



Delivering Value Through Emerging Tech and Innovation

Research
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WELCOME LETTER



Cliff Justice

U.S. Leader,
Enterprise Innovation

KPMG

At KPMG LLP, our innovation strategy is centered on the premise of accelerating the pace of innovation, widening our reach for ideas, and empowering our innovators from within. This process is anchored across four stages:

1. Scanning our entire internal and external ecosystems to identify the best ideas and most promising technologies and solutions that will bring positive change to our clients and markets.
2. Validating these ideas and technologies to determine viability, significance, and impact.
3. Developing and incubating the new solutions in a tailored innovation environment.
4. Launching and integrating new products, solutions, and services into our practices and for our clients.

We believe that care must be taken to ensure a company's innovation portfolio is not subject to biases that can arise within the organization. These biases can stem from familiarity, traditional incentives, power structure and influence, past successes and failures, and incentives and culture. To mitigate and help offset the risk of portfolio bias, we have deployed an innovation strategy designed to balance an outside-in innovation portfolio with a comprehensive organic innovation program which prioritizes the sourcing of diverse ideas from our own teams at all levels, as well as our experienced leaders and innovative clients.

Our outside-in innovation methodology is about bringing the most disruptive and creative thinking from the startup community, universities, and alliances to the firm to challenge us to do things differently and uncover new opportuni-

ties. We do this by establishing relationships with other incubators and venture capital firms who are investing in early-stage companies that are aligned with the priorities of our firm and our clients, and who are making targeted minority equity investments as well as providing other services and contacts. In contrast, our inside-out innovation processes bring the most innovative thinking from our people with hands-on exposure to our clients.

The innovation landscape is more complex than ever. As digital change continues to accelerate across industries, innovation has been maturing as a corporate discipline and is becoming part of the corporate governance structure. In speaking with innovation leaders, we continue to hear that the charter for innovation groups can be as strategic as finding the next disruptive opportunity, to as incremental as developing new tools and software for productivity improvement. Regardless, the term “innovation” seems to be securing itself as a necessary capability to navigate a business and technology environment that is under continuous threat of disruption from nontraditional competitors and rapidly-evolving technologies. Customer demands are high, and not selecting the right technology for your business could lead to disintermediation.

To help meet these challenges, this report provides you with research data, interviews, and key insights that cover the most challenging topics related to technology and innovation: How to identify and prioritize new technology, the top reasons tech projects get killed, and what metrics matter most to leadership. It includes key considerations innovation leaders and C-level executives should be asking: How do we evaluate new technologies and leverage them to strengthen customer loyalty, drive growth, and secure a competitive advantage?

We believe that this report, as well as the others in the *CXOs & Innovation* series, can be an inspiration to help enable you to evaluate your company’s innovation strategy and make a greater impact over time. The dynamic environment is forcing all of us to run as fast as we can to simply keep up, but we continue to be challenged to pick up the pace. Investing in the right technology at the right time is now more important than ever. We hope that this report guides you to the answers you need to move forward.

— **Cliff Justice**
U.S. Leader, Enterprise Innovation



ABOUT THIS PROJECT

Four powerful dynamics are at play in today's landscape:

- 1** Record amounts of venture capital funding are pouring into the global startup ecosystem.
- 2** Established technology vendors are increasingly placing big bets on emerging technologies, and using their throw weight to promote them (as one example, Facebook recently changed its name to Meta to emphasize the “metaverse.”)
- 3** Customers expect their interactions with all companies — not just nimble startups — to be frictionless, accessible 24/7, and predominantly digital, whether that involves texting, speaking, or clicking.
- 4** Supply chain disruptions and hiring/turnover challenges are intensifying the demand for solutions related to sourcing, recruiting and retention, automation, and operational efficiency.

To respond intelligently to those dynamics, large organizations need to dramatically improve their ability to scout, test, and deploy emerging technologies.

This research initiative is a continuation of our *CxOs & Innovation* series from 2020. The objective: to be helpful to C-suite leaders and other professionals responsible for evaluating new technologies and leveraging them to drive growth, competitive advantage, and stronger customer relationships. We're grateful to our sponsor, KPMG LLP, for their guidance and input.

This mini-report includes data from a survey fielded in September and October 2021, which received 203 qualified responses. We also conducted qualitative interviews with leaders in a range of industries, from retail to financial services to technology. Excerpts of those appear in this report, and longer versions can be found online at innovationleader.com/emergingtech.

EXECUTIVE SUMMARY

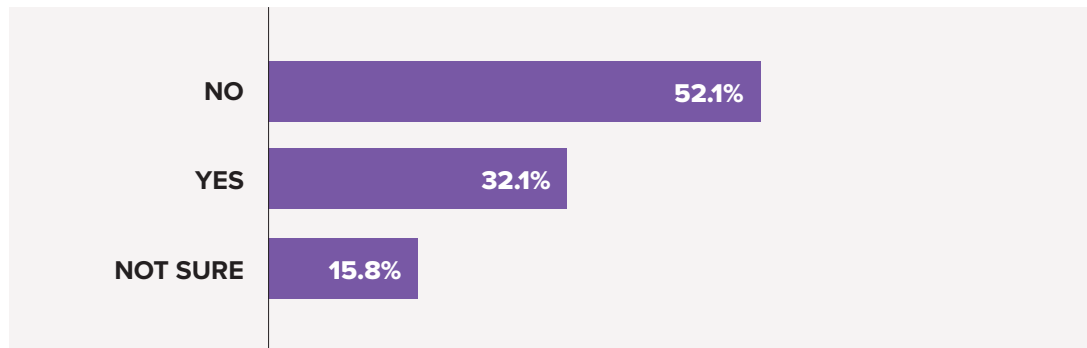
Our key findings:

- ◆ The emerging tech landscape is always noisy and overhyped. Companies first need to develop a clear set of problems they are trying to solve, or experiences they are trying to create, for internal or external customers. Otherwise, they will waste time chasing irrelevant but flashy ideas that don't deliver value.
- ◆ Unfortunately, just 32 percent of our survey respondents say they have clear criteria they use to determine whether a new technology is worth prioritizing and investing in.
- ◆ Companies are intensely focused on their interface with customers, and technologies with the potential to improve it. Our survey respondents say their primary focus is on technologies that will have an impact on how they serve customers (82 percent), followed by technologies that will affect their business model (74 percent) or operating model (67 percent).
- ◆ Where do the best insights come from, in terms of emerging technologies worth exploring? Colleagues tasked with scouting; conversations with startups and venture capital firms; and business units or functions, according to our survey respondents.
- ◆ When technology projects get put on the shelf, the most common reasons are resource constraints and conflicting priorities — far more than the technology being incompatible with existing infrastructure or not relevant to the business.
- ◆ The high-level innovation metrics that senior leadership care about most are not changing. Innovation must generate revenues, reduce cost, or enhance the brand. (That is consistent with our 2020 survey results.) Any sort of experimentation, whether it leverages new technology or not, needs to deliver with those outcomes in mind.



CLEAR CRITERIA ARE MISSING AT MOST COMPANIES

Does your organization use a clear set of criteria to determine if an emerging technology is worth prioritizing?



One thing that can help make the search for relevant emerging tech more efficient is a way to prioritize what you find. But among our survey respondents, 68 percent said their companies either lack a clear set of criteria that helps them prioritize which technologies have the greatest potential to deliver value, or that they weren't sure whether those criteria exist. Just about one-third of respondents said those criteria were in place.

As an example of a concrete set of criteria, one healthcare industry respondent said: "What problem is it solving, what is the cost/benefit, and what is the impact, including cost of not implementing the emerging technology?"

More comments from survey respondents appear on the following pages.

COMMENTS: CRITERIA FOR PRIORITIZING EMERGING TECH

We invited respondents to share additional detail about the criteria they use in prioritizing emerging technologies — or why they don't apply a consistent set of criteria.

We Have Clear Criteria in Place	“Does the technology enable us to broaden/enrich our value proposition and/or enter new market segments to, in the end, drive revenue growth?”	Energy & Utilities
Clear Criteria	“What problem is it solving, what is the cost/benefit, and what is the impact, including the cost of not implementing the emerging technology.”	Healthcare
Clear Criteria	“Fits into one of our business units. The potential market size is large. Can it disrupt our existing business? Can we add value?”	Chemicals
Clear Criteria	“There definitely is a priority put on tech that is deemed to be relevant to our existing products and markets — something that offers a way to advance or replace existing value and capabilities. The cost of that is perhaps we do not fully explore and appreciate tech and innovation areas that could take us in interesting new directions.”	Consumer Goods / Consumer Products
Clear Criteria	“We use a structured scoring sheet with categories of technology plan alignment, market alignment, clinical advancement, technology leadership impact, market potential, risks, timeline and funding.”	Medical Devices & Instruments

Clear Criteria	“We look at three areas: 1. Market/customer (do markets, customers, end users demonstrate a need?); 2. Technical (can we make it, is it repeatable, is it mass producible in the quantities and cost appropriate for the market?); and 3. Supply chain (how does the tech fit into product development and sourcing of the final product?).”	Technology
Clear Criteria	“Our general criteria involve an assessment of whether an opportunity is in line with our mission, important to our members (or a future membership base), and is achievable for our organization from a capacity/skillset perspective. We will also pursue opportunities that are important to membership but need more time or budget or skill/technology to develop/implement and will place these opportunities on a Horizon 2 or 3 delivery timeline.”	Nonprofit Standards Organization
Clear Criteria	“Saying that we have a ‘clear set of criteria’ is somewhat overstating it, but we use ROI and customer experience to prioritize emerging tech, along with building onto existing tech.”	Retail

We Don't Have Clear Criteria in Place	<p>“While there may be clear signs a technology is about to take off, the role it will play in our company, the use cases it is best suited for, and whether or not its application aligns with our longer-term strategy are highly subjective. So rather than create a tool that will give us the answers, we’ve created a forum for discourse on these topics at the senior leadership level.”</p>	Financial Services
No Clear Criteria	<p>“A lot comes down to in-the-moment internal deliberations. Intuitive criteria always come into play — is this a fit with our business objectives? — but there is some fear that outlining a clear set of criteria could inadvertently put blinders on our business development work. A common refrain internally reflects this orientation: ‘We keep all options open at all times.’”</p>	Pharmaceuticals & Life Sciences
No Clear Criteria	<p>“We are building that now.”</p>	Packaging



Brian Tilzer

Chief Digital & Technology
Officer

Best Buy

Identifying Meaningful Tech Trends. “Historically, we had dedicated capacity in place that would look ‘technology back.’ We’d say, what are the technological trends that are most meaningful to the customer experience, our growth, and how we operate? Then we would consciously identify technologies that we would want to experiment with.”

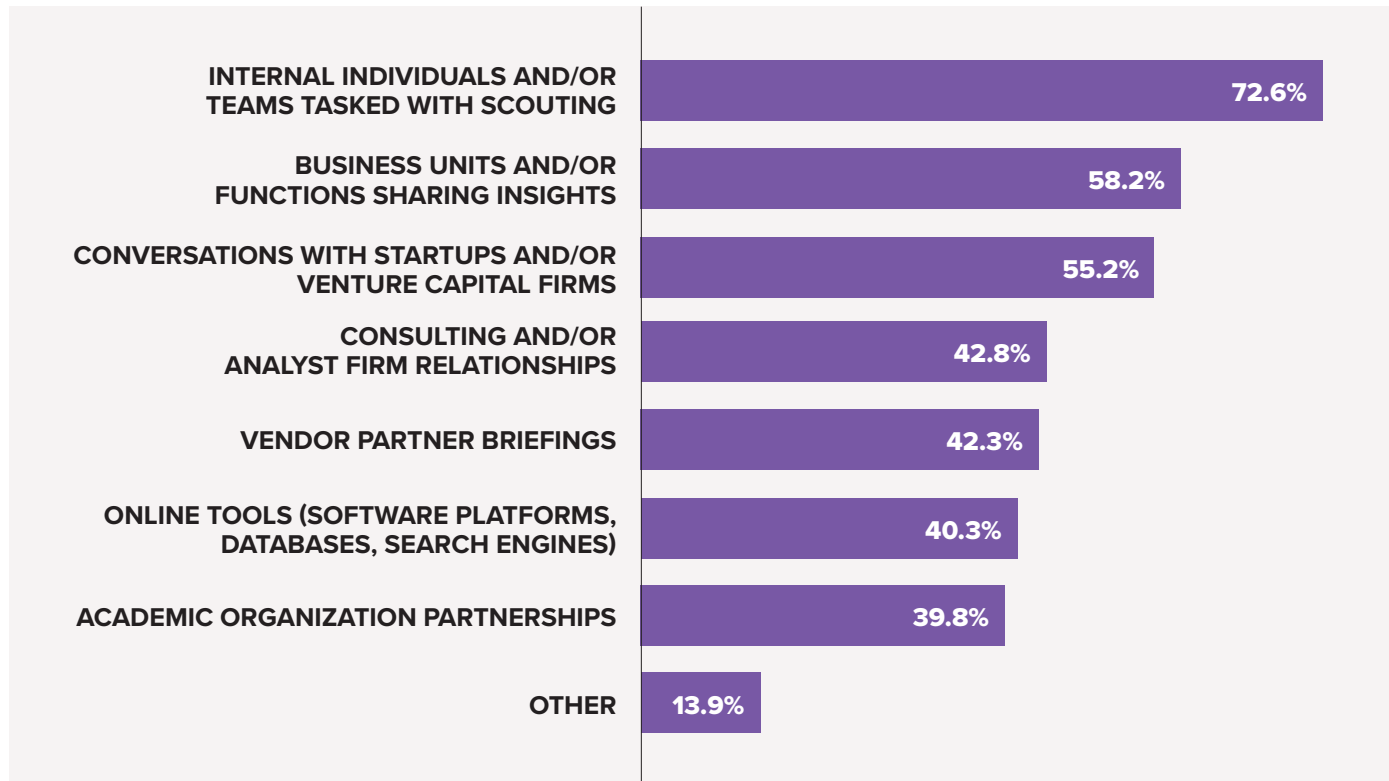
“When the pandemic kicked in, we just got overwhelmed with priorities. We contemplated a world in which we were going to have to shut down our stores to customer traffic. Over a weekend, we stood up a basic curbside pickup experience. We were the first national retailer to pivot to that model. We stood up and invented virtualized versions of our [in-home consultation offering.] Initially, it was video chat. But now we have tools to capture data and pictures of people’s homes. We can create renderings, and provide recommendations.”

“Our exploratory people got pulled into the fire drill stuff [during the past 18 months.] But I intend to re-allocate those people back to more R&D-oriented efforts next year. But this technology-led innovation that we’re going to do will be in areas of strategic priority for Best Buy.”

How I define success. “I define success differently here. You need to view success as the learning, not as the roll-out. In that view, you have success with every project. I don’t think of it as killing [a project]. I think you’ve achieved your learning objectives, but we don’t see a use, or a next learning objective, for that technology. But let’s keep it ready, for when the time may come. I have no doubt that there will be a use case around virtual reality goggles for us eventually. We sell a ton of Oculus in our stores. But we haven’t seen it yet.”

HOW DO YOU IDENTIFY TECHNOLOGIES WORTH EXPLORING?

How does your organization identify emerging technologies important enough to explore further? Respondents were invited to check all the answers that apply.



We asked survey respondents about the sources of input for their tech scouting process. What people or groups help them identify potentially relevant technologies?

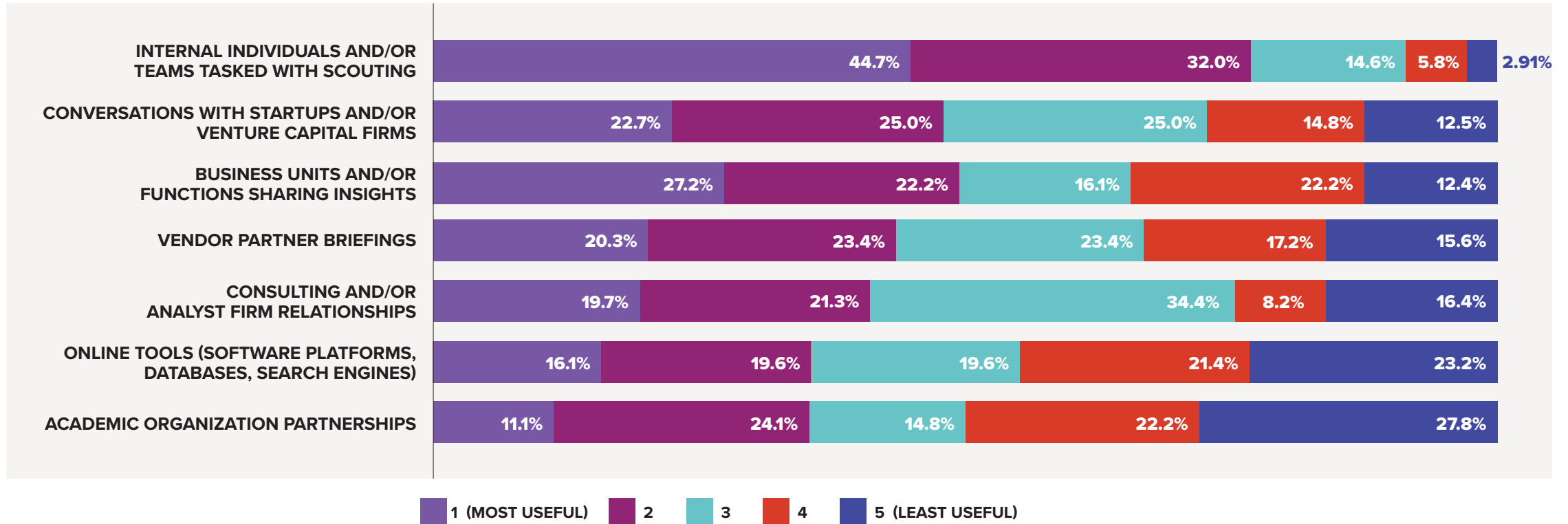
Note the internal-external mix of Items #2 and #3 in the chart at left. Business unit leaders may share what they see in the emerging tech landscape, or problems they're grappling with, and conversations with startups and venture capital firms supply vital outside perspective.

Among the "other" responses to this question (14 percent): accelerator program partners; trade shows and conferences; scouting services; word-of-mouth in the ecosystem; inbound LinkedIn messages; and "other children's hospitals," according to a respondent in healthcare.

WHICH SOURCES ARE MOST USEFUL?

Ranking the Sources of the Best Input

To understand which of those sources of input are most useful, we invited survey respondents to rank them. Internal scouting teams and conversations with startups or venture capital firms rose to the top, while online tools and partnerships with academia sunk to the bottom.





Heather Paquette

VP, Retail Innovation Center
of Excellence

Retail Business Services

(an Ahold Delhaize company)

How we prioritize technologies. “We first make sure that we’re aligned with our company-wide priorities, and that we’re immersed in the brand, market, strategies, and operating models of our five retail brands (Food Lion, The Giant Company, Giant Food, Hannaford, and Stop & Shop).”

“Improving our customer experience, improving our associate experience and identifying ways we can operate more efficiently are key objectives. We know, for example, that if we create a really awesome experience for our store associates, our associates will be able to create a better experience for our customers. So, we look for technologies and solutions that might help us eliminate frustrating or repetitive tasks that associates need to complete, so they can spend more time interacting with customers.”

Scouting activities. “Our team is out at conferences, visiting other retailers, and trying new solutions to scan the industry for what’s available today and for what’s coming. We also spend a lot of time with

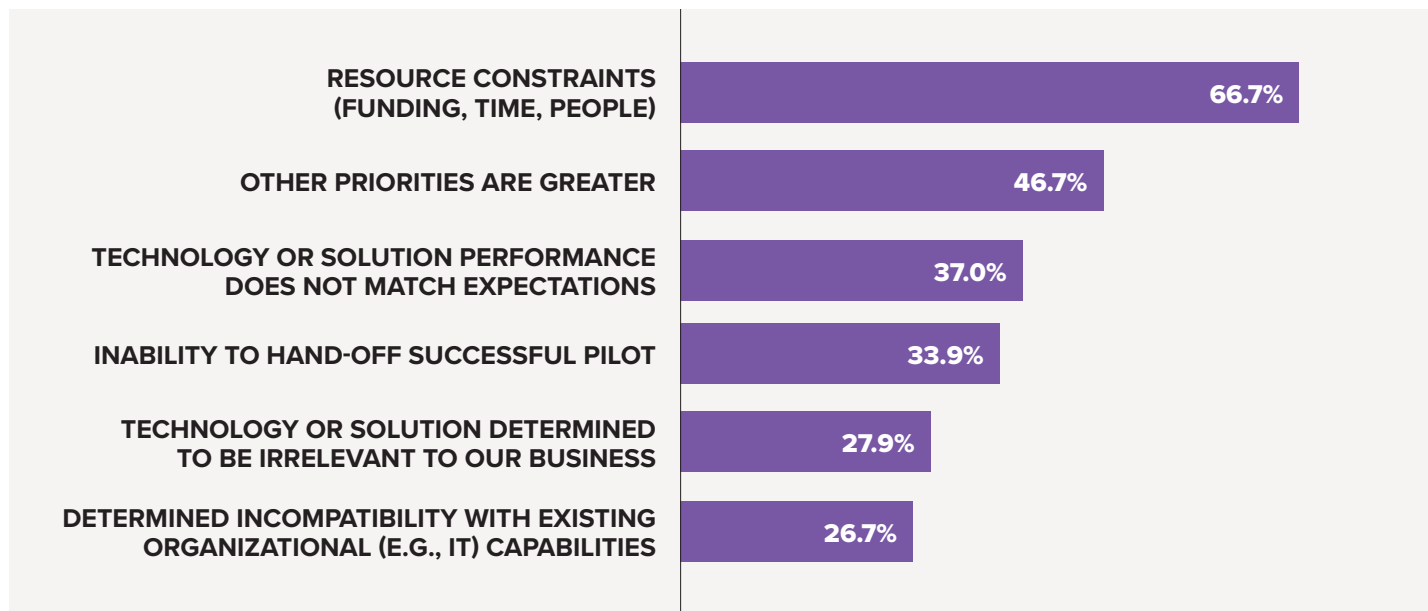
entrepreneurs and their startups. A few years ago, we started partnering with the Venture Cafe in Cambridge, Mass. to launch our Seed Immersion Program. Entrepreneurs with solutions relevant to our brands apply, we select a set of finalists, and then we mentor them through a ten-week immersion program.”

Scoring technologies based on potential value.

“We score the solutions that emerge from all of these activities using a range of variables that collectively describe what we believe to be a solution’s potential value to the organization, and also the potential effort required to realize that value. Solutions scoring the highest might move quickly to in-store tests. Lower scoring solutions may either go into one of our labs for experiments, or on our ‘watch’ list. In the end, there will always be new, cool, shiny things that we could bring to life in our stores, but we’re really here to help our brands achieve their goals by implementing new solutions that create measurable value.”

WHY DO EMERGING TECH PROJECTS GET KILLED?

What are the top reasons your organization kills emerging technology projects or collaborations? Respondents were invited to select up to three reasons.



We invited survey respondents to detail the three key reasons that projects employing emerging tech most commonly are killed in their organizations. The leading reason: resource constraints. Fewer than one-third of respondents said it was because the technology was eventually deemed irrelevant to the business, or that it couldn't be integrated with existing infrastructure.

This data highlights the importance of either pre-assigning resources for tests with new technologies, or creating an agile process through which resources can be allocated based on a well-defined business case or hitting certain milestones. Item #2 in the chart at left also points to the need to build urgency, and a sense of “why” an emerging technology’s time is now for your organization — and its customers.

COMMENTS: WHY DO PROJECTS GET KILLED?

We invited respondents to share additional detail about why projects that leverage new technology tend to get killed in their organizations.

“For leadership, ‘innovation’ is a buzzword... If it’s actually innovative, it is ‘too complex.’”	Technology
“ROI does not result in quick and substantial return.”	Healthcare
“New business models are needed, but we try to fit it in existing business model.”	Technology
“Support given to research projects is driven by personal likes and dislikes and interpersonal relationships. Professionalism is conspicuous by its absence.”	Higher Education
“Lack of patience.”	Packaging
“Lack of internal skills to be able to understand the technology’s potential.”	Pharmaceuticals & Life Sciences
“Internal politics.”	Retail
“Not invented here syndrome.”	Other
“Technology is just too early in its maturation.”	Other



Chris Jones
Chief Technology Officer
iRobot

How scouting works at our company. “As CTO, I spend my time thinking about our technology strategy and roadmap and how those relate to our broader strategy and product roadmap. I consider what’s going on outside of our walls, and how that might support what we’re trying to do and where we’re trying to go. There are also a variety of technology leaders throughout the organization that I lean on, who are on top of what’s going on in academia, and who are attending conferences. Then there’s strategic investing. We’re always looking for early stage companies that might be of interest to us, so I work with the iRobot Ventures team to scout startups and to stay close to what the investor community is doing and thinking.”

Testing MVPs with consumers. “I always prefer to test [minimum viable products] with consumers. We may or may not have taken products that include duct tape into a home. Sometimes, the MVPs are partially functioning and sometimes they’re fake. Sometimes it could be a ‘Wizard of

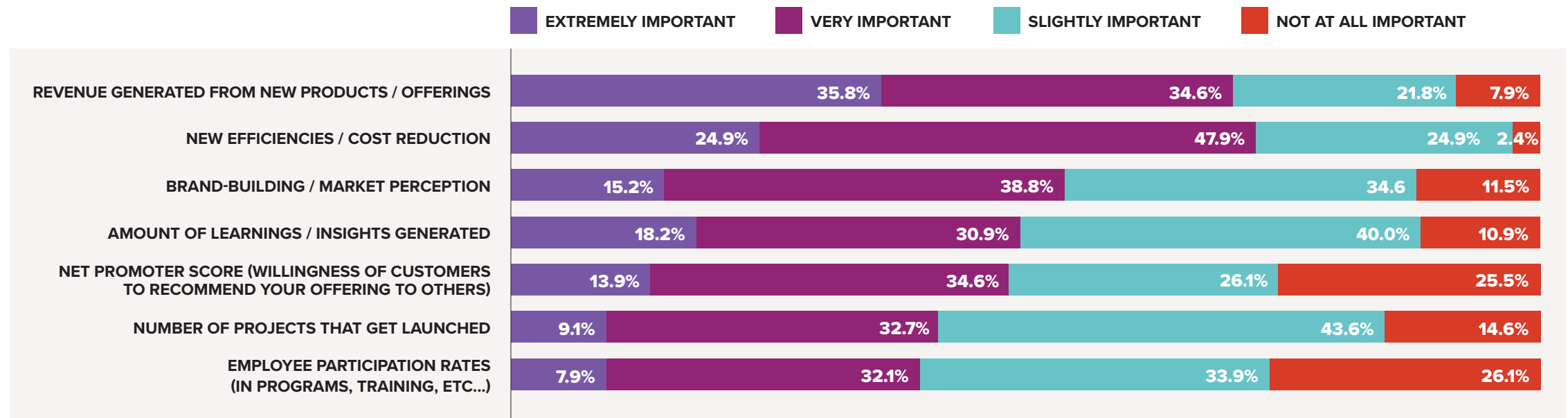
Oz’ MVP, where someone is in another room driving the thing around with a joystick.”

“Naturally, the exploration process is different for hardware and software. For hardware, the bar is pretty high, as the technology has to be mature and risk reduced before we put it into a product. For software, we can be much more agile and release things as private alphas, full betas, or full releases. My bar for software testing like that is lower — ultimately, ‘Thou shalt not brick the robot.’”

When it’s time to deploy.... “I’m distinctly not a fan of ‘throwing things over a wall’ — there’s just so much difficulty in that. So our digital teams frequently take what they build all the way to release. On the hardware side, I make sure that product development folks are involved early in the process, with the expectation that they will be part of the broadly built-out team. In my 15 years at iRobot, we’ve tried many different incarnations of how to transition things and ‘having walls up in order to throw stuff over those walls’ is not a great recipe.”

INNOVATION METRICS THAT MATTER TO SENIOR LEADERSHIP

With regard to overall innovation activity in your organization, how important are the following metrics and outcomes to your senior leadership team right now?



What are the metrics that senior leaders care about most, in determining overall innovation progress in the organization? We've asked this question in 2020 and 2021, and the top three indicators did not change: revenue generated; cost reduction or new efficiencies discovered; and impact on brand or market perception. One slight change from last year: measures related to

learning and insights climbed into the fourth position, perhaps indicating that in fast-changing markets, the ability to test and learn effectively — as a stepping stone to more tangible innovation outcomes — is of growing importance. Other metrics respondents said were less important than the ones above: hypotheses or prototypes tested; media mentions; number of ideas generated; and patents.



John Reese

Global Chief Technology
Officer

Dell Technologies

Innovation needs to drive growth. “The purpose of innovation is to find new ways to grow our business — not to just show cool technology. But the byproduct is developing cool technology. You just need to know its place. It’s not to distract corporate strategy.”

The tech radar process. “The technology radar, for us, isn’t a thing. It’s a process. I have a whole team whose job in life is to develop technology that puts me out of business. We’re looking for domains and areas where there’s a disruption happening. Back in the early days, we tracked distributed ledgers and blockchain. That has to be on our radar; whether or not you care about blockchain, you as a company should be looking at all technologies that are potentially intersecting with your world. We concluded that [blockchain] was just a workload running on our infrastructure, but not a big bet Dell should make. We looked at AR and VR, and concluded, ‘Interesting technology, but not a material

enough market for Dell.’ It’s not what we do, and not big enough to be interesting. To grow an \$80 billion company, you need to find some new areas to play in. What we now call the Strat 6 technologies came out of that process, and they include areas like AI and machine learning, the multi-cloud world, data management, and security.”

Getting to consensus. “How do we get to consensus? We include about 500 people in our technical leadership community — our best and brightest. They give us as much input as they can. That process will winnow down [the areas of interest.] Then, the process comes up to me, [and co-Chief Operating Officers] Jeff Clarke and Chuck Whitten, and the business unit leaders, to have a discussion about which of these we think make sense.”

“Is this a technology that is adjacent [to one of our existing markets], and is it moving toward us? All the things we pursue fit that pattern.”

KPMG INSIGHT: MAKE THE RIGHT BETS ON EMERGING TECHNOLOGIES



Greg Corlis

Principal — Emerging Technologies

KPMG LLP



Michael Krajecki

Managing Director — Emerging Technologies

KPMG LLP



Martin Sokalski

Principal — Emerging Technologies

KPMG LLP

The term “unprecedented disruption” has been so overused it has almost lost its meaning. However, as the pandemic continues to turn business models on their heads, it is increasingly clear that the future of business is being rewritten before our eyes.

While there are other key factors that make digital disruption a reality, technology innovation is a critical enabler of the transformations that will allow businesses to survive and thrive in the unfolding reality. There is a wide spectrum of emerging technologies, capabilities, and clever solutions of varying maturity to explore in this massive and growing space: cloud, AI/ML, IoT, 5G, AR/VR, edge computing, drones, low-orbit satellite, and quantum computing, to name just a few. However, cutting through the noise and hype is a challenge. Further, business transformation does not happen overnight, nor is it

stumbled upon by accident — and many companies are disappointed by the timeline for realizing returns from disruptive-technology investments.

Based on our vast experience helping companies drive business innovation powered by emerging technologies, we offer five tips for making the right bets on emerging technologies — today. These guidelines will help ensure digital disruption is deliberate and strategic and establish a strong foundation for a lasting culture of innovation.

1. Create an innovation ecosystem

Leading organizations are establishing emerging-technology innovation functions, or Centers of Excellence (CoEs), to explore emerging technologies and their impact on business strategy, services, and products. They experiment with disruptive technologies, uncover relevant use

cases, pilot solutions, and roll out prototype products and services when there is clear business value. Having such a function in place propels faster prototyping, investment, and go-to-market activities, as well as more agile pivoting if an idea fails early market validation.

Emerging-technology innovation functions collaborate with strategic decision makers across the business to ensure that transformation projects align with desired business outcomes and generate value. The organization is typically responsible for defining guiding principles and an operating model for innovation; measuring and reporting on success across the business; and establishing incentives to reward behaviors that fuel an innovative and collaborative culture. Further, the group taps into ideas from external partners, such as leading universities, industry alliances, and startups, so that outside-in thinking is reflected in organizational innovations and ideas are validated from a variety of perspectives.

2. Listen to customers and markets

There is no doubt that emerging technologies will be central to new business models. However, enterprises are challenged by fluctuating trends when it comes to where to invest and divest.

Many organizations evaluate analyst and consultant market research reports; internal and external consumer data; and industry publications, forums, and trade shows. And, as organizations keep their eye on these channels, there are a variety of lenses through which they can view evolving market dynamics: customers, investments, and competitors, certainly, but also employees, business partners and front, middle, and back office.

3. Lead with desired business outcomes

Some technology leaders tend to innovate based on the tools they have at hand, or the last supplier they spoke with. That approach is backwards, and it can cost the business a great deal. Innovation needs to be intentional and rooted in the outcomes that business leaders are looking to realize.

Enterprise innovators should think holistically about the specific challenges and opportunities their businesses face, both today and in the future. This approach will help identify desired outcomes before solving for which tool in the vast emerging-technology toolbox can help their business meet its objectives. Importantly, this mindset also helps innovation teams combine emerging

technologies — e.g., edge computing, cloud, computer vision, and AI/ML — to enable wholly new capabilities and spark greater transformation than a single technology would allow.

4. Enable agile innovation

Aligning emerging-technology investments with business strategy requires a balance of cross-functional know-how as well as key capabilities and resources. For innovation to result in tangible outcomes and value, the emerging-technology innovation team needs access to emerging and modern technologies, assets, accelerators, and tools. This can be accomplished directly through procurement and/or by working within the ecosystem of academia, business partners, and technology providers.

5. Look beyond short-term feasibility concerns

Even when a company has matched a set of technologies to a business problem, there are often concerns about jumping in before the technology has a chance to mature and scale. So how does an enterprise effectively prioritize its emerging technology spend?

In many organizations, potential innovation investments are evaluated according to four criteria: desirability, viability, feasi-

bility, and sustainability. It is critical to remember that there is a danger of being left behind when organizations get too hung up on evaluating the current feasibility or sustainability of a given technology solution. Sustainability often develops over time as technologies move into mass production. And, given the rapid pace of technological change, today's feasibility challenges will likely be irrelevant in a few years.

In contrast, since desirability and viability often translate into customer satisfaction, meeting these criteria could be enough to warrant an initial investment.

Final thoughts

Although it may sometimes seem like a leap of faith, early investments in the right emerging technologies can help companies rise above the pack as market leaders. So, start experimenting, prototyping, and market testing. In today's rapidly changing environment, it is simply not an option to sit on the sidelines.

To read the full version of this piece, visit innovationleader.com/kpmg-2021.



Jason Dinger
SVP – Strategy & Innovation
AmerisourceBergen

What does “emerging technology” mean at AmerisourceBergen? “AmerisourceBergen is one of the largest distributors of medications in the world, including to support clinical trials. We make sure that medicines get where they need to be. When we think about emerging technology, we are interested in anything that will accelerate the development and distribution of medicine. COVID made it clear that cold chain storage must evolve, for example. We are also interested in technologies that will support the development of cell and gene therapies. And also technologies transforming care delivery and extending it to the home, including technologies for remote patient monitoring and ensuring medication adherence, as examples.”

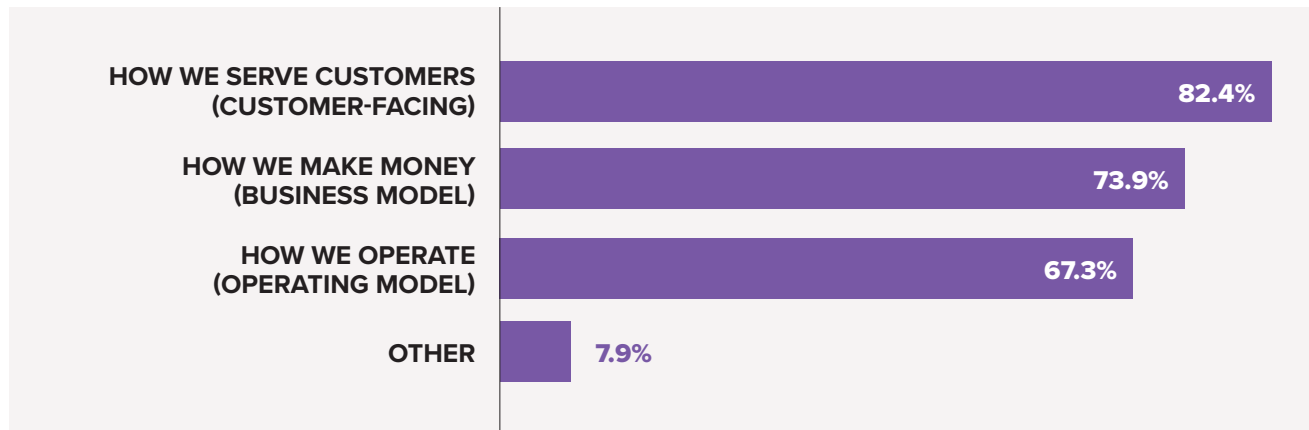
How we prioritize. “We always need to make sure that a technology will serve our strategic plan by addressing the true ‘jobs to be done’ of our customers, whether they are downstream provider customers or upstream manufacturer partners.”

Anyone can get involved. “One of our guiding principles around innovation is that everybody gets to play. We don’t see innovation as a black box or something that only happens in unmarked buildings. We have 42,000 team members and we want to tap their talent. So, we’ve put in place structures and processes to ensure that anyone can ‘raise a hand’ if they see a new customer need that we could address.”

What’s the business model? “During the pilot process, we need to make sure that the technology will not only address a customer need, but that there’s a business model that works at scale. And beyond price or cost, that means commercializing successfully in the context of things like different reimbursement structures, geographical distances and even harsh conditions. It’s one thing to match a technology to a customer need. It’s a whole different thing to make sure the technology can deliver for a large number of people and customers under a wide set of conditions.”

WHERE EMERGING TECH IS EXPECTED TO HAVE AN IMPACT

When your company explores emerging technologies, where do you expect them to have an impact? (Respondents could select multiple answers.)



We asked survey respondents to tell us what aspects of their business they expect emerging technologies to impact most. (They could choose more than one aspect.) The largest segment of respondents said they're exploring technologies that will impact how they serve customers, followed closely by technologies that will impact how they make money.

"Other" responses included: Unmet medical needs and "which kind of customer we serve." One respondent working in the financial services industry opined that there is "very limited exploration [of the impact emerging technologies can have] due to top-down leadership that is aged and out of touch with how existing and emerging technology can help improve operational efficiency, while also better serving customers."



Mona Vernon

Senior Vice President —
Fidelity Labs

Fidelity Investments

Avoiding the ‘danger zone.’ “I think a danger zone is when you start an innovation function, and then after you hire 5, 10, or 20 people, you start trying to figure out how you’re going to define and measure what good looks like. The only success metrics that really matter are the financial metrics, if you work for a for-profit corporation. How do we improve the top line? Will this project help sell more of what we have to existing customers, sell more of what we have to new customers, sell something new to existing customers, and, for very brave corporate innovators, sell something new to new customers?”

“You want to be able to look back and say ‘I built this new feature, product, or business. We had zero customers in this category, and now we have 10,000. That’s measurable.’”

“You need to figure out how you are going to tie yourself to the metrics that the CEO or CFO cares about. What is the language of the CEO or the CFO? And how do I just tie myself up to creating value in a way that’s not inventing a new category

(like innovation culture, or the number of hackathons), but is a category that already exists when you write an annual report?”

Get clear on the problem statement. “My favorite thing in assessing which emerging technologies to adopt is to be really clear on the hypothesis about possible applications upfront. That saves you a lot of time, headaches, and a lot of work.”

“When I was looking after the emerging technology research at a prior company, I used this really simple framework to help me organize the universe of exciting new technologies that come out, and figure out how to effectively scan try and potentially scale them in new applications.”

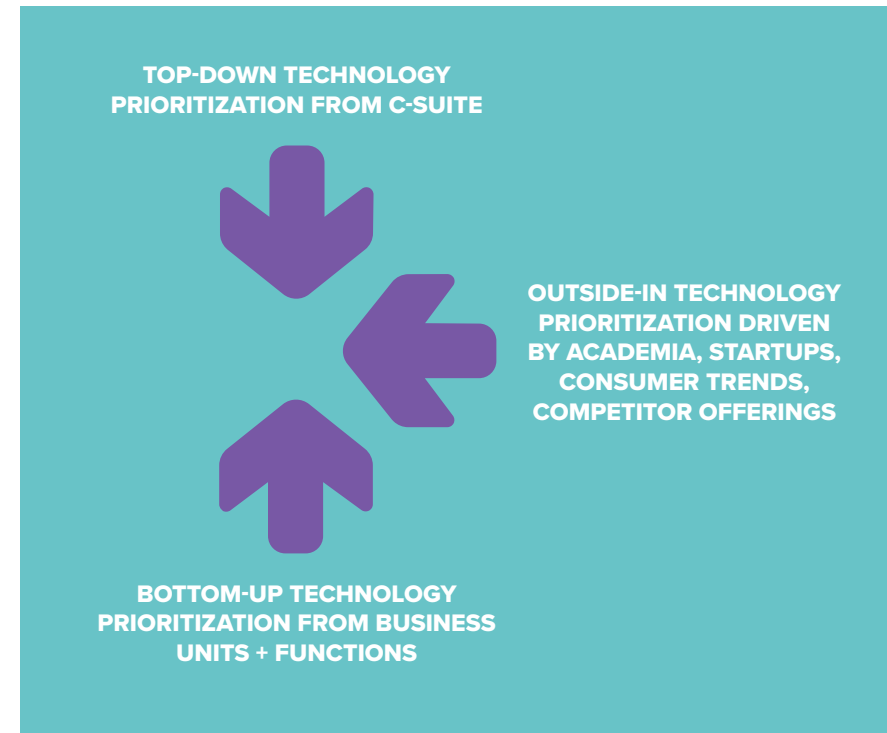
“It was a simple 2x2 matrix. On one axis, it was, ‘Do I research it, or do I start experimenting?’ On the other axis, it was, ‘Is it core to our business, so I need to build it, or, is this something where the research and experimentation is best done by a partner or vendor?’”

KEY QUESTIONS: HOW DO PRIORITIES GET SET?

Who sets the emerging technology priorities in your organization? Sometimes, it's CxOs who have heard of (or seen) something they feel it is important to pursue. Sometimes, it's business unit or functional leaders who've identified important market needs or industry trends. And sometimes, it's scouting activity that reveals developments in the startup or academic worlds. All of these competing perspectives and interests can be difficult to coordinate.

While there's no perfect answer that fits all organizations, in our research, we found that many organizations are successful when they let business units and functions define their key opportunities, threats, and needs (the bottom-up approach), and then devote the bulk of their resources to identifying technologies that address those.

Top-down prioritization can help guarantee solid funding support and knock down organizational barriers, and outside-in can help you identify interesting emerging technologies sooner. But the risks of those approaches is that they may generate lots of activity and soak up resources and time, but ultimately, never find the right organizational fit or customer need to deliver real value.



KEY QUESTIONS: WHAT'S THE DEFINED NEED OR OPPORTUNITY?

It's easy to get pulled off course by technologies that may be shiny, have sizzle or “press release potential,” or are being pushed hard by a provider — but are not able to address a true organizational need or validated opportunity.

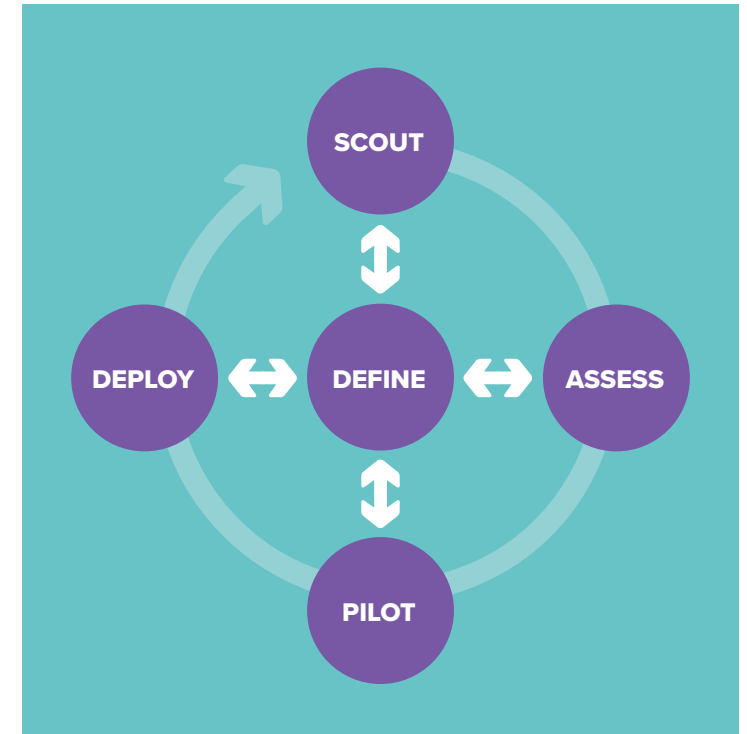
One way to avoid this is by ensuring that a well-defined need or opportunity is positioned at the center of the scouting work you do, and then that you are seeking to answer questions of feasibility (Can we deploy it?) and viability (Will there be an acceptable ROI?) as early as possible during your assessment and piloting work.

It's also important to capture learnings throughout this iterative journey. Leverage the knowledge you gain about new technologies — as well as your experience with the “testing & learning” process itself — to help further inform your technology priorities and also how you go about scouting and evaluation.

Iteratively...

- ◆ Define your priority needs and opportunities (from a business unit, function, customer, etc.)
- ◆ Scout for the relevant technologies, solutions, and providers
- ◆ Assess more closely the subset of these that seem most promising
- ◆ Pilot when there's growing confidence in desirability, viability, and feasibility
- ◆ Deploy what emerges

...Then take the learning from each step to inform how you (re)define needs and opportunities in the future.





Terrence Luciani

Vice President — Innovation

MetLife

On venture capital funding records. “The funding amount in 2021 already has exceeded all prior years. The volume is incredible. I don’t know how you don’t look at what’s going on outside, recognize the disruption, and embrace it. You could run from it, sit on your leadership position, and expect things to change. You could try to build everything yourself. But why not embrace the disruption and use it to your advantage? That’s how you’re going to create value and serve the customers of the future.”

Getting the business on board. “I’ve always been a fan of having business-led innovation. That doesn’t mean that you can’t be disruptive or look out in the future. But you need the business on board. I don’t want to go off on a different path.”

“We sit down with leaders from across the company to do our requirements process. What are their strategic goals, the big challenges they’re facing, the opportunities they see to innovate? What are the things that might be difficult to do internally? These are corporate functions, P&L owners —

a collection of people across the enterprise. On average, we collect 130 of these requirements. Then, we summarize them and share them with our venture capital firm partners. (There are over 20 venture capital firms that we work with.) They come back with a lot of great startups. At the same time, we’re using research tools. It’s all about finding really high-potential startups.”

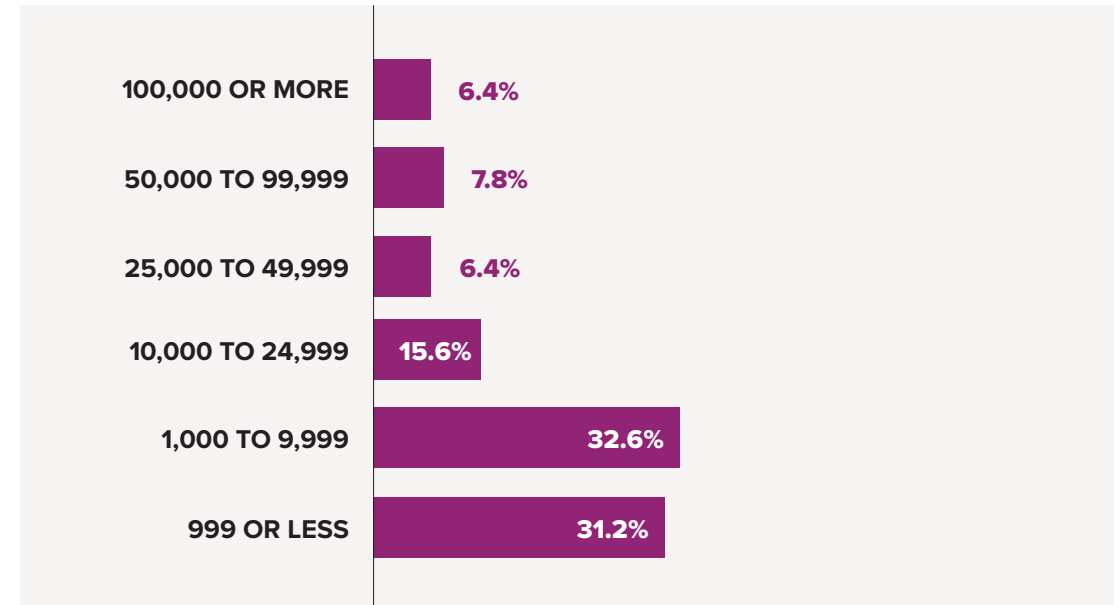
How we test things. “We rely on [author and business school professor] Vijay Govindarajan’s methodology. What’s the hypothesis, what are we trying to solve, what do we believe? We break that down into a set of core assumptions. What are the most critical ones, and where do you have the least amount of confidence? We aim to build the right success measures for each of those assumptions... For example, the drone had visual acuity up to four inches. You want measurable, really clear, discrete goals. Then, when you’re done with a test, you can really understand the results, and understand how you evaluate and go forward.”

ABOUT THE RESPONDENTS: INDUSTRY AND SIZE

What is your organization's primary industry?

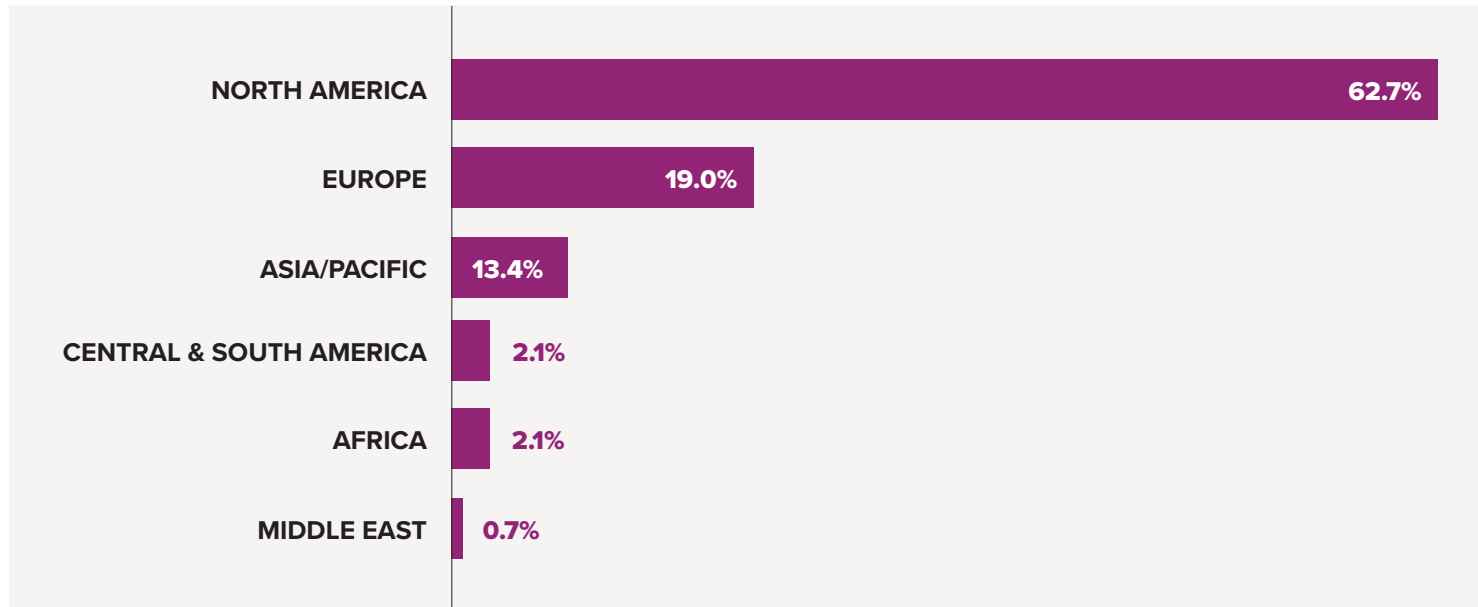
Financial Services	12.5%
Technology	11.2%
Consumer Goods / Consumer Products	9.9%
Healthcare	9.2%
Higher Education	5.3%
Industrial Manufacturing	5.3%
Non-profit or NGO	4.6%
Professional Services	4.6%
Pharmaceuticals & Life Sciences	4.0%
Energy & Utilities	3.3%
Media & Telecom	3.3%
Retail	3.3%

How many employees are in your organization?



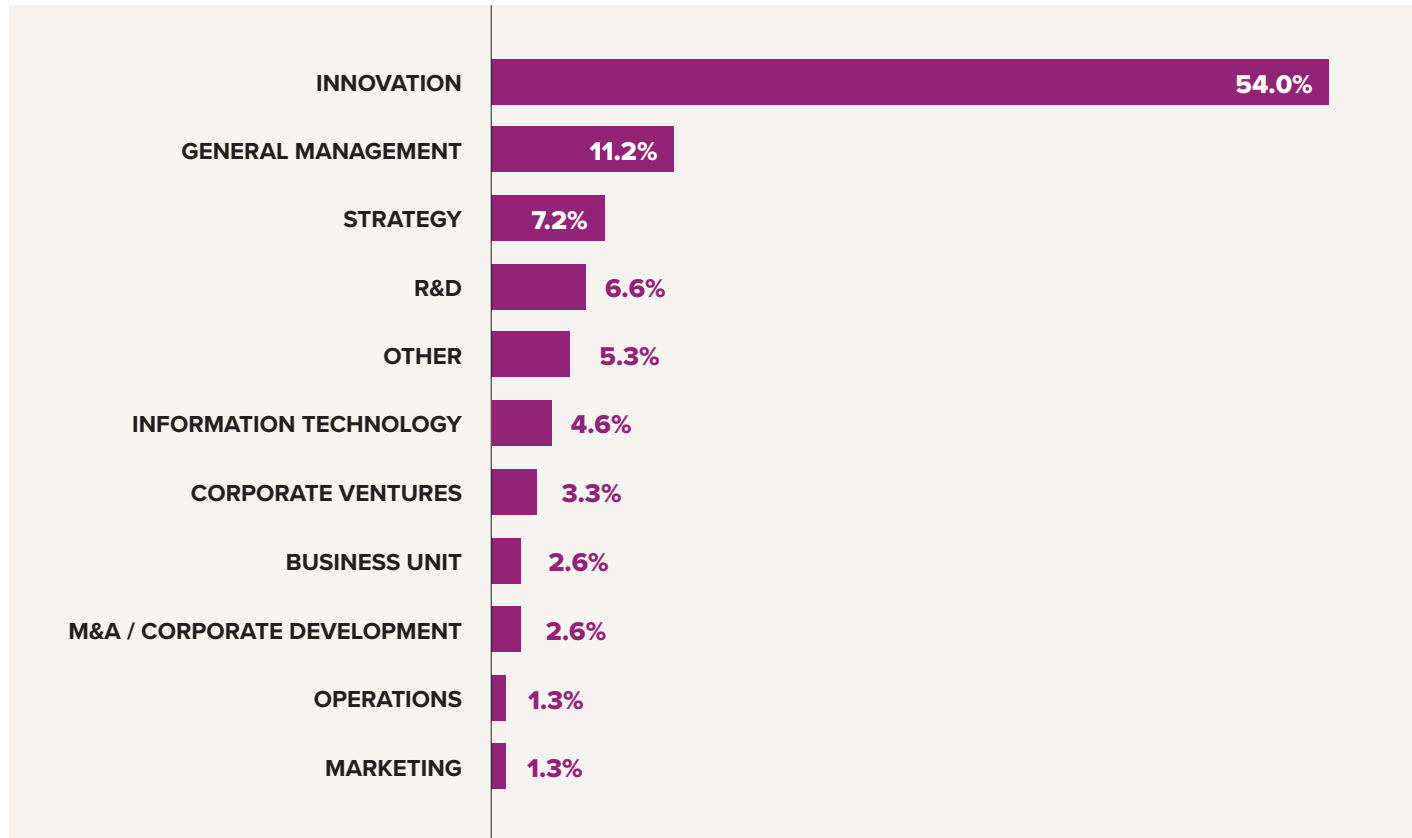
ABOUT THE RESPONDENTS: LOCATION

Where is your organization headquartered?



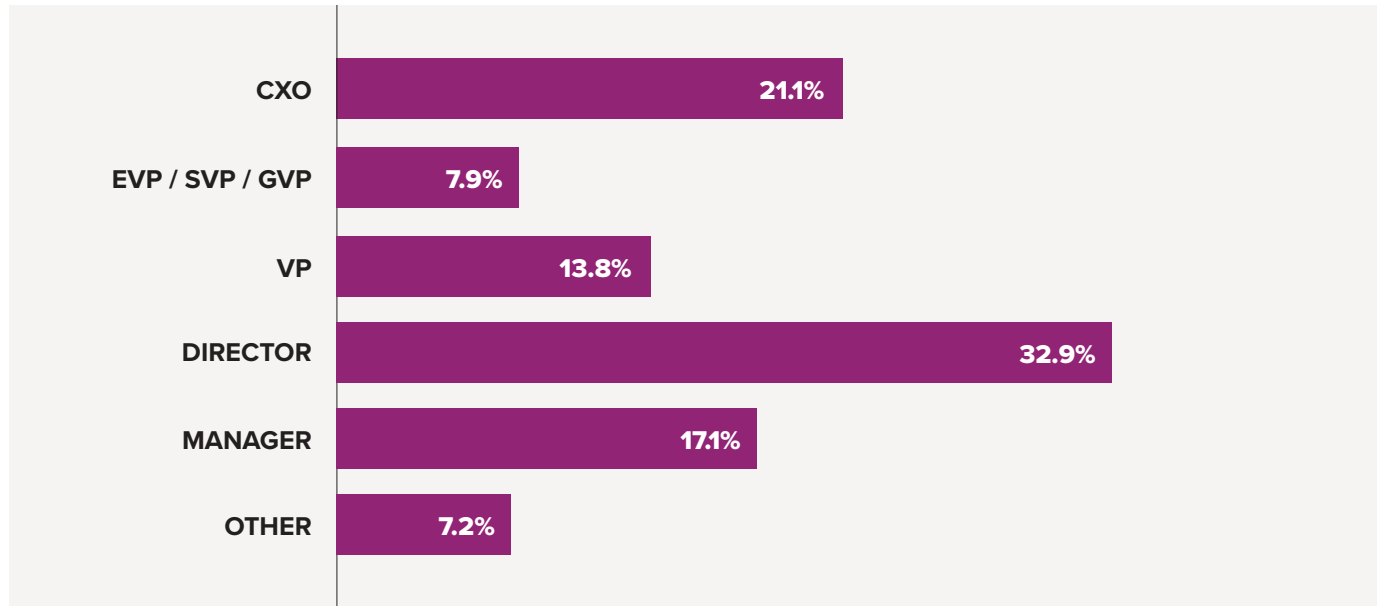
ABOUT THE RESPONDENTS: FUNCTIONAL AREA

What is your functional area or discipline?



ABOUT THE RESPONDENTS: SENIORITY

What is your level of seniority?





Valentine Heun
VP of Innovation Engineering
PTC

Uncharted territory. “At the Reality Lab I run at PTC, we’re looking into uncharted territory, three-plus years into the future. We’re an interdisciplinary team, [looking at] virtual reality, mixed reality, augmented reality, physical reality, things that profoundly change our perspective of reality. We want to build tools that give you a better understanding and control of the connected world around you. We want to give you a more intuitive user interface to the physical world.”

“I report to the CTO, and we have regular check-ins with the CEO. We’re a relatively small team, but we are part of the Office of the CTO’s ecosystem at PTC.”

We don’t have metrics. “We are not held to any metrics. We’re a special group that has no performance requirements, because that’s a really hard thing to do with innovation. How do you measure it? For five years you can feel unproductive, and then you have a eureka moment. The way I handle

that is I balance between the long-term ideas and the shorter-term rewards. You always have to keep that balance, with good support around you.”

Solving hard problems with new tech. “There’s a big communication component with it. You need to balance the innovation that you can show — the things that will amaze your customers and your organization — but you also have to have a pipeline of other ideas. One example of a tiny problem that we solved sounds unspectacular, but it’s so profound that I tried to solve it for eight years. Right now, the word ‘metaverse’ is a big topic. The concept is you can have many different stakeholders develop their own applications and services and bring them into the same digital space. However, in 3D graphics, that concept doesn’t exist. [We created a piece of code for PTC’s Vuforia Spatial Toolbox that] allows us to create these multi-stakeholder applications in the metaverse.”

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