

## **Smart approaches to the digital revolution**

**To remain competitive, many enterprises could be embracing the digital revolution as described by Industry 4.0. Advances in automation, data analysis and data mining for example have the potential to revolutionise industry by boosting operator visibility, productivity and efficiency. However, different approaches will suit different businesses and choosing the right one could be critical to achieving a company's full potential.**

*John Browett, General Manager of the CC-Link Partner Association (CLPA) Europe, looks at some of the challenges inherent in digital transformation and how to address them.*

For companies that are investing in digital transformation, initiatives need to be conceived and managed effectively to succeed. Two of the main aspects of a project that need to be addressed if a company is to benefit fully are having a digital strategy and effective data management.

To predefine the digital strategy behind a move is very important as it can easily be overlooked, or end up being dealt with on a reactive, ad-hoc basis. It is, needless to say highly beneficial to do this before systems are specified and work starts. Cross platform connectivity and data transfer between departments, such as the management office and the shop floor for example, will usually require pre-planning and a clear strategy. Also, many projects are upgrades to existing equipment, so, obvious as it sounds, making sure systems are compatible, and ensuring flexibility for the future is built-in are both very important.

It is also essential that the data management side of the enterprise can be fully resolved. Modern automated production processes have a tendency to create very large amounts of data, a lot of which may need to be transferred to a server or the cloud for storage and / or processing. As individual processes, machines and systems are connected, the data transfer capacity and robustness of any physical networking or the protocols used to encode and transmit the data also becomes very important. Particularly for manufacturing or processing systems that operate using a PLC driven architecture, transparent data transfer and management is essential to achieving an efficient and synchronous system.

### **Don't be overwhelmed by your digital transformation**

In order to successfully implement a policy of digital transformation any enterprise should attempt to install systems that suit its processes and needs right now, while also laying the groundwork for the logical next step. More precisely, companies can truly benefit from digitalisation by designing a controllable and scalable system from the start and expanding it, based on the feedback generated, and accordingly to the needs and resources available.

Nonetheless, it is tempting to strike out without a strategic plan when adopting digital technologies and end up struggling to enact and deliver on a coherent overall digital transformation. Often, engineers opt for ad-hoc digital approaches, simply probing some automation projects without a clearly defined end-goal in mind, merely because this approach can be more comfortable at the outset, especially when other projects are also demanding time. In this case, the different projects may not provide a holistic match, reducing the full potential of each project and resulting in solutions that are compromised from a cost, time and generally available resources point of view. Furthermore, a failure in delivering an effective digital initiative can make the company more adverse to the idea of digitalisation entirely and stall developments which will ensure future competitiveness.

### **Is your staff efficiently sharing data?**

Once the digital strategy has been set, it is important to use the best available human resources to make it happen, both internally and externally from automation vendors and system integration suppliers. In fact, extracting data from machines is useless if it is not transformed into information that can be used and shared within an enterprise. Experience shows there are a few situations to avoid that may prevent optimal sharing of data, nullifying the empowering effect that data and the subsequent knowledge it brings can provide.

The human factor can have a big impact on the adoption of digital initiatives, so in addition to providing the tools and opportunity to embrace digitalisation and share data, enterprises should also work on establishing a company culture that promotes these activities. Simply creating an environment where cross-departmental collaboration is promoted can help. In addition, it is fundamental to educate and train the entire staff on the potential gains and the importance of sharing data and working together on implementing the strategy and any given project.

Again, prior experience tells us that sharing data among different teams may be perceived as time-consuming, expensive, and a source of unwanted additional workload. As a result, teams may not share data to avoid the issue, which will ultimately have a negative knock-on effect on productivity. However, productivity among teams can be greatly enhanced if the staff is motivated to use data assets effectively and embrace change and innovation.

### **The benefits of a fully realised smart industrial process**

If a company adheres to these two rules, i.e. create a bespoke digital strategy and ensure effective sharing of data among its teams, it will be help to create a cost-effective, truly interconnected system driven by a digital vision shared by its entire staff. In this way, the enterprise will benefit from optimal plant control, maintenance and uptime, increase productivity and ultimately improved revenues. However, it is



important to choose the right tools to implement the digital strategy and promote data sharing.

### **The power of industrial Ethernet**

Any project that centres around digital transformation is likely being set up for success by employing open, high-bandwidth networking technologies that provide seamless cross platform connectivity. Technologies that provide effective system to system communication, whether that be machine to machine, device to PLC, or shop floor automation to top-floor ERP systems, are likely to prove a wise choice.

As the first open gigabit Industrial Ethernet network CC-Link IE is an obvious option. Organisations can successfully implement their digital strategy and optimise data sharing capabilities as CC-Link IE provides seamless interconnectivity between industrial machines, enterprise systems and cloud or internet-based technologies. In this way, industries can benefit from greater connectivity across their processes, with improved network performance to deliver precise control, great data throughput at high speeds, optimised performance and inherent security.

One of the most important aspects of CC-Link IE for enterprises that are developing their digital strategies is the network's ability to connect devices from hundreds of manufacturers, not only from one or two, as is the case for many proprietary industrial control networks. This was further supplemented by the recent completion of an interoperability standard with PROFINET networks and a companion standard for OPC UA. Therefore, using network technologies such as CC-Link IE is a positive step towards supporting sustainable digital growth.

### **About the CC-Link Partner Association (CLPA)**

The CLPA is an international organisation founded in 2000 dedicated to the technical development and promotion of the CC-Link family of open automation networks. The CLPA's key technology is CC-Link IE, the world's first and only open gigabit Ethernet for automation and an ideal solution for Industry 4.0 applications due to its unmatched bandwidth. Currently the CLPA has over 2,900 member companies worldwide, with more than 1,600 certified products available from over 300 manufacturers. CC-Link is the leading open industrial automation network technology in Asia and is becoming increasingly popular in Europe and the Americas.



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