

Industry 4.0: The Benefits And Challenges

BY MEGGAN MCCARTHY

Industry 4.0 was a major theme at drupa 2016, with exhibitors showcasing solutions that create efficiencies and increase productivity. 'Print 4.0 is the enabler for individualisation and personalisation in digital printing, high-quality packaging and the fast-growing range of solutions in industrial and functional printing,' said Claus Bolza-Schünemann, Chairman of the drupa Committee and Chief Executive of Koenig & Bauer AG. 'Thanks to its networked process chains, Print 4.0 is already the leader of Industry 4.0. To us, this means an end-to-end digital workflow made possible by the intelligent networking of our machines and systems.'

Interconnected systems that create smart factories and having job data at your fingertips are just some of the benefits. However, there are challenges involved, and it will require a mind shift within organisations. We speak to industry experts about how it will affect businesses.

Ryan Miles, Managing Director at Heidelberg Graphic Systems Southern Africa

How will Industry 4.0 change business?

Printing and packaging companies will be able to leverage technology, as opposed to relying on human intervention, to create smart print shops that are more productive and efficient.

Industry 4.0 is a reflection of the fast-paced world we live in — we are used to having things at our fingertips. Take music as a simple example of instant gratification: now one can download a song right after hearing it on the radio. We can apply this to print. The average age of print buyers has decreased, with buyers in their mid-twenties expecting results immediately. They are already asking what Industry 4.0 can deliver in terms of printing because they are experiencing it in their personal lives. They expect a quality product to be produced in the fastest time at the lowest cost. So there is demand from customers to deliver these solutions and the average South African printer is lagging behind in meeting this.

Is it some distant concept, or can companies take advantage of it now?

It is already happening in various industries — manufacturing in particular. The technology is available and is being used by printing companies worldwide. Some South African companies have already embarked on this process.

Will companies be required to change their entire business models?

Essentially, it's your processes and technology that change. A piece of equipment on its own doesn't help you to achieve productivity or efficiency, no matter how excellent it is. It's about making an entire workflow efficient from start to finish, and equipment forms part of that. All equipment in your workflow is digitised and automated and information is being intelligently communicated through all workflow processes to eliminate manual processes that result in bottlenecks and human error. This enables seamless production.

It requires a change of mindset, which needs to filter down from the business owner to operators, where everyone understands the capabilities of the equipment and workflow and trusts in and embraces the technology.

Industry 4.0 has also forced suppliers to change their business models, so they are not just selling equipment but partnering with customers throughout the lifecycle of their equipment. We interact with our customers in a digitised and intelligent manner.

With our remote services, we can monitor presses from anywhere in the world: how they are performing, any issues and maintenance due, as well as when parts need to be replaced; our presses are able to order their own parts. This ensures that our customers remain efficient and also allows for 'planned downtime' instead of unexpected delays.

What challenges do you expect?

Jobs

A worldwide problem in any manufacturing or production-type environment, not just printing, is that people are being replaced by machines. Technology has advanced to such a point that it can outperform any human being.

Funding

Funding houses are missing out on the opportunity to invest in the printing

industry. There are many highly successful businesses that need access to funding so that they can purchase the latest equipment to maintain their success.

Costs

When you invest in equipment and workflow software, you're planning for a life cycle longer than five years. In industrialised countries, this life cycle has increased to 8-10 years on average. As a decision maker in South Africa today, making a long term investment decision against a backdrop of low economic confidence is difficult.

However, with a clear understanding that print volumes are predicted to maintain and slightly increase, and if you want to remain sustainable in the print industry, you need to consider making these investments as well as how to transform your print shops to set yourself up for the future. Remaining stagnant against competitors that have already embraced the benefits of Industry 4.0 is a high risk strategy.

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Bruce Allen, Managing Director, Iplex Holdings

How will Industry 4.0 change business?

Industry 4.0 is an extension and refinement of what was attempted some years ago with JDF, but on a much larger scale. It is the integration of the cyber age with manufacturing processes aimed at technologically advanced machines making manufacturing process refinement decisions based on data acquired from both up and downstream users. It improves quality accountability along all manufacturing and consumption processes.

With regard to printing, it will allow quality data to be passed from the entire preprint process i.e. raw material suppliers, printing tool suppliers, and consumable suppliers to the printing press — ensuring the make-ready and speed to saleable product is more efficient.

It will also reduce waste and increase accountability of preprint process suppliers. Consumers of the printed product (finishing) or end-user machinery will be optimised for the product that is being processed; making for more efficient downstream processes.

Is it some distant concept, or can companies take advantage of it now?

The concept has already been implemented with two of our suppliers; namely W&H with Packaging 4.0 and Wittmann-Battenfeld with Wittmann 4.0. Both manufacturers have customers running industry 4.0 using their machinery.

Will companies be required to change their entire business models?

Industry 4.0 is a mind shift for manufacturers, which will require a new way of thinking and integration of their factory into the suppliers' and customers' value chain.

What challenges do you expect?

In South Africa, integration of Industry 4.0 will result in less requirement in training and more focus on infrastructure. As machines become more intelligent and can react to process information received from other smart factories; the HR requirement will be forced downward as semi-skilled people are needed less and less to make decisions, which machines can now make.

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Dane van der Walt, Product Manager, Thunderbolt Solutions

How will Industry 4.0 change business?

The aim is to make businesses more connected and more efficient. The main pillars of Industry 4.0 are: automation; connectivity; variability and personalisation; touchless workflow and hybrid systems.

Now you can track a print job from start to finish. If any changes are made, you'll be given live feedback and then be able to approve the job via your phone, tablet or any web platform. Knowing where your product is at all times gives you greater control.

A great deal of finishing 4.0 is focused on software, which controls everything. Barcodes and QR codes are useful tools. If you're preparing a magazine, for example, you can scan the QR code, which will indicate the size and pagination and show you where Variable Data printing is to be incorporated on the front cover, for instance. With touchless workflow, everything is done automatically and the machine groups similar jobs together for maximum efficiency and cost savings.

We will also see hybrid systems within a print shop, where jobs are allocated to a litho or digital press, or both, to maximise cost effectiveness.

Is it some distant concept, or can companies take advantage of it now?

Anyone can invest in equipment that can be automated. You can upgrade older equipment with sensors, which will give it a 'new lease on life', but it will not provide the same functionality as new equipment — printers will have to invest in new technology at some stage.

Will companies be required to change their entire business models?

Training is something that has to occur throughout different levels of the business as Industry 4.0 makes tasks more project-related. So with new jobs you'll now be involving the IT department, people in estimating to apply costs as well as other departments. It requires a mind shift.

What challenges do you expect?

It will threaten jobs. However, a positive aspect of increased automation is that companies will become more efficient. They can also offer increased transparency and control to customers, who can better track their jobs, and in turn, they become more efficient. Younger people are more computer literate so it will be easier for them to adapt to Industry 4.0, while non-millennials might struggle a bit. 🇿

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