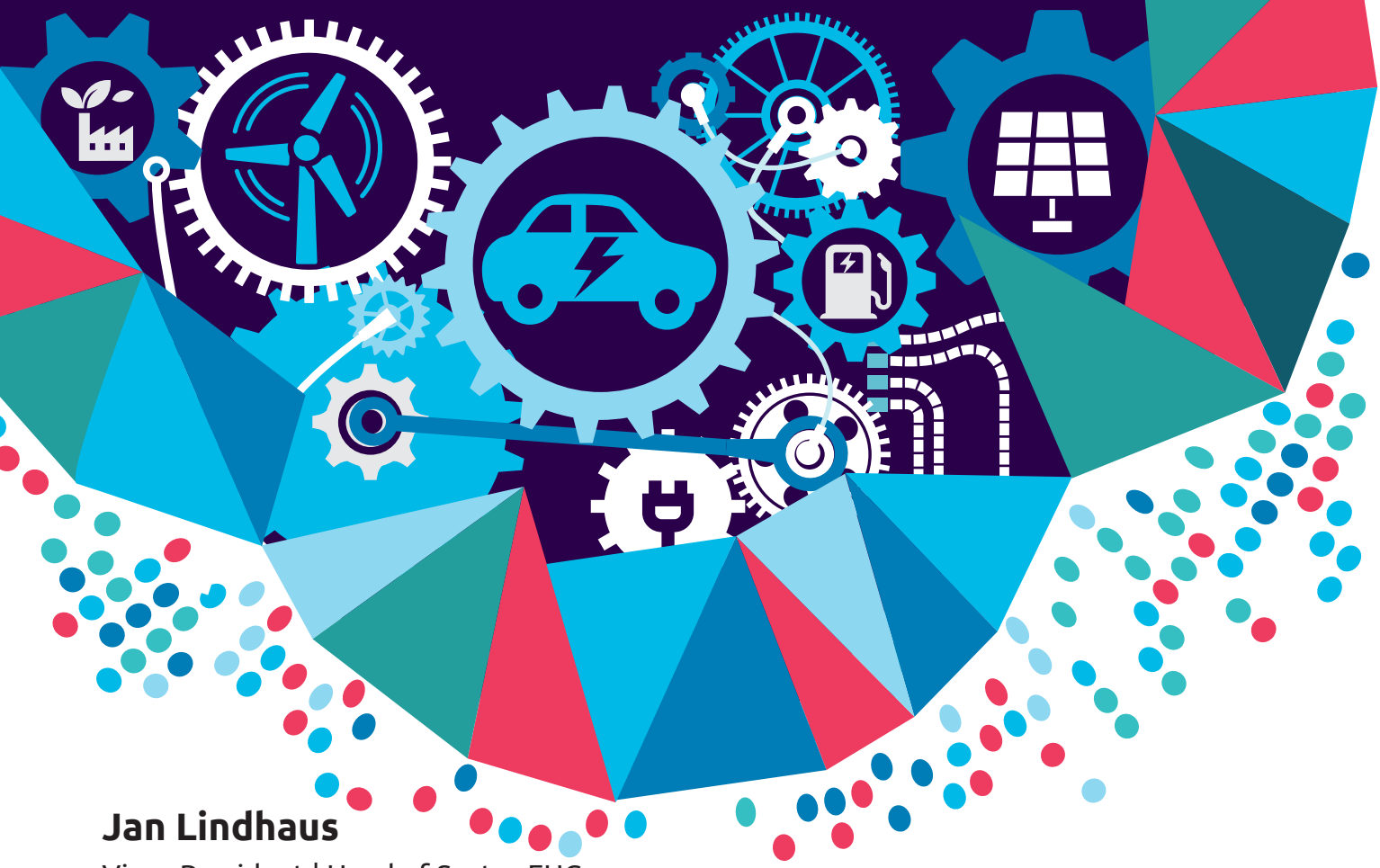
Sector Analysis: **Energy, utilities, mining and chemicals**

Digital value chain automation – safe, secure and compliant



Jan Lindhaus

Vice - President | Head of Sector EUC,
Capgemini Australia and New Zealand

Energy and utilities

The Australian energy industry is transitioning from fossil fuels to renewables. This change in the energy generation mix is increasing the complexity in the management of energy supply, requiring new technologies to monitor, automate and analyse the large amount of data being gathered as well as an improvement in technology to ensure a continuous energy supply to customers.

The integration of information is becoming a key focus in this market in order to manage the complex network of energy resources, energy players and government requirements. Traditional players are realigning their businesses to stay relevant. New market entrants are arriving with cheaper Agile operations forcing traditional energy players to rethink their business models.

With increasing renewable targets, cheaper renewable technologies and new players entering the mix, the transition is well under way and will continue to evolve over the next five to ten years. The use of digital technologies and methodologies to assist is a key part of the success of this transition.

Mining

The mining sector is in recovery mode, thanks to the

long-expected uptick of the commodity market. There is increased investment in capital projects and in mergers and acquisitions. Mining companies had to learn the hard way that they cannot rely on steady global market growth that fuels ever-increasing commodity prices. While the focus was always on low-cost operational excellence, the profits were mostly earned from trading rather than driving cost out of operations on the ground.

As a result, companies now face the challenge of truly transforming their value chain by leveraging digital technologies, automation and Artificial Intelligence (AI). They also need to increase flexibility in their business models and develop clear plans on how to react to the inevitable market downturn. It is important to develop strategies that can attract and retain a skilled and diverse workforce, while addressing the markets and communities' expectations for sustainable products and operations.

Key areas of technology assisting clients

Our asset-heavy clients have embarked on a digital transformation journey with varying degrees of progress and success. The key focus areas are in : improving customer focus; achieving excellence in operational performance; and developing new business models to remain relevant and increase market share.

Safety for employees, customers and community is very important, as is regulatory compliance – in far more dynamic local and global markets.

Despite each customer setting their individual strategic priorities and transformational delivery roadmap, there are common challenges in turning their ambitions into reality:

1. The existing core operations system landscape is often outdated and inflexible. The business criticality of this core limits the ability to leverage high-speed methods and tools such as Agile and DevOps.
2. The "digital hype" has led to a colourful set of new tools that – while enabling new capabilities and supporting strategic ambitions with excellent time-to-market and at reasonable cost – are only loosely integrated and not well governed. The low hanging fruit having been harvested, achieving step changes in operational excellence requires far deeper – and more costly - transformational projects.
3. Robotics automation tools are spreading across the landscape, achieving immediate benefits and freeing up valuable resource capacity. But often they are also poorly governed, leading to inefficiencies and significant re-work if the supported processes or underlying system landscape changes.
4. Safety, security and regulatory compliance requirements are business critical. These are evolving far more dynamically than in the past (such as the Security of Critical Infrastructure Act, new licence conditions for network operators, and the Victorian Default Offer (VDO) for energy prices), and often require significant time and effort for validation and Quality Assurance (QA) when related processes or systems are changing.

All of the above leads to fundamentally changing requirements towards a supporting QA function. QA needs to move away from a technology and application product/module focused service and become an end-to-end assurance partner with deep understanding of business processes and outcomes. Smart QA needs to cover integrated ecosystems supported by cognitive and analytical capabilities along end-to-end business value chains with high speed, agility and robustness.

Customers are broadening the use of Agile and DevOps to find solutions. A theme gaining in popularity is new ways of working (NWW), which looks beyond Agile project delivery for a discrete capability. Essentially, entire business units are being challenged to develop new ways of working, looking at empowerment, speed and productivity. NWW envisages new engagement models of employees working with customers, partners, regulators and policy makers in much closer collaboration.

The rapid increase in the use of open application programming interfaces (APIs) has created many opportunities in testing services related to security and robustness of these. However, finding the right talent for such roles – a workforce equally skilled in integration functions and testing – will be a challenge. The search for skilled workers is tougher in engineering-heavy companies in Power Generation, Network Operations, Mining and Chemical Manufacturing. Testing industry applications requires test professionals who have respective expertise and understand the business.

Conclusion: QA needs to be tightly integrated in the transformational journey of asset-heavy organisations. It has to be seen as a value-adding partner and enabler – and not as a burden to progress and innovation. The dynamic evolution of highly integrated, specialised and automated ecosystems requires a Smart QA that understands the specific industry requirements, end-to-end processes and outcomes of customers, combined with expertise and experience in standard and specialised software solutions and tools. Collaboration with service providers requires deeper trust and willingness of the provider to manage risk in a true partnership.