

Research



Best Practices: Scouting Trends & Emerging Tech

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In every realm of business, there's easier stuff and there's harder stuff, fun stuff and not-so-fun stuff.



When it comes to helping a large company understand how the world around it is changing, the tasks tied to customer anthropology, trendspotting, and investigating emerging technologies can often be easy and fun.

Take the team to the Consumer Electronics Show, prowl the aisles, and enjoy the sponsored cocktail parties. Drop in on a few panels at South by Southwest in Austin. Spend a day hanging out on a university campus to visit the research labs doing work that's relevant to your industry. Observe consumers as they steer a shopping cart through the grocery store, or stand at the kitchen counter replenishing their pantry with a couple of mouse clicks. Attend a demo day organized by a local startup accelerator to hear pitches from a dozen enthusiastic entrepreneurs.

The harder, less fun part? It's the work that happens before and after that, as we learned in conversations with more than 25 innovation, R&D, corporate development, and strategy executives, and from 140 responses to a survey we fielded in the second half of 2017. Specifically, there were three activities mentioned that often don't get the time or attention they need:

1. Ensuring that scouting work is tightly-aligned with the company's overall strategy – though not completely constrained by it.

2. Communicating to appropriate audiences throughout the organization the results of scouting work in a clear way, so that they understand how the relevant trends and technologies may impact them.

3. Structuring ways to run small, quick pilot tests and experiments related to trends and technologies of interest, and then work with business units to take action on the successful ones.

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The #1 challenge, when your role is scouting new technologies & trends, is connectivity to the business.

If you find something valuable in academia or the startup world, how will you create the willingness on the business side to partner with them in some meaningful way, and eventually do something concrete? We have to pay a lot of attention to that, and kind of be the shepherds.

- Director at a consumer electronics co.

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As consumer behaviors change, and new technology platforms emerge, effectively scouting trends and technologies is becoming a much more important competency for large companies. They are realizing that their “10-year vision plans” are obsolete almost as soon as they’re committed to PowerPoint, and that they need to be much more alert to what is happening outside the corporate campus.

“The role of external sourcing of solutions has just become hugely more important in consumer R&D generally, and within Kellogg’s in the last half dozen years,” says Nigel Hughes, Senior Vice President of Global Research and Development at Kellogg Co. “Kellogg’s has a specific scouting team that was set up within the Global Innovation Team that has direct responsibility for scouting, although we do encourage... people [outside that team] to have their ears and eyes open for various opportunities.”

At Kellogg and other companies, scouting work is less “free-ranging” than it once was, and more tied to needs that have been identified by the business, Hughes says. “A lot of scouting...has moved from what I call idea-based to being solution-based, so it’s directed against big opportunities that we’ve identified from a commercial point of view.”

“We already know that we have certain consumer opportunity,” Hughes says. “We’re focusing our dedicated scouting efforts to finding solutions in those particular places... Scouting used to tend to be a much more open thing. It used to be: have you got any ideas?”

There’s a growing focus on the tangible outcomes of scouting work, too. “You go to conferences, incubators, and accelerators, and exchange business cards,” says Tatyana Zakrevskaya, AVP of Global Innovation at the financial services giant Manulife. “In my opinion, a lot of that is theater. It doesn’t always lead to a meaningful partnership or engagement with the ecosystem.

What’s more important is staying focused on what does that activity lead to?”

Focus, strategic alignment, and collaborating with the broader business are the hard work of technology scouting. In our survey, the three big challenges our respondents said they face are “connectivity to the business” (58 percent), properly scoping or identifying areas to scout (52 percent), and devoting enough time (51 percent). Rounding out the top five were “sufficient staffing” (37 percent) and funding (32 percent). Surprisingly, very few people (just 15 percent) said that their companies lack the right skills or expertise to properly scout trends and technologies.

When it comes to where scouting activity fits in the organization, responses were all over the map. Fully 79 percent of respondents told us that multiple groups or teams throughout the company are involved in scouting trends and gathering consumer insights, or that responsibility is distributed through the enterprise. (Just 15 percent said there was a single team doing that work.)

On the tech scouting side, it was a bit more common to have a single

team responsible — 34 percent of respondents said that was the case — but 56 percent of respondents said that they had multiple groups or teams doing the work, or that responsibility was distributed.

Typically, trend-related scouting activity was situated within consumer insights groups, marketing, strategy, product design and development, market research, competitive intelligence, a digital products team, innovation labs, emerging business units, business development, or the office of the Chief Customer Officer or Chief Client Experience Officer.

Tech-related scouting activity was similarly dispersed: at various companies, it sits in a labs group, emerging technologies group, research and development, mergers and acquisitions or corporate development, corporate venture capital, the office of the Chief Technology Officer or Chief Information Officer, open innovation or external innovation teams, or under a Chief Digital Officer. One respondent bluntly told us, “There isn’t someone responsible, but we need it.”

For simplicity, we defined five key activities involved in doing scouting successfully:

1. Aligning with strategy and setting boundaries

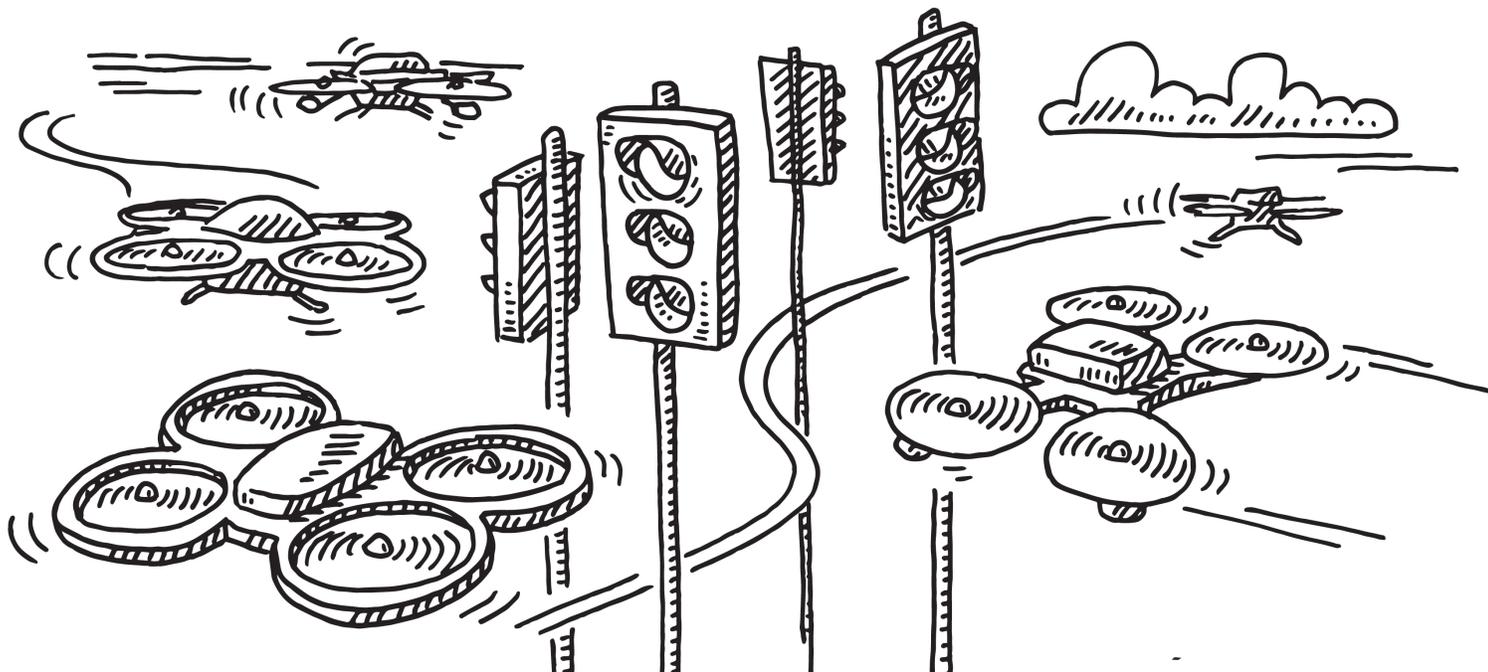
2. Operating the radar

3. Communicating what you see to the rest of the organization

4. Running tests and experiments

5. Helping the business deploy and scale the experiments that work

Most companies dedicate the lion’s share of their time and energy to simply operating the radar. But companies that are committed to staying ahead of trends and technology changes spread their resources to the other four activities, and engage colleagues beyond the core scouting team. They also treat scouting as a capability that is developed over time, and delivers value over time — not something that can be done in fits and starts, with executive off-sites and sporadic updates of a tracking spreadsheet. As with most things, patience pays off.



ALIGNING WITH STRATEGY

If corporate strategy is like a locomotive,

trying to pull the organization forward, the scouting organization shouldn't be exactly like a car attached behind it. Yes, it needs to be aligned with — on the same track — as the corporate strategy. It needs to be effective at supplying the locomotive with directional input — do we go right or left at that next switch, faster or slower? But the scouting organization also needs at times to detach from the rest of the train, off-road a bit, and follow faint consumer shifts or investigate early-stage technologies that may not be clearly tied to today's strategy.

Scouting needs to deliver clear value to the parts of the company pursuing today's strategy, but it shouldn't be entirely constrained by that strategy. It needs to be able to provide clear input as parts of the company re-evaluate marketing spend, technological infrastructure, the next iteration

of the mobile app, or how best to launch a new business model.

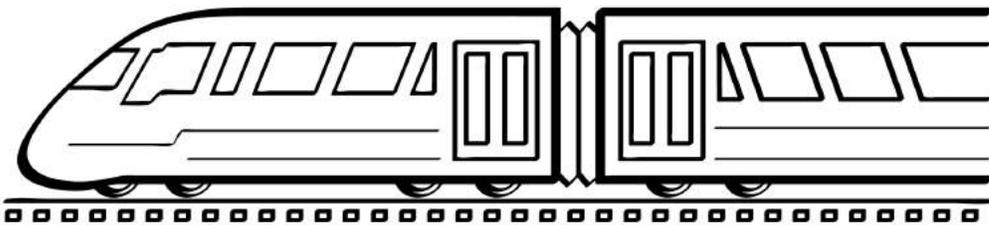
“Our mission,” says one SVP of corporate strategy at a publicly-traded software company, “is to be three steps ahead of our colleagues, looking at trends in technology or the culture, and weighing in on how they might disrupt our company. If we identify a trend like blockchain, we do some primary and secondary research on how it may impact our organization. We developed a hypothesis on its impact to our company and our industry, and recommended next steps.” That sort of work, he adds, eventually gets presented to the company's strategy council, consisting of the CEO and about twenty other leaders in the company.

We found that businesses consider three key questions when trying to define how scouting will work:

- **How much of scouting activity will be in service to the corporate strategy, versus hunting for “faint signals” that may not yet be woven into that strategy?**

- **How will business units provide input to the scouting organizations on their needs, challenges, and what they see as future opportunities? (In some companies, we found the scouting activity is situated within business units, so this is more of a continual conversation.)**

- **Are there boundaries defining what you will and won't put on the radar? For example, is academic research too raw to be useful to your engineering teams? Or are there certain technology areas or kinds of product that are simply incompatible with your company's infrastructure or brand?**



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You need a lens. That allows you to be more precise. We've found that broad exploration doesn't lead to a lot of meaningful outcomes.

- Tatyana Zakrevskaya, AVP,
Innovation, Manulife

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The answers will be different for every organization, but it's important to tackle the questions. If, for instance, business units provide little or no input to the scouting organization, it's unlikely they'll be motivated to participate in pilot tests, and the odds are high that they'll be disengaged from your quarterly presentations on what you're seeing in the world.

At one healthcare products company, the innovation team is told by the business units, "These are the things we're trying to solve for," so the innovation group knows how to focus its efforts. But with this approach, the business unit leaders have to be able to articulate their own strategy; acknowledge the holes in their own R&D or product development efforts; communicate those needs to technology scouts; and trust the scouts can deliver something useful.

But a manufacturing company said they take a more "white space" view, saying, "We don't know what we don't know." This participant said the company is looking at emerging technologies and trends, and then mapping them back to business units and their specific road maps. Still others said they tend to tie their trend- and tech-scouting efforts to specific end users, understanding where their core customers are moving, and scanning the landscape for technologies that can help meet those needs.

Scouting is time-consuming, and so most companies do try to define what is in bounds and out of bounds. "You want a portfolio that is diversified," says Sophie Vandebroek, Chief Operating Officer at IBM Research. "At IBM, the key big bets are on artificial intelligence, blockchain, and quantum computing. Underneath that, we have a whole bunch of smaller, earlier bets. But we decided, these are three areas where we must be leveraging the latest technologies; we must lead.

That sets you on the path to asking whether there are startups we could work with, other companies we could partner with, and of course, university research arrangements." By putting a clear focus on those three "big bets," Vandebroek says, the objective is "to create some assets that our business groups can then pick up and commercialize."

In some cases, the existing strategic planning process may not look far enough ahead to be useful for scouts investigating trends or technologies that are just starting to surface. At hospital operator Hospital Corporation of America, "the annual strategy and planning process does not structure horizons far enough for what [our innovation team is] trying to do," says vice president of strategy and innovation Chip Blaufuss. "It's very good in helping us understand where the fence posts are, what we're trying to accomplish as a company, and what our priorities are, and we can extrapolate and extend out from that." Blaufuss says he and a colleague, chief technologist Paul Currie, supplement that process with "a lot of one-on-one discussions to define strategy, so we can figure out what we're looking for, whether it is process, technology, or business-line innovation." When his team explores trends like remote telehealth services or technologies like artificial intelligence, "we work with our leadership to scope out [what we envision happening] into Horizon 2 and a little bit of Horizon 3."

Jens Rieger of BASF, the \$36 billion chemical company headquartered in Germany, cautions that the scouting process can be formalized only to a certain degree. "There are just too many items flying around in the open space," says Rieger, Senior Vice President of Advanced Materials and Systems Research. It's important, he says, "to use your experience and gut feeling [as to] what's a fit for BASF, what's doable, what's realistic, and what should be pursued."

OPERATING THE RADAR

Setting up a radar or sensing system...

is one of the activities that large companies have historically been good at.

But as customer needs change quickly, and old technologies are supplanted by new ones, even strong existing capabilities need to be improved. With trends surfacing globally, and technologies so democratized that small startups can have an enormous impact on an industry, it's important to have the right people in your organization tuning in to the right things in the right geographies.

Many companies use third parties like accelerators, incubators, databases, and other aggregators to help augment their internal capabilities. Those entities fall into four major categories:

1. PRE-SCREENERS

These are services and nonprofits like MassChallenge, the MIT Startup Exchange, university tech licensing offices, or industry-specific programs (i.e., the Starburst Accelerator in the aerospace industry, XRC Labs in retail, Greentown Labs in energy, etc.) that have vetted startups or intellectual property in specific markets, specific regions, or specific industries.

2. DATA SERVICES

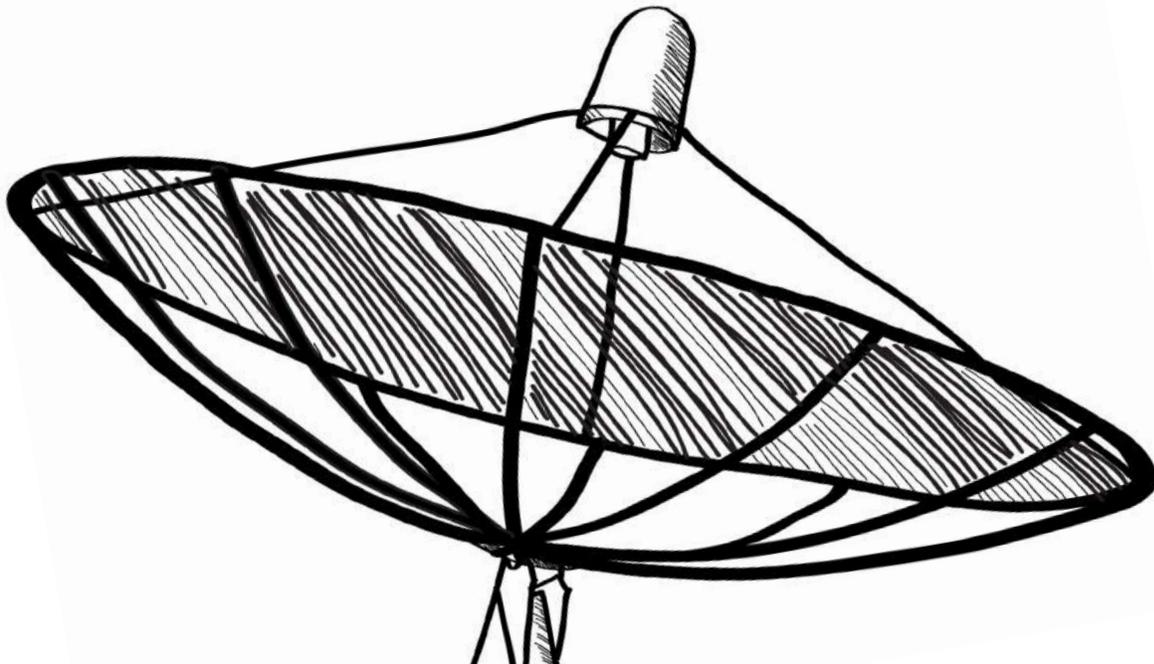
These are subscription-based databases like Pitchbook, CrunchBase, CB Insights, TrendWatching or other services that track or aggregate startups and trends. A few participants, however, argued that these services can be quickly outdated and can be a time sink. "You can waste a lot of time scanning through the thousands of companies in any particular market," one interviewee told us.

3. OPEN INNOVATION

These are strategies (some of which leverage platforms like SwitchPitch or InnoCentive) that enable companies to publish their needs to a universe of startups, academic researchers, or other outside parties. Those outside parties may respond with a solution to a specific problem, either for a defined financial reward or simply a chance to work with the company as an early customer.

4. TRADITIONAL SOURCES/GRAPEVINE

Other approaches include more traditional tactics, like attending conferences, networking at industry events, and purchasing market research and analyst reports.



“The key question that many companies struggle with is, “How can we stay on top of developments outside our own geography, and outside our immediate industry?”

While it’s easier to examine startups that show up at your industry’s annual conference, or work with universities based a few miles from your headquarters, that can create major blind spots and result in missed opportunities.

“We don’t look just in our local ecosystem,” says Zakrevskaya at Manulife. “You go where the expertise is.” But, she says, “most companies start [scouting] in their backyard, but they are not guided by a strategy or a theme.” One key strategic north star for Manulife is looking for startup ventures focused on wealth management, or “wealthtech.” She says that Boston, home to Manulife’s U.S. headquarters, isn’t particularly rich in wealthtech companies.

“For us, there are three categories that come to mind when we talk about how we scout,” says Zakrevskaya at Manulife. “One is looking to the startup ecosystem. The second is the venture capital ecosystem, and the third is academia. But you could probably create a fourth category of industry incumbents or progressive incumbents,” although she says that that last category is not as high a priority than the other three.

Leveraging the venture capital ecosystem, she explains, can involve simply meeting with VC firms to understand what they’re seeing in the market, or which startups they’ve invested in. But it can also involve putting money into their funds as a co-investor, to “get into the bloodstream of the startup ecosystem” and also obtain a stake in the companies they invest in. A

director at a consumer electronics company underscores the value of venture capital relationships, noting, “The most straightforward way to get a lot of attention – is if you are a limited partner [investor] in their fund. If you don’t want to form a full venture capital organization in your own company, you can set aside a little bit of money to participate in a handful of VC funds that are well aligned with the innovations you’re seeking.”

But, he adds, “most VCs are happy to build relationships with corporate development departments in large companies, without any investment, because large companies obviously provide a potential exit or potential customer for their portfolio companies.”

Sponsoring or participating in accelerator programs or incubators is another way to get insight into what’s happening among early-stage startups. It can be a good way, this director says, “to build deal flow in a geography where you don’t have employees located. But I can see innovation groups falling into the trap of doing a lot of meet-and-greets, but never honing in on the relationships you want to develop.”

At Xerox, Tom Kavassalis says that his team at the Xerox Innovation Group creates “heat maps” of trends and technologies on the rise by examining lists put out by publications like Technology Review and The Economist, and research firms like Gartner and Forrester Research. “We’re mapping those emerging

technologies against the industries we’re in, and color coding the heat against the time horizon in which we think those technologies are going to have a significant impact. So it’s hot if it’s impacting now, and if its 10 years from now, not something we address with the same urgency.” Those maps are internally crowdsourced, Kavassalis says, and updated about once every two years.

One software executive said his company reads “every analyst report, and we belong to consortia like the Industrial Internet Consortium. I also have a whole bunch of Google Alerts set for topics that are important for us to follow.” This executive also makes use of databases like Dun & Bradstreet, FactSet, and Standard & Poor’s CapIQ to research specific companies of interest. “We also go to conferences and trade shows, and we build market maps afterward,” he says. At Hospital Corporation of America, conferences run by tech companies like Amazon, Dell, and Cisco can be valuable, says Currie, the Chief Technologist. “Most often,” he says, “the benefit is learning or understanding the state of a technology, or what trend is emerging, rather than [finding] a company we want to go partner with.” Tech companies also come to HCA’s headquarters in Memphis to pitch ideas and offer their perspective on trends, Currie says.

Some executives with whom we spoke noted that leveraging interns had been extraordinarily successful for them. Rather than rely on business-unit or lab staffers to research trends or technologies, participants noted that interns bring energy, speed, insight, tech-savvy, and research prowess to the trend-tracking process. This is an inexpensive and high-impact way to get trend or tech scouting activity happening in an organization that currently doesn’t have it in place — or have enough of it happening.

Keeping tabs on who you've met with is a key challenge of this stage, whether you're connecting with academic researchers, entrepreneurs, individual customers, or other large companies interested in out-licensing their intellectual property. Some companies tell us that they are leveraging idea-management platforms like Imaginatik, Hype Innovation, or others to track and record information about these interactions. But others rely on more general purpose software like Excel or Salesforce, or have even built their own tools.

These tools can be helpful in many ways — not just for collecting and categorizing what you are finding, and sharing it more widely in the organization — but also for tracking who within your global organization has talked to which startups or researchers about what topics, so you avoid redundant meetings.

Most companies tell us they regularly encounter situations in which an innovation or R&D group looks to speak to a startup, only to find that another function or business unit has already talked to them. Minimizing duplication is critical, and devising strategies that are unique to your culture requires “discipline, not just software,” in the words of one interviewee.

One interviewee from an aerospace and defense company talked about balancing both “signal intelligence,” or smart searching algorithms, and “human intelligence,” or the necessity to be out in the community, meet startups, visit campuses, participate in industry conferences, etc.

Historically, many companies have relied on the corporate development group alone to identify fast-growing companies taking advantage of trends or technologies that weren't yet being embraced by incumbents. But “corporate development and M&A groups tend to look at companies

that will immediately bring in revenue, profit, and clients,” says Vandebroek. “They're not necessarily looking at the young startups with emerging tech; they are looking at more established startups.”

To spot those younger ventures, she explains, it's wise for a team within the CTO's office, the innovation lab, or R&D to be looking for seed round or A round companies — the first and second stage of venture capital funding — as well as work with incubators and accelerators to stay on top of startups in relevant industry sectors.

At IBM, Vandebroek says the company works with “many universities where we give them a million dollars a year for projects, and they're fully done by the professors. It's at arm's length.” But a new collaboration with MIT, the MIT-IBM Watson AI Lab, involves a different approach: a 100-person lab with two co-directors, one from MIT and one from IBM, based at an IBM facility in Cambridge, Mass.

“When we scout,” says Rieger of BASF, “We come across [about] 5,000 items per year — including topics, headlines, features in journals, discussions with professors, or companies. We very quickly filter these 5,000 items down a number that can be handled and documented — say 100-200 items. These topics are discussed within [our] group and [with] colleagues. Then we condense everything down to 50 projects. These projects are run within the typical BASF system, internally in the R&D department and also with partners and universities. We're quite flexible with outputs. We have regular projects with the business units.”

Another company in the materials realm, EMD Performance Materials, part of Merck Group, has a scouting approach that it refers to as “two in a box.” It pairs scientists or engineers at the company with marketers. According to James

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- Sophie Vandebroek, COO,
IBM Research

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Buntaine, EMD's Global Head of Technology Scouting, "We pair people up from the marketing or business development function with a deep technology person, and then look at the market share, market opportunities, and compare in any given area five to ten competing technologies that might address those market needs. We try to understand what are the strengths and weakness of external technologies we may be looking at — either at the university or startup level. And then with a short list, we will begin to dialog with those who are interested, and then go a step further."

Hackathons, challenges, and competitions can also be a useful way to identify important technologies and trends — whether your company is sponsoring them, participating, or just observing. A team at a healthcare hackathon may apply a new technology in a creative way to address a vexing problem, or a new startup may participate in a competition at

a logistics trade show as a way to show off the capabilities of its new robotic hand. In some cases, having your own researchers or engineers participate can highlight internal strengths that aren't sufficiently appreciated, or ways that their approach to solving problems is falling short as new technologies and tools emerge.

At multi-national companies, it can sometimes be surprising how small and centralized the scouting infrastructure can be. At Nokia, Leslie Shannon, Head of Ecosystem and Trends Scouting, consciously works to counterbalance that. Shannon, who is based in San Francisco, says she has built "a whole network of people about twenty people from all over the world. I get a lot of stuff from South Africa and Morocco. It's not just Silicon Valley, it's the whole world. When they see things in their local areas, they send me information." And, she adds, "Whenever they send me something, I make a slide about it, and...then I store the slides. I lay

them all out and say, 'Here's a story that I can build from this.'"

Increasingly, scouting is not just about finding one new supplier or technology to license, but assembling together multiple elements into something unique, or even, in the words of Nigel Hughes at Kellogg, building an ecosystem of companies interested in a shared goal. In one example he cites, the goal was reducing sugar content while not sacrificing taste. "We looked much more at the ecosystem of how we could find solutions, and bringing [multiple] partners together to provide solutions. And that's led us to some significant breakthroughs in terms in the way we've been able to manage the sugar level in our products while maintaining the great taste."

At Kellogg, marketers often create "opportunity briefs" for scouts who work in the R&D organization. "Our marketing colleagues...what they say to us, 'Look, if could solve this problem, we think we can turn this into a big commercial opportunity,'" says Hughes. "So we get members of the team to look for specific enabling technologies — perhaps ingredients, processes, etc... It works the same on the supply side. Generally, they're looking for new equipment or processes to drive efficiencies or to drive costs down." The results of the scouting activity then gets delivered back to the organization in the form of reports and an portal.

Scouting, even when done well, can at times be overwhelming. Says Blaufuss at Hospital Corporation of America: "There's more happening out there than we know what to do with. It can be hard to find the capacity to deal with it all and prioritize it all. There are simply more interesting opportunities than we have capacity to pursue."

Advice on Scouting from Nigel Hughes of Kellogg Co.

- 1. Be solution-focused, not ideas-focused.**
- 2. It takes time to set up a scouting program, so you need a level of patience, persistence, and consistency**
- 3. You must develop the ability, once opportunities come in, to be able to rapidly test them—to turn them into prototypes.**

COMMUNICATING TO THE REST OF THE ORGANIZATION

Even the most skilled organizations still have room for improvement...

when it comes to sharing the fruits of their labor. Our survey found 78 percent of respondents explaining that access to research on trends and technologies was either “extremely limited” or “somewhat limited” in their organizations. One respondent from the technology industry acknowledged that his company had “many gatekeepers and restricted flow” of information.

Other respondents said that access was “limited and fragmented,” or limited to executives only. Just 22 percent said access to scouting outputs was easy. And most companies also don’t rely on their employee base to contribute their own observations about the trends changing customer behaviors or the new technologies they are seeing competitors begin to embrace. Just 32 percent of survey respondents said that people outside of the “official” scouting organization can contribute what they’re seeing; 68 percent said there wasn’t really a mechanism for capturing any of that information. “We are currently evaluating the best way to do this,” said one respondent from the financial services industry.

Others are using tools like

Salesforce, Slack, Yammer, or intranet forums and blog comments to solicit this kind of input from employees.

Hughes at Kellogg Co., says that scouting teams at the cereal-maker “produce regular reports. We have a database that is searchable. We have a portal that people can access and look at. And we connect all of this. ...We connect all of this on a quarterly basis against our biggest consumer opportunities and technology opportunities.”

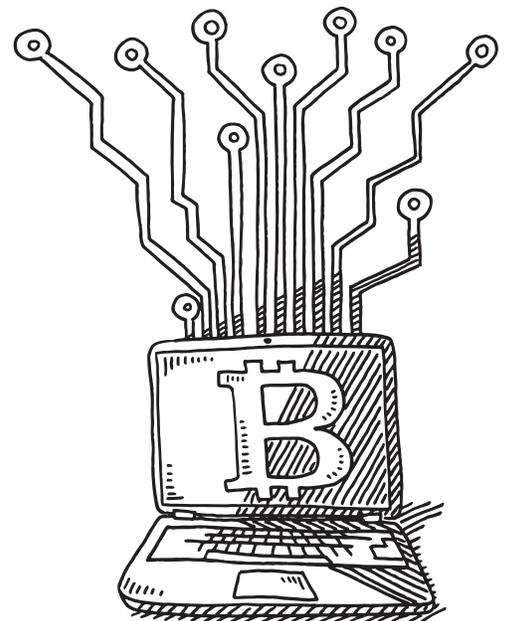
At one software company, analysts are responsible for compiling a newsletter on trends once every two weeks; it is sent out to an audience of about 300 people. “We have a rotational training program that I’m one of the sponsors of,” says an SVP there. “We have 15 analysts, and for two years, you rotate through different departments. One of those placements is doing competitive intelligence for six months. So they monitor the competitive trends that are happening in our core industries.”

In addition to publishing newsletters and blogs, companies tell us that they organize “lunch and learn” sessions to detail what

they are seeing, or sometimes produce short videos for company meetings.

But no matter how good you get at communicating findings, and presenting them in appealing formats, getting sufficient attention from colleagues can always feel like an uphill battle.

“Most companies have a problem in that it can be extremely hard to distract people from today’s core business,” says Kavassalis at Xerox.



RUNNING TESTS AND EXPERIMENTS

Not every function or business unit in a large company...

will be equally hospitable to testing a rough-edged product, or helping gather customer feedback on a new concept.

“As silly as it sounds, you have to go where the love is,” says Zakrevskaya at Manulife.

“We have a few stakeholders who have worked with us before, and they see the value, and tend to be more accepting of the opportunities we present.” It’s important to educate those stakeholders and keep them apprised of scouting activity and potential pilot tests. “You need to find a supportive sponsor or stakeholder on the business side who is willing to try something different, and you need to clearly articulate the benefits to them,” she says.

It is helpful to work with startups that have more mature management teams, and have worked with large companies before as customers, Zakrevskaya adds. In addition, working on a startup’s behalf to expedite approvals in the legal, compliance, and procurement groups can be the different between a successful and failed collaboration. When working with business

units and functions throughout the company, she says that there is “a lot of relationship-building work. You almost want it to be their idea. You give them enough information about a company for them to be interested enough, and see themselves in that solution. It can require a lot of in-person meetings. You don’t want to come across as, ‘I know your business better than you do.’”

And following a collaboration or pilot test, she says, “you document, measure progress, and celebrate successes.”

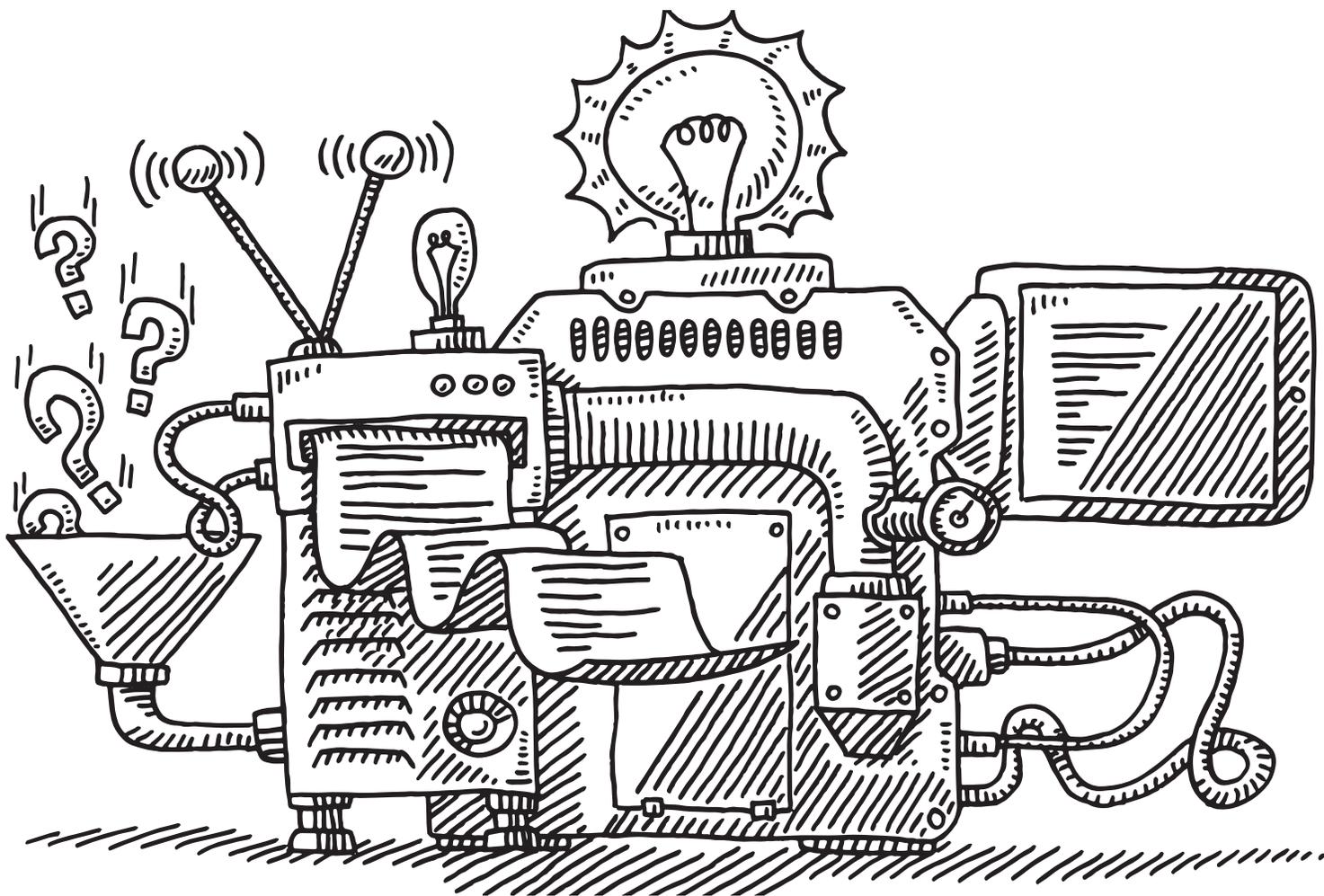
At a consumer electronics company, one executive told us that he tries to set up monthly meetings between relevant startups in which his company has invested in “key decision-makers” in a business unit at his company. Those meetings, he explains, “help build a relationship, so

the business unit sees and hears what the startup is doing, and the business unit leader can say, ‘These are the things we’re focused on, and the things we need.’”

Several scouting executives said that members of their team regularly sit in on meetings with senior business unit leaders. “That keeps us pretty clued in,” said one SVP. “They can say, ‘Hey, can you do a project on electric vehicles and what’s the impact to our business?’”

At Hospital Corporation of America, which operates 174 hospitals and 119 surgery centers in the US and United Kingdom, about eight sites have been designated as “hospitals of the future.” Many are larger hospitals, and closer to the company’s Tennessee headquarters. “They are very adept at adopting technology, and so we look to launch

“Our executive leadership has insights into the portfolio of work, and they’re giving us the thumbs up. So when we come back and say, ‘it works,’ they’re ready to go.”



technologies there,” Currie says.

The business-side executives at HCA like for new technologies to be tested “where the problem is worst.” So, for instance, with a diabetes management solution that relies on mobile devices, “rather than going to the hospitals where we already have good glycemic management performance,” Blaufuss says, “we went to the hospitals where our performance is below average and worked with the teams there to figure out, would this solution help them?”

Most pilots at HCA “tend to mean that we’re going to roll to production at some point and go wide,” Currie explains. But not always. Another pilot with helping patients and their families find

their way around a hospital didn’t show enough clear advantages. “We felt it wasn’t ready yet, and we said, ‘Let’s take a step back.’”

But Currie and Blaufuss says that the vast majority of projects they pursue have sponsorship from business unit leaders. “We’re not going off and pursuing stuff that’s my little secret project,” Blaufuss says. “Our leadership has insights into the portfolio, and they’re giving us the thumbs up. So when we come back and say, ‘it works,’ they’re ready to go.” There isn’t the need to go and “shop” the solution around to find someone who is willing to adopt it. “They’ve been with us all the way,” Blaufuss says.

IBM’s Vandebroek, who previously served as Chief Technology Officer at Xerox, says

she is a big believer in working on having research groups work directly with paying customers as they are trying to test bleeding-edge technologies.

“If you are trying to use AI or detect early dementia, or help to discover food safety issues, the best thing is to work with some companies interested in solving these problems. The customer pays the researcher. You do two or three, and that gives you the money to build assets that are way more mature. So when the business group needs to scale it, and make sure [the software you’ve built is] hyper-secure, there is something that they can pick up. The business unit itself might need to do a lot of work on the code itself, but they didn’t have to pay for all the development

or research, so they get it at a lower initial cost.” Not only does the business unit invest less, but there is already a customer base that can be used as a reference, to build credibility for the eventual product offering.

When working with startups, it can be complex to try to get a big company and a small company to jointly develop a product together, for all sorts of legal, technological, and cultural reasons. “When you spend six months negotiating an IP agreement,” says Vandebroek, “that is way too long.” So at Xerox, she says, “what we learned to do was say, ‘Don’t give us your code, let’s not try to jointly create one product,’ but rather, ‘Why don’t you become part of the solution we develop, and we will give you a royalty when we sell a product?’ That way, they could say they were a partner with Xerox. It was always arms-length, and it put them in a better position.”

Some trends and technologies may not fit neatly into a business unit, and in those cases, companies may try to create a protected space to cultivate them for a few months or years. Innovation labs, emerging business groups, internal startups, or “incubation zones” are some of the structures our respondents create to provide that safe space. “We may be working on a business opportunity related to a new technology, and we know it won’t be hyper-profitable for five years,” says one tech company leader, “but it’s the next wave that’s coming. So the metrics by which we’re judged when something is in that ‘incubation zone’ are different than profitability.”

Similarly, at Xerox, Kavassalis says that a “new starts” group exists to help assemble pieces of technology from universities and startups that “we might put together in an overall solution.” The participants include people

inside and outside Xerox. “The hard part is actually finding that fine line between a minimum viable product — so you don’t spend tens of millions of dollars creating something — but has a big enough potential market that will have some momentum after” it leaves that incubation group.

BASF frequently collaborates with universities around the world to explore the potential of new materials, like one developed at Harvard to limit the build-up of dirt and ice on surfaces. But each academic project gets a champion internally, who serves as a liaison between the corporation and the academic researchers.

“When we identify something at the university,” says Rieger, “we try to identify persons within our R&D departments to take over this project, to make them the owner of the project, which then circumvents the “not-invented-here” syndrome.” The objective, he explains, is to develop “strong relationships” between key university researchers and BASF that endure. In 2014, BASF helped fund a startup company, SLIPS Technologies, that evolved out of the Harvard collaboration.

It can be tough to find employees with the bandwidth to help with evaluations or pilot tests. At EMD Performance Materials, technology scouting head James Buntaine says they sometimes hire external consultants. One common milestone is to try to “build a demonstrator” or prototype, Buntaine says. “There’s no better way to learn or discover what you know and what you don’t know than if you put it into a working device, and that’s when you really find out where you’re at. ...The demonstrator may not be pretty, it’s not in a nice casing. It might not be ready for the consumer, but if the function is good, that’s generally the harder thing to get right.”

Sidebar: What’s On The Radar?

At a September 2017 roundtable in Boston, we brought together sixteen senior executives from a range of industries — healthcare to telecom to tax preparation — to discuss how their organizations conduct trend and tech scouting. The dozen topics that came up most often were:

**Artificial
Intelligence**

**Augmented
Reality**

Automation

**Connected
Products**

**Digital
Commerce**

**Data
Visualization**

Informatics

**Internet Of
Things**

**Machine
Learning**

Smart Cities

Telematics

Virtual Reality

HELPING THE BUSINESS TAKE ACTION

At BASF, the German word **verbunden**, “connected,” gets used often.

“We have a very strong network within our company. So many of our people know many other people. We have town meetings, and we strive to make the connections between the business’ operating divisions and the research as good as possible,” Rieger says.

That sort of interwoven connectivity describes the ideal relationship between scouting organizations and the rest of the business.

One interviewee noted the importance of co-funding projects with business units. “When we find something we like, we try to get a 50-50 investment split between the innovation center and the business unit, so there is buy-in and a process for handoff,” he says. (For more on how innovation teams and business units work together, see our 2017 research report, “Innovation Teams and Business Units: Allies or Adversaries?”)

In some organizations, business unit leaders are pulled in to help vet startup investments or potential acquisitions. And in many, staffers from an innovation group are sometimes temporarily transferred into the business unit to ensure that pilot tests can scale successfully, or that a prototype evolves into a finished product.

At times, it may feel like the business units are pulling scouting organizations closer to the near-

term, to fill a specific need in their product road map or fill in a crucial piece of data about what’s happening with an existing customer set. There may also be instances when the scouting organization, to return to the train metaphor, seems like it is completely off the tracks, going to some area where it’s questionable you’d ever want to run a train. For those reasons, flexibility, diplomacy, and good collaborative relationships are essential to high-performance scouting organizations. Insularity and dogmatism can be fatal to them.

And as much as “C-suite buy-in” has become a business cliché — you need it to get anything significant done in a big company — it is important to building and sustaining a scouting operation, too. Senior leaders need to sincerely believe that exploring possible futures is worth an investment over years. And they need to communicate throughout the organization that it is important for everyone to have a nuanced understanding of how customer and market needs might change, or technology might evolve, rather than a simplistic one.

Scouting, after all, is about mapping out a number of scenarios that could create threats or opportunities, rather than putting all of your organizational “chips” on a single one and hoping for the best.

“The list is a long one of companies that were disrupted by something they didn’t realize would be important to them, or to their customers,” one software industry executive told us.

Despite that, says Kavassalis at Xerox, complacency remains a huge impediment. “When you’re successful in an industry, you feel like everybody else knows less about an industry than you. That’s particularly true in very capital-intensive industries where they don’t see competition coming from anywhere other than a competitor who looks just like them.”

Part of the mission of an effective scouting team is to help their colleagues expand that narrow perspective, and to understand that what is happening outside the organization’s four walls can represent not just existential threats, but transformative opportunities.

As Nigel Hughes of Kellogg puts it, “However many resources you have internally, you’re never going to be able to reach the level of innovation you can achieve with external partners and scouting. It’s very straightforward.” ♦

SURVEY RESULTS

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Who Scouts Trends?

The survey asked, “Is there one clear person, a group, or multiple groups that are responsible for customer/market trends and insights at your company?” Customer Insights, Customer Foresights, Market Intelligence, Market Research, Industry Competitive Intelligence, Insights & Analytics, Marketing, and Strategy were the most common groups people mentioned.

ONE INDIVIDUAL

2.1%

A SINGLE GROUP OR TEAM

14.9%

MULTIPLE GROUPS OR TEAMS

78.7%

NOT SURE

4.3%

Other respondents said that at their companies, responsible groups included Innovation Groups/Labs, Product Design and Development, Advanced Engineering, Corporate Development, Emerging Business, IT Architecture and Technology, Enterprise Architecture, Research and Development, Corporate Venture Capital, and M&A.

Chief Customer Officers, Chief Client Experience Officers, and Innovation Scouts were some of the titles responsible for trend scouting that didn't fit distinctly into any of the groups mentioned.

Other comments:

“For general and high level analysis of trends, we use a corporate-based team called Global Insights. Our team also acts as a clearinghouse for segment-specific research conducted by marketing associated with each product line or customer segment.”
— Manufacturing respondent

“The company has tried to centralize it, but also celebrates that various people have various methods. The one issue is when it comes to services we pay for, ensuring that if we pay, enough people have access.”
— Entertainment/media respondent

“We have an office of corporate strategy (head is VP of corp strategy) that does this in the near term; a separate x-org future team looking at long term trends; a newly-created innovation lab mainly using but also collecting some of this info; and then business units do a lot of this work themselves (but not well organized, not effectively.)”
— Professional services respondent

“Responsibility is within the line of business and the titles are inconsistent between lines of business.”
— Energy/utilities respondent

“Responsibility is disjointed and siloed, at best. There is also no clear plan for sharing information.”
— Healthcare respondent

Who Scouts Tech?

The survey asked, “Is there one clear person, a group, or multiple groups that are responsible for emerging technology scouting at your company?” R&D groups, CTOs, emerging business or technology teams, and innovation teams were the most common responses to this question.

ONE INDIVIDUAL

2.9%

A SINGLE GROUP OR TEAM

33.6%

MULTIPLE GROUPS OR TEAMS

55.7%

NOT SURE

7.8%

Respondents also mentioned M&A groups, Chief Digital Officers, VPs of Digital Health, Digital Engagement groups, IT Strategy teams, and external innovation departments.

Other comments:

“Everyone is kinda responsible for keeping their eye out for the latest greatest technology that can make us and our customers more successful. Some groups do it better than others. You also have to look at highly technical things and less technical things. A platform like Salesforce is great but it focuses on solving one set of broad problems whereas a technology like blockchain could solve many problems in many verticals. A procurement person may look at Salesforce or another more emerging tool and want to have that in their tool chest and start using it right away where a technologist may want to explore the cutting edge tech without knowing how it will be useful right away. We need both perspectives.”

— Telecommunications respondent

“Our corporate R&D staff are generally responsible for early stage technology scouting. One individual is a focus for tech scouting not related to current markets or products (adjacencies).”

— Manufacturing respondent

“R&D leads technology scouting, IT leads relevant tech scouting within their domain, and a separate business innovation team leads technology scouting for disruptive opportunities.”

— Aerospace/defense respondent

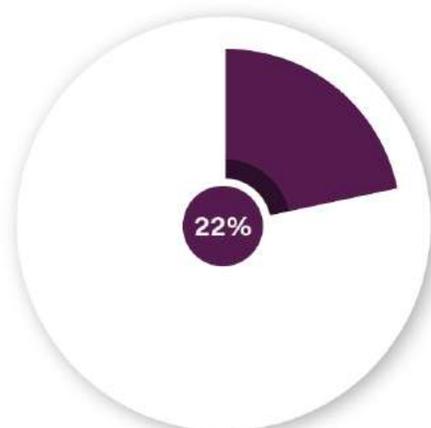
“I would say that the departments within the Business Development division are the most dedicated to emerging technology scouting and do it on a daily basis.”

— Hospitality respondent

Access to Data

Can others in the company access customer trends or emerging technology research? (For example, is there an online portal, or an annual or quarterly presentation? Is access to this sort of research “upon request” or limited?)

ACCESS IS EASY FOR OTHERS



“We provide a Daily Innovation Briefing to a large distribution list at the bank, a monthly Innovation Trends newsletter, and [we] use CB Insights Collection functionality to curate data on areas of interest for targeted special interest groups...”

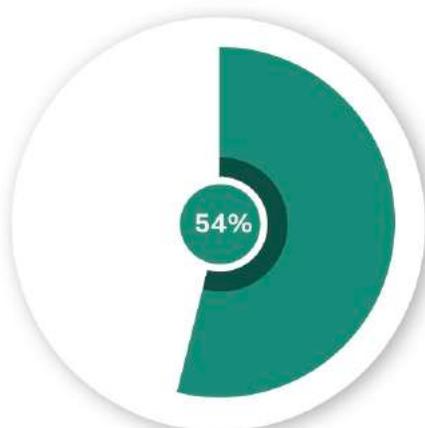
“[Access to research is] upon request, except for presentations to stakeholder groups. It’s not because we want to limit the flow of information... Pretty much anyone who requests can get access.”

“If you know the right people to ask, they tend to share freely. But... you have to know what you are looking for and who to go to.”

“Trends info is readily available, emerging technologies less so.”

“Customer trends is more accessible. Tech trends are not widely available.”

ACCESS IS SOMEWHAT LIMITED



“We try to send the customer trends info out wide, but corporate policy prohibits us from sending to everyone in the company. Also, we can’t make people read their emails. We do presentations regularly.”

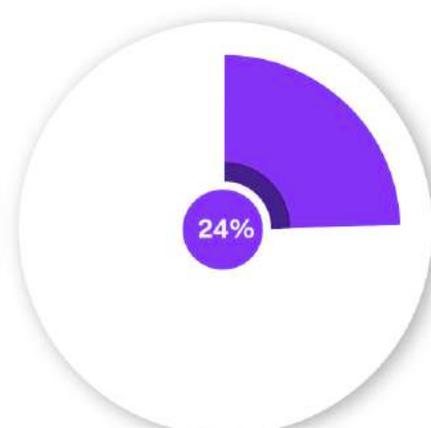
“There’s not a centralized location where all [this research is] available. Access is granted upon request, and on a ‘need to know’ basis.”

“There is no central repository available to rank-and-file employees. There is information in annual strategy documents, but distribution is fragmented and limited.”

“There is a crude system being developed, but this is the first of its kind designed for broad visibility.”

“Research is accessed from a pull perspective, not much on the push. No central platform to share.”

ACCESS IS EXTREMELY LIMITED



“No standard process; no central location; tribal knowledge.”

“Many gatekeepers and restricted flow. Customer trends and emerging technology are kept separate not because of choice, but by legacy budgets.”

“We don’t have a great system for sharing trends across the company on topics of mutual interest. We do a somewhat better job within divisions, but not great.”

“We are actively pursuing ways to make this information more freely accessible, but it is currently quite siloed.”

“No structured approach yet.”

“Generally limited to executive level.”

“I’m not sure where to find all the resources we have in my organization.”

Other comments on access to data throughout the company:

“Customer trends are provided proactively to our executives, but only by request to others. Emerging technology trends are disseminated by our Enterprise Architecture team quite frequently to most of IT and more recently to a key group of business leaders as well, with plans to expand this.”

“Access to trend information is limited to executive management. Access to emerging tech research is widely accessible throughout our organization, which is focused on R&D.”

“Customer trends are public and sent by e-mail. Tech trends are limited to a selected pool of people.”

“We post info online and in team rooms. Not everyone is able to access this info.”

“General trends and technologies

“We are open to having anyone review the information, but are a little behind in making it easily available. We are currently working on some in-house collaboration tooling to make it easy to get access to the content.”

are accessible via the intranet.

Sensitive information is restricted to specific groups/individuals with a need to know.”

“There’s a trends presentation that’s done once a year.”

“We’re planning to distribute short briefs & host webinars on key technologies we assess, and eventually share broader plans.”

“Access not limited for customer trends, but not easy to navigate. Emerging tech research is completely siloed, or not done very well at all/not formalized.”

“It’s out there in the open on our

corporate portal, but do people actually seek it out? Not often. If you want folks to know more and draw them in you have to start blogging about it, [and] run hackathons and workshops to capture their interest and point it in the right direction. I’m still writing and talking to people about automation which I highlighted five years ago as a trend to watch, and it’s just now starting to gain traction with other people now saying that’s something we need to be more aware of and focused on and invest in. What I’ve learned is you can’t just set it and forget it. You have to stay on these trends, keep people aware, and continually tie it back to your business and value it creates for your customers.”

Survey respondents listed these resources as the main ways technology and trend scouting data is disseminated throughout the company.

**INTERNAL
BLOGS**

VIDEOS

**BRIEFINGS/
FORUMS**

SHAREPOINT

**ONLINE
PORTAL**

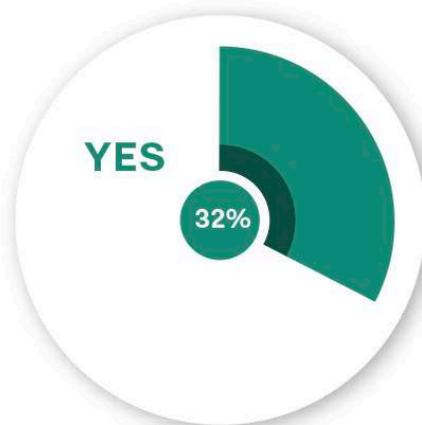
GOOGLE+

Ways to Contribute Observations

Is there any software or system so that people outside the “official” trends or technology scouting groups can contribute their observations — what they are seeing out in the world or with the customers they serve? If there is software or a system in place, what is it?

YES, WE USE CONSULTANCIES

NO, WE DON'T USE CONSULTANCIES



GOOGLE+

“Everyone can post trends/tech scouting to Google+ communities but it’s mixed in with a lot of other departmental stuff.”

CHATTER

“We do have an intra-company “Facebook” (Chatter) where people can post interesting things/ideas they’ve spotted.”

SHAREPOINT LISTS AND COMMUNITIES

YAMMER

“For employees to share their learnings, observations, and to ask questions.”

CB INSIGHTS

“The CB Insight Collection functionality enables folks at the bank to add comments and articles. We also use an instance of Bright Idea to ‘crowdsource ideas.’”

JIVE

“Anyone can post something about a trend, blog about it, create a Jive community. It’s pretty slick. I just read an article someone posted about Blockchain and they are far from the tech tree, which is great to see.”

SOPHEON'S ACCOLADE SOFTWARE

EMAILS TO SCOUTING GROUPS

SLACK

INTERNAL SOFTWARE/ WEB PORTAL

EXCEL

DIIGO

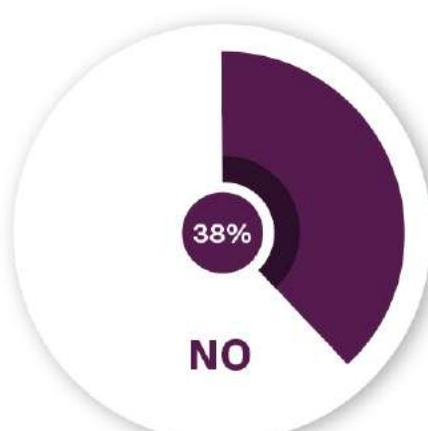
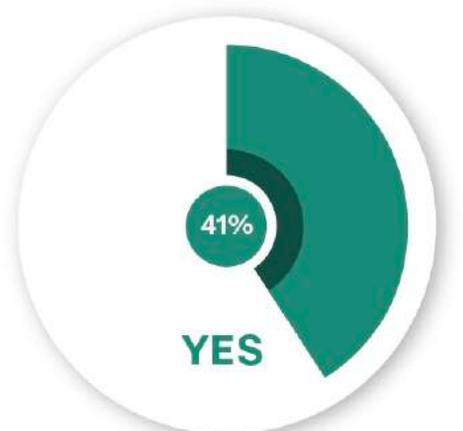
Trend Scouting Help

Are there consultancies or software products you rely on for scouting of trends? If so, which ones? (The numbers in parentheses indicate the number of mentions each firm or software product received.)

YES, WE USE CONSULTANCIES

NO, WE DON'T USE CONSULTANCIES

NOT SURE



**FORRESTER
RESEARCH**
(6)

GARTNER
(5)

**CB
INSIGHTS**
(5)

DELOITTE
(4)

PWC
(4)

ACCENTURE
(3)

MINTEL
(2)

**BOSTON
CONSULTING
GROUP**
(2)

**TREND-
WATCHING**
(2)

**CBE
ICONOCULTURE**
(2)

MCKINSEY
(2)

**TREND
HUNTER**
(2)

These other consultancies were mentioned by respondents:

- Bain
- Consumer Technology Association
- Datassential (food industry)
- Ezassi
- Finnovate (financial services)
- Futuresource Consulting
- IBM
- IDEO
- Innosight
- Eureka! Ranch
- Innovation Leader
- Javelin Strategy & Research (financial services)
- JWT Intelligence
- Kantar US Insights
- KPMG
- LIMRA (insurance & financial services)
- Microsoft
- NineSigma
- NPD Group
- Outsell
- RTI International
- Singularity University
- Stylus
- Trendera
- UDU.co

Other comments:

“Most are pretty generic and not really helpful.”

“Various free or inexpensive content providers.”

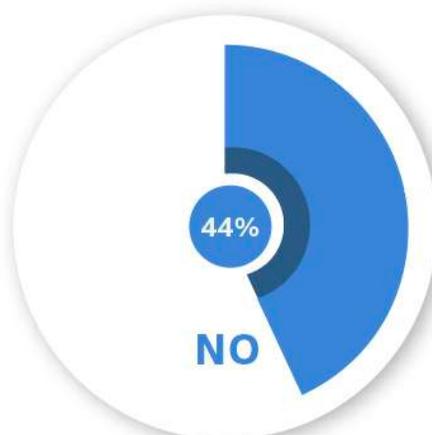
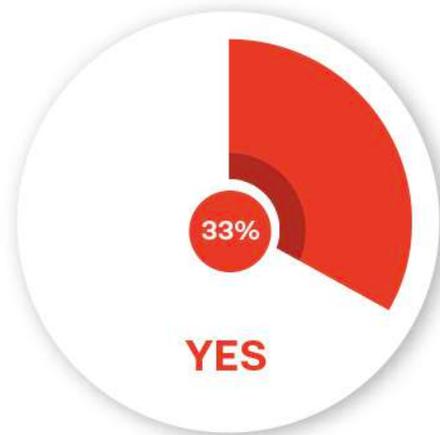
Tech Scouting Help

Are there consultancies or software products you rely on for scouting of tech? If so, which ones? (The numbers in parentheses indicate the number of mentions each firm or software product received.)

YES, WE USE CONSULTANCIES

NO, WE DON'T USE CONSULTANCIES

NOT SURE



GARTNER
(8)

FORRESTER
RESEARCH
(5)

CB
INSIGHTS
(4)

MCKINSEY
(2)

LUX
RESEARCH
(2)

These other consultancies were also mentioned by respondents:

- Accenture
- Bain
- Boston Consulting Group
- CEB
- Deloitte
- eMarketer
- Finnovate (financial services)
- IDEO
- Innocentive
- Innoget
- Innovation Engineering from Eureka! Ranch
- L'Atelier BNP Paribas
- MJV Technology & Innovation
- NineSigma
- PriceWaterhouseCoopers
- RTI International
- Silicon Valley Insurance Accelerator
- Singularity University
- StartUp Health
- Startup Milwaukee
- SwitchPitch

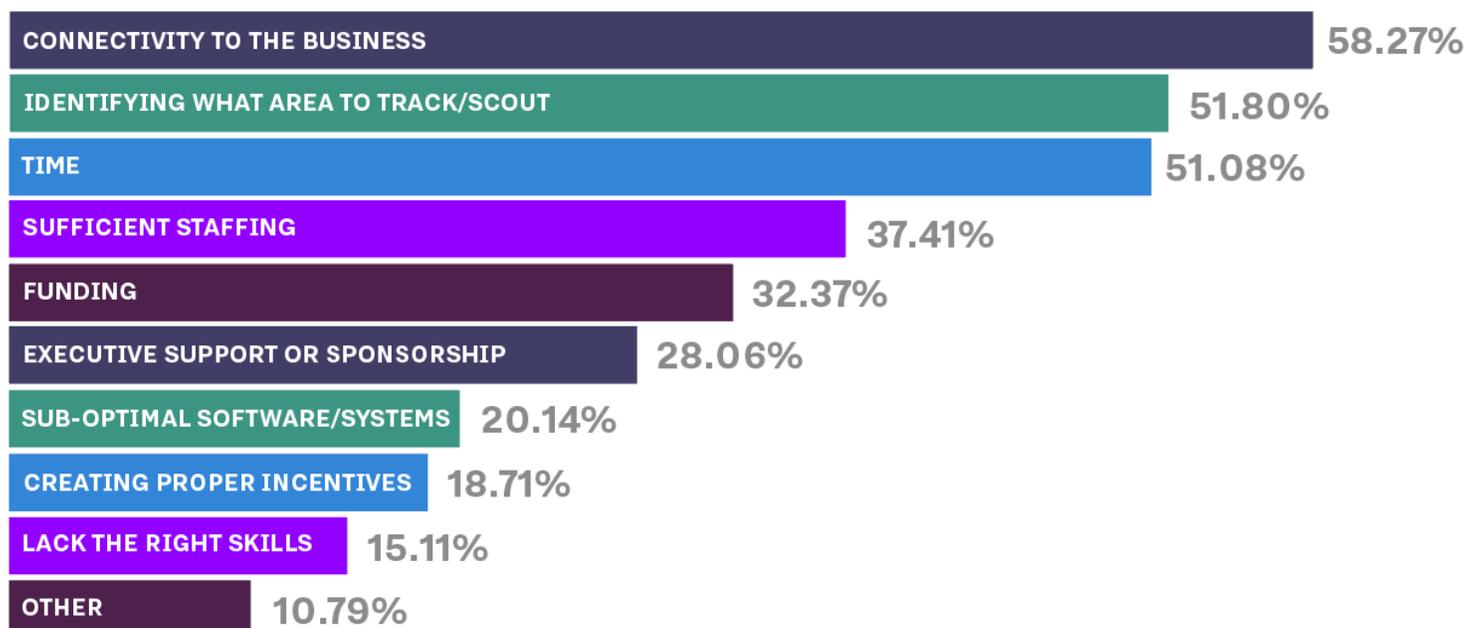
Other comments:

"[We use] various free or inexpensive content providers."

"[We rely on] intellectual property search firms, accelerator programs in our industry."

Scouting Challenges

What would you describe as the biggest challenges of doing emerging tech and trend scouting well? Please check all that apply as significant challenges to your organization.



Other challenges mentioned include:

“Sharing the information.” — Healthcare industry respondent

“The sheer volume of information and sorting it out.” — Medical device industry respondent

“Avoiding too narrow a focus; finding the non-obvious related innovations.” — Professional services respondent

“Connectivity externally.” — Consumer packaged goods respondent

“Sorting out valuable tech from a waste of time.” — Energy/utilities industry

“Focus...too many things are im-

portant, and [there are] not enough people per each.” — Energy/utilities industry

“Business model definition.” — Appliance manufacturer

“Bringing the very dispersed tech/trend activities together to enable proper coordination.” — Education respondent

“Consolidating efforts and building on synergies across lines of business within the organization.” — Energy/utilities industry

“Ensuring we leverage both [trend and tech scouting appropriately.] Trends can lead you down a niche market path, and emerging tech is often hard to translate into business opportunities for cross-func-

tional teams.” — Food and beverage respondent

“Measuring success.” — Insurance respondent

“Difficult to get focus on emerging opportunities; very focused on near-term plans.” — Consumer packaged goods respondent

“Executive support or sponsorship.” — Consumer packaged goods respondent

“Signal processing: are some people’s interests representative and if so, how much?” — Professional services industry

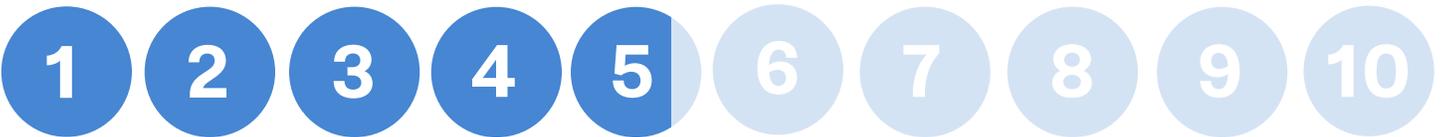
“We have internal resources and no challenges.” — Healthcare industry

How Well Are We Doing?

How well do you feel the company integrates research on consumer trends into its business? (i.e., if you become aware of a change in customer behavior, how quickly does the company respond with a new or updated offering? On a scale of 0-10, the average response was a 5 for how well companies were intergrating trend research.



How well do you feel the company integrates research on emerging technologies into its business? (i.e., if there is a technology shift, how well do you adapt to it?) On a scale of 0-10, the average response was a 4.8 for how well companies were intergrating tech research.



Advice from Respondents

We asked survey respondents to share their recommendations and lessons related to scouting trends and emerging technologies, and integrating the results of that scouting into the business.

SETTING STRATEGY

“...It is about understanding your landscape and what you want to follow. If there is a badly defined innovation thesis, your scouting and tracking will be haphazard and done on an ad hoc basis.”

“Know what you are looking for before you go scouting. Have a clear problem to solve.”

“Include executives in the initial stages. Take a structured approach. Link to strategy.”

TACTICS AND TOOLS

“Get engaged with an accelerator program and go to conferences to supplement your desk research.”

“You have to be in the startup bloodstream, rather than observing from sidelines. One way to accomplish this is through investing and partnering.”

“The best example...was something I saw a customer had done. They took 30 to 40 trends/emerging technologies and starting at the top of the document captured all the buzzwords. Then at the bottom of the document they had the specific products and services these things mapped to or could map to. In between the top and the bottom was the ‘how.’ How does something like blockchain impacts a bank’s products and services. Here’s what it looked like:

Blockchain > Open digital ledgers > Ethereum > Private digital ledgers > Wealth management > Transactions on private digital ledger > Lower fees. So they connected it really well, and it made you go, ‘Aha, it’s not just blockchain for blockchain’s sake. I get it.’ That’s where you want people to get to. That ‘Aha’ moment.”

“Focus on collecting, synthesizing, and clearly/concisely communicating info that business units can use; make specific suggestions / recommendations for business units; communicate any related planned activities staff could benefit from (e.g., what is the innovation lab planning to do?); report back w/ updates; clearly communicate how folks can contribute; follow up with how you used the info that folks submit.”

“My approach is to go to [the Consumer Electronics Show] every year, understand what hardware is available and what software capabilities it has. I.E., if all the new TVs are VR-ready, then VR companies have an in. I also prefer to scout other industries, like fintech, and look for commonalities.”

“Have the people [responsible for scouting] get out and collaborate more with outside companies and technology experts.”

“Some technology scouting is done via venture capital firms. Selecting the right firms and firm clients to review is key in identifying the nugget you can bring back to the business.”

“For emerging technologies, hackathons and other ideation-focused events have proven to be significantly valuable for driving awareness throughout the organization and building a baseline understanding of the technologies.”

RESOURCES & STAFFING

“Create a culture where everyone has intrinsic motivation to scout.”

“You have to have a team with responsibility for turning trends and technologies into demos, prototypes, and proofs-of-concept that can then be integrated into the business. If nobody is responsible for this, it can’t be done consistently well.”

“...Look for a third party to have a fresh perspective on what is happening in your sector.”

“You have to have infrastructure (people, exec support, time) to support it, otherwise things move too slowly — especially if you are trying to partner with startups or smaller firms.”

“Apply user experience and expectations. The two groups / data sets / insights are ideally combined, but in reality the engineers own the tech and [the] marketing [department owns] the trends.”

“To help us address many of the issues [touched on in the survey], we are look-

ing to stand up an Explorer capability that will allow us to learn, experiment, and prove out trends and emerging technologies. We will also provide our employees a sandbox [so that they can] experience and experiment with the technology, and in turn they will help us build a point-of-view on its applicability to solve business problems and pain points.”

COMMUNICATIONS

“Create a central communication portal that is organization-wide to share and see what other groups are working on related to scouting trends and emerging technologies.”

“I have found that success in sharing is all about timing. I dedicate a large portion of my personal time to trend and tech tracking and then organize my relevant findings so I’m ready to share when the iron is hot. That way I always have something in my back pocket and I can pull out when people actually care. Otherwise if you send a weekly newsletter that isn’t relevant, no one reads it and it’s a bigger waste of time.”

CONNECTING TO THE BUSINESS

“Solutions in search of problems have trouble finding a home. Demos can help, but only if they can already envision the specific business problem being solved (i.e., a business-specific demo works, a general one does not). Business owners need to feel like it was their idea to adapt to a trend or adopt a technology solution in order for it to move quickly.”

You must have “frequent dialog with internal customers who can take action.”

“Connect to the business. Support the business. Provoke the business.”

“Financial commitment from specific business units for scouting usually works in getting business units to act upon results, given that they need to justify their investment.”

BIG PICTURE

When scouting trends, “one can face the innovator’s dilemma, by way of people being myopic or even refusing to believe what they are hearing if that means disruption to their focus / business incentives.”

“These trends and tech developments are only as important as an organization’s ability to move beyond short-term thinking to strategic positioning for long-term growth.”

“It’s important to know who you are as a company. We are comfortable being a late entry with a superior solution, and not feeling pressed to be an early implementer of a ‘not ready for prime time’ technology.”

“Our record is spotty, in that there are some trends we’re in the vanguard of implementing and others where we are behind. It speaks to how this is not systematized, but takes a lot of work to start up a bespoke effort around each trend.”

“Dedicate the time, make this more than an annual exercise, designate areas to track and make someone accountable. If it isn’t someone’s day job, it doesn’t happen.”

“Avoid boiling the ocean. Set strategic direction based on [internal and] also external inputs, then scout for detailed implementable solutions in those areas.”

“Innovation can (and should) start small, and then snowball into a culture of innovation and experimentation. We formed one team and started to use that to begin shifting the way other teams work. We also use small wins and growing evidence to inspire others to work in a different way, and are hoping that soon that new way can become the norm.”

“We hear often about ‘fail fast,’ but some integration takes more time. Patience is key.”

“Company size, bureaucracy and time constraints are all negatively correlated with the implementation of identified tech trends. Awareness of this should be the starting point of any analysis.”

“We don’t tend to speak about trends and technologies as stand-alone topics. They are typically integrated into broader conversations related to go-to-market strategies or product plans.”

“Just do it. Execute and write up the research. Come up with the prototype/ business case/application without any oversight, then take it to the stakeholders.”

Scouting Worksheet

The goal of this worksheet is to help you think through some of the key questions, participants, risks, and indicators of success when you are setting up or seeking to improve a scouting operation. We've left some fields blank because they will differ from company to company. And you may feel the key questions and risks are not comprehensive — there may be others you'd like to add, or some you'd delete because they're not relevant to your environment. A downloadable version is available in our resource center.

ACTIVITY	KEY QUESTIONS	WHO WILL BE INVOLVED?	RISKS	INDICATORS OF SUCCESS
<p>ALIGNING WITH STRATEGY AND SETTING BOUNDARIES</p>	<ul style="list-style-type: none"> • What is the overall corporate strategy, and how can scouting deliver value to it? • What is “in scope” and “out of scope,” in terms of technology areas, stage of company, geography, etc.? • Are there mechanisms for finding “weak signals” that may be relevant to the company, though not directly aligned with the strategies of today? 		<ul style="list-style-type: none"> • Lack of alignment, misalignment, strategy shifts, executive shuffles • If scouting is tied too tightly to the current strategy, are you missing weak signals that may be important in the future? 	
<p>OPERATING THE RADAR</p>	<ul style="list-style-type: none"> • Where will budget/resources come from? • How will we communicate with business units and functions to understand their needs and interests? • What software or databases will we use? • How will we determine which events/collaborations/scouting tools are producing value, and which aren't? 		<ul style="list-style-type: none"> • Insufficient input from business units about their needs and interests • Duplicating effort because of poor coordination • Missing major trends/technologies because of resource constraints or “blind spots” 	

ACTIVITY	KEY QUESTIONS	WHO WILL BE INVOLVED?	RISKS	INDICATORS OF SUCCESS
<p>COMMUNICATING WHAT WE SEE</p>	<ul style="list-style-type: none"> • How widely should you communicate the “signal” from your scouting activity? To everyone? Key constituencies only? • What software supports this? • Are there ways for others outside of the “official” scouting team to contribute what they are seeing, comment on trends/ technologies, rank them in importance, etc.? 		<ul style="list-style-type: none"> • Disparate data silos make it hard to communicate or give access to a single vision of trends/ technologies • More time spent operating radar than communicating results • Communication only goes up in the organization (to senior leaders), not to lower-level managers and employees who might benefit from access 	
<p>RUNNING TESTS AND EXPERIMENTS</p>	<ul style="list-style-type: none"> • What systems and processes are in place to support testing new technologies with employees, customers, suppliers, etc.? • How will you source willing testers? • How will you gather and share data about what works and what doesn't? 		<ul style="list-style-type: none"> • Failures casts too big a shadow over the scouting team/ activity • Organizational barriers make it impossible to run quick and inexpensive tests • Small successes viewed as “small potatoes”; questions about whether this can scale 	
<p>HELPING THE BUSINESS TAKE ACTION ON WHAT WORKS</p>	<ul style="list-style-type: none"> • Does the business feel invested enough in the scouting and testing activity that has taken place so far to want to help roll things out? • What are the pathways and processes to help things move from pilot phase into larger-scale commercialization? 		<ul style="list-style-type: none"> • “Not invented here” syndrome • Endless questions or data gathering exercises about whether a new technology or process merits abandoning the existing one • Fear of change 	

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KELLOGG COMPANY

From Idea Factory to Solutions Factory: How R&D is Changing

With annual sales of \$13 billion, Kellogg Company reigns as king of breakfast foods, a segment that makes up 22 percent of its sales. It's also a major producer of cookies, crackers, and savory snacks like Cheez-It crackers and Pringles, and a leader in the frozen food space. But as fewer people sit down to eat a bowl of cereal in the morning, Kellogg's sales have been dipping since 2013. That has prompted the company to diversify into areas like waters, adult cereals with health benefits, and cereal bars. In October, Kellogg paid \$600 million to acquire RXBAR, a maker of protein bars. The company says that more than 15 percent of its sales thus far in 2017 are coming from new product innovations (on a three-year rolling basis.)

Innovation Leader discussed Kellogg's approach to innovation with Nigel Hughes, Senior Vice President, Global Research, Quality, Nutrition and Technology at the Kellogg Co., who joined the company earlier this year from SC Johnson, where he was Senior VP Research, Development and Engineering and CTO. Highlights from the conversation are below. Hughes leads the 90-person Global Innovation Team,

which reports to Kellogg's Chief Growth Officer.

How has Kellogg Co.'s approach to innovation changed over the years?

I've been in the consumer goods business for almost 30 years, and I see more change and opportunity than ever. Having innovation in [the] future vision and strategy is critical for any company, specifically for Kellogg, with the changes happening in nutrition, ingredient sourcing, and the level of transparency our consumers expect. The changes in the way we can design and fine-tune products to deliver certain consumer experiences are just transformational:

- Consumers' expectations are going up massively.
- Health and wellness expectations are going up.
- The experience and personalization expectations are going up.

These are all huge, huge changes. One of the key elements is: How do we shift our thinking away from counting on individual products to do things, and more to driving these bigger-scale platform areas such as nutrition and

wellness. How do you then combine your world-class, in-house research (we've got a phenomenal pilot plant — W.K. Kellogg Institute for Food and Nutrition Research) with all the external world-class players?

What are the challenges of bringing products to market? Is Kellogg expanding into new areas?

It's not just a matter of expanding into new areas. There are some areas that are on the edges of where Kellogg Co. has been in the past. The critical thing is: How do you select within the many areas of opportunity there are? That's one of the biggest challenges in innovation today.

We do a tremendous amount of work on the commercial side with the consumer insights people to understand where the consumer is moving. And from a science and technology point of view, within the R&D organization, a lot of work is [done] around where the science is moving. We've got to be looking at not just the next year or two years; we've got to be looking at five years, 10 years out, as to where the science is moving. And then it's a matter of bringing those two things together.

Take for example the whole area of energy. There are many different kinds of energy: The energy you have first thing in the morning, the pick-me-up in the afternoon, and managing your energy so you sleep well at night. We need to

“How do you select within the many areas of opportunity there are? That's one of the biggest challenges in innovation today.”

best understand how to play that from a brand point-of-view. Where are the technology breakthrough opportunities in that whole spectrum that are going to give us product opportunities?

How do you distinguish between food fads and seismic shifts?

Some things will come and go, and some things are — at least within a reasonable timeframe — permanent changes. Another example that we're talking about a lot within the company is the change within the core understanding of nutrition... How do you modulate your health and wellness? We look at creating food that works in harmony with that microbiology. We need to get better at understanding how that microbiology impacts your health and wellness over time. On the other hand, there are certain things that are, excuse the pun, quite literally, “flavors of the month.” A quick consumer trend comes up and it's the flavor in this part of the world right now. That's part of our innovation thinking, but that doesn't form a platform of our innovation thinking. Is it difficult to get management buy-in for your work?

As a company, we have a commitment to grow through innovation, so clearly there is a management support. The key challenge is to be clear and to communicate into the organization if this is a transformational change versus a trend... Kellogg has a track record to grow through innovation and wants to continue that track record. It's much more a matter of ensuring that we socialize and we communicate and we share in the right areas.

Packaging innovation is another area of focus for Kellogg. Could you tell me a little about some of the successes you had in this area?

Obviously, a lot of products have been sold the same way for many years in a bag and cardboard box. Now we're seeing a lot of breakout from that, be it cereal sold in resealable bags or the snack products we have in standup pouches.

The other big change that's happening across the board in packaging, but

particularly relevant to us, is that the consumer cares more and more about the provenance of their food—where it came from, what it's made of. They want to be able to see it... We have a whole mantra around “what you see is what you get.” So the consumer can see our food; they can judge it visually, rather than looking at a picture [on the box.]

We still have many examples where we have products that are in packages where you can't see the food, because that's a big technical challenge. We need food that is shelf stable, and obviously packaging has an impact on the shelf stability. But that's a huge push for us... One of the big challenges with packaging is that we make a lot of food. A lot of money gets tied up in the capital [equipment] to pack our foods and the like...

Do you have advice for other innovation executives?

It's not easy. In order to be successful in innovation, you need bring together brilliant consumer insights and brilliant science and technology. The interface between those two is where the magic happens. When I say science and technology, it can be food technology in terms of a great, delicious tasting food. Also scientific insights into a particular consumer benefit.

If you look back to the history of Kellogg, you have J.H. (John Harvey Kellogg, MD.) and W.K. (Will Keith Kellogg). Essentially they represented those two elements. W.K. represented consumer insight. He was the guy who was an entrepreneurial industrialist in food manufacturing. His brother J.H. represented science and technology insight; he had passionate insights about the role of food and health. There's nothing new in this.

The other thought is the combination of content and context. Yes, you need to create great content, you have to produce great products and great food, you need to have strong claims and support them in a robust way. But always, you need to manage the context. You need to manage the communication — the way you engage



Nigel Hughes, Senior Vice President, Global Research, Quality, Nutrition and Technology at the Kellogg Co.

with consumers and the influencers that influence your consumer... It's when you manage both of those in a very congruent way — in terms of the insights, in terms of the food you create and the claims that you make — that's again where the magic happens. A lot of innovation failures have been because the focus is on one or the other. It might be a great product or great food, but if the context isn't very clear, consumers don't know how it fits into their lives and there aren't other people advocating for it and sharing how it should fit into their lives.

Are there new types of talent Kellogg is trying to bring into the R&D organization? What kinds? Are you recruiting that sort of talent in new ways? What works?

Yes, in a couple of dimensions. Obviously there are a couple of capabilities we need to build. From an innovation point of view, I'd focus even more on the softer skills. We're in a world now where everybody needs to be a storyteller, and the members of the R&D team are no exception to that, because creating that engaging content we like so much relies on the capacity to tell stories—scientifically based stories, fact-based stories to be clear—but stories nonetheless. More and more, I've brought in the R&D team to work more

closely with our ad agency partners, because there's an incredible richness of stories with both of those creative groups. As you can imagine, it's not necessarily something that all scientists have built-in skills for.

Another thing: we've got a lot of very capable people in terms of food, food design, and culinary skills, but we're constantly striving to increase the food intellect within the company. What I mean by that is: ensuring that people have the right language, the right lexicon to be able to describe the food—to really be able to create phenomenal, delicious food. I always try to draw a parallel with the wine industry, where over the last 20 to 30 years, you've seen a complete transformation of the wine industry in large parts of the world. Go back 20 or 30 years, and people said, "I like red or I like white [wine]," because there just wasn't that intellect or lexicon out there. What's happened is that whole lexicon has been built; you've got experts to do it. You've got oenologists, sommeliers, etc...

You really have a richness of language that allows you to be more creative. That's something we're constantly striving towards and driving within the company. We've got a tremendous passion for food; we need to match that passion with our food intellect.

What do you think about what the R&D organization of the future needs to look like, or how it will need to operate?

We're way beyond trade secrets and the old notions of IP and patents—not that those aren't important in some instances. There's a massive move around scouting supplier partnerships, open innovation, venture capital as we discussed, incubators, etc. Really, R&D is moving from an ideas factory to a solution factory.

That's a massive change, because in the past, R&D tended to be populated with people who prided themselves on invention, and now we have a group of people who pride themselves on finding solutions and really are working in lockstep with their commercial colleagues. It's a very different profile.

I can tell you the other dimension that's changed—the opportunities today. There are so many incredible changes that are happening and so, R&D is more at the center of things today than it has been in any time in my career. It's a fun place to be. The R&D I started my career in was much more built on the model of academic institutes, internal R&D buildings. That's long gone, and the change will continue.

NOKIA

Blending Sci-Fi and Reality to Help Nokia Envision the Future

Leslie Shannon is Head of Ecosystem and Trends Scouting at Nokia. She's based in San Francisco. At the Finnish communications and IT company, there are essentially two kinds of scouting that take place: scouting related to mobile networks and how they're used, and everything else. "The network-related stuff is what I used to do," says Shannon. But in 2017, she took on her current role, looking at "everything beyond the network," or the broader technology ecosystem, she explains. Shannon works as part of a four-person scouting team.

...

I report up to Head of Strategy Kathrin Buvac, our Chief Strategy Officer... In May of this year, she came up to me... and said, "What you're doing is really interesting. But I have an entire company full of people who are looking at network-related things. I want you to look at things that have nothing to do with networks whatsoever."

So what I'm doing now is very much out there, looking at what's happening in terms of virtual reality, artificial reality, augmented reality. And finding things that are real—not just "we could do this someday." Both from large companies and small companies, and stuff we're doing within Nokia. And this is going to sound kind of silly, but one of the things that is extremely useful is to look at popular science fiction.

So we look at the way at the way over the

last 50 years — from "Star Trek" forward — what are the things that have become iconic?

If I say Big Brother, you instantly know what I'm talking about. If I say "Minority Report," you immediately have this image of Tom Cruise moving screens around. You might not remember anything else about that movie, or maybe you never even saw it. The reason that I focus on these things is that these things have resonated and have become iconic in society, and I believe [they] are most indicative of where we're going to go.

Let me tell you why... I've been with Nokia for 17 years, and before I was here in California, I was in Finland for 11 years. Back in the early 2000s, when Nokia phones were all the rage, there was a kind of conflict in the company. All over the world, Nokia phones were really dominant, but in the United States, Nokia phones were not so dominant. And the reason was that the head of Nokia mobile phones at that time refused to make a flip phone. Nokia made some experimental flip phones here and there, but they really never went all in on a flip phone. They stayed with the [single piece] bar format. The belief... at that time was that the hinge in the flip phone was a point of potential failure. Why introduce complexity into something that would just make it work less well and cause customer dissatisfaction? So they refused.

The problem was, people in America had grown up watching "Star Trek." And they



Leslie Shannon, Head of Ecosystem and Trends Scouting at Nokia.

had grown up watching Captain Kirk flip open his communicator and speak into it. Americans were primed for the flip phone. And...Motorola [came in] with the Razr and all the other flip phones that dominated that early 2000 mobile phone space. North America was the only market in the world where the flip phone model was the standard. ... So these science fiction things, and these things that become iconic, are the things that society is predisposed to accept. So when I'm looking at innovation, I'm looking for things that match the stories we've already started telling each other. I believe there's a massive future for virtual reality and augmented reality. But the social image that we have for virtual reality is not wearing goggles on your head. It's the Holodeck [a virtual reality room also from the "Star Trek" universe] where things emerge around you. I think virtual reality will actually crack it when they get to that scenario.

They had a thing on the Enterprise called the Holodeck, with preset programs where you could play out different scenarios. It became recreation for people on the ship. The key thing is that people weren't wearing visors. Then [we have] this idea of having visible screens projected in front of you — hologrammed screens that you then manipulate with your hands and with gestures. It's this sort of a hologrammed-voice-gesture interface has been modeled for us many times in many different movies and TV shows. That is something that I think when it gets built, it will get accepted quite quickly because we've seen it. We understand it. It's a flash of recognition, not a flash of, "oh, that's weird" when we do see it.

I also look very carefully at science fiction for the things to look out for. I mentioned Big Brother earlier. It's important to pick up on the dystopian futures, so that we see them way ahead of time and avoid them. Elon Musk is doing a good job at pointing out that we don't want killer robots. "Terminator" comes to mind. In "Ready Player One," the real-world goes to hell. In "Wall-E," everyone where is fat and lazy. These dystopian images are just as important, so that when we see a trend moving toward that, we can avoid it. How do I organize the results of my

scouting? I go out and find examples of things that are real. A small company that's doing X. Here's an example inside Nokia of doing Y. Here's a phone company over there that's doing Z. They need to be real things. It's extremely important that these are companies doing real things—they're not somebody imagining that this could be possible. I collect these things all the time. I have this massive list. I make a slide for each thing that I find. So, I have this massive PowerPoint repository.

The beauty of it is that if I go into a Nokia audience or our phone company audience, if I were just stand there and say, "I believe in five years, you'll be able to manipulate your computer screens out in the air like Robert Downey Jr. in Iron Man," people would think I'm crazy. But if go in and say, this small company is doing this with gesture control. And this company is doing this with holograms, and that company over there is doing this with voice interaction. And I lay out the building blocks. It's only a matter of time before somebody builds exactly that castle out of those building blocks. This stuff is out there but it takes a lot of time to uncover.

What's an examples of connecting the dots? I talk about soccer mom glasses, which cross Facebook's Oculus VR headset with IBM analytics. My kids play a lot of soccer. And IBM just did a thing with Wimbledon, where they used analytics to determine how to build the highlights reel for some of the minor courts. They used analytics such as the roar of the crowd, how many people posted on social media immediately after a shot, the facial expression of the players, all of these qualitative kind of things, to figure out what were the best shots to be put together for the highlights reel. So when I'm watching my kids play soccer, what if my glasses could be constantly recording the game? When my kid is the one who kicks the ball across the goal, it recognizes that that happens and it immediately saves and uploads the last minute of play to the cloud.

[When you are talking about building deploying new mobile communications infrastructure,] these are gigantic bets

and they need to be made early. So, if we can help [Nokia and our customers] imagine the different things that are possible with the different kinds of network types, then that feeds into their strategic decision-making. In fact, a lot of the stuff I'm seeing now — a lot of the augmented reality sorts of things — a lot of that is actually going to require 5G networks.

And so you have some phone companies that are saying, "Do we have to do 5G just because it's the next thing? What could people possibly use it for? 4G seems really good." And once I go out and say, "Hey, look out at all the cool things coming with augmented reality..." I don't even have to talk about the network. Then, they can say, "Oh, and then a network strong enough to support everything you're talking about, has really got to be 5G." So, it's showing rather than telling to help them with strategic decision-making.

The mental image I have is, I'm up a flag-pole with binoculars looking just over the horizon, because our product guys necessarily need to be viewing...the stuff that's possible six months from now, not five years from now. I'm the one who's looking out quite far to create these narratives. To help people like our acquisition team: There are lot of small companies that have really good stories and really good tech. What are the directions that we want to move in as a company? I'm certainly not making that decision, but I'm pulling together information and helping people imagine what the future can possibly be, so they can more easily prioritize things.

The stakes are very high. Companies have a limited amount that they can commit to the future. ...We really want to be the ones creating the future instead of sitting back and letting the future happen to us.

The real problem is that there's almost too much incredibly cool stuff happening. I'm usually limited to an hour or hour and a half in any speaking engagement. I've only been doing this since May, and I could stand up and talk for about five hours. Our world is about to change unbelievably, and now that I've seen the data, I've swallowed the Kool-Aid, and I'm completely convinced it's all going to be different in short time.

GOODYEAR

How Tech Scouting Work Should Tie Into the Business

Scouting new science and technology is one thing. But finding champions for it inside the business is another.

Chris Varley's role at \$15-billion Goodyear Tire & Rubber Company entails doing both.

Varley is a Global Program Manager within Goodyear's External Science and Technology Programs group. "That's Goodyear's way of saying 'open innovation,'" Varley explains. He's the lone American on a 12-person team that is spread across the world.

Part of the job, Varley says, is "supporting and encouraging managers tasked with developing 'something new' on a five- or ten-year roadmap to think differently, and consider that it may actually be faster and less risky for them to take a chance on working with a startup on the outside than trying to build everything from scratch in the lab."

Here's his advice on paving a path to bring outside ideas into a 66,000 employee company.

...

How has tech scouting changed in recent years?

Early on, a lot of companies thought scouting was simply about facilitating transactions between parties that other-

wise didn't have a connection. "Frictionless exchanges" that would operate entirely online were the goal, whether it was an online idea challenge or directory of startups or patents. But over time, more and more people are becoming aware of the importance of building good relationships between people.

Transactions are still a part of the game – a major part, since they mark the transition point where things shift from interesting "what if?" conversations to practical, actionable steps both parties will take to bring something new to market. But without a relationship that lets both parties know each other's needs, that facilitates understanding of common goals and objectives, and that plays to the respective strengths of both parties, any transaction will fail to meet its full potential.

I can't emphasize enough how important relationships are to successfully identifying technologies outside your company's walls and bringing them "inside" in a meaningful, productive manner. It isn't so much technology scouting as it is relationship-building – expanding the resources available to the company through open innovation

exchanges and partnerships.

Are there some new pressures for people who do tech scouting?

The pressure to deliver something that can be deployed in market "immediately" is always there. But those kinds of technologies tend to be the ones that are already commercially available. New things take time. Lots of time. It's the "slow pace of fast change" dilemma: it takes a long time for a truly new and different idea or technology to wend its way from mind to market. But when something hits big, it always seems to come out of nowhere overnight – despite being years in the making. So a lot of my job is a balancing act, trying to explain to startups and inventors that it will take time for the managers I work with to understand what they are trying to do, let alone be able to accept and value it properly.

That's not their fault, by the way. We're all like that with new things, especially if they impact the way we're used to working. Which means I also need to spend time supporting and encouraging managers tasked with developing "something new" on a five- or ten-year

“More and more people are becoming aware of the importance of building good relationships between people.”

roadmap to think differently, and consider that it may actually be faster and less risky for them to take a chance on working with a startup on the outside than trying to build everything from scratch in the lab.

As part of that, I also look for other ways to help de-risk projects through external grants and other funding opportunities, or by working with a startup's investors to help them get comfortable with the additional investment that might be required on their part to get a technology up to the level where we can start talking about a deal that would make sense for us. Getting rid of the risks you can, and getting comfortable with the risks that remain, is key.

How do you decide which startups to meet with, or which conferences and trade shows to go to?

I work closely with a number of accelerators, incubators, venture funds, economic development organizations, and universities. Sometimes I'll call them and tell them I'm looking for something that can fill a particular need we have. Other times they'll come to me with something they think will be of interest. I don't try to limit myself to the obvious kinds of things – automotive conferences and the like – because often the most interesting and exciting opportunities are more orthogonal in nature, less obvious, at the intersection of two seemingly unrelated things.

That makes the internal sales job that much harder, too. The earlier a startup is in its own development, or the more radical and disruptive a technology might be (if it's successful), the longer it takes for the idea to take hold with managers in a large company. I've had the experience of bringing a startup I think can really add value to a manager's portfolio to his or her attention, only to have them tell me they just don't see the fit. Then, a year or two later, something clicks – and now they want to meet again with “those guys you took me to see a year or two ago.”

It isn't simply that the technology or

the startup has matured and is now ready for prime time; it's more the case that the first meeting was simply “planting the seed” in a manager's mind. It takes time for that seed to germinate and grow. But once it clicks, assuming I've kept the relationship going on both sides, we can come back to the table and start speaking a common language. It's really pretty exciting.

Do you define a “maturity level” for technologies that you want to work with?

I don't, actually. As a general rule, the more mature the technology, the easier it is to gain acceptance for it internally. But of course, as I mentioned earlier, a fully-matured technology is likely one that is already commercially available.

There are times when someone asks me to find something for them that turns out to be already on the market; they just didn't know about it. But on my own I tend to look for things that are earlier in their development — beyond just the concept or idea stage, of course, but anywhere from proof-of-concept to ready-for-market trial is acceptable. And remember, too, that a lot of times what I'm looking to do is plant a seed that may take a year or two before it grows into something useful.

At the end of the day, success will be judged by a transaction that occurs, but the quality of that transaction is entirely dependent on building strong, lasting relationships; on establishing a foundation of trust and mutual respect; on a framework that takes the strengths each party brings to the table and fits together to create a whole that is greater than just the sum of the parts.

Are there any screening questions or tips you have that you think would be useful to others — either for screening needs that someone in the company might have, or outside entities you might work with?

Make sure the need being expressed by someone in the company addresses a true strategic question. Too often, researchers and managers will focus



Chris Varley, Global Program Manager, Goodyear's External Science and Tech Programs group.

on the symptom that is causing them immediate pain, rather than on the cause of that symptom. An aspirin might make the pain in your back go away temporarily, but changing how you sit at your desk might make it go away completely. So make sure you ask good, probing questions. Spend time exploring a range of alternative solutions, including things that can be done in-house – don't fall prey to the idea that every solution has to come from outside!

Similarly, when looking at an outside company or organization to work with, consider all the different cultural issues that may come up, and how you might address them. Identifying the technical hurdles is easy compared with the cultural hurdles that might arise on both sides.

How receptive are the people in your own company to working with others who aren't constrained by the same rules they are, and whose reward structures might be radically different? Will the other company understand how decisions are made in your company, the role of process and hierarchy in decision making, and the different pace at which things happen?

How do you set up pilot tests or collaborations for success?

By design I don't operate with a portfolio of my own projects or a discretionary budget I can spend on things that interest me. It is important that I am focused entirely on helping other managers meet their development or business needs/goals. When I identify a technology that I think fits a need or could lead to a new business opportunity, I know I'm on the right track when someone who manages a portfolio or a product line is willing to commit resources – time, people, and money – to running a pilot or entering into some other kind of agreement.

A successful pilot clearly spells out what is in scope, what is out of scope, and the criteria by which the pilot will be judged to be successful or not. With early-stage technologies, success usually doesn't mean that everything works as it will once the product is finished and ready for release, so it's really important for everyone to clearly understand what "success" will look like.

“The more mature the technology, the easier it is to gain acceptance for it internally.”

Equally important is to spell out what the next steps will be for both parties: if the success criteria are met, are there funding requirements to get to the next steps? Are we ready to move to a market trial? If so, when and for how long? Who will be responsible for what?

I also think it is important to plan for things going wrong. Define what the minor, major, and critical “non-conformities” might be – for both sides – along with the steps required to cure them, and the impact to the pilot if they are not cured. This makes it easier for both parties to accept and recover from the inevitable mishaps and slip ups that will occur, or decide to amicably part ways.

Are there some success stories that you point to, where new ideas or technologies made it into Goodyear products or became new products?

We're always looking for things that can improve the sustainability of our products. One of my colleagues discovered that in many parts of the world where rice is grown, the husks are burned as a biomass fuel. The ash produced by this burning is considered a waste product, and yet almost 90 percent by weight of this ash is silica – a material used in

tread compounds. Working together with partners in India, China, Brazil, and elsewhere, we were able to conduct lab tests and feasibility studies on using silica derived from rice husk ash (RHA) in tire tread compounds. The material has now been approved for use as a sustainable, environmentally friendly, cost-competitive alternative to other sources of silica, and a supply chain is in place.

Similarly, when we learned that an organization representing soybean farmers was interested in exploring other uses for soy byproducts, we were able to set up a program that allowed us to experiment with

replacing petroleum oils with soy oils in certain compounds. In January of this year, we released to market the first tire built with soy oil, replacing some of the petroleum oils that otherwise might have been used in the past.

Any other advice for people trying to do scouting or open innovation?

Open innovation and technology scouting are all about relationships, relationships, relationships. Don't ever forget that. I constantly tell people that if it comes in a bottle or a box, then I want my procurement specialists to handle the deal right from the beginning. But if it comes in a brain...

If it comes in a brain, then it is going to take time to establish a proper foundation of trust and respect before we can have something that will eventually yield great results. Yes, at the end of the day there will be a transaction.

And I do take great pride in seeing a relationship I helped nurture and build reach the point where procurement comes in to negotiate a supply agreement; but I also know that the value of that supply agreement stems entirely from the strength of the relationship.

GENERAL MOTORS

How GM's Silicon Valley Office Hunts for Relevant Innovations

Frankie James describes the volume of innovation happening in Silicon Valley as a “firehose.” So how does she look for promising ideas and technologies that might deliver value for her employer, General Motors? James, managing director of GM's Advanced Technology Silicon Valley Office (ATSVO), spoke to Innovation Leader about the four-stage process her team uses, and shared a graphic.

“Our mission,” James says, “is to face the Silicon Valley firehose, try to filter it down, and get the most promising ideas and technologies back to our internal customers at GM, and ideally get them into vehicles.” The small team, created in 2007, is about half people with GM experience, and half outside hires. They often collaborate with GM Ventures, looking for potential investment opportunities and helping with due diligence, and also interact with local universities. But the main assignment is identifying high-potential startups and technologies for GM's research and engineering divisions. GM's Advanced Technology Silicon Valley Office is located in Palo Alto, less than two miles from the campus of Stanford University. The team is situated within GM's research and development organization.

“There are a lot of startups right now who are pretty eager to work with automotive, especially in infotainment [in-car information and entertainment sys-

tems] space. We get a lot of startups that come to us. It's true that some startups can get worried about working with a big company — and they probably have good reasons. Our job is to match their fast cycle with GM's somewhat slower cycle. A lot of companies we've been successful at working with don't have automotive as their primary market. So they can start making money in their primary market, and then think about the automotive use case and doing a project with us.”

One example of a partnership James mentioned was with Autonet Mobile, to bring in-car wifi systems to market. At first, “we said, give us a sample, we'll try it out. So we put it in a vehicle and started driving it around, seeing how well it worked. The next step was to talk with as many people at GM as possible about where we could put this. We then made it available as an aftermarket component, initially across Cadillac, then GMC and Chevy SUVs. It's great for keeping the family occupied on long trips.”

The big metric for James' team is helping GM offer new products and services. “Ultimately, we like to see things

driving down the road that we've had a hand in,” she says.

“Startups tend to cluster around ideas, so you see a lot doing the same thing. Our job is to figure out what the differentiators are, and who is best of breed. Do they have a prototype? What is their maturity level?”

Her team uses a four-step process to hunt for concepts and technologies with the potential to develop into those new products and services.

Scouting: “We spend a lot of time outside the office. My team goes to meetups, conferences, and networking events. We practically have free wine and cheese every night. We read TechCrunch and VentureBeat. But after you establish your network, people know your name and they come to you.”

Assessment: “That's an initial evaluation based on a person's area of expertise. Will this work? You can clear a lot of things out of the pipeline at that stage.”
Prototype: “At that point, we're trying to engage an internal partner. What would help them understand the technology and how well it works? This is where the

“Startups can get worried about working with a big company — and they probably have good reasons.”

rubber hits the road. You find out what the startup is capable of, and where the technology is going to break down. My background is in speech interaction. There are a lot of great systems, but navigation and proper names can really trip up speech recognition. So you learn if they can handle it, and you learn whether the team understands why it's not working well and whether they want to fix it — or if they just don't have the resources or ability to make the changes we need.”

Champion/Transfer: This involves getting the technology into a new production vehicle, or integrating it into an existing research initiative at the company. “Some of the times we've had the most success with transfer were things we'd been asked to do, where there's been a real need existing already. For instance, with the team doing Chevy Volt, the car was really quiet. They didn't want people to leave it running all night. So we needed sound. The team came to me, and we hired an intern from Stanford to come in and develop sounds that would play when you started the car and turned it off. We did sound development, user testing, and produced a set of sounds for the Volt team. That was fantastic, and transferring it was really easy because they needed it.”

Connecting to HQ

“We're in Silicon Valley, because Silicon Valley is a very different place than Michigan. It's a tech-focused, early adopter culture. Things happen here way earlier than other parts of the world, so my team can raise our hands early in the process and say, ‘This is

something GM needs to pay attention to, something that will impact us a lot.’ Sometimes it is going to feel like you're tilting at windmills, but if you're passionate you have to keep going. We want to lead, and be a great car company. But internally, you're not always popular when you're trying to change people's to-do list [of priorities].”

“We want to understand what GM teams need, so we talk to them all the time. If we know a team is looking for sensors of a particular type, then we can set aside other projects that aren't relevant to focus on that.”

“We'd like [GM employees at HQ and other sites] to visit us in Palo Alto more often than they do. People will come out for conferences or to work with vendors. When they do that, we try to introduce them to other companies if they've got time. We're on the lookout all the time for different events outside of our own areas of expertise, to encourage people and lure them out to the Valley. We'll say, ‘Come out to this conference and we can talk about other potential topics.’”

James was in Michigan when we spoke. “I get back every couple months to meet with the people here, look at demo vehicles, and touch base on what people are working on. Maintaining the lines of communication and building up trust is really important. If we can find tech that meets [a group at HQ's] needs, they'll come back to us again. And if we come up with some new trend that's earth-shattering, it's much easier to get attention if you've already built that trust.”



Frankie James, Managing Director of GM's Advanced Technology Silicon Valley Office (ATSVO).


SIEMENS

How Siemens is Finding Startups and Sparking Collaborations

If acquiring a startup is like marriage, then what Siemens has achieved with its Frontier Partner Program is more like speed dating.

When the \$86 billion German engineering giant launched the Frontier Partner Program two years ago, it hoped to lower the barriers that kept startups from easily working with Siemens.

Through Frontier, startups enter a low-commitment relationship in exchange for free Siemens software and mentorship. While the program is still in its infancy, Siemens seems pleased with the preliminary results of these relationships, and other companies are starting to take notice.

We recently spoke with two Siemens execs who've been instrumental in getting Frontier off the ground: Mohsen Rezayat, a founding business leader of Frontier and Chief Solutions Architect of Siemens PLM (product lifecycle management) business, based in Cincinnati, and Chenyang Xu, General Manager of Siemens Technology-to-Business Center based in Berkeley, Calif. (The Siemens PLM and Siemens TTB organizations jointly run the Frontier program.)

Collaborating with startups isn't new for Siemens, explains Xu, explaining that its strategy has encompassed partnerships and equity investments. But these were typically one-on-one relationships that

involved detailed contracts; there were about 20 new ones established each year.

With Frontier, Siemens is trying to dial up the pace, asking, in Xu's words, "how do we drive partnership at scale? Because we've proven it's valuable, it benefits both parties, but how do we go forward faster?" Frontier exposes Siemens to more companies at a faster rate, and also gives more startups access to Siemens' resources, Xu explains.

"Being able to encourage cost-effective experimentation in new markets is really important," adds Rezayat. "That's why the program came about."

Here's how the Frontier Partner Program operates:

The Two-Page Click Through Contract

Rezayat says before it could even launch the program, it needed to simplify the process for working with Siemens. "Typically, we're used to partnering with much larger corporations," he says. "It took us about six months to get it to the point where we felt comfortable that they wouldn't go under a tremendous burden to join the program, and to make it as

easy as possible."

Siemens boiled down a licensing agreement for the program to a generic two-page click through application. "We have a multitude of products, and each of these products has its own licensing agreement," Rezayat says. "Some of them are in the order of 37-38 pages." Turning it into a two-page agreement "was a major undertaking."

Siemens rolled out Frontier in October 2014 at the Inside 3D Printing trade show, with the first theme being additive manufacturing, the broader category that encompasses 3D printing. "A lot of the startups came to the [Siemens] booth and applied to the program right there and then," he says, adding that of the 60 companies that applied, only 16 made the cut.

Since then, Siemens has introduced an open call for startups in advanced robotics, and most recently this year, industrial augmented and virtual reality. Eight companies were admitted to the Advanced Robotics program. "We're very selective," he says. "We interview every single company, and it's often multiple interviews, to make sure they're a good

“Being able to encourage cost-effective experimentation in new markets is really important.”

match for what we're trying to do.”

The Criteria

Companies that meet Siemens qualifications and pass a series of interviews are granted a one-year developer license to Siemens PLM software. Siemens also mentors these startups and shows them off to many of the company's business partners. The free software would cost thousands of dollars if the startups had to purchase it off the shelf, Rezayat says. But perhaps just as valuable is free Siemens training and support through its online Learning Advantage program.

In exchange, the startups are required to:

Provide quarterly reports to Siemens. “These reports are basically about how they're utilizing our software,” Rezayat says. “If they have any questions or challenges, [they let us know,] and if they have any results they want to share with us.”

If the startups are invited to present their work for Siemens partners at a conference such as PLM World or Siemens PLM Connection, they are obliged to attend.

“Of course, they're very much willing to sign up for that requirement, because they want to showcase their products in front of a large group of potential customers,” Rezayat says. “It's a win-win situation for both parties. We get early insights and viability checks on not only the companies, but also the technologies. The Frontier Partners startups get added credibility because they're in front of investors and customers. They have the channel to customers, and they have a path to revenue growth.”

A Platform For Streamlining the Selection Process and Communication

One tool that Siemens uses to run Frontier is Spigit's innovation management software. In 2013, Siemens began using Spigit's technology for internal challenges and cross-platform pro-

grams, eventually using it as the global platform for the Frontier Program. Spigit allows the Frontier selection team to easily review, filter, and rank hundreds of startup applications, and then group the candidates with the best ideas and businesses. It's enables us to “manage the full application cycle and website application dues and communication to startups,” Xu says.

No Strings Attached

The relationship between Frontier companies and Siemens is pretty laid back, Rezayat says, “because we want them to be free to do innovation in any direction they feel comfortable. We don't even sign an NDA with these startups, because we just don't want them to feel pressured in any way.”

On the flip side, Frontier companies do reach out to Siemens for help. “We've actually brought companies on site and had our people working with them for several days,” Rezayat says. “So, when they need us, we're there for them, and when they get closer to the graduation, we have many more conversations as far as how they're doing. What would they need to do to go to the next phase? Can they do a demonstration of what they've developed?”

What Happens After a Year?

After the one-year period is over, Siemens and the startup can decide to continue in the Frontier program, form a closer, or even quit the relationship altogether. Siemens might also opt to invest in the startup or license its technology.

“We have examples of several startups that started in 2014 [that developed technology that has] found its way into our products,” says Rezayat.

For instance, Siemens is using technology from startup Identify 3D, which provides security to prevent CAD files from being printed if they fall into the wrong hands. Meanwhile, it's assisting nTopology, another Frontier company that has built software for building 3D lattice structures using Siemens' software,

to take its product to market, tapping into Siemens' network of resellers. The next step for nTopology is a collaboration with Siemens and then stepping up into the Solution Partner Program, a more structured partnership mechanism, and then to continue to go to market together.

In a third case, Siemens invested in Frontier company Frustum, which creates a platform for additive manufacturing design and topology optimization.

Just How Portable Is the Frontier Model?

While Frontier might work great for an engineering software company, could it work with other industries? Xu says he's spoken with executives from several large manufacturing firms who are very interested in the Frontier model, but he allows that working with startups isn't easy. “It's hard to innovate very fast when we have customers globally who require high quality and high performance.”

He believes the model can be transferred to other industries, with caveats:

Be prepared to do extensive homework before launching. Siemens spent hours interviewing people outside the company, trying to create a workable program for startups. That research informed and gave rise to the two-page, greatly simplified contract. “It's not something that we dreamed up in a closed room of Siemens people. It's with many real-world interviews with startup partners we already work with, so we can really customize our approach in a way that's really attractive to startups. I think that's key.”

Another critical element is having people at the company that have experience with partnerships and start-ups. “This is a must,” Xu says. The startup and partnership experience ensures that expectations are appropriate and attainable, Xu says. “As we begin to graduate them, it'll attract even more [startups]. It's very important to have experience in dealing with entrepreneurs, understanding their pain points and technology — this is a key foundation for moving this forward,” he says.

AUTODESK

How \$2.3B Autodesk “Looks to the Edge” for Emerging Trends

Autodesk, based in San Rafael, California, was one of the early pioneers of the PC software era. Founded in 1982, its first major product was AutoCAD, which let engineers and architects create sophisticated technical drawings for their projects. The company has since branched into software used for movie special effects, video-game development, and designing all sorts of consumer and industrial products. The company has about 7,500 employees and \$2.3 billion in annual revenue.

But while Autodesk’s customers include giants like Marriott, Boeing, General Motors, and Gensler, Jon Pittman, Vice President of Corporate Strategy, says that when his group thinks about the company’s future, it tends to look to the edge — interest groups and individuals playing with new tools and technologies, even though they might not be users of Autodesk products today.

“We started right around the time the PC was coming into fruition, and we grew up into this more enterprise-y software company,” Pittman says. “But when we started, we were really focused on enthusiasts, the tribes who wanted to see what PCs were capable of in the early 1980s — not really the big companies.”

We talked with Pittman about Autodesk’s approach to tracking trends that could influence the company’s future product strategy.

Focus On the Edge, Not the Center

- I’ve been at Autodesk 18 years. I report to our Chief Technology Officer, Jeff Kowalski.
- When companies get big and successful, they tend to reinforce and amplify the things that made them successful. They focus on their core customers and provide them with incremental improvements that enhance their success. But focusing only on the things that made them successful leads to vulnerability. Sustaining success means not just perfecting the past, but creating the future. New, disruptive technologies and products tend to come from the edge, not the center. Thus, it is important to engage with the edge to see and understand new, potential disruptions.
- Conferences and gatherings like Burning Man are one way you can meet people who are doing work on the edge. We also like TED, e.g., and Solid, which focuses on the convergence of the digital and physical worlds.

- Last year we put together a program called Autodesk Idea Exploration (IdEx). We get approached a lot by employees saying, “Can I come work in your group, because you’re doing the sexy stuff.” But we don’t want the office of the CTO to become this huge corporate research thing. So IdEx allows Autodesk employees to work, for three months, on new ideas that are outside their regular jobs and of benefit to the company. The goal is to increase and accelerate innovation by encouraging “way out there” creative thinking and new approaches to problems from those with different experiences and training. The program is brand new, so we don’t have any projects currently underway. But we imagine they will be new product prototypes, new processes, or new business ideas.

3D Printing, Synthetic Biology, Robotics

- Over the past couple years, we’ve gotten very interested in areas like the “maker movement”, 3D printing, and using biological techniques to grow new materials. We’ve been investing in

“Focusing only on the things that made [a company] successful leads to vulnerability. Sustaining success means not just perfecting the past, but creating the future.”

synthetic biology and programmable matter, which can morph and change shape. Today, we design things statically — a product or a building stays the same once it has been made. The designer has lots the connection to the thing. But a product that has sensors and actuators in it can change over time based on what the user wants or needs. Products and environments are going to become much more mutable than they have been in the past. Think about your iPhone: it's a consumer electronics device that is very mutable through the operating system that Apple can send you over the wireless network, and the apps you put on it.

- Robotics is changing from dumb robots that are programmed once to do the same thing over and over, to really smart robots. I was just visiting Bot & Dolly in San Francisco, which makes robots for the film industry. They developed a lot of the technology for "Gravity." So there, you're seeing robots used not in a factory anymore, but on a movie set. It's amazing stuff. We have a conference coming up in June at our headquarters on robotics, where we're bringing together about 30 experts to explore what robotics means for how things will get made in the future.
- As all kinds of devices become connected to a network and can start talking to each other, which some people call the Internet of Things, it feels a little like the early days of PCs. You see Nest's thermostats and smoke

detectors, and you're going to see lighting systems and electrical systems all getting linked up.

Innovation Is a Numbers Game

- I don't want to give you the sense that we've got it completely mastered, in terms of how all of these new trends get translated from our office to the business units. We do a lot of internal experiments. Our synthetic biology team is looking at making materials that are biologically-inspired. They do a proof of concept, and then we engage our manufacturing team and build a joint project team, where there are members from the synthetic biology team who are the pioneers and the scouts, and they are connected to the more mainstream product teams that are thinking, "How do we bring this into our mainstream business?"
- These explorations are centrally-funded by the Office of the CTO. In the budgeting process every year, we look at the various potential projects, and try to figure out what's worth funding. They're not funded out of business units.
- What should we be doing more of? I think we need to have more of an international perspective, and do more in emerging markets.
- You have to play a numbers game. Some of these experiments will be successful, and some will not. You have to set up enough experiments.



Jon Pittman, Vice President of Corporate Strategy at Autodesk.

LULULEMON

Former Lululemon Strategy Manager on Retail Disruption

It's challenging to list all of the things causing angst for the retail sector, from Amazon to new startups to the death of once-popular malls around the country.

But according to Lindsay Angelo, a former Strategy Manager at Vancouver-based lululemon athletica, all that disruption creates the imperative to think differently and take risks. (Angelo left the company earlier this month, and is now a growth strategy consultant.)

"I think retail is going through a really interesting time right now," Angelo said in a recent conversation. "Certainly as a more established brand, there are a lot of headwinds out there. But think about how you can take advantage of that turbulence internally. For a lot of companies, it can be a great time to innovate and disrupt...It's creating an environment where innovation is not only necessary, but the appetite for change is really ripe. As innovators, using that to your advantage is powerful."

Angelo shared her take on the democratization of retail, co-creation and crowdfunding, planning for the long-term, and how Maslow's "hierarchy of needs" is different today than it was in 1943.

...

The Democratization of Retail

We're seeing this trend around power, control, and trust shifting away from institutions and more towards the indi-

vidual. People are trusting other people a lot more than institutions, and we're seeing business models based on that trust at a kind of stranger-to-stranger level. Like Airbnb and Uber — enabling people to be their most entrepreneurial selves. There's a lot of opportunity there.

From a competitive aspect, what we're seeing...is the democratization of retail — the long tail of competition is emerging, a host of entrepreneurs are entering the market, and the market is really fragmenting. This is creating a more competitive environment than ever before that is really forcing innovation at a greater level and forcing people to think about "How do you break the mold and disrupt?"

Co-Creation

[Co-creation] has been happening for a while now, and is only gaining momentum. I think about the Kickstarters and Indiegogos of the world. Something that they uniquely do really well is allow for co-creation, and allow for that two-way interaction, and partnership between brand and early adopter through enabling a stake in the game.

Early on it was, "I purchase an early version of your product and am empowered to provide feedback where you need it." But now we're in an even more invested model through the Jobs Act [allowing individuals to make equity investments in new companies], and through allowing unaccredited inves-



Lindsay Angelo, a former Strategy Manager at lululemon athletica.

tors to have skin in the game... That's built that co-creation element up further.

The maker's movement is a manifestation of the whole democratization of retail. More and more people are wanting to go the entrepreneurial route... And that is being enabled now through easier access to capital through crowdfunding platforms, the digital world, and policies. The environment is really ripe to do that. It's easier than ever before to enter the market because barriers to entry have come down.

There's a lot of opportunity to think about how to lean into and leverage that trend. The marketplace model is something we're seeing growing in a huge way. Etsy has done a great job of enabling people who want to be their most creative self, and making it easy to connect supply and demand...

As an established brand, how do you leverage this host of entrepreneurs who are entering the retail space? Is it partnerships? Is it an innovation pipeline feeder? What does that model look like?

The Climb up Maslow's Hierarchy

One of the really interesting trends we're seeing emerge is around bet-

terment. More and more people are looking to fulfill their potential and are focusing on personal growth and purpose.

We're starting to see a shift up Maslow's hierarchy. If you think back to the beginning of humankind, most of our time, energy, and resources were spent on the bottom half of the triangle, starting out with "I need to fulfill my most basic needs. I need food, I need water, I need shelter and security."

In the past 10 years, we've seen a graduation up to the middle of the triangle, and a big focus on fulfilling those social needs — enter the social media age and online dating apps...

In the past, they say only one percent of people have achieved self-actualization, but I think we're starting to see more and more people reach for that and really focus on "How do I as an individual fulfill my greatest potential?" And I think that can look a lot of different ways for different people. For some, that might be "I want to be my most creative self." For some, it might be "I want to be my healthiest self." And for others it might be "I want to be my most mindful self." And we're starting to see more and more people recognize their spending power to achieve that and grow into that. There's a desire for

experiences over things, access over ownership, and a design-it-yourself lifestyle...

A huge opportunity in the future will be partnering with people to help them achieve their potential, whatever that means to them. And you can think about your value proposition in terms of how to be that partner and what are they looking for.

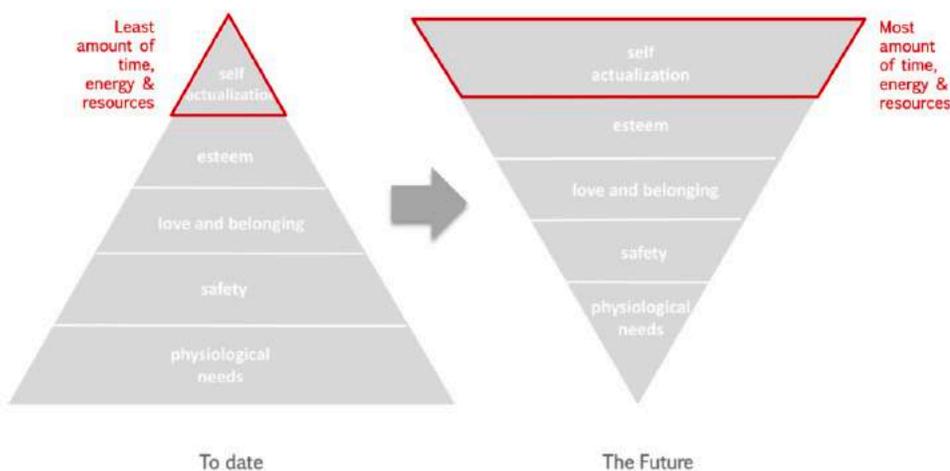
How Should Corporate Innovators Address These Trends?

Unconstrain yourself from the word "retail." I think that can help unconstrain your thinking, even from a language standpoint... It's about opening up your mind to the outside from what we traditionally thought of as retail and really thinking about, "What's the job to be done? What's your unique offering?"

I think for public companies, [you should] uncuff yourself from Wall Street. It's easy to get caught up in short-term expectations and quarterly earnings. We're in an environment now where uncuffing yourself from the expectations that are associated with Wall Street is really necessary, and can really help you focus on what really matters as a brand, and focus on your innovation pipeline and longer-term thinking. Some of the best companies out there — like Apple and Amazon — are strong in that.

Bet on the Long-Term

It's absolutely important to bet on the long-term. You need that North Star both from a focus standpoint and an inspiration standpoint... And it's more important than ever before to be agile on the course, and leave enough latitude in the vision to try on different things, to test, learn, and pivot where necessary. It's also unique to each industry. A lot of industries move more quickly than others. Retail's pace of change isn't as quick as technology's, so it's easier to bet on the long-term to some extent.



SHERWIN-WILLIAMS

How Sherwin-Williams Uses Open Innovation to Create New Products

Victoria Scarborough says that after nearly a decade of overseeing the open innovation initiative at \$11 billion Sherwin-Williams, one thing has become very clear: you can waste a lot of time “if you don’t have a clear focus on specific solving business needs...and if you don’t have the needs identified and scoped out before you start scouting for technologies and partners.”

Sherwin-Williams, the Cleveland-based maker of paints and coatings, is also the largest operator of paint retail stores in the Americas, with over 4,100 locations. (In March, the company announced its intention to buy rival Valspar.) Scarborough, the former Program Director for Sherwin-Williams’ seven-person Global External Innovation Team, defines her team’s mission as identifying outside “technology that would move the innovation needle.” That has involved academic research partnerships, and collaborations with outside design firms and companies like Church & Dwight Co., the maker of Arm & Hammer Baking Soda. (Scarborough retired from Sherwin-Williams in 2017.)

...

- In general, Sherwin-Williams is looking for ways to make the painting process faster and easier; make products more durable and unique in appearance; and give customers more ways to choose paint colors and visualize the results.

- Scarborough says that the company kicked off its open initiative around 2008. “Procter & Gamble had started their adventures in open innovation, and there was a desire from our company leadership to find new models to drive innovation.”

- In outlining the scope of what an external innovation group should be focused on, Scarborough says, “Everyone has to agree on the needs. There’s a lot of work up front. You have to go to every marketer, every R&D person. It can’t be, ‘Go out and find me something cool.’ It has to be something that will drive your business.”

- Sherwin-Williams funds academic research when it wants to explore “more risky and blue sky concepts” that “may be very early on the technology readiness scale.” One example: research at the University of Akron on biomimetics. “That’s a PhD who is looking at how nature solves problems, whether it’s lotus leaves that are super-hydrophobic, or geckos climbing walls with the pads on their feet, or butterfly colors. It’s research

that asks, ‘What does nature do?’”

- Scarborough’s team has individuals focused on technology scouting; running a “proof of concept” testing lab and doing internet research.

- While scouting at conferences and industry events, the team is often approached by individuals and companies with a technology they want to share. “It may end up being something that we’re looking for, and that happens serendipitously all the time,” she says. “You never know who you’re going to talk to on a given day,” she says, adding that the youngest inventor she spoke with was only eight years old. Sherwin-Williams always has a booth at the TechConnect World Innovation Conference, an annual event that focuses on matching up compatible partners.

- The department scouts for all Sherwin-Williams divisions and conducts proof-of-concept testing and competitive research, before passing projects along to various divisional innovation labs for development. Sherwin-Williams

“It can’t be, ‘Go out and find me something cool.’ It has to be something that will drive your business.”

has labs dedicated to its architectural brands (Sherwin-Williams, Dutch Boy), automotive finishes and diversified brands group (Krylon, Thompson's, Minwax), and its Industrial Coatings, Protective & Marine and Chemical Coatings Design Engineering Group.

- One recent success story from the initiative is Paint Shield, launched earlier in 2016. Sherwin-Williams worked with microbiologists to develop the first EPA-registered paint that kills bacteria. It's ideal for environments like hospitals, daycare centers, and locker rooms. Paint Shield took five years to develop, and another three years to get EPA approval. It comes in 550 colors and kills 99.9 percent of Staph (*Staphylococcus aureus*), MRSA (*Methicillin-resistant Staphylococcus aureus*), *E. coli* (*Escherichia coli*), VRE (*Vancomycin-resistant Enterococcus faecalis*) and *Enterobacter aerogenes* within two hours of exposure on painted surfaces. The protection lasts for four years and continues to kill 90 percent of these germs with repeated exposure.

- Another example Scarborough cites is Refresh, sold under Sherwin-Williams' Dutch Boy brand. Sherwin-Williams worked with an outside agency to design a plastic container with a built-in handle and spout that allows the paint to be poured more easily. The company worked with Church & Dwight Co. to add odor-absorbing capability to the Refresh paint; the containers feature Church & Dwight's Arm & Hammer brand.

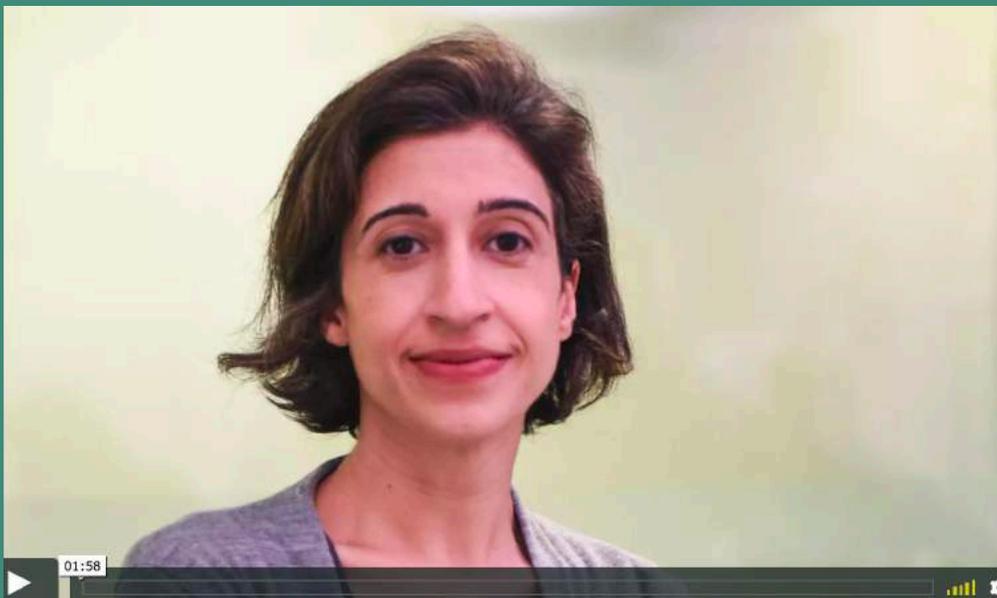
- There's no such thing as a standard partnership agreement or contract, Scarborough says. Every collaboration is unique. For that reason, "We work hand-in-glove with the legal department every day. There's a person on my team who is a ninja at working with Legal to craft agreements, so we're able to turn those things around very quickly."

- After more than eight years of practicing open innovation, Scarborough says, "It's not going away. It's not a fad. You've got to have it in your portfolio."



Victoria Scarborough, Former Program Director for Sherwin-Williams' Global External Innovation Team

Video: Mona Vernon of Thomson Reuters on Scouting Technologies



"We start with business value and customer value first. A lot of our thesis about what emerging technologies are relevant to Thomson Reuters is informed by our technology strategy, which is informed by our business strategy. There is such a broad spectrum of technologies to keep an eye on... To succeed in this type of initiative, you really want to bring a grounded business context to the scouting and the experimentation."

Learn more from Vernon, Chief Technology Officer at Thomson Reuters Labs, in our video: www.innovationleader.com/il-confidential-video-advice-on-innovation/

ADDITIONAL RESOURCES

We've collected relevant resources on scouting from Innovation Leader's partners:

DELOITTE

Tech Trends 2018

How can executives keep up with disruptive technologies – from the API imperative to digital reality – and integrate them into parts of the organization?

<https://dupress.deloitte.com/dup-us-en/focus/tech-trends.html>

C SPACE

Ford's Futurist: What's Ahead in 2018

Blog post and podcast featuring Sheryl Connelly, futurist at Ford Motor Company, sharing key insights from the 2018 Ford Trends Report.

<https://cspace.com/blog/fords-futurist-whats-ahead-in-2018/>

NOTTINGHAM SPIRK

Top 5 Consumer Product Innovation Trends

A quick exploration of trends like modularity, fast-laning, and sustainability.

<https://nottinghamspirk.com/5-trends-consumer-product-innovation/>

IDEASCALE

Four Disruptive Tech Trends

Includes a succinct explanation of trends like machine learning, cognitive systems, and AI.

<https://ideascale.com/four-disruptive-tech-trends-will-impact-innovation-strategy/>

EZASSI

Technology Scouting: Why It Works

External tech scouting can be a double-edged sword. How much time should you dedicate to it?

<https://ezassi.com/external-technology-scouting-works/>

MASSCHALLENGE & IMAGINATIK

The State of Startup/Corporate Collaboration

Big companies and startups want to work together more, but what are the best practices?

<http://more.masschallenge.org/report1>

MADDOCK DOUGLAS

Trend Framework Wheel

A large format PDF illustration to help you understand the forces that drive trends.

<http://info.maddockdouglas.com/trend-framework-wheel>

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