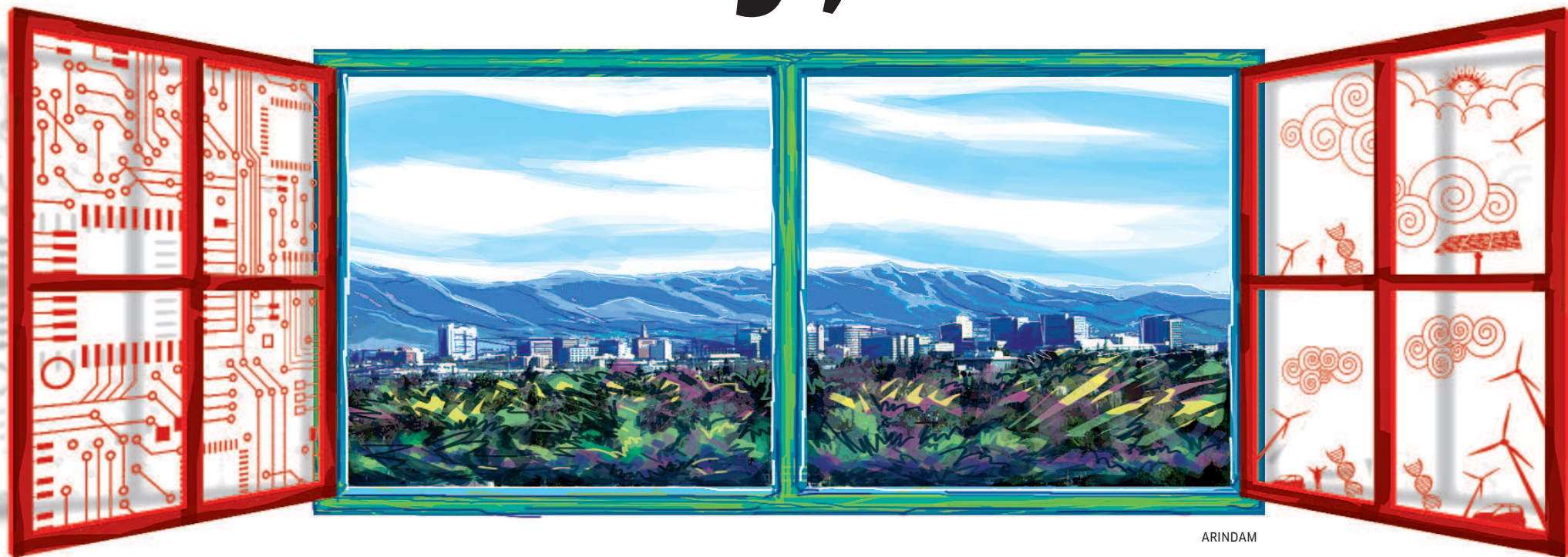


How will Silicon Valley — the home of technology — change in the next decade? Rituparna Chatterjee asked 10 accomplished Silicon Valley Indians to present their vision for 2020. Their insights and predictions

Silicon Valley, 10 Years On



ARINDAM

The Grand Veterans

The grand old men of the Valley who have been there, done that

The New Detroit



Vish Mishra
Global Head, The Indus Entrepreneurs; Venture Director, ClearStone Venture Partners

Silicon Valley's primary ecosystem of cooperation and trust — if you leave a company to form your own, nobody sues you — will not change. The definition of a multinational will change. We will see 'micro-multinationals' flourishing. For instance, earlier, GM produced cars made in USA for USA. In the next decade, you will have your corporate office in one place, manufacturing elsewhere, R&D in yet another country, while your market could be completely elsewhere. While the multinational, as we have known it, was a large company, micro-multinationals could include both behemoths and smaller companies. Smaller companies would follow the same logic.

Silicon Valley is going to be the new Detroit; not in the bad sense, but in being a hub of future automotive tech-

nologies like electric vehicles, fuel-cell vehicles, smarter vehicles and the infrastructure around these.

Silicon Valley's cloud computing will change the traditional Indian IT business model. Everything — applications, infrastructure, platforms and so on — will be a service. So, it will be very fast and easy to develop an app, unlike in old IT. So, Indian IT companies will have to constantly update their staff with the latest technologies and change their business models to adapt.

The total capital in venture capital will rise enormously. A lot more philanthropy will come out of Silicon Valley. It has relatively new wealth and so the models will differ from the philanthropic models of old wealth — say, in the way The Rockefeller Foundation differs from The Bill & Melinda Gates Foundation.

From Businesses To Consumers



Rob Chandra
Partner at Bessemer Venture Partners

The last few decades of technology innovations in areas such as microprocessors, databases, PCs and networking were largely about helping businesses improve their processes. But now, innovations in technology are about improving and changing the lives of consumers. The current wave of consumer technology innovations will continue in the next decade. And while these technologies — mobile, cloud and social — will continue to connect consumers to people around the world, the local focus will become increasingly paramount. Because when you go out for a dinner or need a hair cut, all of your information and social needs are local. Soon, there will be over 5 billion smart phone users,

all connected to each other on a broadband network. We are just starting to imagine this future. We will all be mired in data! And the next decade will be all about figuring out new technologies to help us get the information we want and make the decisions we need.

The dramatic consolidation of venture capital will continue. In spite of increased bootstrapping, and new software innovations with which entrepreneurs can launch Internet businesses very quickly with just a few thousand dollars, venture capital will remain important. This is because scaling the venture still requires lots of capital, and a failure to raise it at the right time makes it easier for competition to zoom ahead.

Moore's Law Will Slow Down Considerably

Semiconductors will get commoditised and lose their magic. Unlike now, anybody will be able to make them. Traditional Silicon Valley industries like semiconductors and networking would have matured and will see far fewer deals. Moore's Law will slow down considerably, driven by economics — building fabs is enormously expensive. Also technologically, because once you reach sub-nanometre levels, managing the noise-to-signal ratio becomes extremely challenging, and is incredibly difficult to yield perfect results every time. Unlike earlier decades, the next one will not be so much about fundamental changes in materials or science. Instead,

the 2020s will focus more on leveraging existing science and technology to deliver convenience to consumers.

When it comes to replacements for traditional semiconductors, the 2020s will see more research in biochips — using proteins as a fundamental base to store information. But nanotechnology, which is fantastic for other things, cannot replace traditional semiconductors in consumer devices, at least not in the next decade. Traditional Silicon Valley behemoths like Cisco, HP and Oracle will have to battle huge challenges. As everything becomes a service, they will move into consulting and services. They have hardware patents; so, they can package

their services in a more compelling way than, say, an Infosys or TCS can. And this is why Indian IT behemoths too will be challenged: they will have to figure out how to compete with these Valley behemoths. Intel, too, has a different challenge — of dealing with disruptive technologies like mobile. The mega-world challenges Silicon Valley solves will have to do less with IT and more with life sciences. Tremendous changes in the way medicine is practiced — as we apply genetics to correcting and fixing diseases — will increase lifespan.

The challenges Silicon Valley itself will face in the 2020s will be more around policy and regulation.

The Behemoths

They drive the Valley's traditional behemoths



Padmasree Warrior
Chief Technical Officer, Cisco

Next Decade Will be Video Era

The next decade will be the video era. We will go beyond voice, to communicate via video. Mobility, social and cloud will change everything, but it will happen through video. Consequently, networks too will change. In the previous decade, networks were all about moving information from point A to point B. In the 2020s, networks will also be about delivering a smoother, seamless experience and all kinds of network will co-exist. Networks will be like smart grids. In a grid, sensor networks transmit small bits of data all day long. In video, on the other hand, you have very hi-definition data in a burst, but you are

not using it all day. Sensor networks will sense these needs and adapt accordingly. So, we will have intelligent highways, intelligent traffic monitors, intelligent cars, intelligent homes. Therefore, wastage will reduce as we use our resources efficiently. Thus, in emerging economies, virtual healthcare, rural banking and government will be disrupted in prominent and revolutionary ways. Of course, all this disruption will start here, in Silicon Valley. Take Facebook. Here is a Valley tech that is changing how groups get together and you could argue that it's also changing how younger generations learn.

Search Will Go Natural



Amit Singhal
Google Fellow who rewrote the search engine

Distinctions between devices will go away. We will be surrounded by technology more than ever before, but it will not be intrusive. It will be natural. Search will go natural. Not only will it be personal, but more normal ways of searching — through images or voice — will emerge. The 2020s situation would be something like this: you are sitting with your family at the dinner table and quizzing your kids, say, on how Alfred Nobel made his money. Instead of hunting for answers under the table on your smart phone, you will simply ask, "Hey Google, how did Nobel make his fortune?", as if Google was another person sitting with you. And it will answer just as if it was. Technology will solve some of the problems that technology itself has created. Take cloud. The power of the cloud is what gives a device its real power, but networking and network capability is a bottleneck.

Everything Will Be Connected



Prith Banerjee
Senior VP-Research at HP

In the 2020s, everything will be tracked and traced in the world of information. This is because everything will be connected. Doctors and nurses will be able to monitor everything you do in healthcare, based on you tweeting your emotions and through the chips you wear on your hand, which will convey, via the cloud, to doctors sitting in the office whether your BP, for instance, went up. This is why sensors will be crucial. So much so that in the 2020s, HP could be selling you 'sensing as a service', similar to today's 'software as a service'. Rather than buying a random device, you will buy the solution. We will have multiple sources of energy, which, when used in the most efficient combinations, will create sustainable, zero-carbon data centres. We waste a lot of energy. But instead of spending energy in cooling the entire room, we could cool the spot you are sitting on.

The New Wave

The new voices changing the face of the Valley

DNA'll Be Written Like Code

Two industries will fundamentally change Silicon Valley and, thereby, the global hi-tech landscape: aerospace and genetics, both of which are ripe now. We will start to have customised drugs for each person. Genome sequencing is giving us breakthroughs. We are also learning how individuals react to drugs. That plus all the data we have about individuals today could revolutionise healthcare. Drug research might now come from a hi-

tech company like Google, rather than a biotech company. This is because we are able to now search information about a person's health, analyse that data, draw patterns and prescribe drugs accordingly. So really, it becomes a data problem rather than a drug problem. People will be able to write DNA, much like we write code today. NASA budget cuts do not mean the end of the space era, but the beginning of the privatisation of space.



Naveen Jain
Serial Entrepreneur (Moon Express & Intellius)

Booms & Busts Will Be Faster



Vivek Wadhwa
Serial Entrepreneur-turned-Academic

This will be the most innovative time in history. Everything — software, storage, medicine and even applications of Moore's Law — is changing. Silicon Valley will not change much, but its technologies will. Similarly, with valuations. The social media bubble will burst in the next 6-12 months. But other bubbles will replace it: education and data are next. Rather than focussing on the world's grand challenges, Silicon Valley is focussing on Mickey Mouse social, obsessing over Groupon and Twitter. The best entrepreneurs are here and this is a waste of the Valley's talent. The magic about Silicon Valley is that it keeps going through the cycle of destruction and growth. The booms and busts will be faster now.

The Product Will Find You



Anand Rajaraman
Founding Partner, Cambrian Ventures

It is hard to think of an industry that will not get disrupted by data. Everything will be personalised based on data about you. Just as highways changed retail 50 years ago and the Internet changed retail 20 years ago, social and mobile together will revolutionise retail in the 2020s. E-commerce today is bringing the store to the web. In the next decade, it will be about bringing the web to the store. Instead of you finding the product, the product will find you. Mass marketing will be passé and marketing will be data-driven. Data will drive gaps left by traditional VC firms, thereby reducing the chances of hyped valuations and bubbles.

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