Making a strategic transition
to digital textile printing.

How to create new business models and become a market leader through digital textile printing.

spgprints®

Introduction.

In a changing industry, it becomes more difficult to stay ahead of the competition and generate a profitable future for your printing company. With the rise of fast-fashion, the expansion of purchasing capabilities and the increased customer demand for unique designs, textile printers are challenged to reinvent their production processes and accustom new ways of printing on textile.

The last few years, besides the conventional printing methods that we've all been working with for decades, a new, innovative printing technique has been on the rise: digital textile printing. How can this new printing technique help you address pressing market needs and enable you to expand your position in the textile market?

In this Strategic Guide to Digital Textile Printing, you'll learn to determine whether digital textile printing could be of value for your company, how you can incorporate a digital textile printer into your current production line and what strategic benefits this can bring you and your company.

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Business manager with 30 years of experience in digital inkjet, of which 20 years in textiles. Solid R&D background combined with a passion for the digital textile printing application. Experienced in a number of roles in SPGPrints (formerly known as Stork), global internationally active. Managed a digital printing plant in Thailand with sampling studios in New York City and Sri Lanka. The initiator of the digital printing platforms PIKE and JAVELIN within SPGPrints. Presented on numerous conferences and seminars all over the world about digital textile printing technologies and trends.

Chapter 1
Requirements for making the transition to digital textile printing.

Digital textile printing machines can provide printing companies with various advantages, like reducing lead-times and improving printing quality. However, adding a digital textile printer to your production line can only be successful when printing companies meet certain important criteria. How do you know if your company is one of them? When assessing if digital textile printing could be of value to your company take in mind the following five questions:

■ **Does your company possess the right printing infrastructure?**
The first question printers should ask themselves is if they already have all the required infrastructure available at their factory. If not, you need to take into account that you have to invest in this infrastructure (steaming, washing, finishing) as well. This could increase the initial investment significantly and should, therefore, be the first consideration when assessing if digital textile printing could be of value to your company.

■ **Are you able to handle the logistics of the added printing capacity?**
When expanding your current printing capacity with a digital textile printing machine you need to make sure you can handle both production flows simultaneously. How are you going to make sure they don't negatively influence each other? Expanding your capacity means there's more fabric that needs to be steamed and washed after printing.

Do you have enough steaming and washing machines for the post-treatment of both production flows? And can you organize your production flows in such a way that you can benefit from the quick production of digital textile printing and the planned production of your conventional printers? Can you handle the tighter process conditions that are needed to make full use of the capabilities of digital printing? It is important to critically assess what impact adding a digital textile printing machine has to your internal logistics.

■ **Are you able to sell the added value?**

No matter how you look at it, when printing longer run lengths of a design, the costs per meter will be higher for digital printing than for conventional printing. When you consider making the transition to digital textile printing, you first need to know if and how you are going to sell the added value. How do you plan to justify the higher costs of digital textile printing?

That could either be by gaining a significant advantage of decreasing your time-to-market and delivering to the brands or stores in a shorter time frame. This means you have to assess whether your customers are willing to pay a higher price for faster delivery times. Or maybe they are willing to pay more for a higher print quality. Whichever plan is most suitable for your business, before making the transition you need to have a plan in place that outlines how you're going to sell the added value and if that ensures that you will have to produce the volumes that you based your calculations on.
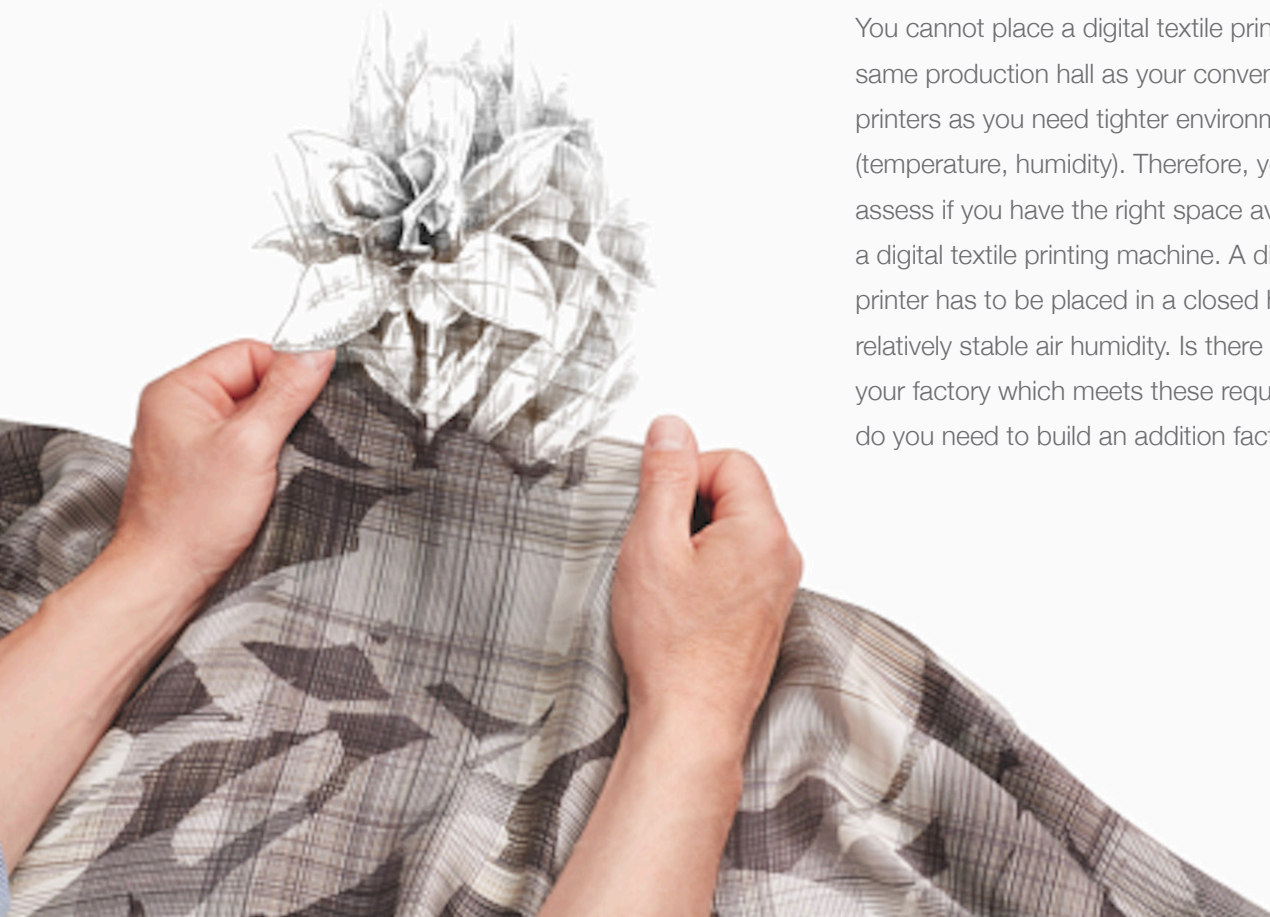
■ **Do you have the right personnel?**

Digital textile printing is a new printing method that varies significantly from other, traditional printing methods. If today you are a traditional textile printing company, most of your employees will have a lot of craft experience with traditional printing methods. However, digital textile printing requires quite a different type of operator. Digital textile printing operators are used to working with computers and trust their output. They have a lot of digital knowledge and know how to work with modern design tools such as Photoshop.

Therefore, when making the transition to digital textile printing you need to assess if you have the right people in place to operate a digital textile printing workflow. And also: how do you attract these kinds of people? These new type of operators are used to working in new, clean and modern textile factories. Could your factory be an attractive place for them to work at?

■ **Do you have the right space?**

You cannot place a digital textile printer in the same production hall as your conventional printers as you need tighter environmental control (temperature, humidity). Therefore, you need to assess if you have the right space available for a digital textile printing machine. A digital textile printer has to be placed in a closed hall with a relatively stable air humidity. Is there a space in your factory which meets these requirements or do you need to build an addition factory hall?

Chapter 2
Selecting the right digital printing type for your business.

Every printing process is different. What might work for one of your competitors, could not work for your business at all. When thinking about making the transition to digital textile printing, you have a choice to make: single-pass or multi-pass printing? How do you know which printing technique is most profitable for your printing business? To support you in making this decision, in this chapter we explain which questions you should ask yourself to find out which technique best suits your printing process.
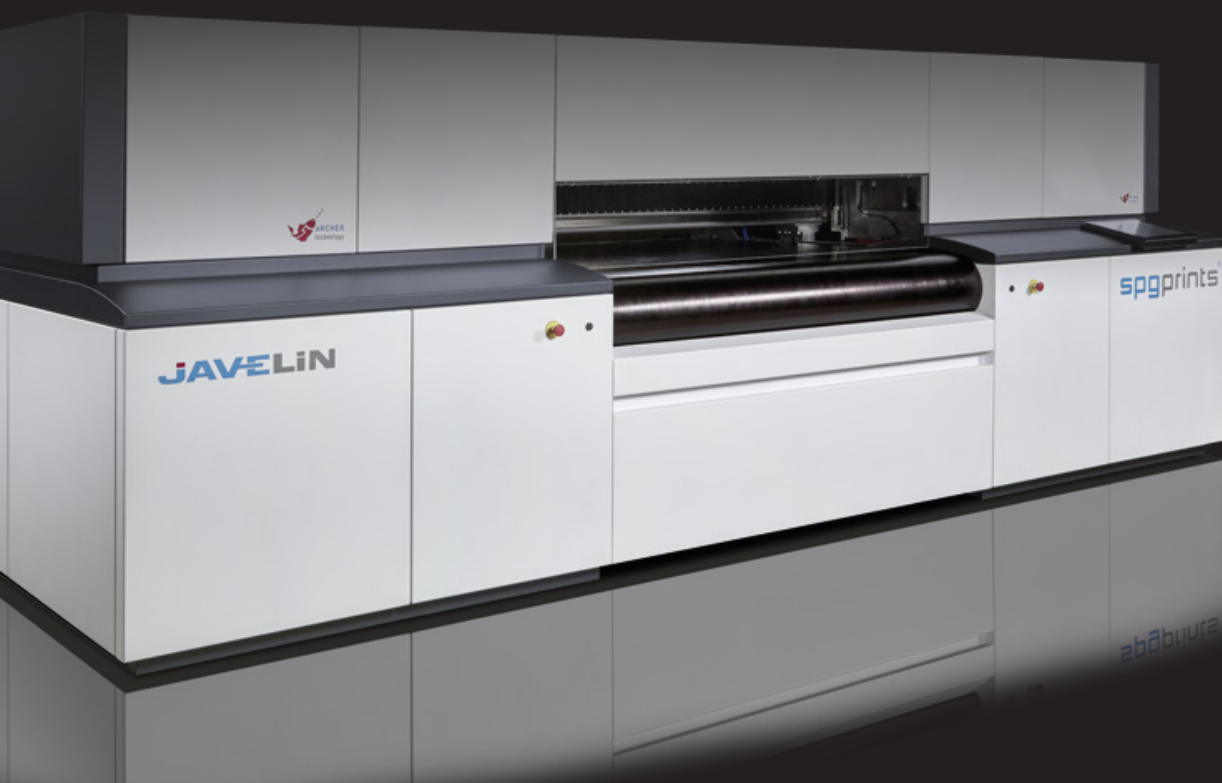
Multi-pass digital textile printing

Multi-pass scanning textile printing shows some resemblance with the inkjet printer that you use at home or at the office to print your documents. Multi-pass scanning textile printing means that the printer heads move from left to right over the substrate (hence the name 'scanning'). After moving along the whole substrate, the print heads stand aside, the fabric moves forward one print heads width (one-pass), or half print heads width (2-pass), or portions of that. Then the fabric stops, and the print heads and start printing another horizontal bar, but this time they move from right to left. All these horizontal bars (partly overlapping, hence the name 'multi-pass') together create the whole design.

An advantage of multi-pass scanning printing is that you only need a few print heads to print your designs on fabric. Since print heads are quite expensive, choosing multi-pass printing can help you minimize the investment you have to make when purchasing a new textile printer. The main advantage of multi-pass printing, however, is that an error that might occur in one pass of the print heads is masked by the next pass of the heads over the same part of the design. So the more passes, the more likely that individual print errors in one strike are masked.

Obviously, the main disadvantage of multi-pass printing is the reduction of speed: the more often the print heads have to move over the same fabric area, the lower the speed in linear meters for the printer. Furthermore, the fact that the total image is created by printing multiple layers of image on top of each other, will reduce the overall sharpness of the image because a minor mispositioning of one layer to the others will lead to a lesser sharp image.

Single-pass digital textile printing

Single-pass printing is a newer printing technique that enables faster printing at a higher quality. The fast speed is thanks to the many print heads that are used for this technique. Instead of having a few printer heads moving from left to right over the substrate, single-pass printing uses multiple print heads which are positioned along the whole width of the fabric. This enables faster printing since the fabric moves at a constant speed through the printer and the total image is created in one pass.

Two important benefits of single-pass printing are the high production speed and the high sharpness. As there are no multiple layers of image that might miss-align, the image is always crisp and sharp. A single-pass printer can print many linear meters per minute, whereas a multi-pass printer cannot produce more than a few linear meters per minute.

A disadvantage of single-pass printing is the high initial investment. Single-pass printing is more expensive than multi-pass textile printing because of the many print heads that are needed to cover the whole width of the printer for each color. Print heads are costly components, so the more print heads there are incorporated in the machine, the more expensive the machine will be. Using single-pass printing, therefore, requires a large investment. Secondly, all print heads need individual drive electronics, which also contribute to a higher cost of the printer. Using single-pass printing, therefore, requires a large investment.

Another important factor to consider is the fact that it is intrinsically more sensible for print head errors. When one of the nozzles gets clogged, no ink can be printed on the substrate which will create white stripes in your design. If the printer is not properly adjusted, this will also result in white stripes.

How to choose between multi-pass and single-pass printing

When making the transition to digital textile printing, you need to evaluate if either a multi-pass or single-pass printer is the most suitable option for your production process. How do you make that decision and which parameters should you take into account? Answering these questions will help you make the right decision.

■ **Do you want to print less or more than 5 million meters of fabric per year?**
A single-pass digital textile printer requires a significant investment but will give you high printing speeds and a low price per meter in return. For that reason, a single-pass textile printer will only return on its investment if you print large quantities of fabric with it. A multi-pass digital textile printer, however, is also suitable for textile printers that need less production capacity per month or year.

In general, I would advise you to invest in several multi-pass textile printing machines if you want to print less than 5 million meters of fabric a year digitally. As a rule of a thumb you can count on 1 million linear meters per scanning printer, so you required capacity determines the number of printers you need.

Do you want to print more than 5 million meters of fabric with the new machine? Then answer yourself the following two questions:

■ **How much money can you invest in a digital printing setup?**
As said before, a single-pass digital textile printing machine requires a significant investment. That is due to a large number of print heads that are incorporated into the machine. This will enable high-speed and high-quality printing, but also comes with a price tag. However, because you will be printing a large amount of fabric, single-pass printing provides you with the lowest price per meter. So ask yourself the question: how much money do you want to invest and does that amount enable you to invest in a single-pass machine?

If not, you could decide to invest in multiple multi-pass printing machines. This would still enable you to meet your capacity requirements but gives you the opportunity to spread out your investment by spreading out the purchase over a longer period of time. Of course, another aspect to consider is that you need more space for multiple multi-pass printing machines.

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■ **How much flexibility do you need?**

Do your customers require you to print on a large variety of fabrics and therefore have a high level of flexibility in your printing process? Then it's better to choose for multiple multi-pass scanning printers instead of one single-pass machine. Using multiple multi-pass machines enables you print on several fabric qualities simultaneously, and you can even choose to use one of your printers to print reactive ink on cotton and one of your other printers to print for instance acid ink on silk. On top of that, if you're experiencing damage to one of your multi-pass printers, you still have the other ones to run your production on. When a single-pass printer breaks down, your whole production is on a hold.

Visit the Experience Center to compare single-pass and multi-pass in real life

Book a visit

Chapter 3

Incorporating a digital textile printing machine into your current production line.

On average, printing companies need two to three months to fully understand and control the whole digital textile printing workflow. When investing in a digital textile printing machine, you should definitely take this learning curve into account and adjust your sales plan accordingly. Below, you'll find all the steps you should take when incorporating a digital textile printer in your production process. This will help you understand why these two to three months are more than necessary and help you get the most out of your investment.

1. Create the right operating conditions for a digital textile printer

A digital textile printing machine can only perform well when it is placed in a production hall with constant conditions. You don't need clean room conditions but a digital textile printer cannot automatically function in a normal conventional textile production hall. For example, if you want your digital textile printer to function well, the temperature in the hall should typically be between 20 and 25 degrees Celsius and the air humidity should be non-condensing and between 45% and 65%. So if you are located in a tropical climate, for instance, you will need to climatize at least the room where the printer is in.

It is anyway advisable to isolate your printer from the conventional production hall, because these halls are typically quite dusty and dust and inkjet don't go well together. Of course, you should be able to provide the machine with the right water, power and gas supply and have a place with a steady temperature available to store your digital inks.

Before investing in a digital textile printing machine ask yourself if you have a space with the right conditions available to place the machine. If not, the first step is to create one.

2. Create the right operating conditions for a digital textile printer

Uploading designs to a digital textile printing machine requires a different format than your design department now uses for your conventional printers. To be able to create a smooth process from design to production, you need to create a workflow for converting designs to the right format. This will most likely require you to make some changes in the way your design and IT-department do their work now.

3. Find the right personnel

Operating a digital textile printing machine requires a different skill set than operating a conventional printing machine. When wanting to incorporate a digital printer in your production process, you will need to search for a new type of operator that can help you run a smooth production.
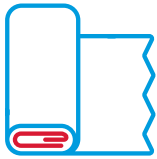
There might be operators already working in your company that would like to transfer to digital textile printing. At SPGPrints, we can provide your operators with the right training so they learn how to handle a digital textile printer. However, take into account that for operating a conventional textile printer a high degree of craftsmanship is required. A digital textile printing operator needs to be tech-savvy and have an affinity with computers and digital technology. Therefore, you might need to recruit new personnel.
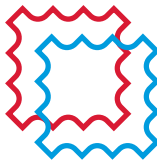
4. Calculate how to get the return on investment

Purchasing a digital textile printing machine requires a significant investment. How are you planning on getting a return on that investment? Before making the purchase, you need to have a plan in place.

That means calculating beforehand how much you will need to charge for a meter of digital fabric in order to earn back your investment and make enough money. That way, you'll have a detailed plan in place and there won't be any surprises along the way. You will find that digital printing per meter is in most cases more expensive than rotary printing so you need to have a plan with what added value to sell the digitally printed meters and with which arguments.

5. Print samples to get sales going

When your digital textile printing machine is up and running, the first thing you should do is print some astonishing samples that you could provide your sales department with. Now you've incorporated the digital textile printing machine into your production process you want to start using it to its full potential. Astonishing samples will enable your sales team to show customers the amazing quality that will justify the sales price per meter and therefore close deals.

Chapter 4
Transform your business through digital textile printing.

Nowadays, digital textile printing is the fastest growing segment in the textile industry. Why do increasingly more textile printers make the transition from conventional to digital printing? Instead of being driven by cost advantages, the main investment reasons can be found in indirect parameters underlining the advantages of digital textile printing.

Create new business models

Digital textile printing provides you with the ability to benefit from new business models. The most important one is printing what you've already sold instead trying to sell what you already printed. Because of the flexibility of digital textile printing, fashion brands can decide to have small batches of a certain design printed and place repeat orders when that product is selling well. Ideally, this means that in the future discount sales are no longer necessary.

On top of that, the fashion industry is changing as a result of digitalization. Nowadays, people like to buy their clothing online and are used to having a lot of different options to choose from. Fashion brands are under the pressure to produce a large variety of designs and rapidly respond to changes in trends. Digital textile printing helps you to directly print a new order and have it delivered to the customer in a short time frame. This way, fashion brands are able to meet their customer's demands and will, therefore, be more willing to collaborate with digital printing companies instead of conventional ones.

Act more customer driven

Digital textile printing provides your customers with more flexibility and opportunities in terms of the designs they can print on textile. When making the transition to digital textile printing, designers can create designs that previously could not be printed. This gives your customers a competitive advantage over others who do not have the possibilities of a digital textile printer at their disposal. On top of that, your customers are able to respond more accurately to the requests coming from the market.

Digital textile printing provides you with the ability to benefit from new business models.

Become a market leader

With the help of digital textile printing, you can increase your production rate and shorten your turnaround time. This enables you to ensure a faster delivery and keep up with your customer demands, but also take on more printing jobs. It has been proven by digital textile printers that serve fast-fashion brands, that those brands are willing to pay more for a meter of fabric when it is delivered in a few days instead of a few weeks. So the additional costs of digital textile printing can be charged to your customer to a large extent. The additional production capacity in combination with the unrivaled production speeds of digital textile printing can help you transform into a market leader.

More sustainable production

Although digital ink is more expensive than the ink used for conventional printing, the digital printing process - and the Archer technology in particular - helps printing companies to decrease their ink usage. The ink usage of the Archer technology is 20 percent lower than other digital printing technologies. This way, digital textile printing helps you to reduce your ink usage, increase the sustainability of your printing process and save costs.

Get in touch
Discuss the transformation of your printing business with a digital textile printing specialist.

Do you feel that after reading this Strategic Guide to Digital Textile Printing, digital textile printing could help you grown your business? But do you still doubt if it could truly be of value for your company?

In a personal conversation with one of our digital textile printing specialists, you can discuss your current production process and learn how you can use digital textile printing to get ahead of your competition.

Request personal advice from one of our digital printing specialist and:

✓ Have a specialist analyze your current production process

✓ Get answers to all your digital textile printing questions

✓ Learn how you can grow your business with digital textile printing

Request personal advice   Or request a personal demo