

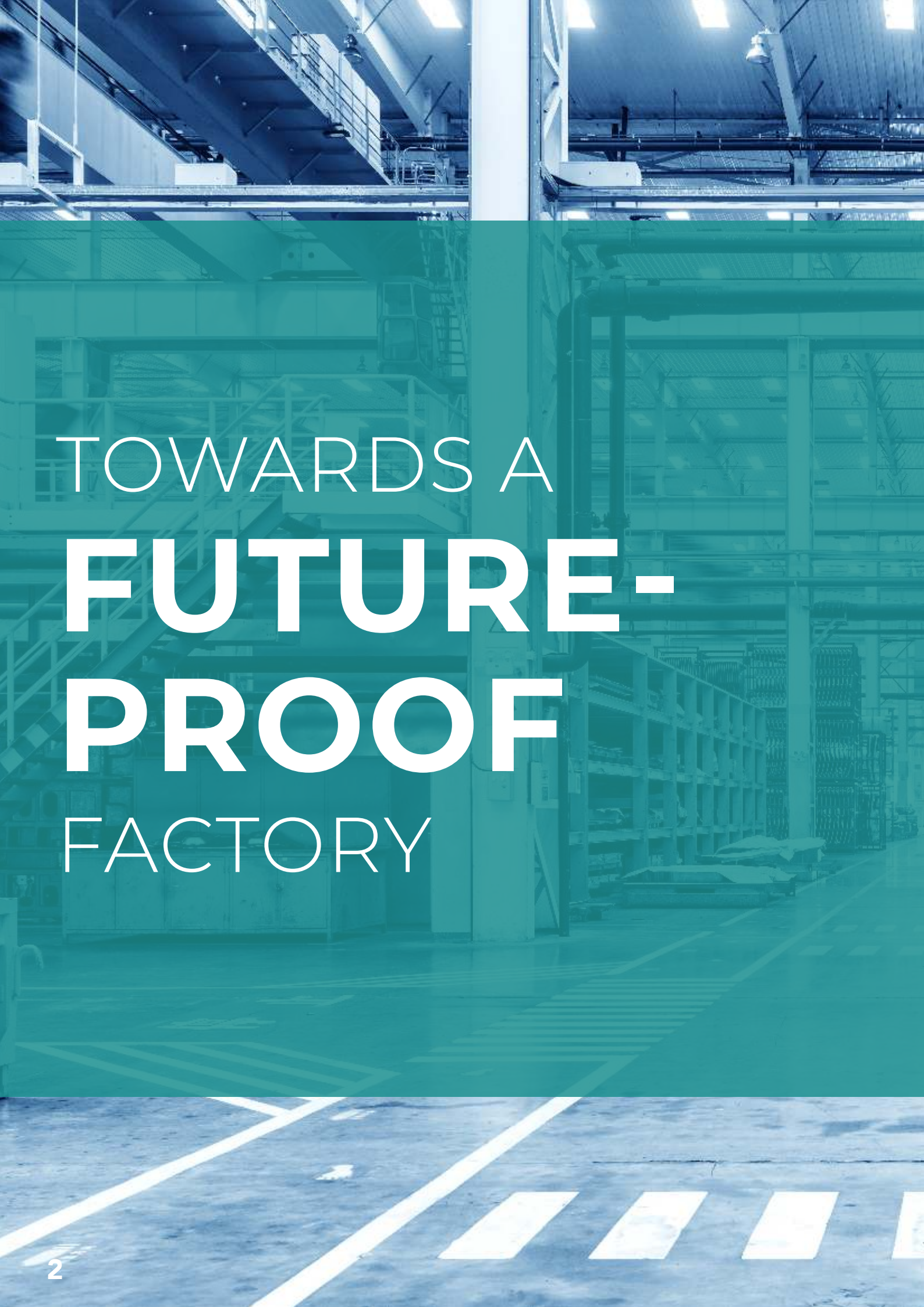
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TOWARDS A FUTURE-PROOF FACTORY



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The fourth industrial revolution is changing the way our factories run. Increasing productivity, reducing operating costs, increasing quality and improving on innovative capacity and capabilities are all key benefits of entering an interconnected cyber-physical factory world.

Understanding and benefiting from cyber-physical systems in a factory environment will be common-place and likely essential to staying competitive moving into the future. As manufacturers, we need to be careful about the plans and changes we make in our new and existing factories today, so that we can extract value and avoid obsolescence in the future.

Future Proofing People – Staff & Culture

Before any manufacturer can look towards implanting Industry 4.0 initiatives there must be strong and agreed support and drive from the top of the organisational hierarchy. It is commonly understood that without this top-down approach and commitment at the executive level, most initiatives would be almost guaranteed failure in realising their Industry 4.0 goals. Through a company culture that embraces innovation and making the best use of available technologies, the primary benefits of Industry 4.0 can be achieved.

Beyond top level support, it is important that hiring and training key innovation staff at the operations level is seen as a priority. It can be too easy to place bias on investing on equipment and systems, but not rather than having the right talent and knowledge in-house to steer the ship. Having staff trained in a new way of working is critical.

In a new interconnected role, where interaction with cyber-physical systems are a part of normal working life, the employee's role will likely transition away from basic labour tasks. While it has become increasingly common to negatively associate new technology with job loss, we will in no way see replacement of human labour. **Through data connected technology, negative labour tasks can be improved upon or eliminated.** A factory worker's role shifts from manual labour to working with and being aided by information that integrates into their workflows. An interconnected mix of man, machine, data and method. People are still, and always will be, at the heart and core of any data integrated system.

Modern Infrastructure – Getting the Digital Gears Spinning

Spending valuable investment and resource on data collection with no strategy will always be wasteful. Buying the latest equipment, data handling systems or investing in sensor technology is a recipe for tremendous waste if not spear-headed with a clear strategy.

Many make the mistake of misunderstanding the industrial internet of things as needing to capture all data. Having lots of data is great, but only if you can use it to work towards a well-understood goal. To avoid this, future factories need to have a very good understanding of the role that data plays in processes within an entire manufacturing lifecycle. Interconnectivity and real-time data should be implemented in process areas where it can improve and enhance. For example, a retrofit of an existing machine may help to make predictive maintenance smart, and based on live data. Further adding value to an existing, difficult to predict, planning operation. A poor execution of this same technology may just give operators a fancy new way of monitoring past machine events and real time status.

Looking beyond sensors and individual machines, the entire network infrastructure of a modern factory needs some careful attention. Older, traditional factory network systems often take an overly simplified and easily exposed approach to the various levels of equipment and process control. Segmentation and correct handling of network data traffic is one of the key areas to creating a modern factory that is both smart and safe. By having correctly setup redundancies and data routing network architectures, as would be typical in a modern Converged Plantwide Ethernet (CPwE) network for example, we can setup the backbone to better protect ourselves from both avoidable system downtime and dangerous external attacks.



Cybersecurity – More essential than ever

As we transition deeper into a digital future, aging and legacy systems that are often embedded into our factory equipment and processes are attractive targets to those that wish to cause us harm. Legacy systems especially can be easy targets, with poor, if any, digital security maintenance and support. When more equipment and workflows are interconnected via networked technology, those attackers can cause more damage in different ways. New areas of our factories may be opened and exposed to threats, increasing our risk of exposure to areas that may have been offline in the past.

To transition into a future digitalised factory environment means understanding and taking strategic measures to eliminate and design out cyber threats. Understanding a factory cyber security needs and strategising around this is something that should be addressed very early in any Industry 4.0 project. It can be too easy to simply focus on new technology and equipment, but we must also place focus on where we expose both old or new systems to the wider interconnected world. It will likely be critical to protect areas of the factory we have not had to safeguard from cyber threats in the past when we expose these to any type of digital network. Existing, emerging and future risks need to be planned and managed with effective security measures implemented that consider and protect the entire interconnected manufacturing lifecycle.



Has reading this made you ask yourself a few questions about the future of your factory?

If so, connect with our team and let us work together to realise your Industry 4.0 manufacturing goals.

