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Industry 5.0 and the Future Ready CXO

This insights report highlights the key discussion points shared among a select group of 15 x C-level executives from the private and public sector who gathered at a virtual roundtable to hear insights on Industry 5.0 and it's future impact on society. The *Industry 5.0 and the Future Ready CXO* roundtable featured industry-renowned scientific futurist, Dr Catherine Ball, as the special guest speaker. Hosted by Unisys and 6 Degrees Media, the discussion covered a wide range of topics, from exploration of the concepts that comprise Industry 5.0 through to the need to embrace new ways of thinking about the role of technology in society; and how Australian organisations must rise to the challenge of reskilling their people to take advantage of the many benefits that Industry 5.0 has to offer.

Rick Mayhew, Unisys

Dr Catherine Ball, Guest Speaker

Brad Howarth, Journalist

The world has moved through a succession of Industrial Revolutions, starting with the Steam Age of the mid-1700s and on through the mass industrialisation of the late 19th century, into the digital revolution that commenced in the 1950s.

The 21st century ushered in the fourth Industrial Revolution, often characterised as Industry 4.0, where digital technology has blurred the boundaries between the physical and virtual world. Industry 4.0 describes the utilisation of technology for sensing, controlling, and decision-making; and is made possible by connectivity, the Internet of Things (IoT), advanced analytics and artificial intelligence (AI).

However, just as many organisations have started coming to grips with this latest revolution and the technologies that underpin it, a fifth Industrial Revolution has emerged. And Industry 5.0 incorporates one key factor that was often overlooked in previous periods of rapid industrial change – people.

It is the inclusion of people in Industry 5.0 that has led the internationally renowned researcher and thought-leader, Dr Catherine Ball, to reframe this concept as Society 5.0.

"Society 5.0 is effectively Industry 4.0, plus purpose," Ball said.

Putting people into the mix brings answers to the key question that this next stage in industrial development poses – which is why we are putting these technologies in place to begin with.

Ball said the answer to that question lay in the ability of Industry 5.0 to solve real world problems, such as using drone technology to deliver medicine to people in remote locations in a timely and economical fashion, or using data analytics to create personalised medicines and treatments.

Ball said the range of applications of Industry 5.0 for the human body is extensive, including the possibility of 3D-printing organs, using image recognition software

to detect degenerative diseases by analysing the face and movements of otherwise asymptomatic patients, and employing robots in basic care to reduce the opportunity for transmission of disease.

What would propel Industry 5.0 into reality is not just the pull of the human needs it fulfills, but also the realisation that organisations which fail to use the technologies it makes available to them may be left culpable from a reputational, financial and even legal perspective. Ball cited potential examples of Industry 5.0 in action as the use of drones to replace humans in dangerous tasks such as bridge inspections, for computer vision systems in cars that can detect kangaroos, and in exoskeletons that prevent slips and falls on work sites. Many of these Industry 5.0 concepts could come together to create a safer society, such as through using computer vision, robotics, and wide area communications in the trucking industry to automate vehicle movements and theoretically reduce accidents.

"When we look at health and safety legislation, that now says we should actually ensure that we use the technologies that are available – and if we don't use technologies that are available, we could actually be potentially up for corporate manslaughter," she said. "This is the crux of Industry 5.0 – how we take technologies to make life better for those that are just going through an average workday."

Trust is the New Currency

While Industry 5.0 promises many benefits to people, those benefits can only be realised if one essential requirement is satisfied – that society can be kept secure from malicious actors.

"If we do not have cyber security, we have nothing," Ball said. "One decent hack, and we are on our knees."

That has in turn placed great emphasis on technology providers to ensure their tools and products can be used to develop and deliver secure services.

According to the Vice President and General Manager for Asia Pacific at Unisys, Rick Mayhew, the value of technologies such as 5G networks, artificial intelligence and the IoT is contingent on their ability to protect and secure the privacy of the people and organisations using them. With industry research now indicating that an identity credential is being stolen every two seconds, Mayhew said the need to adopt 'technology for good' was rising rapidly.

"If I look at all of the emerging techs, the thing that really occurs to me the most is the theme of identity and trust, because ultimately this will become a critical asset in terms of the digital economy," Mayhew said. "And that's why I see technologies such as Blockchain and Zero Trust frameworks becoming a very crucial role in securing and enabling Industry 5.0."

Related to this is the need to ensure the security of supply chains and partner ecosystems, such as putting in place systems to guard against counterfeiting.

"We'll see more integration between the trusted frameworks of Blockchain and IoT that will enable multiparty business processes to be more transformative," Mayhew said. "And I think that will enable ecosystems to generate new sources of revenue, cut costs and improve customer experiences and trust."

Delivering Hyper Personal Service

Solving the identity crisis would also enable organisations to deliver one of the great promises of Industry 5.0: the ability to create services that are targeted to the individual.

Dr Catherine Ball, Scientific Futurist and Tech Influencer

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"We don't like to just be seen as another number," Ball said. "The idea that we have technology now that enables people to be dealt with as an individual person or an individual customer is huge. The ability for people to stay with your business and choose you over your competitors will be down to that personal touch."

Ball said there was great potential for personalised protection to be delivered to individuals using Blockchain technology. This would help to reinforce personal privacy – something she said was poorly understood by consumers and given away far too easily in exchange for access to the latest gadgets and services.

"You cannot have a liberal society without privacy," Ball said. "You cannot feel independent if you do not have privacy. We are handing over the protections of our privacy to other people, and we're not having those conversations ourselves."

She added that the problem of privacy and how personal data is used will become more critical, as that same data became the fuel that powered the decision-making processes of artificially intelligent systems. Ball said numerous examples existed of AI systems which produced decisions that showed bias against certain classes of people, but where the complexity of the system itself made it a 'black box'. Hence, it was difficult or impossible to determine how it reached its conclusion.

"Explainable AI will be part and parcel of Industry 5.0, because it takes that black box and opens it up," Ball said. "So, you can see the cogs inside the machine as to how this artificial intelligence or machine learning software is actually making its decisions."

People 5.0

But while the Industry 5.0 concept held great promise for the advancement of society, that progress could only be brought about at the rate that human skills are made possible.

Here, Ball said employers and senior management should consider training staff in areas that would support the 5.0 vision, especially in the field of cyber security. This would generate opportunities for organisations to work more closely with education providers such as universities to ensure their workforces possessed the emerging skills needed to transform. It would also put pressure on education providers to deliver skills to market quickly.

"We're going to have a number of careers in our life, and that's going to actually become more frequent," Ball said. "Working with universities is going to be a key aspect for our large businesses in Australia, and universities will want to start doing more micro-credentials."

This notion of partnering between universities and organisations would be most critical in the field of cyber security, with Ball believing it would be much cheaper for employers to retrain existing staff as cyber security professionals rather than trying to hire them from the marketplace.

"Now the big myth and misnomer about cyber security, is that it's a computer science issue," Ball said. "It is not. It is a human issue. And a lot of cyber security

issues are to do with how humans behave around the information in front of them. "Having someone retrained in cyber security can cost as little as a few thousand dollars for basic cyber security training at TAFE."

Creating Society 5.0

Ball said that while the term Industry 5.0 was broad in terms of what it encompassed; it all came together quickly when visualised in action against specific industries. She cited an example as being the agriculture sector, where three applications of Industry 5.0 would immediately provide benefit.

The first of these was applying Blockchain and micro-tracking technology to bolster the provenance of products such as meat exports, to give certainty to their authenticity and place of origin. She said this would prove especially important for Australia due to the high regard with which its primary production sector was regarded in overseas markets.

A second application was robotics which would play a greater role in farm management. Ball cited the example of the Queensland company, SwarmFarm, which used robots and computer vision to identify and eradicate weeds in fields with high precision.

"Using sensors, we can identify diseases with sensors that the human eye can't see, and we can deal with it, without putting a human on the ground," Ball said.

A third benefit for agriculture is improved connectivity and the ability to use this to hook up patient monitoring devices to better manage remote healthcare delivery. Ball said this form of remote monitoring had even greater benefits in regional areas, such as agricultural communities, where advanced warning of the deterioration of a patient's condition could ensure they receive help sooner.

However, this vision could only become a reality if business leaders and other related parties looked beyond traditional ways of working.

According to Mayhew, for companies like Unisys – whose primary output is the brainpower of its people – emerging technologies will change jobs rather than take them. He forseees a greater degree of high-level jobs as a result, as human interaction will still be required to optimise emerging technologies' effectiveness. "We are retraining our associates accordingly. Perhaps AI will be the technology that will help humanity reach its full potential, making us our best selves."

He added that it was important that as a society we changed the way we did things, if we were to truly derive the benefits promised by Industry 5.0.

"We all need to be committed further to innovation and the agile work process, and we've got to hire smart," Mayhew said. "The challenges that teams are facing are to balance investments between running, growing, and transforming – and how they ultimately impact the business. "The traditional ways of working are past and beyond us. We've got to change the way we do things, to implement a rapid shift to the next generation of technologies."

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FAST FACTS: Aussies on Emerging Tech and Security

The longest-running snapshot of consumer security concerns conducted globally, the 2020 **Unisys Security Index™** examines consumer attitudes toward various security issues and emerging technologies. The 2020 research followed the worst bushfire season on record, a protracted Australian drought and the global pandemic. Highlights of the report include:

- One in three Australians are unwilling to share location data even in a pandemic environment
- In comparison, 46% of Australians are willing to share personal data with government agencies to expedite access to services such as driver licences and government benefits
- Similarly 45% are willing to share data on their buying habits with their bank to be alerted about unusual purchases or possible credit card theft, but only 26% are willing to share the same information with retailers in return for personalised special offers – and majority, 59%, are unwilling.

- Australians are moderately willing to share travel habits with the government to get through airport security more quickly (41% willing), but less willing to share health record data from monitoring devices with insurance companies to recommend steps to address potential medical issues (34% willing and 51% unwilling).

How willing are you to use a mobile app that matches your facial image with your passport information in a government database to access the following types of online services?

| | Willing | Not willing | Don't know |

	Government agency to apply for or renew your driver's licence	Government agency to apply for financial benefits	Government agency to update your contact details	Bank to apply for a credit card	Bank to apply for a home loan
Don't know	15%	18%	18%	18%	17%
Not willing	32%	33%	35%	46%	46%
Willing	53%	49%	47%	36%	37%
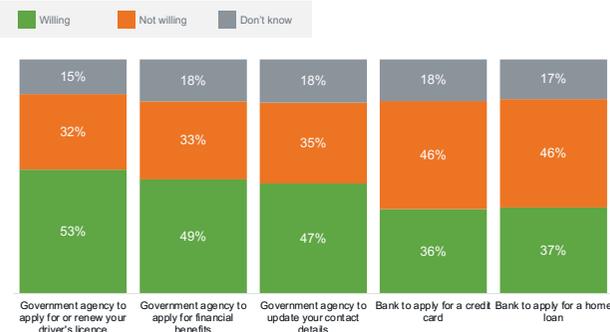
USI 2020 Australia data: Question in chart title Weight: Nat Rep on Gender, Age and Region; Base n = 1016

For the Greater Good: Enhancing Supply Chains with Blockchain

By implementing Blockchain throughout the food supply chain process, Unisys can ensure that commercial fishing, food supply chains, pharmaceutical drug routing, and so much more can safely, securely, and with one single point of truth deliver better outcomes. **Check out this three minute video** on how Blockchain is being used for the greater good.

5 Tips To Get Your Workforce AI-Ready

The Industry 5.0 roundtable highlighted key trends involving emerging technologies and their future impact on society – in particular, Artificial Intelligence, and how it will shape the workforce. Read these tips from Unisys on how to ensure your workforce is AI ready.

1. Start With Your End User, Not Your Data

Ahh, the data – so much, so rich, so revealing. You probably have heard that you need a lot of data in order to properly train your AI system. True, but just because you have a lot of data at your disposal doesn't mean you are ready to start.

Data can contain hidden biases. It might be outdated, or inaccurate. If you let data lead you down its path, you'll exacerbate those shortcomings.

Instead, start with your end user. Let them tell you what they need and want, what will best serve their workplace needs and the organisation.

That sounds obvious, but it's not unusual for AI implementations to blindly follow the data and ultimately disappoint the user. Instead of saving time, you end up having to rework your AI solution at great cost of time and money.

There's another reason to set the data aside until you're confident of the user needs. We call it "the creepiness factor."

You're familiar with it if you've ever placed a call to a company and the person you reach knows a lot more about you than you thought.

Or if you ask Alexa a question and suddenly find your newsfeed flooded with ads related to your question. That's creepy.

In the workplace, it's essential that workers be confident of an appropriate level of privacy about data that pertains to them. Your profligate use of data can worry them.

"If they know that," they might think, "do they have access to my HR info? Or maybe my health insurance records? My salary? Too creepy. I'm not touching that system."

2. Select the Right "Intents"

The above user analysis will reveal several possible automations to implement. For each automation, you must define an end user intent that leads you to that automation. For each intent, you must identify the end user utterances – all the ways that the end user can indicate what their intent is.

What criteria can you use when narrowing down your automations and intents? AI implementations fail when the first intents selected are too complex. AI implementations are considered to be unsuccessful if the intents are infrequently used.

Before choosing your intents, plot the scope of your possibilities on a simple quadrant like the one below. Assess each intent first on how frequently it will be requested by your users, and second on the complexity involved in automating it.

	Low Frequency	High Frequency
High Complexity	App Installation	Employee Onboarding
Low Complexity	Business Process FAQ	Password Reset

That will make it obvious to you which automations and intents to develop first.

- High complexity/low frequency tasks? Obviously not. Even if you are successful in creating the automation/intent, so few people will use it that you will never be compensated for your development costs.
- Low complexity/low frequency tasks? You may get your automation and intent working quickly, but so few people will use it that, again, it is not worth the effort.

- Low complexity/high frequency tasks? Starting here will have the biggest impact on your end users with the least risk. Once you've been able to prove your processes and technology with this group of tasks, you can move on to…
- High complexity, high frequency tasks. The complexity of these automations/intents can only be overcome with the experience you get from successfully building out the low complexity/high frequency tasks.

Choose a limited number of intents that will ease or accelerate the daily tasks of the most workers. Score your wins there, show management the ROI, get your workers to trust your system (more about that vital aspect later), capture utterances for intents that your AI doesn't yet understand, and then take your fresh learning with you as you move on up the value and complexity scale.

3. Expect Complexity and Surprises

Above, we mentioned relatively low complexity as a good starting place. But in truth, all AI implementations are complex to start with and usually reveal unexpected complications as they unfold. Expect complexity in these aspects.

- The intent might involve back-and-forth interactions that demand greater natural language understanding than you originally supposed. You need to consider all the different ways users might introduce a problem and be ready to respond accordingly.
- How many native languages do you need to accommodate in your system? In today's hyper-connected global economy, it's not unusual to require 12 or more languages.
- And don't forget compliance issues, which can vary considerably across different geographies and demand scrupulous attention.

- Do you have multi-tenancy requirements to take into account, requiring domain knowledge segregation in your user base?
- Every implementation encounters the complexity of integration. What you develop must be integrated into myriad systems – voice recognition systems, service management systems, downstream automation systems, and, of course, security and identity management systems.
- And finally, channels. Omni-channel is essential to efficiency. Your end users will choose different channels for different purposes and switch back and forth at will. Intelligence needs to follow the user across channels and even anticipate channel transitions.

4. Bring Objectivity to User Testing

"Confirmation bias" is a common term these days, often referring to political discourse. But it's equally prevalent in technology testing, and it can create unfortunate surprises when the final version gets rolled out. If you use people who helped write the use cases as testers, you test yourself into a corner. They find what they predicted.

A writer friend likens this pitfall to proofreading. "People think a writer should be good at catching errors, and I am – if it's others' errors. But when I proofread my own work, I read what I meant to write."

For a reliable UAT process for your AI solution, engage testers who had nothing to do with writing the use cases. It may seem counterintuitive, but some of the best testing is done by the naysayers in the organisation. Find those who are skeptical about AI and involve them in the testing. They are highly motivated to prove that it doesn't work. As they find problems and you resolve them, you win twice: once by finding bugs that would have otherwise been

missed, and again in winning over your skeptics. When the naysayers complete their testing with you, they can end up being one of your biggest advocates.

5. Expect Users to Test Before They Trust

The real test, of course, comes when you release. The first thing most users will do is their own test, with their own data, and many won't be testing your use cases.

Even after you are confident of your AI solution's utility, and even after you've perfected its use of natural language, multiple languages, omni-channels, and automation, many users will want to see if it's intelligent in their view.

They will query it with their own questions. Will it rain tomorrow? Who won the World Series? What's your favorite pizza topping? How old are you?

If they don't get good responses, they may conclude that your solution is "dumb" and they won't trust it for its intended uses. Keep that in mind if you are inclined to exclude social chat interactions in favor of just those intents that deliver business value.

Over time, you are going to keep enriching your AI solution, adding more complex intents and expecting users to shift more and more of their support needs accordingly, perhaps ultimately using it as their primary "personal assistant."

That will only happen if they trust it, so don't jeopardise that opportunity from the start. Include enough general conversation to launch the relationships you hope to build over time.

And be sure to address this matter in your training. Make sure from the outset that you set good expectations with users about what your AI solution is supposed to do for them, and even what it's not, as well as your plans for future utility.

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About Unisys

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About 6 Degrees Media

6 Degrees Media was established by Angela Horvat, former Editor and Publisher of award-winning publications including *Computerworld, Information Age, My Business, The Who's Who of Financial Services* and Founder of FST Media; and Emma Charter, one of Australia's most connected and respected media and events strategists with more than 15 years' experience in delivering C-Level engagement strategies for clients in Australia and the UK. Together, they lead a team of Australia's most talented and driven conference producers, technology and business journalists and event managers to create content-driven experiences across C-level roundtables, custom events and large-scale conferences.