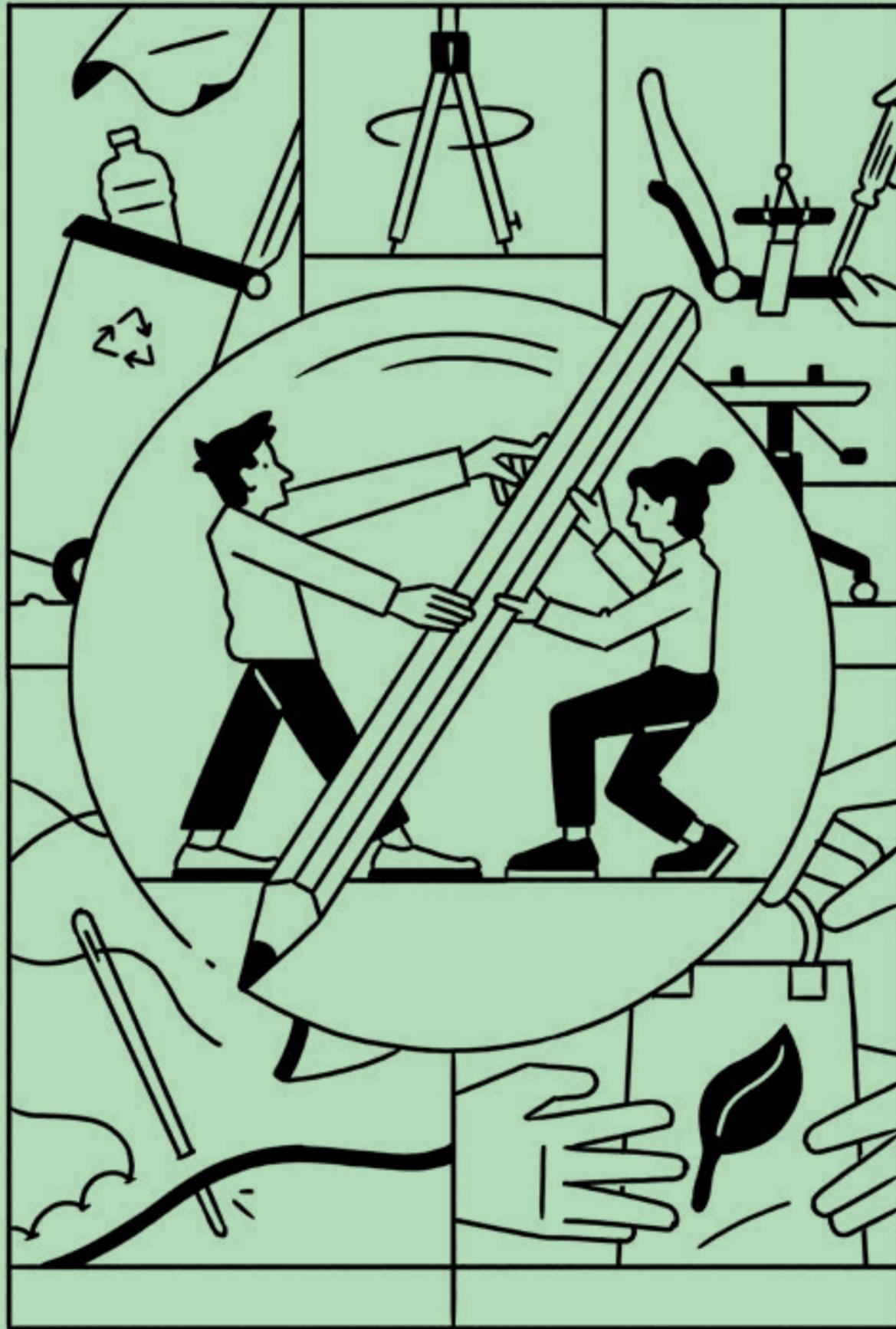
The Future Is a Circle

How the Circular Economy is making what's old new again

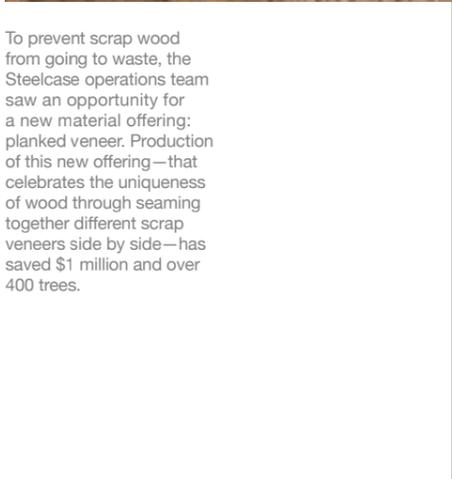# Steelcase joins IKEA, Google, H&M as Circular Awards finalist.

Make, take, dispose and repeat—it's the linear-system economy we've been living with—and it's on its way out. The circular economy (CE) takes aim at replacing this old model and inspiring businesses, communities and the next generation of thought leaders to design a regenerative and restorative systems approach to the economy and the way we live. And companies are leading the charge—reimagining their products and services—and hacking their existing business models to deliver new value.

Every year, The Circulars—the world's premier circular-economy award program—recognizes organizations for their efforts. Steelcase was named a 2018 finalist along with seven other multinational organizations for leading the way by simultaneously driving growth and sustainability.

Securing this spot was no easy feat. Finalists were selected from nearly 300 entries from over 45 countries. IKEA won the multinational category, while Steelcase was named a finalist along with Google, resource recycling company GEM, electricity and gas manufacturer Enel and fashion retailers C&A and H&M. After 106 years in the furniture industry, the nomination signals that Steelcase continues to make headway in its longstanding commitment to a more circular, sustainable business.

What exactly is the circular economy?

Simply put, the circular economy concept promotes the notion of using resources for as long as possible and, once they are worn out, recovering and/or regenerating the materials into something new. Avoid waste—reuse, remanufacture and redesign instead—and keep this mindset throughout the entire design process, not just at the end. The related concept of "cradle-to-cradle" design, made famous by the seminal "Cradle-to-Cradle: Remaking How We Make Things" by Michael Braungart and William McDonough has been foundational in Steelcase product development practices.

The Ellen MacArthur Foundation Circular Economy 100 is a community where Steelcase and like-minded companies and organizations can share best practices, find resources and imagine new partnerships to drive change. The foundation describes CE as aiming to "redefine growth, focusing on positive society-wide benefits. It entails gradually decoupling economic activity from the consumption of finite resources, and designing waste out of the system." Participating in the CE100 network is one of many ways Steelcase is advancing CE progress beyond the furniture industry.

To prevent scrap wood from going to waste, the Steelcase operations team saw an opportunity for a new material offering: planked veneer. Production of this new offering—that celebrates the uniqueness of wood through seaming together different scrap veneers side by side—has saved $1 million and over 400 trees.

The judges evaluate companies on how well they are demonstrating innovation in existing business and integrating circular economy business models. Judges for The Circulars were particularly impressed with five aspects of Steelcase's CE efforts:

1. A deep commitment to circular-economy thinking and strategy

2. Leading the world with 50+ Cradle-to-Cradle Certified™ products and a continuous focus on improvement in design

3. Recognizing the business value of adopting circular business models through product-service systems such as asset recovery and redeployment programs (Eco'Services, Phase 2), pay-for-use (Event Experiences) and other alternative ownership models

4. Approach to exploring future business models and technologies to demonstrate circular economy innovation

5. Approach to implementation through a 20+ workstream roadmap that includes building circular-economy innovation opportunities, delivering material/product-related sustainability performance and building the foundation of business excellence

Going Beyond Products

Angela Nahikian, director of Global Sustainability at Steelcase, says business results and sustainability are intertwined. Redesigning business models with a CE lens is a "very entrepreneurial gig," she adds. Early estimates developed by the Ellen MacArthur Foundation and partner McKinsey & Company suggest that adopting circular-economy principles could generate a net economic benefit of 1.8 trillion euros for Europe by 2030—doubling the benefits offered by the current linear model. Likewise, many companies and industries are predicting potential revenue benefits of CE models ranging from 200-600 percent. "When people start to see how a circular strategy works, the benefits to customer value, growth and sustainability performance become obvious," Nahikian said at the GreenBiz 17 conference in Phoenix, Arizona.

With an entrepreneurial and innovator's mindset Steelcase is taking a systems-thinking approach to design, problem-solving and future planning. Systems thinking looks at the holistic picture by analyzing interdependencies and relationships among the facets of a system. "It's tempting for people to focus on a narrow set of sustainability problem areas like product waste. These are important, of course, but we need to see these problems for what they really are: symptoms of a much larger problem—an unsustainable economic model. The circular economy requires us to look at the design of the whole business system," explains Nahikian.

This systems mindset continues to inspire the development and expansion of Steelcase's circular business models. Dan Dicks, Steelcase's director of global end-of-use services, emphasizes the importance of selecting key competencies to evolve when working on CE initiatives. "You can't do the entire thing. You have to start with the areas that enable the circular models to work," adding that he and his team are taking things, "slowly and intentionally."

For example, Dicks and team run the company's recapture and redeployment programs that help businesses assess furniture inventory and create optimized redeployment plans. The strategy is working. In 2016, one project removed 2,200 workstations from three different French Ministry of Ecology buildings. In total, it represented over 12,000 cubic meters of recycled furniture removed and diverted from the landfill— entering recycling streams or reused by other organizations.

Furniture isn't the only thing Steelcase is giving new life. The New Black surface materials collection begins with scrap fabric from the company's manufacturing facility in Athens, Alabama. Recycled into yarn, dyed black and rewoven into new textiles for seating products, the 100 percent recycled material makes up five distinctly beautiful patterns that bring circular materials to the workplace. The design industry recognized New Black with the Innovation Award at Neocon 2016.

Planked oak and walnut veneers are other examples of sustainable materials from Steelcase. Traditionally, wood with knots or uneven grain didn't meet production standards, leaving leftover oak and walnut pieces to be
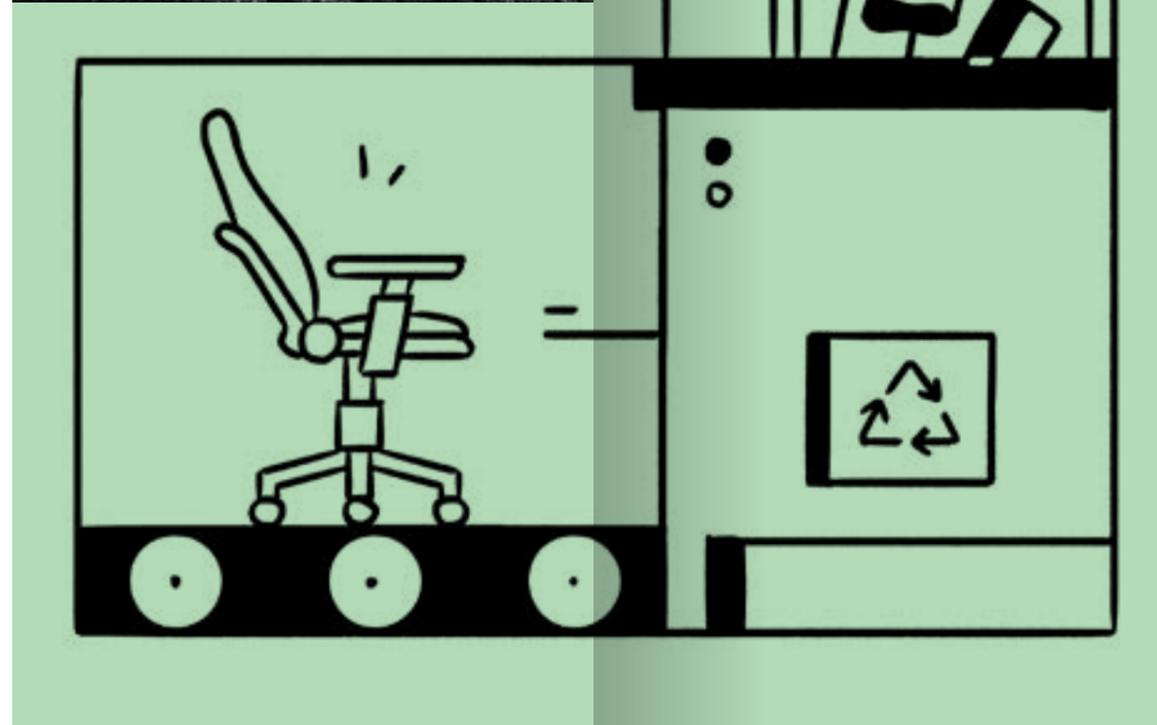
discarded, recycled or resold. Today, this previously unusable wood is turned into one-of-a-kind furniture that showcase the knots, visible grain and color variations, offering customers the more informal look people are seeking at work.

Another CE-inspired service is to help clients understand how their spaces are being used so they can make informed decisions about changes. Workplace Advisor uses embedded sensors that gather data about how people are using a space, and provides valuable insights to help guide a company's workplace strategy. "Instead of dropping furniture into a place, we can monitor use patterns, performance, wellbeing, collaboration—those really critical pieces of the workplace engine. We can offer suggestions on how those factors might change and collaborate with our clients to optimize those environments," said Nahikian.

The circular economy requires reimagination

Reimagination is a key ingredient in shifting from a linear economy to a circular one, and that doesn't happen overnight. "Building fully operational CE models can take benefits of the shift can be profound for customers, partners and business," notes Nahikian. "It's an intentional process, requiring a long-term commitment, deep collaboration and a clear map."

Steelcase has been on a mission to drive sustainable business innovation since the company's inception. It's a tall challenge to question existing design principles and business assumptions, but it's something Steelcase has repeatedly done. "For us, sustainability has always been about creative value, but it's going to get more exciting from here. Circular economy practices are a manifestation of our purpose," says Nahikian.

By mixing PET from recycled bottles with melted scrap fabric, Steelcase created a line of five new fabrics, made from 100% recycled content.

Innovation Redefined

How a Team of Disruptive Thinkers
Changed the Way We Sit

"We had radical focus and trust."

The idea behind SILQ came from a sketch Ludwig drew in 2008. The idea was ahead of its time—a simple design that required virtually no adjustments as people shifted more frequently between spaces. Materials, 3D printing, computer-assisted design, molding and other production technologies just hadn't advanced far enough to help solve the problem, so the project was put on hold.

But the idea refused to die. During an annual trek to TED, Ludwig heard a talk by Paralympic sprinter Aimee Mullins and was intrigued by the durability, flexibility and responsiveness of the sprinter's prosthetic legs. The responsiveness of carbon fiber to an athletes' movements inspired him. So he consulted Chief Engineer Heidmann and the two decided it was time to go back to work on the sketch from years ago.

"We had some spectacular failures," says Heidmann. "We had to figure out how to make it strong and simple. I went home more than a few times thinking, 'I don't know if this is going to work.'"

But the team felt convinced, they had not only identified the right problem; they also had the right context and the right people assembled. "There was a real clarity to working on this project," says Spoelhof. "Everything we did was for the sake of the chair. Every decision we made was to make it better and more simple."

From the start, there was a clear mission: build a chair that cradles you based on the inputs you give it, not on any mechanical adjustments you have to make. The breakthrough came from studying the properties of carbon fiber. An experiment to understand the material and process had already resulted in the light and strong Coalesse stacking chair, LessThanFive.

"If we can provide advanced performance and support in a simpler system for people, then we've done our jobs well."

SILQ is extremely strong, incredibly thin and highly responsive. Headlines already call it "revolutionary," "the future of office seating," and a chair "you'll never want to get out of."

"When people sit in it and recline and feel the floating motion, they can tell it's following them," says Deevers. "That's not an accident. We labored over where and how it moves so it would change rates of resistance depending on the person's stature and posture to make it easier for people. The engineering and the design, they're inseparable because of that drive to make it simpler."

"Thoughtful simplicity is hard. A key principle in design is to distill things down to their essence and understand what is absolutely necessary as a genesis of a problem."

James Ludwig
Steelcase Vice President,
Global Design & Engineering

This is what innovation looks like. A small team, led by Ludwig, made a breakthrough in the making of SILQ, a completely new kind of chair for the workplace. Innovation may appear to some like alchemy, Ludwig notes: a transformation, seemingly through magic. But any magic, he explains, happened by assembling a team of disruptive thinkers that created a new, patent-pending process and a breakthrough innovation.

SILQ is original because its material, shape and construction allows it to respond naturally to the human being sitting in it. It eliminates the machinery typically found underneath most chairs and replaces it with a sleek silhouette and just one adjustment—height.

The Team

The team included a mix of fresh ideas and decades of experience. They are led by Ludwig, a tinkerer at heart, who builds robots and works on his small collection of 1958 car and boat engines in his free time. Chief Engineer Kurt Heidmann helped design nuclear submarines long before building furniture. Global Design Director Bruce Smith operated a 40-ton overhead crane and designed custom jet interiors before starting his now 32 years of seating experience at Steelcase. Principal Designer Mark Spoelhof is an amateur race car driver and consummate maker who built his own boat and barn. And, Senior Product Engineer Nick Deevers, who began his own contract engineering company right out of college and loves making things so much his home woodworking space is named "The Shop." Together, they took a fearless approach to solving this design and engineering puzzle.

Above
Global Design Director Bruce Smith
Right
Principal Designer Mark Spoelhof

"When people sit in it and recline and feel the floating motion, they can tell it's following them."

Nick Deevers
Senior Product Engineer

SILQ Product Manager Karly WIlliamson worked with the team to develop an unprecedented range of material combinations.

"SILQ is a testament to the mindset of innovation."

Once the team got to work, SILQ developed at blistering speed—from forming a team to completed product in just 18 months. Smith says it started with a series of small bets—diversified bets helping to spread the risk—that eventually led to a well-informed investment.

"It demanded courage. We couldn't eliminate risk. Risks were taken with some knowledge, but we didn't know everything," Smith explains.

With every bet, the team learned more, making prototypes and models as fast as they could. Thanks to their earlier explorations into materials, technology and human behavior, they were able to move quickly. First, using carbon fiber, they figured out how to build a simple system where the material becomes the mechanism—a chair that was more organism than machine. The solution came at the right time as people were beginning to work in new ways, moving throughout the office more frequently and spending less time at a designated space.

## "It was sometimes deflating. Then it was exhilarating."

But, building a simple system with carbon fiber was just the first step. Ludwig says invention is the creation of something new, but to innovate you actually have to develop something that can impact lots of people's lives. Experience in watching how people work and a dose of intuition told the team that many people would want a chair that responds to them uniquely without making multiple adjustments—but carbon fiber chairs would not be accessible to everyone—it's an expensive process. The team felt they couldn't limit SILQ to a premium solution.

So, Ludwig went back to his team to ask them to solve a new problem: find a way to create SILQ using something that replicates the properties of carbon fiber, but doesn't cost as much. It would take a second breakthrough, now a patent-pending process, to create SILQ using a high-performance polymer that's a fraction of the cost of carbon fiber and makes it available to everyone.

"To me, looking back on it, it's one of the best things that could have happened to me in my career," says Deevers. "We got to create a new material composition and a new process. There is nothing cooler than that."

Chief Engineer Kurt Heidmann (pictured right) and Senior Product Engineer Nick Deevers (pictured left)
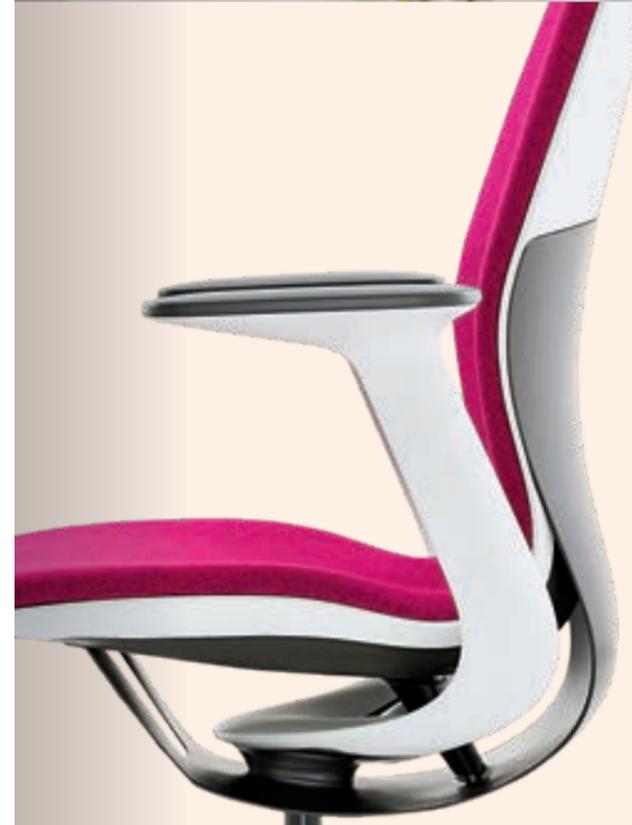
"We'd be crazy to ignore the impact of SILQ beyond the chair itself."

For this team, SILQ is not an endpoint. It's a very exciting beginning.

"When we show people SILQ for the first time, they're delighted. It happens over and over again. That's astounding to me," says Spoelhof. He says these kinds of breakthroughs are supposed to happen once a decade in a person's career. But what the team knows now can shatter that old standard.

"How we got there and the thing itself are new tools in our toolbox," said Deevers. "We can make things and do things we never thought possible. So, now we step back and say, 'Okay, what can we do next?'"

Listen to Steelcase 360 Real Time podcasts to hear SILQ team members share stories of random acts of innovation that ended up a part of the final design.

An ideal solution in collaborative settings, SILQ responds to the natural movement of your body so people do not need to make any adjustments, other than height, when they sit in it.

Looking for a calmer comfort? This Copenhagen-influenced style invites you to sit, feel at home and experience the Danish concept of "hygge."

Above
SILQ is a canvas for personal expression. Express a new raw energy at work with rebellious and moody influences in materiality by using Designtex digitally-printed fabric to convey creative ideas.

Left
The alluring silhouette of SILQ creates a sense of sophistication in the office and it comes with the confidence that no matter where you sit, you'll feel good.

SILQ

Innovation. Artistry. Performance.

SILQ is designed for people on the move. Workers who spend their days going from one meeting or activity to another are less likely to sit at an assigned desk all day. They have less time to adjust mechanisms and need a chair that is intuitive to use.

"SILQ makes it easy to get comfortable quickly," says SILQ Product Manager Karly WIlliamson. "Whether you're collaborating with another colleague, working with your team or settling into a mobile touchdown space, the simplicity of SILQ means anyone who sits in it is going to be supported and delighted no matter where or how they are working. Its intuitive design means performance and comfort is unique to each person—height is the only adjustment you need to make."

The sleek profile and clean lines of the chair create a canvas for individual expression. The wide variety of material and digital-printing combinations allows interior designers to create virtually limitless bespoke versions for their clients.

Illustrations by
Patchara Om

Be Agile Hack Your Space

How empowering people to change their workplace can accelerate the adoption of Agile

The design team drew inspiration from urban planning to create an environment that encourages a dynamic, innovative culture.

Steelcase has developed key concepts for a workplace in transition, seeking simplicity on the other side of complexity. To accelerate the execution and development of new ideas, Steelcase IT teams are starting to work in more Agile ways. Some are adopting Scrum. Agile can take a long time to perfect and teams are always improving their practice. A profound experiment is underway within Steelcase to help people understand and embrace these new ways of working and to learn how place can help the culture change and adapt more quickly. With a commitment to prototyping new ideas within the company first, the IT team set out to improve learning and innovation in a quest to make lasting changes internally and share what they learn throughout the journey.

Change Everything at Once

Agile is easy to understand and difficult to master. It requires long-term dedication. A changing work structure requires a shift in culture. The physical environment can support both Agile-Focused and Agile-Inspired teams by enabling a new process and new ways of engagement.

Steelcase IT leaders knew they needed to make a fundamental shift from a transactional services mindset to a business mindset that values learning, agility and empathy. Very intentionally, they decided to change the physical environment, team culture and processes all at once.

What if you could improve productivity 300 to 400 percent? It can be done by working in Agile ways and doing a great job implementing Scrum, a common Agile framework. That's what Jeff Sutherland, co-author of the Agile Manifesto and co-creator of Scrum, has learned through extensive field research. Information technology teams "are seeking to capture this speed and dexterity as they are pulled front-and-center within their organizations racing to capitalize on digital transformation. How can companies help set the right direction amidst a chaotic background?

"Complexity has dramatically changed in just a few decades," says Stefan Knecht, manager for Munich-based it-economics, an Agile consultancy operating across Europe. "Things used to be easier. Now, we have smartphones in our pockets that have more computing power than Apollo 11. Complexity requires a different procedure. Agile methods systematically reduce uncertainty in situations that you cannot plan for. Conventional methods can't do that."

Defined by a set of principles written in the Agile Manifesto for software development, Agile is grounded in ideas such as self-managing teams, close cooperation between developers and users, frequent deliverables and consistent customer-feedback cycles. At Steelcase, IT teams are in different stages of adopting Agile. They tend to fall into two main categories.

Agile-Focused
Multidisciplinary teams focused on one project. They have a defined iterative and cyclical process founded in Agile principles. They primarily support software development and often use a development method such as Scrum.

Agile-Inspired
Teams applying some principles and processes based in Agile methodologies to multiple projects. Non-IT teams often fall into this category as well. These teams are influenced by Agile principles or a movement toward an Agile culture.

"Our prior space and furniture were fixed in place. Now, we feel empowered to move furniture, change our seats, even borrow stuff to make our space better."

Alan DeVries
Multi-Project Team Leader

Empower Teams

So, the call went out for volunteers to be part of this new experiment—people willing to move into very basic, open project spaces with a few essential elements. These bold adventurers would have complete ownership to create and evolve their space into what works for them. They were empowered to hack their space to figure out what furniture, tools and technologies helped them get their work done. Several teams, some well established and others assembling for the first time to work together, quickly answered the call.

The Focused Team
Tom Hunnewell's team is dedicated to software development for a single product. They practice Agile-Focused work using Scrum methods that include stand-up meetings, visual persistence and iterative customer reviews.

The Multi-Project Team
Alan DeVries leads a multi-tasking team which has a foot in both Agile-Focused and Agile-Inspired work. They are adopting some key Agile practices as they build and support a wide range of custom applications and integrate major software platforms company-wide.

The Discipline Team
Tim Merkle heads the Agile-Inspired advanced analytics and data science discipline teams which design, develop and deploy analytical solutions. They were completely mobile until this prototype brought them together to improve speed, innovation and customer focus.

These three teams use different processes—some are Agile-Focused and others are Agile-Inspired. The IT group wanted to create a new environment that supported all of these teams and build connections between them to avoid knowledge silos.

"My (Focused) team is excited to be part of validating if something works or not—working directly with interior designers," explains Hunnewell. "Being part of the proto-typing process creates a sense of ownership that's been hugely helpful in how my teams work together."

Learning Together

The project itself is guided by Agile principles. The teams using the space provide continuous feedback, fostering a participatory process as they help evolve the key attributes of the new design. The reciprocal learning and first-hand experience with Agile helps groups model new behaviors for others to observe and understand.

Before the experiment got started, the IT group worked with Steelcase Applied Research + Consulting (ARC), which connects customers to decades of Steelcase workplace research to help their organizations reach their goals. The ARC team guided brainstorming and model-making workshops in the initial stages of the project to engage IT employees at all levels who articulated goals for the new culture and space. As the prototype evolved, team members shared learnings with each other, leaders and designers in online communities and real-time town halls.

"Our prior space and furniture were fixed in place. There wasn't much we could change without getting out a socket wrench or calling the facilities team," said DeVries. "Now, we feel empowered to move furniture, change our seats, even borrow stuff to make our space better. Before, we used to just go do our work. Now, we think about how we're doing it, the choices we're making and their consequences."

Process Dictates Space

As the teams moved into their new space, they discovered their process dictated their needs for this space. The more Agile-Focused they were, the more they needed the objects within their space to be able to be moved and be reconfigured. The Agile-Inspired teams found they needed the furniture to move less and the people doing the work to move more. They relied on a surrounding set of spaces to give people choice and control over how and where they would get their work done. In both cases, the space and the work processes were integral to each other.

The Retreat
These spaces provide a counterbalance to the technology that consumes so much of the teams' daily focus.

Designing for Agile

As designers listened to input from the different teams, they drew inspiration from urban planning to create an environment that encourages a dynamic, innovative culture. So much innovation today is happening in cities. For designers, this was a deliberate attempt to harness that energy. They balanced three key tensions:

Teams needed their own spaces, but the IT department wanted to break down silos and promote connections between teams to support learning and innovation.

Teams needed to control their team space within a cohesive overall environment that allowed IT to adapt over time.

The space had to provide a balance between team spaces and collective, shared resources.

Most important, designers were trying to develop an ecosystem that will sustain innovation.

"Cities have proven themselves to be engines of innovation," said Steelcase designer Jon Rooze. "Urban planning principles allowed us to overlay the patterns of ownership found in cities such as homes, which became our team studios with areas owned by the larger community, like our common spaces."

This concept shaped the development of four distinct areas for the new IT space.

"Urban planning principles allowed us to overlay the patterns of ownership found in cities such as homes, which became our team studios with areas owned by the larger community, like our common spaces."

Jon Rooze
Steelcase Designer

01 The Neighborhood

Agile teams are residents of adaptable Agile Studios within the overall Neighborhood. This area supports a key insight that Agile team members should be physically present in their space to facilitate the flow of information, problem-solving and learning.

Agile Studio
Owned and unique to each team, this is where Agile rituals such as sprints and stand-up meetings take place. Teams are empowered to move furniture when the process dictates it.

Front Porch
This space lets teams welcome customers or outside colleagues for quick meetups or reviews without a feeling of intrusion.

Agile Camp
This space accommodates nomadic workers who may be joining the team for a project or leaders who want a place to temporarily work near their team.

02 The Commons

A series of larger, shared meeting spaces is a central anchor in the design. In between rooms, you'll find social spaces to encourage critical connections that support the development of trust within and between teams.

03 The Nexus

This area links IT to the rest of the business. Meeting spaces are accessible to everyone. Analog and digital project displays make the implicit information explicit to help teams learn, respond and develop.

04 The Retreat

Individual and collaboration spaces let IT professionals connect with nature and rejuvenate. These include social and meeting spaces, as well as enclaves for nomadic workers.
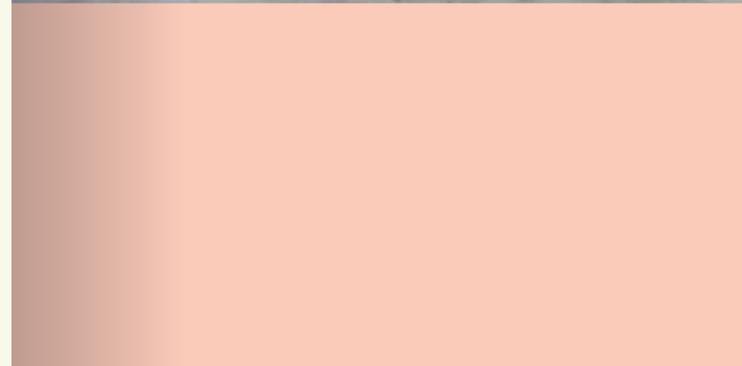
"Instead of assigning one person to a project, we now assign two people. Because we now all work together in the Agile Studio, we don't have to hold meetings to talk and learn from one another," says DeVries. "It's the deliberate act of choosing to work together that's helped us eliminate silos and accelerate our projects."

The three teams also discovered they chose different spaces to do focus work, depending on their process. Hunnewell's Agile-Focused team found focused, development work would happen inside the Agile Studio. When they needed to take a call or attend a webinar, they'd use a nearby enclave. Merkle's Discipline team members use the Agile Studio to get individual work done and seek out a meeting room for some types of outside collaboration.

Agile Studios include places for quick, daily, directional meetings, known as stand-ups, to get everyone going. Whiteboards and digital displays keep information visible to make sure everyone is on the same page and providing transparency to the flow of work.

01 The Neighborhood

As the Neighborhoods took shape, Hunnewell's team owned one of several Agile Studios. They found working in an open team setting instead of siloed workstations helped them solve problems right away without having to schedule meetings. The team's former space did not allow people to pull up a chair and work next to one another. Now, they can easily ask questions, address obstacles and improve the team's velocity.

"Velocity measures how much work is completed in a sprint," says Hunnewell. "As we get better at Agile, our velocity picks up and more work is done in the same amount of time."

In addition, being able to move furniture within the space lets them support different stages of Agile without having to request service from the facilities team. Different configurations allow for sprint planning (specific requirements for a cycle of work), sprint reviews and brainstorming.

Merkle's Discipline Team was previously mobile. They found coming together and being physically in the same location in Agile Studios made them much more productive as well.

"Spontaneous collaboration went through the roof," says Merkle. "We started to iterate more quickly. By being in the same location, I saw a level of experimentation I'd never seen before. The space lets us prototype on the fly."

The Multi-Project team experimented with process and the environment, going as far as adding casters on desks to make them mobile. DeVries and his team wanted to eliminate the creation of knowledge silos that can drag out projects. If only one person has expertise in a certain area and they are busy, on vacation or sick, work would stop.

Teams can informally host customers or people from outside their team on their Front Porch.

If projects are reprioritized, the adjacent Agile Camp lets teams easily invite a few more people to temporarily work nearby.

"Complexity requires a different procedure. Agile methods systematically reduce uncertainty in situations that you cannot plan for. Conventional methods can't do that."

Stefan Knecht
Manager, it-economics

This open space near the front of the new IT area gives leaders, customers and colleagues from other parts of the company a place to connect. They can immediately see digital and analog displays detailing what projects teams are working on.

Making Room for the Customer

Connecting and understanding the customer is foundational to Agile work. All three teams described commandeering a lounge seat during the course of their experiment to engage customers in more informal ways and gain a deeper understanding of their needs. Designers turned those informal touchdown spots into a Front Porch, a place that's more public than actually coming into someone's home, for each Agile Studio.

"This casual place to connect became a central point of collaboration. Instead of a 30-minute block on your calendar, you had a five minute conversation and didn't even realize it," says Merkle. "It was a huge insight that something so small could make such a big impact."

A big breakthrough came when teams moved this area from the middle or back of the Agile Studio to the front. This way people didn't feel like they were intruding into the team's space. The location avoided distractions while still removing barriers to collaboration.

02 The Commons

How do you help leaders, customers and other colleagues understand what's on your plate now and what's next? Instead of scheduling an update meeting, DeVries' team found vertical real estate in a prominent location could do the heavy lifting. Designers took this concept and turned it into a space that could connect someone outside of IT to what the teams are working on quickly. It hosts a summarized view of all team activity which helps manage customers' and leaders' expectations.

Central, larger enclosed spaces allow for bigger customer or team gatherings as well as the inclusion of global, distributed team members. Large-scale technology helps ensure distributed team members or stakeholders can participate fully.

Shared, enclosed spaces in the center of the IT area let teams gather, connect with distributed team members or work with larger customer groups without disturbing work in the Agile Studio.

03 The Nexus

The Nexus provides individual and group meeting spaces to connect IT with other departments throughout the business. In addition, spaces have been designed to support dyadic work. For software developers, routine individual or paired programming likely happens in the Agile Studio. But, other times, two people need to work together without disturbing their colleagues. A private space for paired work helps build knowledge within the team and avoid bottlenecks and silos. These spaces were designed specifically for IT work where one person uses a computer to walk someone through a project or program code while another person provides feedback or narrates. The spaces can also be used for mentoring, editing shared work and paired problem-solving.

04 The Retreat

Especially because IT teams spend so much of their time with technology, they find themselves seeking moments in the day to take a break or connect with others. The final design took these cues and added rejuvenation spaces, which provide a counterbalance to the technology that consumes so much of their focus. Individual spaces let introverts step away from their team when they need some time away. Quiet isolation helps them re-center and think more deeply without distractions. Social spaces help extroverts recharge. Connecting with others lets them approach problems in new ways.

At Steelcase, the exploration into Agile will continue as IT teams settle into their new space and continue to prototype. Teams are already experiencing increases in productivity as well as a greater simplicity and ease in accomplishing their work. 360 will share learnings, photography and new insights as they become available at www.steelcase.com/eu-en/360agile.

Explore Agile with Your Teams

Recently, the Steelcase Applied Research + Consulting team has focused on new capabilities specific to Agile. In true Agile fashion, the ARC team is prototyping and piloting along with customers. During the course of Steelcase's learning, they have identified that companies seeking to be more Agile can benefit from a deeper exploration of five main areas.

Agile Assessment
Explore the extent to which the conditions within your work environment—culture, process, tools and space— are right for Agile to take hold and be successful.

The Emerging Role of Leadership in an Agile Environment
Clarify the expectations of Agile and guide leaders to the new leadership approaches that will be most critical.

Rituals Workshop
Define rituals and lead teams in ideating and developing approaches for leveraging new rituals within the group.

Agile Measurement Systems
Identify the ways that success with Agile will be measured and monitored as an engine for improvement and accountability.

The Evolving Role of Real Estate and Facilities
Identify the systems within the real estate and facilities group that will need to adjust in order to meet the new demands of internal customers seeking to accomplish Agile.

If you're interested in how to create the conditions for Agile as it relates to culture, tools and space, contact The Applied Research + Consulting Team: arc@steelcase.com

Think Big and Fix Things

How MaRS nurtures a steady stream of creativity

Although the name suggests otherwise, MaRS is grounded in challenges that affect humans on earth. As the world's largest urban hub for innovation, it exists to help entrepreneurs launch and grow innovative companies that make the world a better place. Everyone who is part of MaRS is encouraged to "think big and fix things."

Founded in 2005 as a private/public not-for-profit organization in the heart of Toronto, MaRS provides encouragement, funding and a workplace for entrepreneurs and innovative startups in four key sectors—health, work and learning, energy and environment, and finance and commerce. It helps startups get to a higher level of impact by curating and carefully matching them to companies in its extensive global network of corporate partners, which includes Steelcase—companies that are serious about accelerating innovation through win-win relationships.

"We call ourselves MaRS-ians because each of us is really passionate about the mandate of innovation and solving big problems for societal good," says Sonia Lagourgue, Senior Manager, Partner Success, Corporate Engagement. "We're here to amplify the great work that Canadian entrepreneurs are bringing to the world and to make sure they have the resources and the networks to be successful."

Lagourgue works closely with corporate partners like Steelcase to understand their innovation strategies and then introduce them to startups with potential relevance to their interests and goals. It's a consultative, individualized and personalized approach.

The result is innovations such as WinterLight Labs' AI technology that quickly and accurately breaks down speech and language patterns to help detect and monitor diseases like Alzheimer's. Just a few other examples of innovations that MaRS has nurtured are Advanced Energy Centre's blockchain-enabled solutions for energy storage and Knockri's artificial intelligence that lets companies screen job candidates without culture—or gender-based biases.

At MaRS, there's a strong belief that innovation doesn't happen on its own; more than ever before, place matters. "We believe space is a platform for how business is done today," explains Lagourgue. In addition to capital, she says, entrepreneurs need to be able to network and collaborate.

MaRS over-delivers on both fronts, providing labs and offices for 150 organizations, from startups to large multinationals, and functioning as a hub for more than 1,200 ventures. More than 6,000 innovators come to work at MaRS every day to meet, share ideas, learn and create coalitions.

> "We want to elevate the capacity for innovation across the whole ecosystem. By facilitating partnerships, we're helping both parties leverage each other's strengths in a solution that's mutually beneficial so they both can achieve more."
>
> Sonia Lagourgue
> Senior Manager,
> Corporate Engagement

Demystifying Innovation

In the heart of Toronto's Discovery District, a center of universities, hospitals and research enterprises that neighbors the financial district, MaRS is absorbing and contributing to the vibrancy of this city that's become a high-tech hotbed, thanks in no small part to the pioneering work of Toronto researcher Geoffrey Hinton, the so-called "Godfather of AI."

"We're seeing innovation move out of isolated suburban campuses where it's mysteriously run by technology companies and out of the corners of university labs where no one really knows what's going on," observes Lagourgue. "Instead, MaRS is integrated into the economic fabric of Toronto and the talent networks that exist here. Innovation is at the heart of everything that's happening in this city."

In addition to its urban location, MaRS is also at the forefront of several other shifts that are changing how innovation happens today.

"Entrepreneurship has moved forward dramatically and become more mainstream," says Lagourgue. "It's being taught in schools, there are tons of resources and experts to follow. Plus, advanced technologies are becoming more affordable and accessible, so it's easier for people to build technology-enabled solutions and launch a business—you can turn an idea into a startup with a smartphone and a credit card!"

At the same time, she says, large organizations are starting to understand that they have to integrate innovation as part of their day-to-day operational fabric, as opposed to just relegating it to some type of sidelined R&D function. "Because there's so much more demand, they have to respond much faster and more authentically, and constantly evolve at the same pace that technology is evolving. They can't do all that internally on their own, at least not fast enough. They have to get comfortable with partnering, collaborating, acquiring or investing in order to keep up with trends and demands."

More than 6,000 innovators come to work at MaRS every day to meet, share ideas, learn and create coalitions.

Creating Coalitions

While the demand for innovation is higher and faster-paced than ever, it remains difficult. The overall failure rate for startups is about 90 percent. It's not easy for ventures to get the support they need to turn their ideas into a profitable reality, and they struggle to find markets and navigate the corporate world to gain scale.

Meanwhile, big businesses are challenged to access the steady stream of ideas and talent they need to be more innovative and move their businesses forward. Organizations like MaRS can help. Lagourgue describes its open approach as "a coalition of the willing who understand that innovation will be the driver of their success."

MaRS works hard to make coalitions happen successfully. "We want to elevate the capacity for innovation across the whole ecosystem. Corporations and startups are both part of that value chain," says Lagourgue. "By facilitating partnerships, we're helping both parties leverage each other's strengths in a solution that's mutually beneficial so they both can achieve more."

MaRS adheres to a strong belief that innovation doesn't happen on its own.

"We believe space is a platform for how business is done today," explains Lagourgue. In addition to capital, she says, entrepreneurs need to be able to network and collaborate.

Accelerating Innovation

Over the past decade, India and China have evolved from outsourcing support nodes to leading global innovation hubs. With speed and agility never seen before, they have advanced their capabilities to position themselves as innovation leaders.

In the 12 months leading up to October 2017, Asia opened its doors to 19 new innovation hubs—multimillion-dollar centers of excellence that pioneer advancements across industries. The surge increased the continent's share of the world's ideation centers to 29 percent, four points ahead of Europe and only a few strides behind Silicon Valley's 38 percent. While the latter remains the world's largest innovation destination, its share has dropped 20 points since 2015, and Asia's growth markets are gaining significant ground in attracting foreign investment earmarked for innovation.

Nowhere is this more evident than in India and China, where organizations are evolving from support centers to leading innovation centers that are changing the way we interact with technology. Backed by more mature, advanced markets like Japan, South Korea, Australia and Singapore, the remarkable transformation is paving the way for Asia to overtake Silicon Valley as the globe's preferred innovation destination.

"In 2013 our researchers picked up the first glimmers of China and India's potential as hubs for ideas," explains Elise Valoe, a global research manager at Steelcase who recently completed a one-year, in-depth study of innovation in China and India to better understand the unique challenges organizations looking to innovate are experiencing. "This was the start of an unprecedented change in how they do business. China has a history of making parts and components for other companies. About five years ago, they changed their strategy and became increasingly focused on creating products of their own – leveraging their knowledge and manufacturing prowess to gain global recognition as technology leaders."

According to the World Economic Forum, China is the second-largest spender on research and development (R&D) after the United States, accounting for 21 percent of the world's total of nearly $2 trillion in 2015, and its spending on R&D grew by 18 percent between 2010-2015, more than four times faster than in the United States. The World Economic Forum predicts China's rapid growth means it is likely to take the lead within the next 5-10 years.

It's clear this is already making an impact. With a 25 percent increase in innovation centers, a 47 percent increase in patent applications, a 39 percent share of Fortune 500 companies and an 8 percent bump in foreign direct investment in 2016, it is undeniable that the rush for innovation has accelerated exponentially.

Creating a Next-Generation Workforce

The rapid shift from process-based to creative work is also being heavily supported by governments in China and India through investments: developing new skill sets and creating a sustainable innovation ecosystem. The Chinese government has been encouraging development through economic incentives for hubs like Shenzhen, where products are moving to market at breakneck speeds. By collaborating with the private sector to sponsor scholarships, innovation forums and hackathons to support educational institutions, China is grooming the next generation of tech practitioners and, in turn, tapping into savvy, young talent via these institutions. In 2018

alone, China is expecting 8.2 million college students to graduate—a number 10 times greater than in 1997 and twice as many students as the United States. India is taking a more collaborative approach by inviting multinational companies to connect with local innovators. Either way, governments are committed to improving the quality and availability of higher education to feed the talent pipeline.

Today, India is considered one of the fastest growing economies in the world and home to Bangalore—currently rated as the world's most dynamic city, ahead of Silicon Valley, by the World Economic Forum. The country's booming tech start-up system, attracting over US $20 billion in the past 36 months, is the third largest in the world. With over 10,000 engineering institutes, India produces more engineers than China and the United States combined, and adds up to 12 million young people to its workforce annually. The country's abundant supply of young engineers means it's easier to hire employees. Last year, a survey by LinkedIn and Capegemini identified India as the biggest source of digital talent in the world. The study found that 76 percent of the country's workforce has digital skills.

"Pushing an aggressive innovation agenda across the board requires a confluence of factors," says Valoe. "In Asia, we see interesting and vibrant innovation hubs or networks emerge in geographical areas where the interests of government, local culture, private sector, educational institutions and venture capitalists are aligned. In this case, especially in India and China, we have observed cities in which the entire ecosystem is invested in innovation."

And multinationals have noticed. Traditionally considered a cost-effective hub for outsourced business services with English language skills, multinationals now have their sights set on India as a crucial part of their innovation agenda. In 2016, Apple launched an innovation center in Hyderabad to accelerate the development of Maps, its web-based mapping service and created up to 4,000 jobs. LinkedIn, Uber, Facebook and Google have followed suit. The latter's largest R&D center outside the United States, housing 13,000 employees over two million square feet of space, is slated to open in Hyderabad next year.

Similarly, China has developed from a manufacturing hub into a technology powerhouse overnight and is now home to some of the world's largest internet and technology companies. "China's factories are not only on par with global standards, we see the emergence of local heroes in the banking and tech industries that heavily invest in technology expertise abroad and capitalize on the country's scalable manufacturing expertise to move to market at breakneck speeds—creating improved products that compete, and often lead, on a global scale," says Valoe.

The global tech space, traditionally dominated by US-based companies, is more competitive than ever. Homegrown conglomerate Tencent was recently named one of the world's most innovative companies by Fast Company. Its messaging app, WeChat, has more than 980 million users. While Tencent is already looking towards its next paradigm shift, Facebook and Snapchat are experimenting with WeChat-inspired business features and payment services. Tencent is merely the tip of the iceberg. The trend is evident across a broad range of industries.

Take for example, DJI, the global drone manufacturer with headquarters based in Shenzhen. "When we launched the Mavic Pro, the industry's first foldable, compact consumer drone, our engineers went back to the drawing board the very next day and started to think how we could top it," says Kevin On, DJI's director of communication. "We're constantly asking ourselves what can we do differently or how could we evolve our technology for future applications. What if we created a handheld gimbal using our drone's stabilization technology? Why not let people control their drone with hand gestures to make flying fun and easy?"

Making the Shift

Organizations within innovation hubs across India and China are restructuring to drive innovation and optimize their business models. Innovative or knowledge-based work, by its nature, requires a higher level of creativity and collaboration—a style of working that traditionally has not been practiced here. Work environments are designed to support individual, process-based work and maximize efficiency and productivity.

"Innovation is born from generative teamwork and this requires giving employees a greater degree of creative latitude and increasing the company's comfort level with risk and ambiguity," explains Valoe. "In China, for instance, lightning-paced product development processes deliver new products on shelves—where they are adopted fast by tech-savvy consumers—before a refined iteration follows in incredibly quick succession. The levels of ambiguity tend to remain low, and organizations choose speed to market and incremental innovation over disruptive innovation. This is their competitive advantage," continues Valoe.

"On the other hand, companies based in India allow higher levels of ambiguity, pushing teams to really stretch their creative muscle, take risks and explore new ideas. Higher levels of creative latitude counters the speed at which a company can move to market as decision-making takes longer, but it's more likely to lead to something novel."

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>
> Elise Valoe
> Global Research Manager
> Steelcase

Six Approaches to Innovation

The Steelcase research team identifies six approaches to innovation that organizations in China and India can use, based on their level of democracy and comfort with the ideation process. In markets like India, that are more exploratory and invested in generating ideas, innovation tends to be decentralized as companies spread the net wider and tap into external networks. In China, companies err on the side of caution with tighter briefs, and innovation teams are kept closer to home.

According to Valoe, internal innovation teams, or what are more commonly referred to as think tanks, are most likely the best innovation model for a company with a more conservative approach to innovation. These companies might also consider identifying individual champions of innovation to lead their efforts or use an open innovation or hackathon model, where a group of people work collaboratively in a short timeframe to ideate and solve problems.

Companies with more decentralized approaches to innovation should consider engaging with a consultant to advise on innovation, set up a satellite innovation office or outpost or work with a third party or incubator.

Fostering Creative Behavior

A fundamental change of this scale typically takes more than two decades. In many instances in India and China, it took less than five years. While some companies have adopted more dynamic and agile work environments that foster innovation, Steelcase researchers observed that many organizations have not made the necessary changes to their space and culture and are struggling. Often, people are working in traditional cubicles and have little access to project spaces or the digital and analog tools they need to share content to effectively collaborate.

"The creative work required for innovation to happen requires very different behaviors than those of process or task-based work that has traditionally happened in India and China," explains Valoe. "Organizations need to encourage the behaviors required for a new way of working. The work environment must be designed to reinforce this change. This requires a big culture shift."

DJI's On agrees. "Environment is a big part of the culture. I think in many offices around the world, especially with tech companies and start-ups, the walls have been broken down to encourage open communication," says On. "We have an open office concept with hot desks, standing desks and sofas. Connecting with each other opens the door for collaboration. Collaboration facilitates the exchange of ideas and innovation is driven from new ideas, new perspectives and new ways of doing things."

The hierarchy found in many organizations across Asia is another barrier to innovation. "Rigid hierarchical structures tend to sabotage innovation," says Wu Liping, president at Chinese packaging equipment company Joyea. "Business goals can get misdirected by the power dynamics. Trust drives honesty and communication which improves efficiency and new solutions for our clients. Equality is important too. We respect, support and care about each team member. We want everyone to feel valued. This not only creates a positive environment, but also boosts performance."

Gearing Up For Innovation

So what can organizations do to create the right conditions for the innovation process to thrive? During their study, Steelcase researchers identified three requirements:

   Set an innovation agenda and define the company's future direction.

   Identify an innovation model to implement; this will determine the team structure and interactions.

   Establish new practices and methods that will drive innovation and identify workplace coaches to reinforce the desired behaviors.

"This will signal to employees they need to adopt new workstyles, and the physical workplace will have to be reimagined to support and reflect a culture of innovation," says Valoe.

A New Work Experience

Innovation requires a workplace where people can build strong networks, develop trust and learn from each other. "The workplace should provide a variety of settings that address the different needs of the creative process," says Valoe. "People need different spaces for different types of work—spaces for collaboration, for heads-down focused work, as well as places where they can get away to rejuvenate or socialize with their peers. These spaces need to foster a culture of innovation where new ideas and different ways of thinking are encouraged."

So what does a workplace where a culture of innovation is celebrated look like? It supports continuous learning, open communication, freedom to express ideas, transparency, equality and empowerment. It looks a lot like this:

A shared learning experience
Imagine working on a cross-functional team project. Instead of sitting at your own desk, you join a team of product marketers, designers and engineers in a designated project space. Collaboration here feels natural and has been designed to build a common knowledge base among team members. Tables are easy to move and can be arranged in various configurations throughout—pushed together for group workshops and separated for focused work or smaller group collaborations. Space is available for consultants, who join the project on a freelance basis. Digital and analog communication tools make sharing easy and accessible, so everyone can learn from one another and share diverse perspectives from the various disciplines and backgrounds.

A progress board captures and visualizes the team's successes and failures—which are also celebrated—as they rapidly explore and test ideas, with goals set on a daily and weekly basis. When a milestones is reached, tables can be pushed together for a team lunch or "happy hour" to celebrate together.

The importance of feedback
Large meetings for pitching ideas and debating approaches can be intimidating for more introverted team members, or those that prefer some time to digest, absorb and filter information before arriving at conclusions. Create an environment where all team members can give and receive meaningful feedback. Easily accessible and informal cafe-style tables, for small groups of two to four, encourage teams to connect more frequently. These regular opportunities to test their ideas in small groups accelerate trust-building.

Try framing meetings as a way to encourage discussion. During feedback sessions, write ideas on Post-its and share them in the space so that everyone's voice is heard. Fixed or mobile writing surfaces and pinboards can help here. Informal lounge settings adjacent to larger meeting areas provide comfortable spaces for quieter team members to reflect upon the ideas discussed and add to the conversation by voicing ideas one-on-one.

Ideas are owned by the team
Sometimes the way an idea is communicated is as important as the idea itself. Sharing and critique is important to test and develop ideas. Encourage team members not to become too attached to their own work, but to tap into the benefits of co-creation. Develop everyone's presentation skills by testing or micro-pitching with the team. A range of small presentation spaces for clusters of two to four people are less intimidating for presenters who may not be as confidant in a more formal setting. Make these spaces readily accessible for impromptu catch-ups so that these behaviours become rituals. Ideas will evolve more rapidly and everyone will become more confident to present their work.

When it's time to bring a concept to life, split team responsibilities. Some team members can meet in their makerspace to start prototyping, while others connect with a customer or a startup to see if their latest concept is resonating.

Creating a Culture of Innovation

For organizations in China and India to manage a sustainable shift to innovation, they will need to eliminate barriers and bureaucracy between leaders, teams and departments so information can flow freely. They will also have to give all stakeholders the freedom and physical tools they need to express their ideas and give new concepts a chance.

Changing the physical environment changes behaviour which, over time, creates culture—a culture of innovation.

Flashback

"We wanted to design a worksetting that would support the full complexity of how work is done. At times, that means concentrating alone and, at other times, people need the space and tools for group collaboration."

Project Leader, David Lathrop
1995

Before Agile

In 1993, long before everyone was talking about agile work, Steelcase introduced Personal Harbor Workspace, a ground-breaking approach to addressing the needs of individuals and teams. The 48-square-foot self-contained workspace, combined with mobile Activity Tables, Walls, Carts and Screens, created a dynamic and agile space where both focused work and collaboration happened side-by-side.

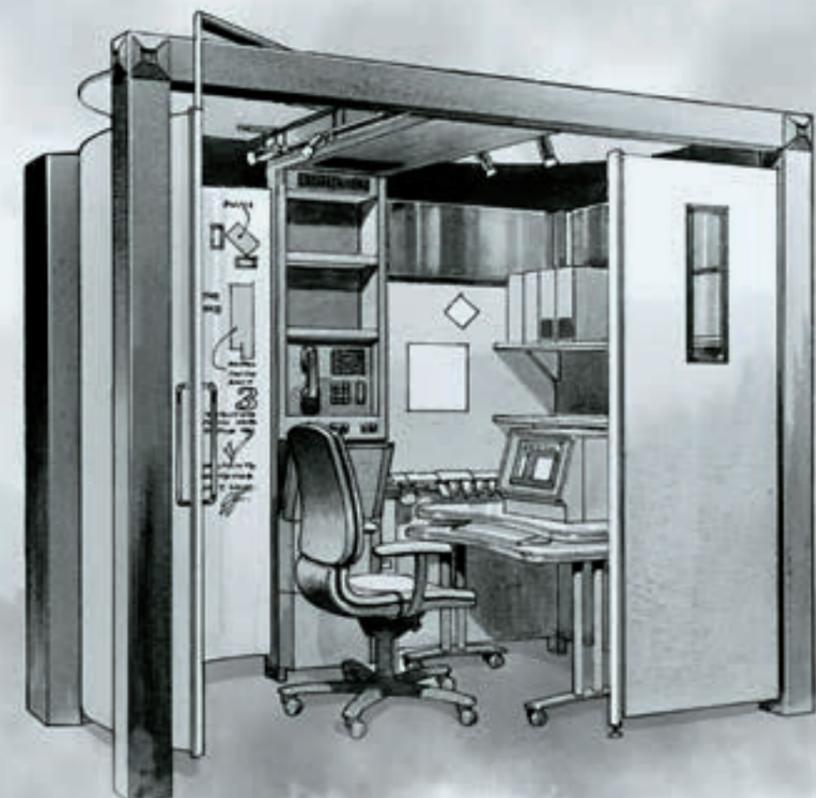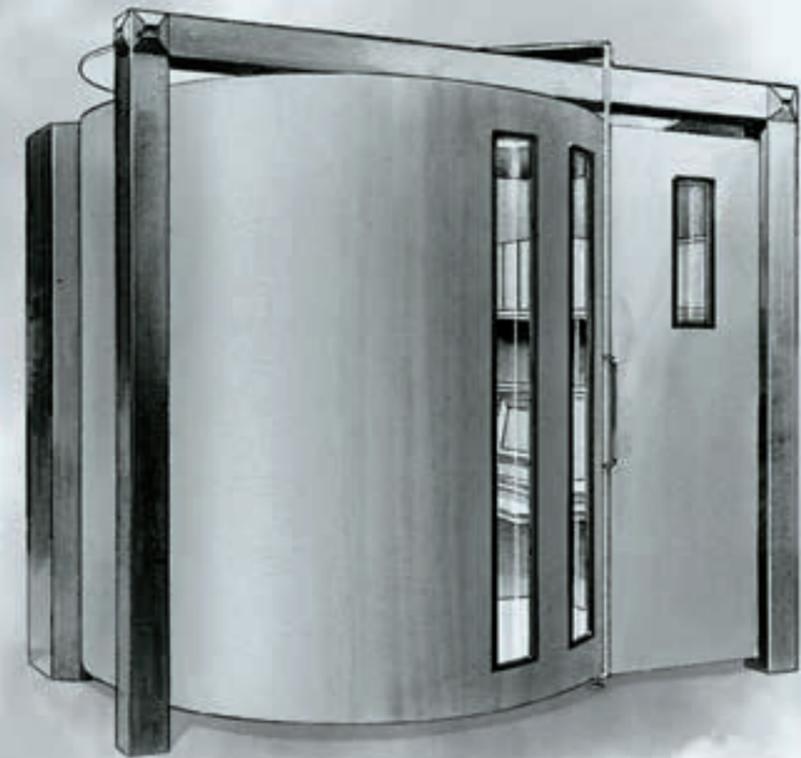*Personal Harbor Award Winning Design*

1995 Gold Industrial Design Excellence Award (IDEA)

1995 Best Product Designs of the Year Award, Business Week

1994 APEX Award, International Interior Design Association (IIDA)

1994 Design Distinction Award, I.D. Magazine

1993 Gold Innovative Product Award, International Interior Design Exposition (IIDEX)

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.

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