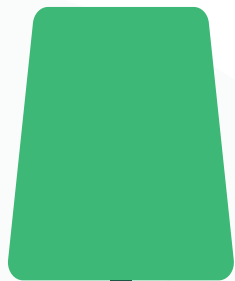
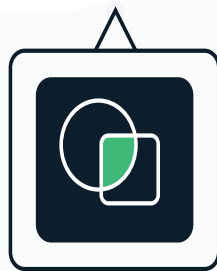




# AI and Automation technology: How has the print and sign industry adapted?



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## SECTION 1: INTRODUCTION - WHAT IS AI AND AUTOMATION?

When we hear the terms AI and automation, it tends to conjure up images that are more science fiction than real life. Artificial intelligence (AI) might make us think of robots and futuristic technology, but in reality, AI and automation processes are much more mundane. They are, however, increasingly used in many industries to enhance production and efficiency. The print and signage industry is just one of these to feel the impact of AI and automation on the way it operates.

AI and automation don't have to feel like alien concepts. There's a strong likelihood you're already using them in your business processes, and you most definitely use them in your personal life with smartphones and other similar devices. So what impact do they have on the print and signage industry?

As an industry that faces extensive pressure to work more efficiently and with reduced carbon emissions, choosing [AI and automation technology to further streamline processes](#) can play a key role in helping print companies pivot and adopt a new approach. With many areas of print in decline (newspapers have been hit hardest in recent years), and print run jobs changing to be high order volume but low print run, the industry is facing challenges like never before. Finding new ways to adapt and survive is key.

Fortunately, [the UK print industry is still strong in many areas](#) and in the past year has even experienced an increase in some traditional printing platforms, partially due to the impact of the pandemic and lockdown. [Magazine readership was up](#), [book sales were up](#), and [packaging and direct mail printing requirements](#) soared in demand. While tradeshow, OOH and other print and signage areas fell, it shows that the industry is keen to find new ways to move forward and stay relevant. Using AI and automation technology is a part of this shift.

## DEFINING AI AND AUTOMATION

### AI

The scientific definition: 'Intelligence demonstrated by machines, as opposed to the natural intelligence displayed by humans and animals'

While in science fiction we see machines learning how to become more 'human-like', the reality of AI is much more day-to-day. It is more about using large amounts of data, patterns, and understanding of behaviours and algorithms than anything.

This is what's known as 'machine learning'. Again, sounds like scary science fiction, but all it really means is that machines can be preset with software or tasks to carry out. As they do, they are analysing and reviewing the tasks, finding ways to improve and make things more efficient and effective. It's very commonly used in manufacturing processes to identify effective and improved methods of working.

AI is regularly used in things like voice and facial recognition technology, in games, in map and route

planning, and in planning logistics and delivery. It is designed to simplify tasks and do the processing/planning/heavy lifting for you.

## **AUTOMATION**

The scientific definition: 'Technologies which reduce human intervention in processes.'

As the name suggests, automation means things that happen automatically without a person needing to be involved. Automation crops up in many aspects of our daily life. In business and manufacturing terms, it means tasks that are repetitive or of low value can be done by machines.

For example, in printing, you might need to have someone reset a plate and colour set for each job. Now, a piece of software can do that. The person whose job was to spend all day setting and resetting printers can now have a job that requires more skill (technical, personal, or emotional) that a machine can't replicate.

Automation is all about increased efficiency, reduced error and improved consistency. It aims to take the jobs that people don't necessarily need to be doing and frees them up to engage in skills that are more meaningful. Of course, this has led to a lot of speculation about machines replacing jobs, and caused a lot of debate about how far the use of automation and AI should go.

## **WHY ARE WE TALKING ABOUT AI AND AUTOMATION NOW?**

Both of these ideas have been around for a long time, but it's only really been in the last few decades that the [advantages of software, machine learning and automation have really started to show their benefits](#). People have become more accepting of the role of advanced technology in our work and lives.

AI and automation methods do have some controversy attached to them - but that's why we created this whitepaper. As experts in developing and providing software solutions, Clarity has seen first hand the benefits that technology can bring to companies, including:

- Greater production capacity
- Increased efficiency
- Reduced errors and faults
- Ability to upskill staff
- Expanded product portfolio and diverse offering
- Higher profitability and reduced downtime

## SECTION 2: THE ROLE OF AUTOMATION AND SOFTWARE

Automation and AI technology may not be that new in terms of its origins, but how it's been used and incorporated as part of the print and sign industry has only really started to come into effect in the last 20 years. As software applications and the internet became more commonplace throughout the 1990s, once the basic systems were in place it was only a few years before businesses and industries realised the power that software automation could bring to their workforces.

### AUTOMATION IN PRINT AND SIGNAGE

[Automation software and machine learning methods](#) in print and signage applications have proved their worth and ROI, delivering a revolution for cost-effective and time-efficient working. Industry 4.0 is the term used to describe the current digital revolution that is happening across almost every manufacturing sector. You can see evidence of this everywhere there is improved working thanks to improved connectivity, an 'internet of things' approach, and software solutions.

Digital technologies, software, advanced integrated hardware and enhanced reporting have made it easier to understand where the inefficiencies in a business are, and where you can save money, upskill workers and reduce the amount of labour-intensive or repetitive tasks. In doing so, you are automating processes.

So automation and AI technology in printing isn't as new as we might think it is. If you're using software to plan jobs, track quotes and estimates, monitor stock and maximise materials and machine use, then you're already using automation. The question is how effectively you're using it.

Dropping a software system in and expecting it to work perfectly is unlikely to get you the results you want, whether that's saving money, diversifying your portfolio or reducing waste. Automating your processes means not just a change in your working, but also in your attitude. Be prepared to embrace a new way of working and explore how you can adapt and best fit this new approach to your desired goals.

Clarity Software has been through this and more many times with our customers, so you can be assured that our software solutions fit into your business and ways of working with minimal disruption. With fully customisable options and modules, our software solutions work with you, rather than the other way around.

Some of the ways automation benefits manufacturing in the print and signage industry:

- Automatic press monitoring and adjustments
- Detect and correct common issues like paper alignment or image quality in printing
- Reduce waste and maximise materials, including offcuts
- Improve machine efficiency and reduce downtime
- Automated die-cut algorithms - cut any shape to customer specification without hours of

calibration

- Colour management and calibration
- Reduce the risk of human error

At a production level, [automation has the ability to not only increase the rate of production but also to streamline it](#), improve efficiency, reduce waste, and increase the portfolio offering. Jobs that were previously dedicated to resolving common issues, maintenance or colour setting, can now be redirected to analysing the automation processes, redirecting funds and investment, or improving the product range.

Automation in manufacturing is all about reducing the rate of 'busy work' so people can engage with jobs that deliver more value and use more of their skills, rather than putting them into labour intensive or repetitive roles.

## **AUTOMATION AND WORKFLOW SOFTWARE**

If automation in manufacturing is the practical effects side of things, then [workflow software is the behind-the-scenes magic](#). Almost all automation relies on software and algorithms to make it work effectively. The software is the key that connects the process to the action. It's what enables automation to happen, and it's why choosing the right automation software is the most important factor to consider.

First, consider what you want to automate or achieve as a result of automation. Then, find someone specialising in creating automation software for your industry or field specifically. They will better understand the challenges you face and what you need for the best rate of success.

Look at what the average ROI is for this kind of software and examine what the long term growth or goal for your business is. What do you offer that automation would help with? Even if you make bespoke, hand-made, or made-to-order products, you can still benefit from automation software for things like:

- Jobs, quotations and estimates
- Stock management and ordering
- Delivery and logistics
- Marketing activity (email campaigns, sales follow up)
- Monitoring machinery (such as packaging machines or engineering tools)

Automation isn't here to take away the essence of what your business produces but to enhance the way in which you work. A print company specialising in high quality, small batch printing with unique finishes will likely have a team of experts who know their products inside out and they'll have a machine that allows that team to keep on expanding their knowledge and supporting customers without having to be stuck on the shop floor all day.

Workflow software is designed to take the headache out of tasks that can be labour or time intensive and free up staff to focus on the things that matter. [The aim of automation may be to reduce the amount of human interaction required](#), but it is so that human interaction can be redirected into efforts where it is more needed and valued.

## SECTION 3: AN ADAPTING INDUSTRY

As automation and its associated benefits become commonplace throughout the print and sign industry, we have also seen a shift in the way the industry operates. Businesses are pivoting to new product offerings, adapting to technologies, and working to meet a market that is increasingly diverse and demanding. As the impact of the internet and digitalisation has made its mark on the print and sign industries, the need to evolve has become a high priority.

### AUTOMATION AND EMPLOYMENT

Understandably, one of the major concerns around increased automation, in an industry that is already facing decline, is the [jobs that will be lost to automation and software](#). While there is evidence to suggest that there will be an initial loss of jobs, in the longer run, [automation is predicted to create enough employment to fill those jobs and even create a surplus](#).

In a cycle of automation and job creation, an example could look like the following:

1. Automation software reduces the number of people needed on the shop floor to handle things such as print setting, machine maintenance, colour layouts and other minor adjustments. All of these day-to-day repetitive tasks are now handled by machines. This is an initial period of layoffs among staff.
2. The machines greatly increase productivity, reduce waste and improve machine efficiency. More orders can be processed faster and customers are pleased with the new results.
3. Another result is the machines are able to handle more complex orders thanks to CAD technologies and automated cutting algorithms. Customers can order from a wider range of products. Overall revenue grows as a result of improved portfolio and better service.
4. The money made back from the automation software investment and subsequent profit is funnelled into training and upskilling employees who have been displaced due to the automation software. They are placed in jobs that value their creativity, personal skills, innovation and other things not possible to replicate in software.
5. As a result of the increased use of software, there is a need for more software engineers and developers to be employed in-house. This then increases the workforce and creates new employment opportunities.

This is a simplified view of the process that automation can have on employment and profitability, and often these stages would take place over months or even years to ensure progress is at a manageable rate for all. Both businesses, customers and employees need to be prepared for the rate of change and what certain stages look like. Automation is likely to have some teething issues or growing pains in the

early stages but the benefits in the longer term (on both a business scale and a wider economic scale) point towards success.

## **SMARTER NOT HARDER: THE AUTOMATION APPROACH**

Attitudes towards work are almost as important (if not more so) than the skills and experience you bring to the table. We're all familiar with the mantra '[work smarter not harder](#)', and automation and AI technology is a huge part of that.

With automation and AI, you can do more with less. A reduced manual labour force means more people can be focused on delivering personal experiences via sales, training and upskilling, working with customers and suppliers, or research and development into new products and market trends.

The world we live in is one built on choice and demand. Customers know there are many options they can pick from, so why should they choose you? What gives your company the edge that makes you the best choice? Part of this intense market competition is what has driven the 'smarter not harder' approach.

Companies who are constantly working to stay ahead and keep up with demand are more likely to be investing in new technologies and methods - which in turn produces profitability, generates more business, and offers a wider product portfolio. These companies are working 'smarter', making the use of modern technology like automation, AI and machine learning to have a business that is always moving forwards. No matter how hard a business works, if it isn't adapting and evolving to be 'smarter', it will ultimately be left behind.

Automation technology has arrived at a time when there is a drive for businesses to be more efficient, offer more value to customers and provide greater product ranges and personal customer experiences. This is indicative of a wider societal movement that sees more and more people embracing new technology to simplify and enhance their lives.

Think about smartphones.

Previously, you would have had to sit down at a computer or visit physical locations to do much of the activity you do all from your smartphone now - banking, paying bills, shopping, directions or route planning, listening to music. Smart phones haven't lessened the importance of physical branches of stores or the use of laptops; they have changed the priority order instead. People prefer the 'smarter' approach of having everything in one central location, but it doesn't mean they no longer value the physical option of going into a shop.

Automation and AI technology in print is like that. Customers still want to order physical printed items and plenty of businesses are successful in delivering that. It's all about how you deliver that value and end product that determines the overall success of your business, and whether you want to work smarter, or harder.



## NEW PRODUCTS, METHODS AND ADAPTIONS

As the print and sign industries have found themselves competing with the likes of online advertising, social media campaigns, email marketing and more, the push to deliver innovative, quality products has become more apparent. Customers are keen to see print products that:

- Offer extensive personalisation options
- Offer a unique variety of finishes and stock
- Provide a connection or experience to the end user
- Can be produced in small runs without excess cost
- Have quick turnaround and delivery times

With a [rise in e-commerce business over the past 12 months](#) (in addition to an already growing market), many printing companies have found themselves boosted by the need to deliver personalised marketing, packaging, product information and more. Customers are demanding [unique packaging and printing solutions](#) that delight the end user and offer a quality experience.

The market has spoken, and it knows what it wants. Signage companies are under similar pressure with digital billboards, screens and interactive advertising methods requested to stand out from the crowd, especially as audiences are displaced due to the pandemic.

[So how do print and sign companies keep up with this new demand? The answer is in automation and AI solutions.](#)

AI allows a much greater range of customisable options without the hard work needed to set up a press and plates for a run that may only be of 50 items. It allows you to incorporate software for cutting options of unique shapes and folds, create test runs or proofs in record time, and be assured of total accuracy in colour and image quality every time.

Choosing software can be a great way to maximise the printing technology you have already before committing to new machinery and investment. You'll be surprised at what automation software can have your current set up doing. The right software can help streamline jobs, ensuring that print types are grouped together for maximum efficiency of materials and machine time. Making the most of resource, time and labour is a key part of automation software, one that unlocks the most potential from a business and its assets.

Digital printing methods are already fairly commonplace among printing companies and offer a wide range of advantages - especially as the market continues to diversify. They are more suited to commercial marketing activity over large scale printing (such as newspapers, books and magazines). Their advantage lies in being able to offer a range of finishes and improved image quality, ideal for companies who produce promotional and marketing materials or want to explore options of personalisation.

## SECTION 4 - THE FUTURE OF PRINT AND AUTOMATION

The future for the print and sign industry looks positive, despite fearmongering around decline. [Print remains an essential part of our communication](#), entertainment, and information storage, and it is adapting to new technologies like AR/VR and integrated experiences using smartphones. [Print signage has also become incredibly important during the pandemic](#), with social distancing signage, health notices and public information boards showing us that print is still very much relevant.

But how will the businesses involved continue to adapt and evolve in order to remain relevant in the digital age? Will print be phased out until it exists more as a luxury item? Or will it adapt and find new ways to survive?

Using workflow and automation software is a key part of achieving this success. Companies need to embrace and work towards:

- Green energy and recycled material options
- Improved work efficiency
- Greater product range and portfolio offering
- Producing more small print runs at overall higher value
- Options for personalisation or unique production
- Integrating the business with connected software solutions

All of these options and more can be achieved by implementing automation and AI solutions. Software allows us to gather more data on every aspect of a business and market demand. With data, it's possible to analyse, plan, and strategically execute decisions based on fact and rationale. With integrated data and business solutions that make production and commercial success more viable, workflow and automation software are the key to long term success in the market.

### INVESTMENT AND ADAPTION

One of the best things that investing in software generates is increased profit. We're not talking about boosting the company value though. Profit generated from more efficient and effective working methods (thanks to automation software and AI technology) should be reinvested into a company to continue the development and training of employees, providing them with diverse skills and broader knowledge to help them continue growing alongside the business.

This attitude means you need to know exactly what to expect from the process of automating parts of your business. Things to consider include:

Current financial status of the business

The average ROI time for a software system

Time for implementation and training of the new software system

What your expectations/desires are for the software and how this fits with your long term business plan

Businesses continue to face pressure from a demanding market as well as the need to work with



increased efficiency and greener energy. To meet these expectations and continue operating as a successful business, software solutions are the best way forward.

Whether you're pivoting your business to aim for a higher volume of orders, branching out into new product offerings like packaging, or just want to offer a better service and product to help you stay competitive and relevant, choosing automation software is the answer.

Clarity supports businesses in the print and sign industry (and beyond) in unlocking their full potential with automated software, detailed data collection, and improved efficiencies across the board. We are proud to be helping businesses take the first step towards a secure future of printing, where automation, AI, technology and traditional methods are blended together to create a fantastic product and successful business model.



# It's **simple** - it's AI Automation with **Clarity.**

FIND OUT MORE

