

# NTT's Open Innovation in Silicon Valley

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### **Abstract**

This article introduces the activities of NTT Innovation Institute, Inc. (NTT I<sup>3</sup>), which recently marked the first anniversary of its establishment in Silicon Valley, California. This article is based on a speech given by Srini Koushik, President and CEO of NTT I<sup>3</sup> and Mayan Mathen, SVP and Chief Technology Officer of NTT I<sup>3</sup>, at NTT Forum on February 13, 2014.

*Keywords: open innovation, cloud, security*

Speech given by Srini Koushik

### **1. Overview**

My objective is to introduce NTT I<sup>3</sup> by explaining who we are and what we do and then to briefly discuss the nature of innovation. The whole theme of this conference is “co-innovation,” and there has also been discussion on the concept of “open innovation,” so it is crucial to cover precisely what innovation means and how we are trying to enable it within Silicon Valley.

### **2. Characteristics of NTT I<sup>3</sup>**

We previously heard about the four steps of open innovation: speed, working together with NTT Group operating companies, remaining mindful of the ecosystems of our partners, and working with start-ups

and other companies that have the skills and technologies we need to bring our products to market faster. NTT I<sup>3</sup>'s mission includes these four steps. Although a lot of attention is now being focused on B2C (business-to-consumer) and B2B (business-to-business), we are concentrating on the enterprise customers. Specifically, we are building solutions that the operating companies can take to market within the next 12 to 18 months. Currently, the opportunities in terms of the cloud and security are huge, and we are well positioned within the U.S. marketplace as a global player to take advantage of that. Everything that we do, we are working on quickly. In fact, we released one of our first products to market in March of this year, and considering that we just launched NTT I<sup>3</sup> in June of last year, this represents an incredibly rapid way of bringing products to market. Our colleagues have talked about the importance of balancing engineering that includes many features

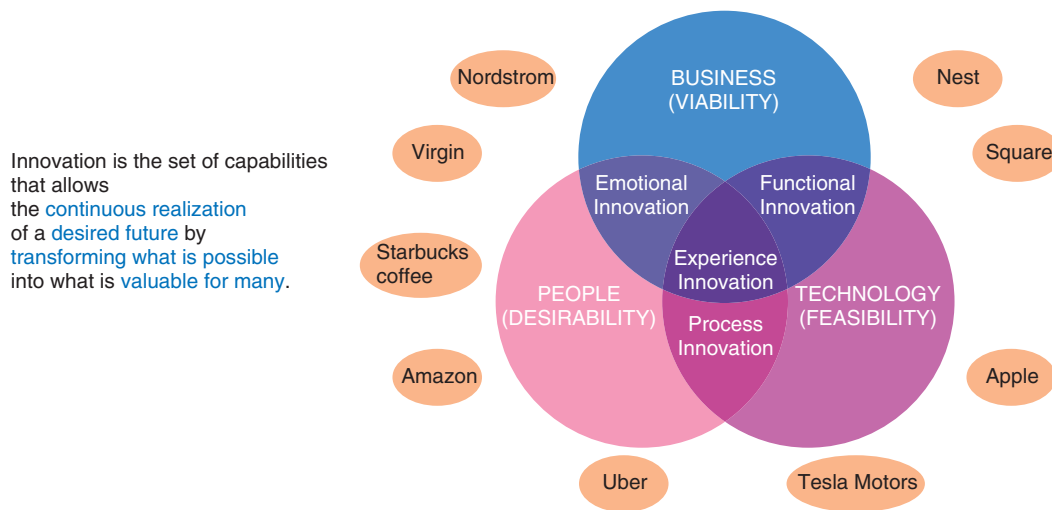


Fig. 1. Innovation requires human-centered design.

with speed-to-market, and of course, this is what we are striving for on a daily basis. But for me the key idea that we are focusing on is innovation, especially open innovation.

### 3. What is innovation?

So, what exactly is innovation? Within the framework of human-centered design, innovation and how to create innovation is something that a lot of people are spending time on (Fig. 1). As a research and development (R&D) community, it is crucial for us to keep in mind that humans are using our solutions. All too often the focus is mainly on the technology/feasibility side of the design process. For example, we look at a new technology and are very excited about it and want to build something with it. However, true innovation comes from being able to balance technology—which encompasses the feasibility, the “Can I build it?” side of things—with a financial model, i.e., “If I build it, will anyone buy it?” And, to add a third element that is equally important, as companies such as Apple have so eloquently shown us: It’s all well and good if you build it and people are prepared to buy it, but people should want it. They should want to buy from us.

How many people know what a “Microsoft Zune” is? Maybe a few people. The Microsoft Zune was the competitor to the iPod that Microsoft brought out. It was very well designed, utilized very good technology, and was something that people would pay money for. However, people did not want it, because quite

simply, the design was not easy to use. That was its downfall. What we are striving to do in NTT I<sup>3</sup>, with all of our products, is to hit that middle ground, to come up with ideas for products that we can build, that we can take to market through our operating companies, and that can be differentiated from other products in the marketplace. So when we go talk to our enterprise customers, they can see the difference that we’re bringing to the table. This high level of perfection and excellence is the core concept of our idea of innovation.

### 4. The seven components of innovation

I consider innovation to be made up of seven main building blocks. Here, it might be helpful to think about children and the way they interact with the world. One of the things that you will notice about children is that they are the most innovative people you can find. When kids are young, e.g., five or six years old, and you give them a stick, within five minutes they will have found about ten uses for the stick. They might use it as a musical instrument or as a tool; they might bend it and use it for something else. They typically have no problem coming up with at least ten different uses for that stick. Why is that? If you think about it, children are experimenting all the time. If you give them something, they’re always experimenting with it, trying to see how it works, what it can do. This is the first building block of innovation: experimentation.

Second: children are not afraid of failing. If they try

something and it doesn't work, they just get up and try something else. They keep working on something until they like it, until it does what they want. Therefore, the acceptance of failure is very important.

A third component—one that Google and others talk about, and which is critical—is having sufficient time to think. For example, if we tell our researchers to be innovative, it is imperative that we give them time to mull over their ideas. It can be quite difficult in our daily lives, as we tend to our daily tasks, to be creative and come up with different ways of solving a problem. In my own case, there are many times when I have been working on a very tough problem, and having been unable to find a solution, I have finally given up and gone home to bed. Then the next morning when I wake up and get in the shower, I suddenly have three solutions in my head, three innovative ways of solving that problem. I've had sufficient time to think about the problem, to let it percolate, and to move around and change locations to a completely different environment, and as so often happens in this type of situation, that is when I'm finally able to come up with a new idea. This third component, time to think, is therefore crucial.

The fourth component of innovation is creativity and playfulness—again, traits that are abundantly evident in children. That's what actually makes children creative, being playful. When you look at campuses such as the ones that Google has built, or that Facebook is trying to build, and others, the reason they have all those very bright colors and fun ways to interact is because they're trying to stimulate creativity and playfulness. When you're playing with something, it's much easier to think of new ideas. When you're under stress, the opposite is true, and it becomes harder. When you're playing, when you're having fun with others, that is when your creativity really starts to improve.

The fifth component of innovation is having effective leaders. Innovative organizations have leaders who inspire. They don't direct or order people to do things. You can't order someone to become innovative. You have to allow them to do their job and help them when they need obstacles removed. That's critical.

The sixth component relates to diversity of thought. Lateral thinking serves as a good example of this in that many of the most innovative ideas come from taking something that worked in one domain and applying it somewhere else where nobody thought it was applicable. This is why we've seen success here at NTT I<sup>3</sup> by combining teams, putting together labs

that mix different domains, which is an excellent way to stimulate ideas and come up with innovative new plans.

All of these components are important, but perhaps this last one is the most crucial: willingness to change. If you have the other six components in place but you're not willing to change, you might come up with two or three good ideas, but then it'll all fizzle out.

I described these seven components in detail because it's not enough to simply talk about innovation. We also have to understand it. We have to be able to build innovative products. As the CEO of NTT I<sup>3</sup>, it is imperative that I set up an environment like this, because otherwise, the team as a whole will be unable to come up with many ideas. We spend a lot of time at NTT I<sup>3</sup> trying to build this type of culture, this type of idea. We like our employees to be creative and playful, to joke around and to play. We encourage that, and a lot of other executives are starting to do the same thing. As part of our team, we have senior executives who aren't afraid to joke around and dress up in a Halloween costume for an office party. We have 20 engineers from R&D working in Silicon Valley, and when they see a senior executive do something like that, they know it is OK for them as well. The result is they are more fully engaged and better able to help us innovate. This is one of the primary reasons that, although it is not technical, I wanted to clarify my views on innovation. Innovation is a passionate subject for me, and it's critical that we build an organization that supports it.

## 5. Research focus of NTT I<sup>3</sup>

Here are the five major areas on which we're focusing our research (**Fig. 2**).

First, everything that we're doing is centered on security, because whether we're talking about wearable computers, big data, or the cloud, security is at the core of everything that we do.

The nature of security threats is changing. It has gone from being rather general to something very specific. Now we have attackers who will target a specific company to damage its reputation, or we have countries that are actually sponsoring people to come in and attack. The nature of attacks is becoming different, and so we're spending a lot of time working on security.

A second area on which we are focusing is the "asset-light generation." This term, which has recently become more and more common in the U.S., refers to the next generation of consumers currently out

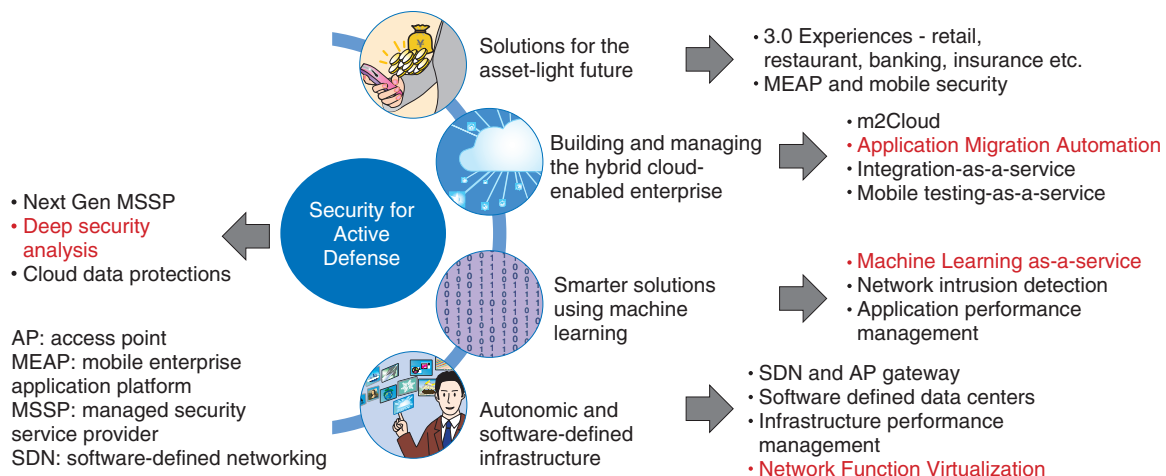


Fig. 2. At NTT I<sup>3</sup> our R&D focuses on cloud-enabled enterprises.

there in the marketplace. This generation of consumers does not buy things, as previous generations did. When I was young, I bought record players; I bought CDs; I bought DVDs and the like. People don't do that today; rather, they stream things. The CDs and DVDs of the past have been disrupted by iTunes, and iTunes has been disrupted by SoundCloud and Pandora and others, and nobody buys things anymore, not even a 99 cent song, because why buy something when you can stream it, on demand? So these things we used to own, these assets, are becoming rare as more and more people join this asset-light generation. When this type of generation forms our client base, it changes how we view problems and how we build solutions. We are intently focused on this generation and coming up with ways of addressing the unique needs it presents.

Third, everyone these days is talking about the cloud, and how we need to help enterprises get to the cloud. From my point of view, in terms of our customers, it's important that somebody be there to help them when they get there. The internal workings of companies are becoming more and more complex as an incredible number of different systems are integrated and then are constantly and sometimes erratically updated. Let's say you're in an IT (information technology) environment where your mainframe system is changing once a month, and your sales force system is changing once or twice a week. It becomes extremely difficult to maintain a certain way of testing code and to make sure that you can do and undo connectivity. In response to this, at NTT I<sup>3</sup>, we're working on solutions involving application migration

automation and how to enable DevOps (development and operations) in the cloud. This is one of our first products that will be coming out next month.

A fourth area on which we focus is machine learning, which is very important to us and which we are using in several different areas. For example, we took Jubatus and deployed it on our cloud offering, put it on Dimension Data's cloud, and built a service on top of it that can solve specific problems without the help of data scientists. This is just one example, but our idea is to see if we can solve 70–80% of our problems in this way, package the process, and then take it to our mid-sized customers and others. We believe it is possible to do this by working closely with start-ups such as BigML, SnapLogic, and others so that we can bring services to the marketplace very quickly.

Finally, because we are an infrastructure company, a networking company, as such, our very core is network function virtualization, so we are focused on everything starting from the AP (access point) gateway and SDN (software-defined networking) gateway all the way to the network function gateway and network function virtualization that we've got set up. We are eager to start releasing products in this sphere in the coming weeks and months.

The five areas above are our primary focus. This enables us to actually talk to customers and demonstrate to them that we are looking at the end-to-end spectrum of how to manage and build cloud applications.

Speech given by Mayan Mathen

## 1. Innovation and collaboration at NTT I<sup>3</sup>

There has been a lot of discussion at this conference about co-innovation and collaboration. In my opinion, collaboration and innovation go together very closely. One of the main areas that we focus on at our Silicon Valley branch is working with the NTT operating companies. Without them, whatever we're doing wouldn't be as effective, and we wouldn't really have a meaningful mission.

One example is the case of the NTT operating companies initiating a plan to work together in the security domain. We now have NTT R&D, Dimension Data, NTT Com Security, and NTT DATA all coming together on a regular basis hosted by NTT I<sup>3</sup> to work together towards a common mission in the security domain.

In the very short term, we're looking at a standard architecture for security as a group and go-to-market technology that has successfully positioned NTT Group both globally and as a leader in the Gartner Magic Quadrant for security. This is something of which we should be quite proud. Moreover, as of recently, from our visit to Tokyo, we have started launching the next wave of collaboration across the NTT Group operating companies with a focus on the cloud infrastructure domain. In April, we'll be starting the same type of collaboration in another domain, and we'll continue through 2014.

## 2. Working with start-ups and academia

We're working with various start-ups, which is a lot of fun because these people have bright ideas. They don't think in a box; they think out of the box, and they seize every chance to shake things up. We both see it as a great opportunity to join forces and collaborate using various assets that we both possess. As an example of application migration to the cloud, we have worked with a great company called CliQr that helped us identify ways we can help clients move onto Dimension Data's and NTT Communication's cloud business units. There are many others, too.

We have also been working with academia and standards bodies. Many outstanding individuals have been dispatched from Tokyo to NTT I<sup>3</sup>, and everywhere they go—meetings, conferences, etc.—they are held in extremely high regard. Everyone looks at them and thinks, "Oh, the NTT team is here." So we

should be very proud of their achievements in that regard.

## 3. Developments at NTT I<sup>3</sup>

Now, I'd like to provide you with two examples of what we're working on.

In Silicon Valley, it's necessary, as pointed out earlier, to work with others and at great speed. A friend of mine runs Plantronics, and they have a division called PLT Labs. My friend and I were having coffee and talking about an idea, one that we are both very passionate about—wearable technology—and we started discussing Google Glass, particularly its disadvantages: it's clumsy, it's got certain challenges, it sits on your face, so if you have prescription glasses, you can't use it effectively, etc. We both looked at each other and said, "Let's try to come up with something more interesting."

Specifically, we took a very common, readily available piece of technology (a little Bluetooth headset) and had the team at PLT Labs expose a few APIs (application programming interfaces). Within just a few hours, two engineers had written a little application that enables users of this headset to move their heads without wearing any obtrusive pieces of technology, and to run an application on their mobile device just with the motion of their heads. Users can tap the device and move it around to activate built-in sensors that detect the temperature. This gives users an entire platform with which to create countless applications with different uses. The best part is that it's inexpensive and can be used to do things very quickly. For example, if I wear the device while accessing Google Street View, I simply move my head around to move around the street. Now, just think about the applications of doing something like this. Think of the enterprise as a platform, as a global telecommunications provider and as a platform service initiative. Imagine if we allow enterprises to program onto this. Imagine buying inexpensive wearable technology and then exposing information and creating mash-ups everywhere. For example, if we could mash up information using cloud APIs. Picture somebody sitting in an office with wearable technology and taking a context-centered platform to the next realm, being able to offer services to a potential customer. There's an amazing range of applications in health care, in financial services, and more. This technology offers the cutting-edge ability to zoom around Street View and identify a potential customer.

The second example I want to share with you goes back to our collaboration with start-up companies. You may remember the movie “Minority Report” with Tom Cruise some years back. The way it showed them moving files around was very sci-fi. Recently, a Silicon Valley venture company gave the man who came up with the creative concept behind that movie money to actually fund his dream. So he formed Oblong Industries, which really excited us. Their headquarters in Palo Alto is very close to where our new office is located, so we went over to have a look, and the technology is extremely impressive. Moreover, what interested me and my team much more was the fact that it gave us ideas for an integration of the next generation of collaboration that is possible by leveraging our global networks, our telepresence network capability, and our audio and video conferencing capabilities. We are also excited by the fact that, because we are everywhere, because we are one of the largest carriers in the world, we can actually enable this sort of integration.

Our next step was to start discussing what we could do with this idea. In San Francisco, I met with a so called “cyborg anthropologist”—a person who looks at how technology and humans interact and how they evolve. He is now going to work with us to implement this Oblong technology in client experience data and to host client innovation workshops. Our enterprise clients will be able to sit in a room with us, experience the visualization exercise we offer, and will almost certainly view us as a remarkably innovative company.

Every day at NTT I<sup>3</sup>, I get to experience this incredible technology, and it inspires me when our clients come in, see what it is that we do, and then leave with the confidence that they are working with the best and most innovative company in the world.

### Conclusion

We have provided an overview of some of the technologies we are developing. These days, people are increasingly using phones and other mobile devices to access information, and our technology is unobtrusive, enabling users to view content on iPads, phones, etc., in a manner in which they do not have to physically have the devices in front of them as they are

walking.

This type of technology is evolving at an incredible rate, and one of the nice things about being in Silicon Valley and working under the NTT umbrella is that we are ideally located to identify new trends, to work with up-and-coming designers and developers, and to build and help grow new technology. We can come up with a new idea and have a prototype built two weeks later. The possibilities for future applications are limitless.

Our strategy is to build a very quick prototype, and then see if it works, and if it works, to try to engage the NTT operating companies and say, “Can we actually make money on this?” If we can make money on it, we build it, and we build it quickly. In this manner we can deliver a minimum viable product, or MVP, that we can take to market and sell to customers. By working closely with our clients, we can improve the product and start adding more and more features as we move into the future.

### Speakers’ profile

#### Srini Koushik

He joined IBM in 1994 and became head of e-business development in 2000. He joined Nationwide Insurance in 2001 and became its CTO (chief technology officer) in 2009. In 2011, he joined HP and took up the post of chief development officer spearheading the development of global applications. He founded Right Brain Systems, a consulting company, in 2012, serving as president and CEO. He took up his present position at NTT I<sup>3</sup> in May 2013.

#### Mayan Mathen

He joined a technology integrator company in 1999 and then Dimension Data in 2004. He joined Converged Communications in 2004 and became its National Practice Manager. Prior to his current role as CTO at NTT I<sup>3</sup>, he served as the Group CTO for the Africa and Middle East operations of Dimension Data. He is an accomplished speaker and widely recognized global technology leader who often presents at major conferences around the world.