

ADVERTORIAL

The numbers are starting to make sense

Data analytics is making a difference by changing mindsets and providing the intelligence for better “decision-making” across the public and private sectors, say infocomm leaders

From knowing customers better at the very moment they transact to predicting when a building’s air-conditioner needs maintenance, the insights provided by new sources of data are proving invaluable in changing how organisations are run and improving the lives of users in various ways. That was the view shared by infocomm leaders from both the public and private sectors during a recent NCS lunchtime roundtable.

Seeing the promise of Big Data, these experts put their numbers to work in their organisations. What they found were invaluable lessons in new ways of doing things.

Professor Ho Teck Hua, Deputy President (Research & Technology) and Tan Chin Tuan Centennial Professor, National University of Singapore, kicked off the discussion by sharing perspectives on how data and analytics have told new stories, changed behaviour, or helped in making tough decisions.

“There’s a capability side and also a solution side,” he noted. “One is about building up a capability to collect and use data, the other is actually finding solutions to issues facing businesses every day,” he explained. “The full power of big data will only be realised when it is used to provide powerful solutions to complex societal problems.”

Responding to that, panellists at the roundtable, which is jointly organised with The Business Times, shared how data analytics has made a real difference in their respective organisations.

Mr Chia Wee Boon, Chief Executive Officer, NCS, said that it was important to not just capture but also compute and create something out of the data. There has to be a positive end result, he emphasised.

At DBS Bank, the data collected each time a customer interacts with the bank is analysed for the strong and weak points in the delivery of that service.

“We look at the customer journey to see where the failures are,” said Mr Jurgen Meerschaege, SVP Head Business Analytics & Decision Support, DBS. “We run experiments and help teams with more scientific proof of what works and what doesn’t.”

Data is also a big component of operations at OCBC. At the central hub at the bank, the analytics team sees data streaming in from the interactions that customers have with it throughout the day.

This is sorted based on usefulness. Someone may be swiping a card to pay or changing a home address online, for example. If a customer is moving, it may be a chance to provide him an offer of home insurance.

The work involved is a combination of real-time data and machine learning, said Mr Donald MacDonald, SVP, Head of Group Customer Analytics, OCBC. Machine learning makes use of artificial intelligence to find patterns and provide new trends or insights that humans may not discover or may take a long time to discover.

Data is proving to be an important tool for infocomm leaders in the Government as well. As it looks to improve citizens’ lives, using the right information to make the right decisions will make a huge difference, they say.

The Land Transport Authority (LTA), for example, pushed for public buses to be tracked more efficiently by having a single system that showed commuters the estimated arrival times from different bus companies. Having to download separate apps in the past, users had been lukewarm to checking when the next bus was turning up.

The solution lay in having a SIM card and mobile transmitter installed on buses, which made monitoring them much easier on the road. This also led to a single data source for commuters, giving them more timely information on arrival times.

Commuters often worry about when a bus was turning up in the past, said Mrs Rosina Howe-Teo, Group Director, Innovation & Infocomm Technology Group, Land Transport Authority, Singapore, and they would be stuck in the rain or heat considering which bus service might provide the best shelter from the elements.

Today, 5,000 public buses are tracked this way, with improved predictions of arrival times. Since the new system was launched, usage from commuters has been astounding, said Mrs Howe-Teo.

In future, she said commuters may even know the load-



“At the end of the day, if you see a pattern, what difference does it make? I have always asked people in data science – what decision has been made and what behaviour has been changed because of big data? If there’s no change, then it’s business as usual.”

– Professor Ho Teck Hua, Deputy President (Research & Technology) and Tan Chin Tuan Centennial Professor, National University of Singapore, on making a difference with data



“With the ingestion and integration of data feeds, advanced analysis and data exchanges can then be performed. The outcome is a unified visualisation dashboard or tool that provides improved insights.”

– Mr Chia Wee Boon, Chief Executive Officer, NCS, on providing organisations with a holistic view of operations for better decision making



“I think data analysis should be more common and layman. If you make the data available enough, a lot of the tools are out there, things are available and everyone can use it.”

– Mr Chan Cheow Hoe, Assistant Chief Executive, Government Chief Information Office / Government Digital Services, Information Development Authority, Singapore, on allowing everyone to use data and form useful analysis from it



“You need a compelling business case, like if your profit margin is so low you cannot afford to make a mistake (that can be prevented with data analytics). In our case, real-time information is so critical, it’s in a second’s time, so that is what drives us to embark on an analytics programme.”

– Mrs Rosina Howe-Teo, Group Director, Innovation & Infocomm Technology Group, Land Transport Authority, Singapore, on the business case of using data analytics



“The use of analytics helps us in managing the energy efficiency of our buildings. So we apply analytics on data from all our sensors and identify where the areas for improvement are in a building. And you’ll be surprised that, even in a brand new building, there are opportunities for further optimisation.”

– Ms Siew Yim Cheng, Chief Information Officer, Corporate Policy & Planning Group, Information Technology Division, JTC, on using analytics to improve building management



“If we want to build up data literacy, we could easily incorporate it into our schools. Give increasingly larger data sets to secondary school students, for example. They will be able to tackle them with the help of the tools out there. And they will see how it works off the first principles they have learnt. In Big Data literacy, it’s not the size that matters; it’s the literacy.”

– Mr Poon King Wang, Director, Strategic Planning and Lee Kuan Yew Centre for Innovative Cities, Singapore University of Technology and Design



“You can’t assume everything. You can say these are the patterns we see, these are the insights about our customers, but at some point you have to leave your desk and speak to customers, listen to their calls, etc. We have to cross-validate our internal data with experiences from real human beings.”

– Mr Jurgen Meerschaege, SVP Head Business Analytics & Decision Support, DBS, on a merging data analytics with human interactions to gain better insights



“We embed analytics relationship managers into every major business line such as the credit card team or premier banking. Their job is to understand what the challenges are in that area, what their customers’ problems are, what they are trying to do. And they then proactively say here’s how analytics can help you with the problem. This is how we ensure the analytics we develop is relevant to real business needs.”

– Mr Donald MacDonald, SVP, Head of Group Customer Analytics, OCBC

ing of buses in advance and decide if they would go on a congested one or wait for the next one to arrive.

This would be possible because most commuters tap in and out with their fare cards, which can help the system gauge how many people are on a bus, she added.

Changing mindsets

Despite the improvements that technology provides, what may be more important is changing mindsets in workplaces where digital transformation is forcing old habits to give way to new methods, say the roundtable participants.

Mrs Howe-Teo likened data analytics to a “super marketing tool”, which provides evidence for what may have only been a gut feel otherwise.

“It’s no longer going in (to make a decision) without knowledge,” she explained. “You still have to make trade-offs but the trade-offs are less. You can sleep better at night!”

The sentiments are echoed by Mr Chan Cheow Hoe, Assistant Chief Executive, Government Chief Information Office / Government Digital Services, Information Development Authority, Singapore.

He said a data-driven approach now provides a clearer decision-making process in the Government. Facts trump opinions, he added, so that officers who have the data and information on hand are the ones who can better convince their colleagues of a better option to take.

At the IDA, the Government Digital Services unit develops apps for government agencies by taking into account actual feedback from users along the way. The data collected, for example, on which parts of a screen a user interacts most often with, helps developers come up with apps that are more intuitive.

Privacy counts

Amid the deluge of data, all the panellists agreed that personal data protection was key to the future. Without trust from the public, who are contributing the data, there would be no analytics or intelligence to speak of, they stressed.

It is important that the process of collection and analysis not be abused, said Mr Poon King Wang, Director, Strategic Planning and Lee Kuan Yew Centre for Innovative Cities, Singapore University of Technology and Design. “Otherwise, there’s no trust to speak of.”

Infocomm companies are aware of the Personal Data Protection Act, and have taken steps such as aggregation, anonymisation and encryption of data, they are very careful in treating the data they have, given its enormous value to the organisation, said Mr Chia of NCS.

The future is bright

As more data is generated, collected and analysed, what is to prevent even more insights to be provided by innovative technologies such as machine learning? Data analytics could be introduced in secondary schools to inculcate critical thinking skills from young.

Those were the questions posed by some panellists. If more people can make use of data, besides the top data scientists today, then the benefits would be even greater in future, they added.

NCS’ Mr Chia says machine learning is the future, as it presents a way for humans to find trends using the latest in artificial intelligence. It would deepen the type of insights that organisations could find, he added.

Today, smart building sensors can inform technicians where a malfunction has occurred in an equipment such as an air conditioning unit, so they can clear the issue fast. Electricity bills can be reduced by as much as 15 per cent, said Ms Siew Yim Cheng, Chief Information Officer, Corporate Policy & Planning Group, Information Technology Division, JTC.

In many other areas, the benefits of using data analytics are still to be discovered, say the roundtable of experts. Machine learning, they envision, will provide insights that are richer and deeper than now.

Not everyone needs to be an expert in future to exploit the benefits that data offers, said IDA’s Mr Chan. Members of the public “playing around” with data, he argued, could find important insights that have yet to be discovered in the still-nascent field.

Turning data into insights

CAPTURE

How is the data collected?

COMPUTE

How is the data analysed?

CREATE

How is the information used to improve processes, enable decision making, and create solutions?

ORGANISATIONS that make sense of the data they collect gain valuable insights that will change the way they make decisions and gain an edge when they compete. One of the biggest challenges is analysing it correctly. Often, with data coming from various sensors, systems and databases, a central platform is required to manage the volume (Big Data), variety (whether structured or unstructured) and velocity (in real-time).

Solutions such as NCS’ IntellisURF™ platform bring together data from disparate sensor networks to en-

hance situational awareness for organisations through complex event processing and analytics onto a unified user interface.

Using an open, modular architecture, it is easy to build various smart and safe city applications on top of this interoperable and scalable platform.

Indeed, the challenge remains for smart and safe city platforms to be agile enough to draw meaningful patterns among data sources as disparate as live data with historical data from across various sensors, and to ‘contextualise’ the analysis such that it proves truly meaningful to the users – all in real time.

What marks a successful data solution from another? Here are a few questions to ask before you begin:

- ◆ What is the desired outcome and pain point to address?
- ◆ What is the “killer” application or solution that can solve the problem?
- ◆ What information is required to develop a solution or enable decision making?
- ◆ Is there access and capabilities to collect and analyse the required data?

Thinking through the issues faced will enable you to adapt and tailor your approach. This helps maximise the benefits that the data can provide.

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**Mr Chia Wee Boon
CEO, NCS**



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