

# 'Artificial intelligence, machine learning can help improve crop yields'

'India is witnessing a data explosion, which will lead to a lot of computing'

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*Google has chosen India as a major battleground to take on rivals Amazon and Microsoft in its bid to dominate cloud computing services, said Rick Harshman, MD-Asia Pacific for Google Cloud, in an interview. He said the company had made big strides in the country in terms of enterprises adopting its technologies such as cloud services, security, artificial intelligence and machine learning. Excerpts from an interview:*



**How are Indian enterprises adopting your technologies, especially cloud and artificial intelligence? How large is the opportunity?**

■ Globally... only about 5%-10% of all workloads in IT run on the cloud. So it's globally a trillion-dollar opportunity, and then you deduce that down to India, it's quite substantial.

I think the estimates are quite conservative. Because India is a unique [market], it's leapfrogging, it's not a desktop place, it's mobile phones, feature phones..., just a huge explosion of data, which is going to lead to a lot of computing... and opportunities for organisations... not only with what do we do about this data, but where are we going to store this data?

And then what are we going to do around creating intelligence out of that data, which is where the machine learning pieces come in.

How organizations are adopting us? They typically start looking at us from analytics [perspective]. When they have... played around with our services, whether it's BigQuery, Cloud Dataflow or Pub/Sub... they are blown away about the price to performance, the ease of

use, the scale...and then they say, 'what can we do with that data now that we're getting it back faster?'

That's where the ML pieces come in. So in India, we've got a number of customers that have started with things like chatbots, Policybazaar is a great example of that.

We have seen a number of organisations leveraging us for speech API, natural language processing, speech to text, especially in a location [like] India, where you have a bunch of different languages. Then they say, 'what else can we do with you?' And then you bring in the wider Google approach.

**How would you compare this adoption to your competitors such as Microsoft, Amazon and Oracle which are also betting big on India?**

■ The markets are starting to sit up and take notice of the investments that Google Cloud has been making, not only on the infrastructure with the [cloud] regions and also, the types of partnerships that we've established, whether that's with SAP, Cis-

**Two U.S. high school students have made a device that you can put on trees, to help predict wildfires**

co, Salesforce, Wipro, Mphasis, TCS, Accenture and Deloitte. We're starting to make some big inroads there. And that is critical for enterprise penetration.

**India's e-commerce market is expected to grow to \$200 billion by 2027. How is Google viewing this opportunity?**

■ In India, other countries in Asia Pacific and globally, retailers whether traditional brick-and-mortar or e-commerce providers, really are being attracted to the Google Cloud story.

Whether that's Woolworths in Australia, Carrefour in France, Target and Best Buy in the U.S.

They're seeing not only the benefits that we can provide... but [also] help to get intelligence out of their data. We've seen that a lot in Japan with FamilyMart.

We're making tremendous progress in retail in India... not through invest-

ments like other companies have had. It's more of our overarching approach to how we can help retailers and that can be through point of sale, supply chain, restocking of shelves...

**What role is Google playing in providing technologies to save lives?**

■ I would give three examples...one is used in medical profession to try to help diagnose different types of cancer. How do you try to alleviate or hopefully eliminate different forms of cancer and there they're leveraging Google's TensorFlow machine learning capability.

[Another example is] there are two high school students [from California who] using TensorFlow created a device that you can put on trees and they can help predict wildfires...[by taking] in data and then applying ML models.

[Thirdly,] we have this project called Project Oasis (a self-sustaining plant ecosystem that reflects outside weather patterns by creating clouds, rain, and light inside a box). It can create environments, but using our cloud analytics as well as ML capabilities, it helps you predict weather patterns.

The other thing [where technologies like cloud, AI, ML] will have a big impact in a country like India is on farming and crop yields. You will be able to have precision farming, [helping]farmers maximise the space they have.

And it's really hard to do that with just traditional methods. So we think that through advanced analytics and ML capabilities, you can be more precise [about] the types of crops, weather and when and where you should plant.