Ed Goldman, CTO of Intel IT
GM Strategy, Architecture, and Innovation

How Intel is Blazing Trails for IT Through Innovation

Truth be told, I could spend days discussing Intel IT's current activities and recent accomplishments. What we are doing in the areas of cloud, consumerization, business intelligence, and security are really interesting. But based on the common questions I receive from my peers, that's not what you want me to discuss.

You're more interested in forthcoming technologies, and how we are approaching the challenges and opportunities of the future. You would like to learn where we are going, why we are headed in that direction, and how we are choosing to get there.

Welcome to the CTO Edition of the Intel Business Review.

Here at Intel, it's not my role to sell products (although I'd be happy to discuss why we choose Intel technology for our research and development activities). And I'm not here to trumpet my organization's successes (although I could cover that too). Rather, I'd like to answer some of the questions I've received over the last year. In doing so, I'll discuss our process for innovation and reveal where we are placing our bets for the future. And hopefully I'll highlight some best practices and key insights along the way.

But first, let's provide some context as to who we are and what we do here at Intel IT. At the end of the day, we're just like any other IT shop. We are striving to do more with less. We must invest our time, resources, and budget wisely.

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And ultimately, we need to support and enable our business' priorities.

Intel IT is tasked with accelerating our company's Vision: Creating and extending computing technology to connect and enrich the lives of every person on the planet. My team within Intel IT—the Strategy, Architecture, and Innovation (SAI) group—blazes the trail for this acceleration. But what does that mean?

It means we think about ways to do things differently. We explore new technologies, architectures, and ideas. We solve real business problems. And in the end, we identify new opportunities that can be enabled through the use of technology.

If Intel is an automobile and Intel IT is tasked with accelerating the car, the SAI group is constantly looking for different acceleration methods; ones that supercharge the automobile while delivering greater fuel efficiency. We also bring different maps and route ideas to the table, and sometimes challenge the road ahead.

Some of this involves unconstrained exploration. By testing emerging technologies and applying conventional technologies in unconventional ways—without a specific problem in mind—we open the doors of possibility and innovation. We then use the knowledge gained to solve real business problems, and accelerate our mission in new, significant ways.

Whether it's exploratory or targeted, we have a process for identifying, prioritizing, and pursuing the opportunities that hold promise. It all boils down to use cases and business value, continually seeking new answers to an enduring question: how do we make things better, faster, and/or cheaper?

Open minds with directed processes

While we must keep an open mind in everything we do, we can't be directionless. Therefore, we have a distinct process for taking many ideas and distilling them down to a select few, business-worthy projects. Ideas must go through a rigorous gauntlet—from research to proof-of-technology to proof-of-concept—before they can be handed over to the IT teams that further develop and implement them.

Mobile robotics provide a recent an example. Let's face it, robots are fun to play with, and we've done our fair share of playing. But we must quickly determine whether and how they can be applied for business value. Based on our initial investigations, they hold some promise. Intel manufacturing personnel routinely put on specialized suits—a process that takes 30 minutes on average—to enter a clean room and read a set of meters. Mobile robots may be able to do it for them, increasing the efficiency and productivity of our manufacturing teams. They may also be able to support remote collaboration functions for geographically dispersed development groups.

We're still exploring the ideas, and not just because we like robots.

For us, innovation is a combination of exploration, problem solving, and business enablement. It requires three main ingredients: dedicated resources, a supportive culture, and the clear definition of a business problem or opportunity. We are constantly mixing these ingredients in different ways, searching for different answers or faster pathways.

For example, we wouldn't just ask, "How do we build a better mouse?" We want to ask, "How can people interact with PCs in better ways?" The former is aimed at iterative innovation, while the latter is all about transformational innovation. Both are important, and both lead us to different ideas, different answers, and different solutions.

Our IT Labs are often the first to ask questions and seek answers, and they act a bit like a venture capital firm. They conduct research that runs ideas through the aforementioned gauntlet, hopefully leading to proof-of-concept and pilot projects that deliver the necessary business value.

Our Architecture, Process, and User Experience teams take the concepts that pass muster and help build, apply, and drive them forward.

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They make sure the concepts align with existing capabilities and can deliver a satisfying experience for our customers. We also continually gather feedback, ideas, and fresh perspectives from other IT and business groups within Intel.

We review yields at each stage of the innovation process, measuring our investments and the viability of each idea. We do not look at the yield in the research phase as we only spend about 10% of our time there. We look at it in further phases like, 40-60% in the proof-of-technology, 60-80% in the proof-of-concept, and 95% in the final, transformation stage. At that point we turn on the capability for the organization and hand it over to engineering and operations groups.

Countless ideas don't make it past the research phase. Sometimes the technology is not ready. Other times, our ability to consume it and deliver a good business case is not viable. To be honest, abandoning an idea in which you have invested time, money, and passion is one of the hardest—and most important—aspects of the innovation process.

Back to the future

So where are we placing our bets for the future? Which ideas have made it through the innovation and investigation gauntlet?

We are exploring new ways to extract value out of data. This means looking beyond "big data" as it's envisioned today to deliver truly deep insights. In addition to enabling predictive analytics, we are hoping to add layers of visualization, crowdsourcing, and machine learning that help unearth those elusive needles of value in the ever-growing haystacks of data.

We're also attempting to revolutionize the way we develop applications. With an increasing number of platforms, devices, and usage models, current development practices are becoming unsustainable.

Our Multi-Platform Application efforts aim to deliver greater development flexibility and efficiency—for current platforms and devices as well as those that have yet to be envisioned.

We are working to create better, more dynamic user experiences; ones that are tailored to each person's preferences, location, and desires. And through My Connected Life programs, we are actively pursuing new connectivity and collaboration paradigms.

We are also anticipating the next evolution of cloud technologies, and working to develop a federated cloud platform that blurs the lines between - and delivers the combined benefits of - public and private clouds.

In all of these cases, we are combining innovative ideas with rigorous investigation to explore concepts, solve problems, and enable the IT and business teams we support. Not just for the present, but for the years to come.

I hope you enjoy this CTO Edition of the Intel Business Review. If you have questions, comments, or ideas, please feel free to leave them here.

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