

# The apparel sourcing caravan's next stop: Digitization

McKinsey Apparel CPO Survey 2017

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# Introduction

McKinsey's biannual Chief Purchasing Officer (CPO) survey, first conducted in 2011, has delivered a comprehensive overview of the most important trends in apparel sourcing – including the need to balance cost, compliance, and capacity; navigating volatility; and exploring the growth opportunity in sourcing regions such as Bangladesh and East Africa.

Our 2017 survey focuses on digitization, a topic of critical importance to apparel companies worldwide. It is also an area where many companies need a major step-up, as was made clear at McKinsey's Apparel Sourcing Roundtable held in Hong Kong in October 2016. As one executive said at the event: "Most of us in apparel sourcing are way behind – we are far from being digital."

That said, some companies are already making exciting progress with digitization – to reduce lead times, boost innovation and collaboration, and better understand and serve customers' needs. This report shines a spotlight on these advances and considers what it will take to unlock digitization's promise across the industry. It goes beyond the buzzwords, highlighting the priority focus areas and practical steps that apparel companies need to take.

But the survey is also a timely reminder that digitization will end in disappointment if it is not integrated into a broader transformation to a customer-centric operating model. To realize the promise of greater speed and agility, companies will need to redouble their efforts to optimize four key factors of success: country selection, supplier collaboration, compliance and risk, and end-to-end efficiency. These factors still represent massive improvement potential across most of the apparel industry.

The survey reflects the perspectives of 63 participating CPOs, who together are responsible for a total sourcing value of over \$137 billion. Our respondents cover the full spectrum of the market, including vertical apparel retailers, hybrid wholesalers, and sportswear companies.

This report presents their outlook for the future – interwoven with our own interpretation and experience from our client work – under four headings:

- **Sourcing in an uncertain world: the macrostate at play.** Apparel executives must continue dealing with a volatile, fast-changing environment along with heightened competition and increasingly savvy consumers. That is driving an urgent search for greater efficiency and flexibility along the end-to-end sourcing chain.
- **In search of the sourcing caravan's next stop.** In recent decades, apparel buyers have relentlessly shifted sourcing to lower-cost countries – "the next stop of the sourcing caravan." Today, the search for the caravan's next stop is as active as ever, but there are new dynamics at play. Some traditional low-cost countries are losing their attractiveness, while sourcing executives are showing keen interest in newer markets – particularly Vietnam, Myanmar, and Ethiopia. As companies seek to step up their agility, however, there is also fresh focus on proximity sourcing and re-shoring.

- **Digitization – “the next sourcing country.”** Digitization could enable apparel companies to achieve a step change in performance, transform to a customer-centric operating model, and create transparency throughout their global supply chains. As one participant at McKinsey’s 2016 Apparel Sourcing Roundtable put it: “Digitization will be the next sourcing country.” But the apparel industry is still at the beginning of its digitization journey: companies need to accelerate digitization and integrate it into their broader transformation. Those that succeed will break down silos between sourcing and product development, shorten lead times, lower costs, and increase transparency to manage sustainability.
- **The future of sourcing.** While the industry will face continued volatility and complexity, the sourcing executives we surveyed also expressed hope that they could achieve mastery in this uncertain environment. Digitization will support them in improving predictability, efficiency, decision making, and accuracy – not just in sourcing, but throughout their business. The time to start is now.

# Sourcing in an uncertain world: the macrostate at play

When asked to describe the fashion industry in a word, fashion executives mention three ahead of all others: “uncertain,” “challenging,” and “changing.”<sup>1</sup> They also expect that dealing with volatility, uncertainty, and global economic shifts will be their greatest challenge in the immediate future. Many also expect challenges in sustaining sales and profitability growth and in facing fierce competition from both online and pure-play firms.

Heightened volatility has manifested itself in many ways. Exchange rates are a case in point: in the first half of 2017 the US dollar fell sharply after a rally in late 2016; the Chinese yuan fell to its lowest level since 2008; and the British pound, once one of the world’s most stable currencies, depreciated to a 32-year low. Raw-material prices have been volatile too; while oil prices have fallen dramatically, interest rates are at historic lows, and economic growth in many countries is fragile – driven in part by political uncertainty. As a result, many companies have had to rethink major strategic and operational decisions made only a year or two previously.

At the same time, apparel companies must contend with rapidly changing consumer preferences. For one thing, digital apparel sales are increasing at breakneck speed: online sales represented more than 14 percent of the industry’s total sales in 2016, up from just 5 percent in 2010 (according to Euromonitor). Empowered by the vast choice the Web offers – and the ability it gives to compare products and prices – today’s shoppers are much savvier and pickier than their cousins of yesteryear. They are also significantly more focused on value and savings yet increasingly likely to seek out products that are customized to their immediate needs and personal tastes. New, online fast-fashion players are targeting today’s fickle consumers and quickly gaining ground – so competition is increasing throughout the industry. Minimum order sizes are falling, making it essential that suppliers increase their flexibility.

Continued volatility and accelerating change add up to a challenging outlook for the fashion industry. In our *State of Fashion 2017* survey, 37 percent of executives expected conditions in the industry to deteriorate in 2017 – in addition to a difficult year in 2016 – while 40 percent expected them to improve.

This near-even split between pessimists and optimists raises the question: what is the future of fashion? Increasingly, the answer lies in the hands of companies themselves. The winners will be those that make the shift from a supply to a demand focus, ramp up their speed to market, become much more flexible, and reimagine their supply chains end to end. Those that do not change fast enough are likely to lose their shirts.

To add an even greater impetus for change, many apparel companies are facing cost pressure on the supply side. In our 2017 CPO survey, 69 percent of respondents in the US and 61 percent in Europe said they expected sourcing costs to increase over the next year (we should note, though, that competition for market share between apparel-sourcing countries over the past year has contained price increases to some extent).

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<sup>1</sup> *The State of Fashion 2017*, Business of Fashion and McKinsey & Company, December 2016  
<http://www.mckinsey.com/industries/retail/our-insights/the-state-of-fashion>

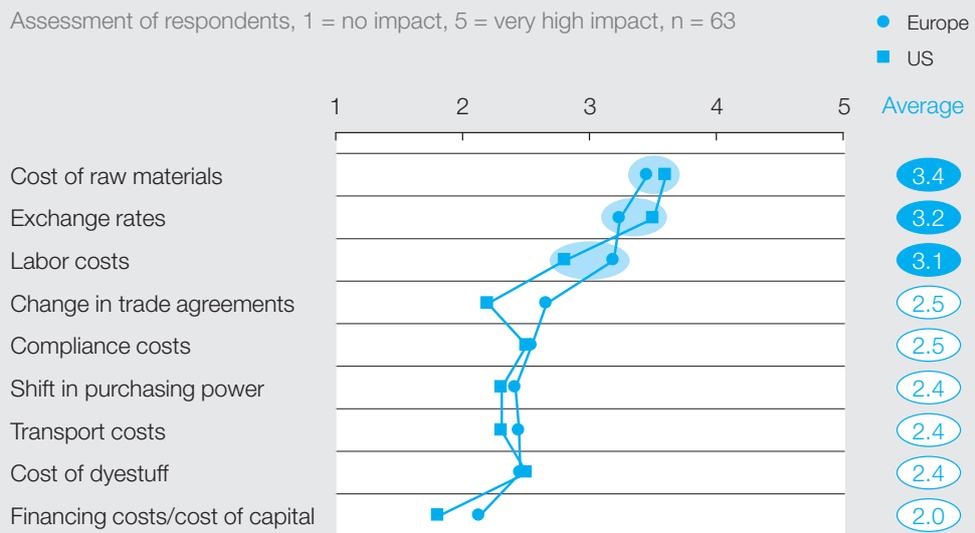
Respondents expected that the major drivers of sourcing costs in the year ahead would include exchange rates and the costs of raw materials. The impact of labor costs was rated lower – 3.0 out of 5 in the 2017 survey, down from 3.5 in 2015 – despite the continued rise to minimum wages in key sourcing markets (Exhibit 1). Why this change in perception? We believe it is explained by overcapacities in some sourcing markets, a shift in volume to low-cost countries, and increased focus on total cost of ownership in the industry in recent years.

### Exhibit 1

Cost of raw materials and exchange rates are expected to be key drivers of sourcing costs over the next 12 months, whereas labor costs are rated lower

"Which drivers do you expect to have the highest impact on sourcing cost development within the next 12 months?"

Assessment of respondents, 1 = no impact, 5 = very high impact, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

We also asked CPOs what levers they planned to pull in the year ahead to adjust their companies' apparel sourcing to the challenges of the macroenvironment. The shift in sourcing countries, which has dominated much of the discussion in recent years, still ranks high among sourcing executives' priorities (Exhibit 2). Reflecting that interest, the next chapter of this report provides a review of the current status and trends in countries of origin and highlights some key shifts underway, including increased focus on re-shoring.

That said, it is clear that end-to-end process efficiency is seen as the single most important organization-facing lever, ranked as the number one opportunity by 41 percent of respondents. Supply-chain flexibility, a closely related opportunity, was seen as the second most important priority for sourcing executives. The margin erosion that many companies are

## Exhibit 2

### Key levers in apparel sourcing to respond to macroeconomic trends and shifting demand

"What are the top 3 areas you plan to work on in the next year in order to adjust apparel sourcing within your company to cope with overall macro trends?"

Percent of respondents, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

experiencing is clearly preoccupying CPOs. At the same time, heightened competition and increased speed to market put the spotlight on supplier collaboration and development as well as cross-functional collaboration with apparel companies.

Digitization of sourcing processes was ranked among the top three focus areas for almost half of the sourcing executives surveyed and 21 percent pinpointed it as their most important topic. Of course, digitization is not an end in itself but a key enabler of other priority levers. As we will discuss in the third chapter of this report, faster progress on digitization will be essential to unlock greater efficiency, flexibility, collaboration, and speed across apparel supply chains.

# In search of the sourcing caravan's next stop

In past decades, the default approach of apparel buyers facing margin erosion and price increases has typically been to shift sourcing to lower-cost countries. Many in the industry characterize this as “the next stop of the sourcing caravan.”

Our 2017 CPO survey shows that the search for the caravan's next stop is as active as ever, but there are new dynamics at play. Some traditional low-cost countries seem to be losing their attractiveness, while international sourcing executives are showing keen interest in the newer low-cost markets – particularly Myanmar, and Ethiopia.

With apparel companies under pressure to step up their agility, there is also fresh focus on proximity sourcing and re-shoring. Meanwhile, factors other than price – including strategic collaboration with suppliers and end-to-end process management – are becoming increasingly important considerations for sourcing executives.

## **A CARAVAN ON THE MOVE: THE ONGOING SHIFT TO NEW LOW-COST COUNTRIES**

Since the inception of our CPO survey in 2011, sourcing executives have shared their plans to reduce their China sourcing share. This year's survey, along with analysis by McKinsey and other organizations, shows that these plans are now becoming reality: a marked and ongoing shift is underway in the apparel industry's sourcing markets.

China appears to have passed its zenith as a low-cost sourcing country, due both to increased local demand and a reduction in size of the available workforce. Even as Chinese export capacity comes under increasing pressure, though, we expect that China will remain indispensable. For one thing, the sheer size of its apparel-manufacturing sector will make China a dominant player for years to come. Moreover, initiatives of the Chinese government – including One Belt, One Road and Made in China 2025 – will help modernize the sector and boost its global relevance.

Bangladesh, Vietnam, and India, despite a slowdown in growth, are expected to remain sourcing hotspots in the near future. Meanwhile, the most recent stops of the sourcing caravan – Myanmar and Ethiopia – are enjoying keen interest from international sourcing executives. Ethiopia in particular is experiencing dynamic investments and developments and is well on its way to developing into a new alternative. We discussed Ethiopia in depth in the 2015 edition of the Apparel CPO Survey<sup>2</sup>.

### **Has China passed its zenith?**

China (including Hong Kong) remains by far the largest garment exporter, with its 2016 exports valued at \$177 billion according to the World Trade Organization – compared to \$28 billion for Bangladesh and \$25 billion for Vietnam, the second and third largest exporters. But China's exports have declined from \$207 billion in 2014 – representing an 8 percent year-on-year reduction in sourcing value. The value of China's apparel exports is now lower than it was in 2012. By contrast, Bangladesh and Vietnam have experienced rapid growth during this period: Vietnam's apparel exports nearly doubled in value between 2012 and 2016. These countries' growth rates did slow somewhat after

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<sup>2</sup> *Sourcing in a volatile world: The East Africa opportunity*, McKinsey & Company, April 2015  
<http://www.mckinsey.com/industries/retail/our-insights/sourcing-in-a-volatile-world-the-east-africa-opportunity>

2014, however<sup>3</sup>. India and Turkey, the fourth and fifth largest exporters, experienced a sharp slowdown in growth over the same period.

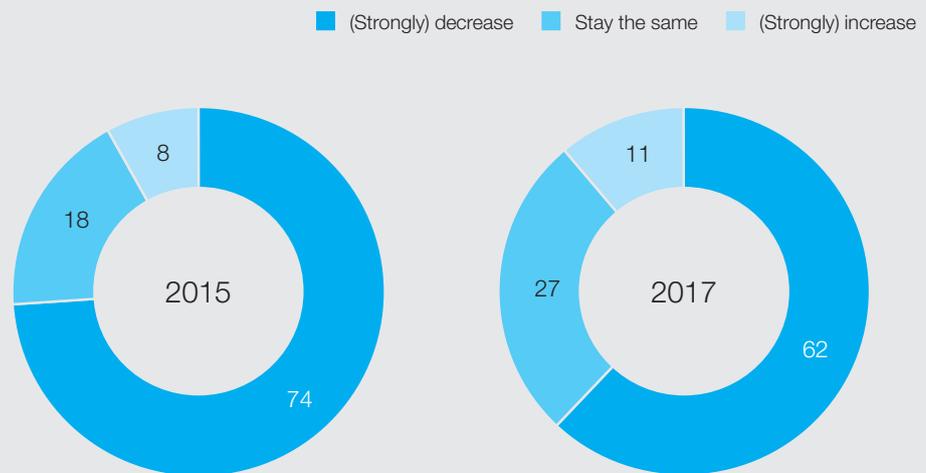
Our CPO survey confirmed that China's share of apparel exports is likely to continue falling. Of the sourcing executives surveyed, 62 percent said they expected China's share of their companies' sourcing to decrease between now and 2025 (Exhibit 3). This retrenchment has slowed slightly: in our 2015 survey, 74 percent of CPOs expected China's role to decline. That may be because some players have already reached their targets in reducing their sourcing footprint in China. Overall, though, it is clear that a powerful shift away from China is still underway.

### Exhibit 3

Though fewer sourcing executives plan to decrease their China sourcing share, most are still working on shifting away from China

"How do you expect your sourcing value share to develop during the next years until 2025?"

Percent of respondents, 2015: n = 40, 2017: n = 63



SOURCE: McKinsey Apparel CPO Survey 2015 and 2017

When we broke down our survey responses by region and company size, we discovered some interesting differences in apparel firms' outlook on sourcing from China. Among European players, 66 percent of CPOs said they planned to reduce their reliance on China – indicating that many are still working on scaling down their sourcing share from China. American players, on the other hand, were nearly evenly split between decreasing their China sourcing and keeping it at current levels.

<sup>3</sup> The slow down in growth is in line with our forecast on *Bangladesh's ready-made garments landscape: The challenge of growth*, McKinsey & Company, November 2011  
[https://www.mckinsey.de/files/2011\\_McKinsey\\_Bangladesh.pdf](https://www.mckinsey.de/files/2011_McKinsey_Bangladesh.pdf)

China might have passed its zenith, but it will remain an indispensable sourcing market for some time to come. This is despite a rapid rise in local consumption: McKinsey's FashionScope research forecasts that the value of China's retail clothing sector in 2025 will be 1.6 times greater than in 2016, making it significantly larger than the US clothing market.<sup>4</sup> There will also be continued pressure on labor availability, due to both an aging population and shifts to higher-prestige jobs.<sup>5</sup>

There are several reasons to believe that China will continue to play a key role in apparel sourcing. For one thing, the three next largest apparel exporters – Bangladesh, Vietnam, and India – still lag far behind China and together accounted for just 71 percent of China's apparel export value in 2016. Moreover, the "One Belt, One Road" initiative – which is unlocking infrastructure investments worth \$2 trillion – will give Chinese garment manufacturers fresh relevance.<sup>6</sup> For example, new rail links will significantly shorten transport times to Europe, and the initiative will increase China's access to Africa's growing consumer markets.

Further, as Chinese apparel manufacturers ramp up their outbound investment in countries such as Vietnam<sup>7</sup> and Ethiopia<sup>8</sup>, they will enhance their role in global apparel sourcing, producing on a larger scale beyond their home market. Finally, as we will discuss in the next chapter, the Chinese garment sector is leading the push for greater efficiency, coupled with the adoption of digitization and automation. This will be given further impetus by the Chinese government's Made in China 2025 initiative, which puts strong focus on automation. As Premier Li Keqiang has emphasized: "Manufacturing has to become 'smarter', relying on technology such as the internet, cloud computing and big data."<sup>9</sup>

### The rise of Ethiopia

In our survey, we asked CPOs which countries they expected to be the top three sourcing hotspots over the next five years. We asked them the same question in 2015, and there have been some remarkable shifts over this two-year period. Bangladesh retains the top spot, selected by nearly half of all respondents – similar to its rating in 2015 (Exhibit 4).

Ethiopia, however, has leapt into second place, overtaking the Asian hotspots Myanmar and Vietnam. Both small and large players see Ethiopia as a hotspot, but firms with more than \$1 billion in annual sourcing value are especially positive: by a large margin, they rank Ethiopia as the most attractive country for future sourcing opportunities. Many of these larger firms have pledged to collaborate in building a sustainable apparel industry in Ethiopia and thus avoid the mistakes made in garment industries in other low-cost countries in the past.

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<sup>4</sup> The growing middle class is the major driver of the strong increase for demand for apparel within China

<sup>5</sup> Average real wages in China are expected to increase strongly in the next decade, and an increasingly educated population and rising middle class will lead to fewer workers in apparel production

<sup>6</sup> *One Belt, One Road: Connecting China and the world*, Tian Jinchun, Western Development Department of China's National Development and Reform Commission, July 2016, <http://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/one-belt-and-one-road-connecting-china-and-the-world>

<sup>7</sup> <https://www.apparelresources.com/business-news/trade/vietnam-sees-surge-in-fdi-from-china/>

<sup>8</sup> <https://fashionunited.uk/news/business/chinese-textile-and-apparel-firms-intensify-investments-in-ethiopia/2017021423527;>

[https://www.just-style.com/analysis/foreign-investment-continues-in-ethiopia-clothing-sector\\_id130376.aspx](https://www.just-style.com/analysis/foreign-investment-continues-in-ethiopia-clothing-sector_id130376.aspx)

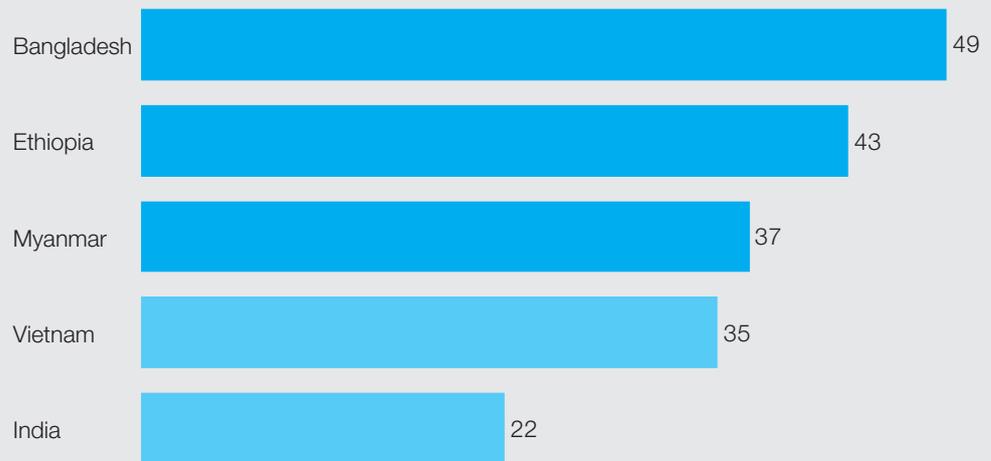
<sup>9</sup> [http://english.gov.cn/premier/news/2016/08/13/content\\_281475416027923.htm](http://english.gov.cn/premier/news/2016/08/13/content_281475416027923.htm)

#### Exhibit 4

### Ethiopia is the main emerging hotspot, starting the breakthrough of Africa as an important sourcing hub

"What will be the top 3 country hot spots over the next 5 years?"

Percent of respondents who ranked the respective countries within top 3, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

Ethiopia is now the most dynamic African location for apparel sourcing; no other country in Africa was perceived as a leading hotspot in our CPO survey. True, Ethiopia's clothing exports are still small in absolute terms: in 2015 they amounted to just \$78 million, according to the World Trade Organization. The Ethiopian government has set out a very bold vision and put many policies in place to support the expansion of the garment industry.

The latest flagship project is the Hawassa industrial park, already home to apparel factories supplying some of the largest global brands.<sup>10</sup> Phase 1 of the park, which opened in 2017, contains 37 modern production facilities covering 100 hectares. Hawassa is targeting \$1 billion in exports and 60,000 employees by the end of 2018. Much of the investment comes from China. Overall, Ethiopia attracted foreign investments of \$1.2 billion in the first six months of the 2016 to 2017 fiscal year, mostly from Chinese companies and half of which are licensed in textile and garment manufacturing.<sup>11</sup>

In our CPO survey publication in 2015 we profiled three potential scenarios for East Africa as a sourcing spot: "niche market," "the new alternative," and "towards the next mainstream."<sup>12</sup>

<sup>10</sup> [https://www.just-style.com/analysis/how-ethiopias-flagship-textile-and-apparel-park-is-taking-shape\\_id130616.aspx](https://www.just-style.com/analysis/how-ethiopias-flagship-textile-and-apparel-park-is-taking-shape_id130616.aspx)

<sup>11</sup> [https://www.just-style.com/analysis/foreign-investment-continues-in-ethiopia-clothing-sector\\_id130376.aspx](https://www.just-style.com/analysis/foreign-investment-continues-in-ethiopia-clothing-sector_id130376.aspx)

<sup>12</sup> *Sourcing in a volatile world: The East Africa opportunity*, McKinsey & Company, April 2015  
<http://www.mckinsey.com/industries/retail/our-insights/sourcing-in-a-volatile-world-the-east-africa-opportunity>

Looking at current activity, it is clear that Ethiopia still has same way to go to become a “new alternative.”

We should emphasize that, even though Ethiopia is enjoying a stellar rise, Myanmar and Vietnam remain very promising. A clear majority of survey respondents said they expected those countries’ shares of their sourcing value to increase between now and 2025. Bangladesh, despite its issues, also remains highly rated. It was named as the number one sourcing hotspot by small and medium-sized players, even though it lost ground in the eyes of large players.

### NEW FOCUS ON PROXIMITY SOURCING AND RE-SHORING

While low-cost countries remain an important part of the global apparel supply chain, there is also increasing focus on proximity sourcing and re-shoring. This is driven by the pressure that apparel companies face to increase their agility and speed as well as the shift to a total-cost-of-ownership perspective.

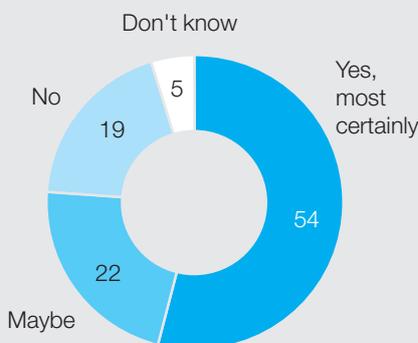
In our CPO survey, 54 percent of sourcing executives said that proximity sourcing was becoming more important (Exhibit 5). Among Europe-based sourcing executives, 39 percent said they planned to increase the value of their sourcing from Eastern Europe, and nearly a third wanted to increase sourcing from Turkey. An equal number planned to keep their Turkish sourcing stable, however, and 23 percent planned to reduce it. The overall interest in other European countries and North Africa is lower, with only one-fifth of

#### Exhibit 5

##### Most sourcing executives believe that proximity sourcing is increasing in importance

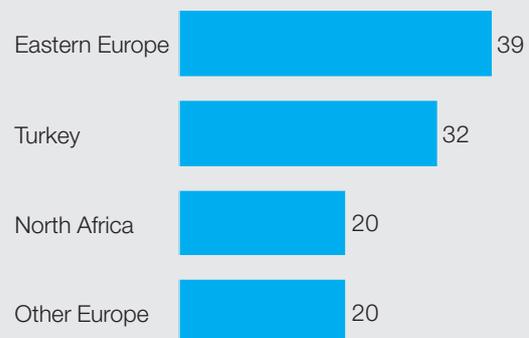
"Is proximity sourcing becoming more important?"

Percent of respondents per category, n = 63



"How do you expect your sourcing value share to develop over the next several years up to 2025?"

Percent of European sourcing executives who believe it will increase/strongly increase



SOURCE: McKinsey Apparel CPO Survey 2017

respondents planning to increase their sourcing value share from those markets. Among US-based sourcing executives, almost half the respondents planned to increase their share of sourcing from Central America, where countries are gearing up to satisfy this demand.

We should note that, even if interest in proximity sourcing is keen, it does not outweigh companies' focus on low-cost countries such as Vietnam, Myanmar, and Ethiopia. Overall, companies represented in our survey are planning greater increases in sourcing from low-cost countries than from proximity sourcing markets.

In addition, many sourcing executives expect to see a move to greater use of re-shoring. This is driven by the need for shorter lead times and more flexible production to respond to customer demand for variety and customization. More than a third of the CPOs we surveyed said they expected their companies to make increased use of re-shoring, compared to just 16 percent who expected a decrease. Half of all respondents, however, expected no change.

There were real differences between the Americas and Europe, however. America-based respondents were more likely to foresee an increase in re-shoring, supported by government initiatives such as Made in America. Some prominent US firms are even investing in their own manufacturing facilities, such as Under Armour's UA Lighthouse in Baltimore, Maryland (Colin Browne, Chief Supply Chain Officer at Under Armour, discusses this on page 15 of this report).

European executives, on the other hand, were more hesitant about re-shoring. In part this may be because companies in the EU benefit from the existing production capacity within the single market. The discussion about re-shoring has gained more traction in the UK ahead of its planned withdrawal from the EU even though there are concerns about the compliance standards of UK apparel manufacturing.<sup>13</sup>

## LOOKING BEYOND PRICE: FOUR SUCCESS FACTORS FOR THE AGILE SOURCING ORGANIZATION

As the coexistence of low-cost and proximity sourcing demonstrates, the successful apparel-sourcing organizations of the future will not succeed on sourcing cost price alone. As speed and agility become increasingly important, four success factors must underpin any transformation effort in apparel sourcing. These are:

- **End-to-end efficiency.** Companies need to design their sourcing backbone to optimize agility rather than high-volume capacity. They also need to optimize and flex their sourcing volume based on commodity and currency, balancing production in low-currency markets with purchases in high-currency markets. And they need to develop design-to-value products to reduce reliance on high-cost and high-currency markets.
- **Supplier collaboration.** A shift is needed from transactional supplier management to strategic partnerships. This requires apparel companies to establish professional supplier evaluation and development processes, along with investments for strategic suppliers.

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<sup>13</sup> <https://www.businessoffashion.com/articles/news-analysis/uk-workers-paid-just-3-an-hour-to-make-clothes-for-river-island-and-new-look>

They will also need to conduct structured negotiations with detailed understanding of should-cost and lock in long-term prices for critical fabrics and materials.

- **Country selection.** Companies need to choose sourcing countries strategically – balancing costs, capacity, speed, quality, and compliance – and be ready to implement dual sourcing strategies and support decision making with advanced analytics. They also need to design their sourcing footprint to minimize risks from external events such as political turmoil and compliance challenges.
- **Compliance and risk.** Companies need to make greater use of financial hedging instruments to protect themselves against the downside of currency changes. They also need to develop clear guidelines and procedures to proactively manage social and environmental compliance and increase the use of tracking and tracing to create transparency from cradle to point of sale.

The old margin management model, with its relentless focus on shifting sourcing volume to the next sourcing country, is beginning to outlive its usefulness. Instead, apparel-sourcing organizations need to adopt a much more holistic improvement approach built around these four success factors. Crucially, this will enable them to react quickly to make changes – a capacity that is required today more than ever before. As innovation in the industry accelerates, apparel players need to act fast to up their game; those that start the journey too late may be left in the dust.

What of digitization? Rather than being a separate, fifth success factor, we see digitization as a core enabler to achieving a step change in performance, transforming to a customer-centric operating model, and creating the transparency that is currently lacking in the global apparel supply chain.

It would be a mistake, then, to see digitization as the silver bullet for the apparel industry; digitization of sourcing must go hand in hand with optimization of the four success factors. If digitization is understood as a lever to ramp up the impact of each of these four factors, it could unlock huge value in the industry. As one of the participants at McKinsey's 2016 Apparel Sourcing Roundtable put it: "Digitization will be the next sourcing country." That, in fact, is the topic of our next chapter.



# Colin Browne

Chief Supply Chain Officer  
Under Armour

## Digitally transforming the delivery-to-market path

**US-based sportswear company Under Armour opened its UA Lighthouse in 2016 – a digitally enabled facility that places designers and manufacturers under the same roof. The company is already able to make locally customized products in a fraction of the time needed in global sourcing processes.**

Digitization is the transformative opportunity to connect the different silos of supply chain – including design through production, logistics, and ultimately to the consumer – to deliver a holistic, friction-free experience. The UA Lighthouse is the tip of the spear in driving this change, unlocking innovation in process and automation. It gives all stakeholders the chance to come together and think differently about how we should design, manufacture, and take products to market.

The greatest promise of the UA Lighthouse – and digitization more broadly – is the opportunity to unlock speed. Historically, our industry has had long lead times for relatively simple products. While we increasingly talk about automation, the larger unlocking triggers of digitization come from thinking about how we manage speed differently. At UA we now have the ability to really understand our consumers. With our expansion into connected fitness apps we now have a “single view of the consumer” or SVOC. We can potentially craft individual stories and products that relate to our customers’ needs and then work with our suppliers to deliver the product. An important enabler is how we use 3D design, how 3D design translates directly into patterns, and how the patterns transform into products. Technically, we can now go from a scan to a product in just one day.

I envision the Lighthouse – and facilities like it – increasingly being part of our overall supply chain strategy. In simplistic terms, we have high-end, innovative products developed and launched at Lighthouse; quick-turn customized products made at semi-automated local for local plants and longer lead-time commodity products produced wherever we can leverage the best total costs. It will be a multispeed model.

This new world will not be fully automated – at least not within the next 10 years. It will remain cheaper to produce in low-cost countries with AI and technology helping production as opposed to a fully automated model. This future model will

not be based on pure FOB price, it will look at total cost; for example, how much it has cost to service the consumer at the end of the transaction.

China will still have a key role. It remains the only country with a fully vertically integrated supply chain. In addition, China’s continued investment in innovation, automation, and digitization will allow the country to remain an important part of our supply chain. It is also a huge local market which will help further unlock its potential. China’s One Belt, One Road initiative also offers tremendous opportunities. Putting a product on a train from China to Europe is a reality – with a lead time of a couple of weeks as opposed to 35 days. It will also unlock the opportunity for a relationship between China and Africa that we have yet to understand.

The old sourcing model is dead. The days of merchants “shopping” products from vendor to vendor is quickly disappearing. Sourcing is now about product supply, a true supply team, and integrated partnerships with suppliers. Thinking about how we unlock data and connect with our suppliers and how that helps evolve those relationships is going to be increasingly important. Having the processes and systems for managing that data along with having suppliers that can cope within this new interconnected VUCA world (volatile, uncertain, complex, and ambiguous) is going to be critical.

In our own supply chain organization today, we seek people with the ability to understand the data world’s complexities and individuals who can manage these new relationships. Finding people who can bridge the gap is very different from the old-school authoritarian sourcing model.

The UA Lighthouse and other such initiatives are already triggering transformation, but in baby steps. That could soon change. The incremental shifts in AI, automation, global expansion and retail are creating a tsunami effect. Sooner or later this will tip and we will see a very different world. As an industry, we are probably running at 10 miles per hour, we have a lot to do before we reach 100.

# Digitization – “the next sourcing country”

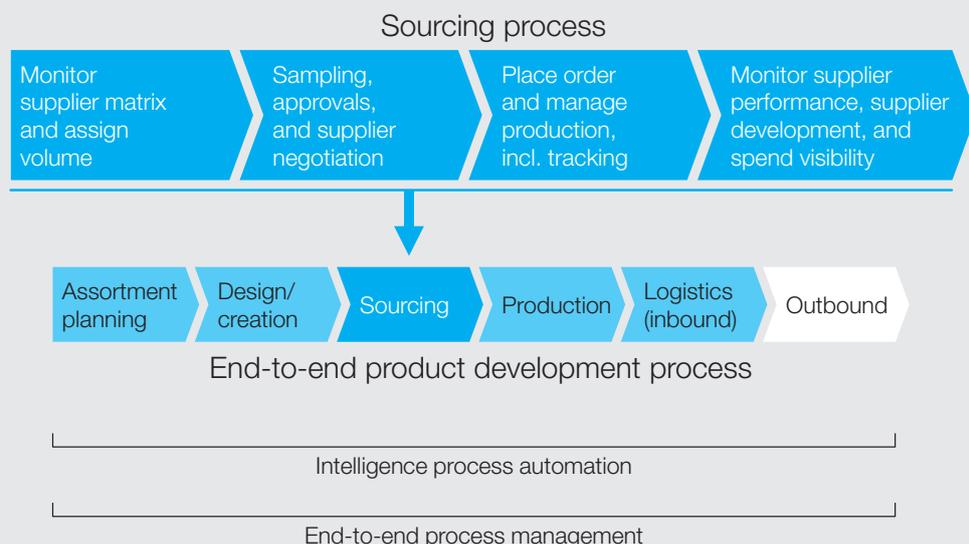
So far, the promise of digitization in the apparel industry remains largely unfulfilled. Compared to other industries, apparel is still at the beginning of its digitization journey for both procurement and the end-to-end product development process. And, as we argued in the previous chapter, apparel companies have many inefficiencies to correct in existing processes before any serious digitization efforts get underway.

But these challenges should not distract executives from digitization’s tremendous future potential. That potential lies not in applying digital solutions to manual sourcing processes, but in evolving the industry’s entire approach to sourcing and product development (Exhibit 6). That includes using technology to create transparency throughout the supply chain, adopting advanced analytics and artificial intelligence, redesigning and digitizing processes, and making greater use of automation.

Conceived in this way, digitization can help usher in a new business model for sourcing – something urgently needed in the apparel industry as it moves from a focus on supply to a focus on consumers. The industry’s traditional emphasis on supplier identification, transactional negotiations, and manual order management will not serve it in the future. Instead, companies need to adopt an end-to-end perspective and foster collaboration across functions and through strategic partnerships with suppliers. Greater agility and flexibility are critical if companies are to give savvy customers what they want, when they want it, where they want it, and at the right quality.

## Exhibit 6

Digitization of sourcing goes beyond digital adaptations of manual sourcing processes and impacts the full end-to-end product development process



SOURCE: McKinsey Apparel CPO Survey 2017

## DIGITIZATION'S PRIZE: SPEED, COST, AND END-TO-END PROCESS OPTIMIZATION

Those that succeed in harnessing digitization to build this new model stand to reap rich rewards – including much greater speed, flexibility, productivity and accuracy, and a big stride forward in managing costs. Pioneering companies are already providing a glimpse of this future, making bold, technology-enabled experiments in on-demand production and localized manufacturing. In addition, the new customer-focused, digitally driven model can create the end-to-end transparency needed to boost accuracy and efficiency as well as environmental and social responsibility throughout the supply chain.

Our CPO survey shows that many apparel companies aspire to achieve significant improvements in both lead time and cost through digitization of sourcing. The majority of players aspire to reduce their lead time by 2 - 8 weeks to achieve the agility needed in a demand-driven market. Most of them are also targeting cost reduction – as a percentage of FOB price – of at least 2.5 percent (Exhibit 7).

Digitization can deliver overall cost and resource efficiency by optimizing sourcing processes and the related product development functions. For example, 3D design can shorten product design, reduce the number of sampling iterations with suppliers, support cost optimization through design to value, and reduce the environmental footprint of production.

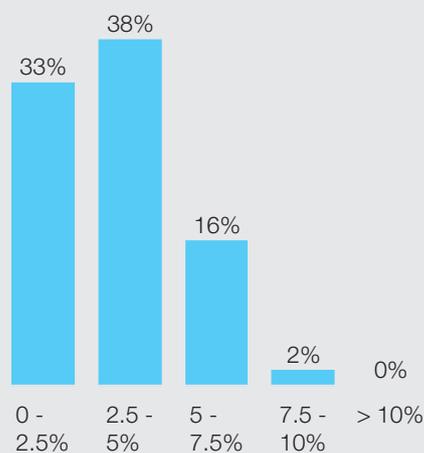
Our CPO survey also revealed that sourcing executives are hoping to harness digitization to achieve improvements of around 5 percentage points in on-time in-full delivery and

### Exhibit 7

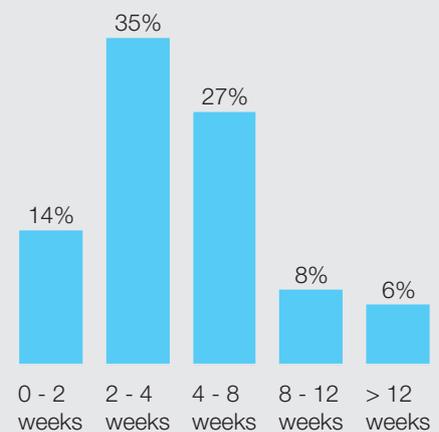
#### Executives are targeting FOB price reduction of up to 5% and lead-time reduction of 2 - 8 weeks through digitized sourcing

"What is the aspired impact of your digitization of sourcing investments regarding ..."  
Percent of respondents, n = 63

... cost reduction (FOB price)



... lead-time reduction



SOURCE: McKinsey Apparel CPO Survey 2017

of around 10 percentage points in demand-planning accuracy. This signals a growing consensus that delivery rates accepted in the past will not do in the future. Improved assortment-planning accuracy is another important target for sourcing optimization, given higher market volatility and the shift to demand focus. In both these areas, digitized processes such as forecasting leveraging predictive analytics – which thus far are in their infancy – will play an increasingly important role.

The areas where digitization can unlock progress go beyond replacing manual processes. For example, advanced analytics – whether applied in capacity planning, country and supplier selection, or spend intelligence – will help achieve the right balance between speed, agility, and cost. Analytics can be a powerful tool to drive accurate decision making on batch size, volume flow, and replenishment sourcing based on real-time data from the demand and supply sides. Provided digitization is undertaken in close partnerships with suppliers, it can also enable automatic ordering and re-ordering.

For compliance, environmental, and social sustainability, digitization can enable increased transparency directly from the factory floor – including direct worker feedback and tracing materials from cradle to shop floor. Specific digital solutions include cloud-based platforms for vendor compliance.

Our CPO survey showed that sourcing executives expected digitization to have major impact in these areas and several others over the next five years (Exhibit 8).

The four largest digitization opportunities, according to the CPOs surveyed, are the following:

**End-to-end process management (rated as a high-impact area by 83 percent of respondents).** Today, many sourcing processes and decisions are still managed by Excel and e-mail. Even though solutions such as product lifecycle management (PLM) systems have been around for decades, many companies are only starting to implement them now – and often as little more than an advanced version of Excel. Our survey suggests that digitized end-to-end process management offers a transformational step-up, centralizing information and processes in one cloud-based system. It promises several key benefits, including “one truth,” real-time information visibility, increased decision-making speed, reduction of errors, clarification of roles and responsibilities, streamlined supplier collaboration, overall reduction of time to market, and real customer-centricity. However, these benefits will accrue only if sourcing organizations embrace a shift in mindset and take a true end-to-end perspective. Only if PLM is truly embraced, instead of being used as a mere tool can it contribute to supporting companies in becoming more customer-centric.

**Capacity planning (71 percent).** The high-impact rating that sourcing executives gave to capacity planning underlines the need for higher visibility and greater agility as companies adopt multicountry, multivendor, dual-sourcing strategies. Expectations are that constraints can be identified earlier in the process and that allocation decisions can be accelerated and based on a holistic set of data and decision criteria. Digitally enabled capacity planning will also require closer collaboration with suppliers. That is easy to say, but to make supplier collaboration more than a buzzword, companies will need to integrate their systems closely

with those of suppliers and implement sophisticated supplier rating systems as a basis for their sourcing and capacity booking decisions. They will also need to engage in truly strategic discussions with their suppliers.

**Business and supplier collaboration portals (67 percent).** Early involvement with internal customers and suppliers is critical for good sourcing – as is cross-functional cooperation. Digital platforms that foster exchange, transparency, and interaction can facilitate that collaboration, and thereby enable internal and external partners to jointly challenge demand forecasts, design specifications, and legacy processes. A number of large software vendors already provide generic collaborative spaces, including file repositories, collaborative workspaces, audio and video conferences, and calendaring. We expect to see the emergence of solutions that are specifically geared towards the requirements of strategic sourcing. These include consolidating demand and specification data, as well as vendor insights, analyses, and strategies across diverse business units and functions. Such solutions will allow for timely and effective interactions to challenge existing assumptions on what, where, and how to source – and thus unlock time savings, improved accuracy, and better decision making.

**Integration of should-cost in design-to-value (62 percent).** Digitization can support companies in integrating real-time cost information right into the design process. It can also provide much more detailed knowledge of cost elements across the organization. With the advent of much higher computing power, there will be increased data availability and improved connectivity along the whole supply chain. This, in turn, will enable design-to-value calculations that are much faster, more detailed, and more accurate, thereby increasing their acceptance by design teams. This will allow apparel companies to integrate sourcing information into their design systems to manage costs right from the start.

We should note that in a few areas, including e-sourcing events and procure to pay, sourcing executives believe digitization will have lower impact. This finding underlines our view that digitization of existing manual processes has far less transformative potential than fully fledged digitization of the apparel-sourcing process and operating model.

## **ASSESSING DIGITAL MATURITY: WHERE THE INDUSTRY STANDS TODAY**

It is clear that digitization has tremendous potential to accelerate transformation in apparel sourcing. But where do apparel companies and their suppliers stand today in the digitization journey?

### **Sourcing organizations' digital maturity is low**

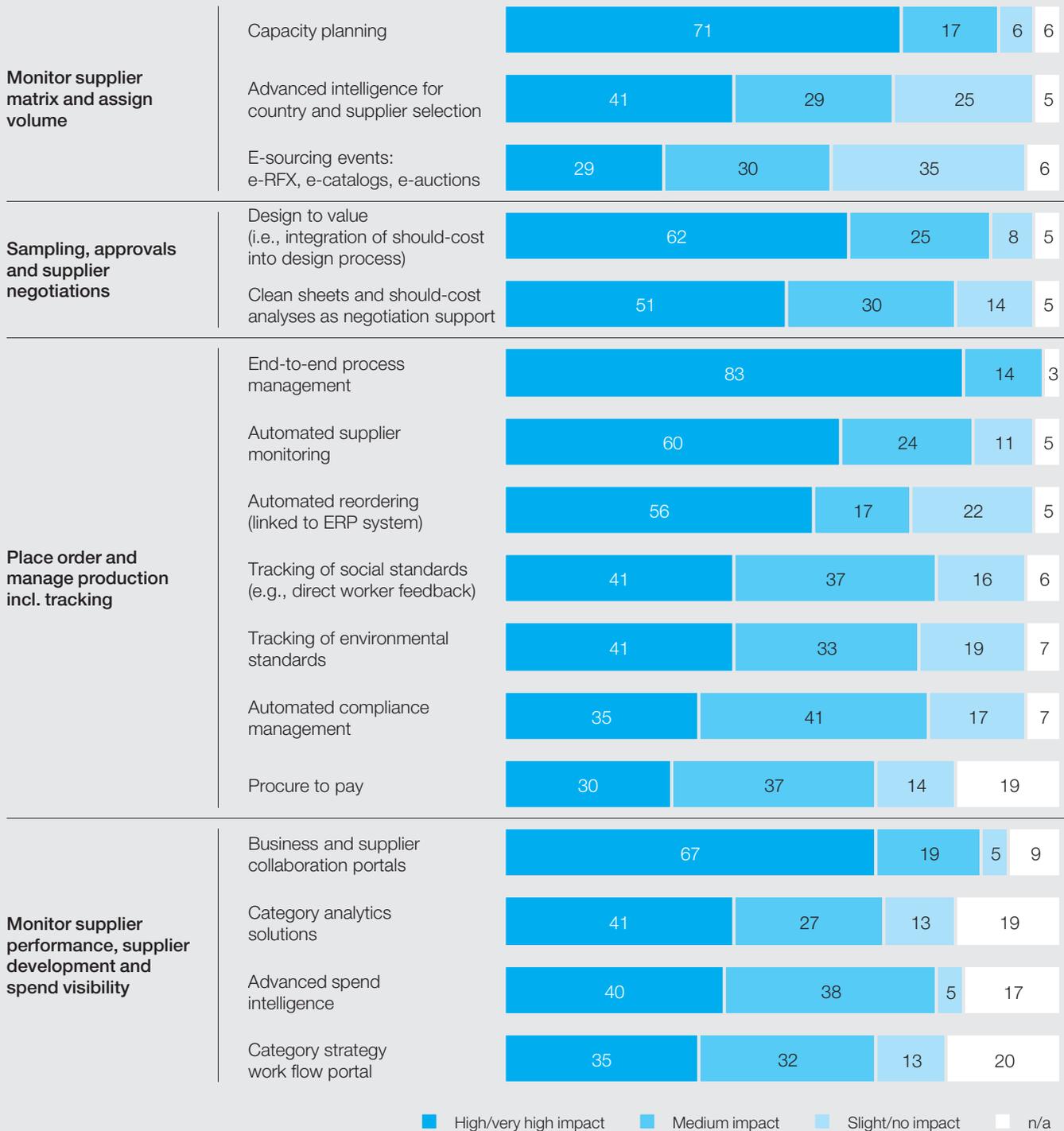
We asked sourcing executives to rate the “digitization maturity” of their sourcing organization and processes. Overall, ratings of current digitization maturity are low. In categories such as e-sourcing events and automated compliance management, fewer than 15 percent of respondents said their organizations had a high degree of maturity. The best-rated categories were procure to pay and business and supplier collaboration portals – but even here, only 27 percent of CPOs thought their organizations were digitally mature (Exhibit 9).

**Exhibit 8**

Digitization is expected to have the greatest impact on end-to-end process management, design-to-value, and capacity planning

"Over the next 5 years, what level of impact will the following digitization opportunities have on apparel sourcing?"

Percentage of respondents, n = 63



■ High/very high impact ■ Medium impact ■ Slight/no impact ■ n/a

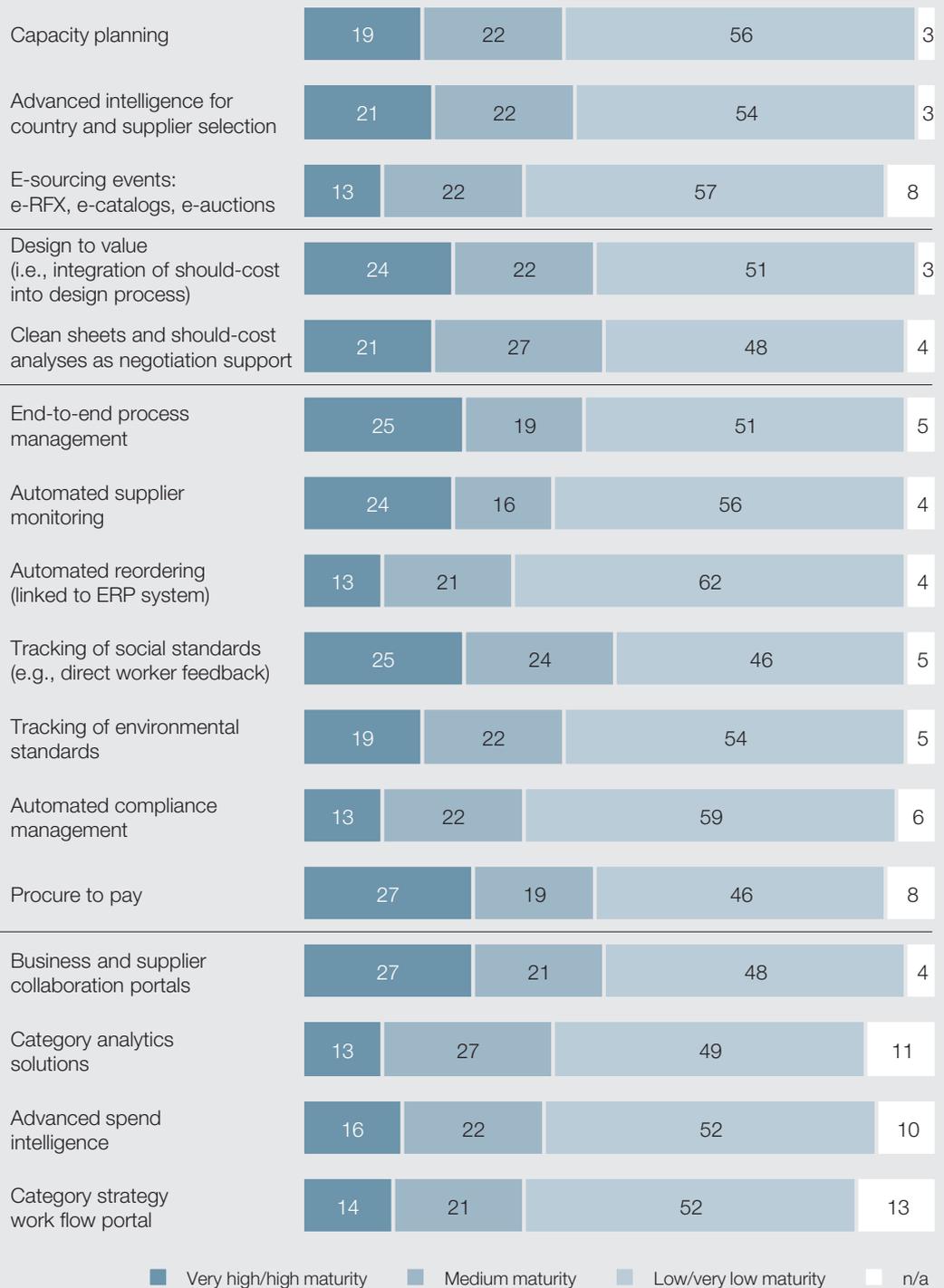
SOURCE: McKinsey Apparel CPO Survey 2017

**Exhibit 9**

Sourcing executives rate their organizations' current digitization maturity as low

"How do you rate the digitization maturity of your sourcing organization/processes?"

Percentage of respondents, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

It comes as no surprise that the large players we surveyed see themselves as more mature in digitization than small and medium-sized companies. This finding was true across the board, but the difference between larger and smaller firms was especially pronounced when it came to e-sourcing, decisions about sourcing countries, integration of should-cost in design and negotiation, and supplier collaboration portals.

When we compare CPOs' rating of their current digitization maturity with their aspirations for impact in the next five years, we find there are major gaps to close. End-to-end process management is a case in point. More than 80 percent of sourcing executives rate this as the area of highest future impact, but just 25 percent of them believe their current organizations have a high degree of digital maturity in this area. That points to a need to invest in, and integrate, the latest process management technologies. The returns could be significant: some software providers claim that new-generation PLM systems can raise productivity by a factor of ten.

There is also a large gap between aspirations and current maturity in the field of planning optimization, where predictive analytics can drive efficiencies and help companies better meet customers' needs. Companies can close another key gap by linking the demand side to the supply side via ERP systems. Integrating currently siloed systems in this way will help companies create a single version of purchase order information, thus enabling automated reordering and thereby reducing time to market and error rates.

The potential is exciting, but apparel companies have so far struggled to close the gaps; to date, their investments in digitization of sourcing have achieved low success rates. Two-thirds of the CPOs we surveyed said these investments had only partly achieved the expected results, while 18 percent reported a complete failure. Only 10 percent of respondents reported full success or overdelivery against targets. Among larger players, the reported failure rate was significantly lower, but these firms were also more self-critical, with only 5 percent of them saying their digitization investments had achieved complete success. These disappointing results may have been limiting the appetite for investment: the large majority of CPOs surveyed said their companies were investing 1 percent or less of their sourcing value in digitization.

What stands in the way of greater success and investment in digitization? When we asked sourcing executives to identify the major challenges in translating investments into impact, we found three main barriers: system architecture, interfaces with suppliers, and data quality (Exhibit 10). This finding is perhaps not surprising, considering the widespread use of e-mail and Excel sheets in managing the apparel value chain, both internally and with external partners. Where more advanced tools are used, these are seldom integrated across product development stages, thus limiting their full potential. To truly improve performance, companies need to create next-generation systems – for example, integrating PLM and ERP systems – that move beyond simply applying technologies to existing manual processes.

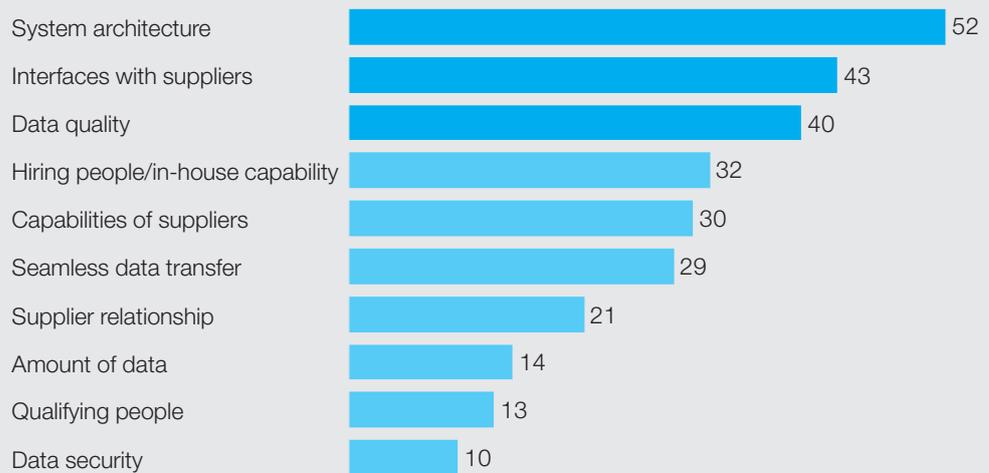
Other significant barriers identified in our survey include in-house capabilities and talent management, as well as capabilities on the supplier side; both were identified as

## Exhibit 10

### On both the technical side and the people side, there are significant barriers to digitization of apparel sourcing

"What are the top 3 challenges your organization faces in achieving the full/aspired impact of investments in digitization of apparel sourcing?"

Percent of respondents, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

particularly acute challenges for medium-sized players. To solve these issues, some players have started to cooperate with fashion schools and universities to overhaul the education and bring it up to date with the latest digital technologies. For example, VF cooperates with the University of North Carolina to train students in Browzwear, the 3D design technology.<sup>14</sup>

Aside from developing such tangible skillsets, companies must also foster a true mindset shift inside their organizations and across their supplier networks. That is critical in enabling a transformation from a transactional approach to supplier relationships to true strategic partnerships, from sourcing at the lowest FOB price to value stream management, and from supply focus to customer focus. The required mindset shift is not limited to sourcing departments and suppliers, but is true across all other stages of product development, production, and logistics.

### Suppliers have a long way to go in digitization

While sourcing executives give their own organizations low ratings in terms of digitization maturity, they are not any more positive in their ratings of suppliers (Exhibit 11). The two biggest issues they identify are interface management and tracking and tracing in manufacturing and upstream. The latter finding is not surprising as sensors for production

<sup>14</sup> [http://www.vfc.com/news/press-releases/detail/1612/vf-corporation-partners-with-the-university-of-north;](http://www.vfc.com/news/press-releases/detail/1612/vf-corporation-partners-with-the-university-of-north)  
<https://browzwear.com/vf-uncg-training-next-generation-fashion-professionals-browzwear-3d/>

## Exhibit 11

### Sourcing executives rate their suppliers' current digitization maturity as low, although they see CMT automation as slightly more mature

"How do you rate the digitization maturity of your suppliers?"

Percent of respondents, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

line optimization are only starting to be applied, common standards for data exchange have yet to be developed and older machine parks cannot easily be transformed (Dr. Yves-Simon Gloy, Director Textile Machinery/Production Technologies at Institut für Textiltechnik, RWTH Aachen University, explores these challenges on page 34).

Only in two areas – new manufacturing techniques and automation of cut, make, and trim (CMT) – did fewer than half of sourcing executives rate suppliers as low in their digitization maturity. Given that 3D printing is not yet advanced in the apparel industry, much of the positive rating on new manufacturing techniques is probably driven by the increase in the base of digital printing machines. On the other hand, automation of CMT includes the well-developed technology of automated cutting.

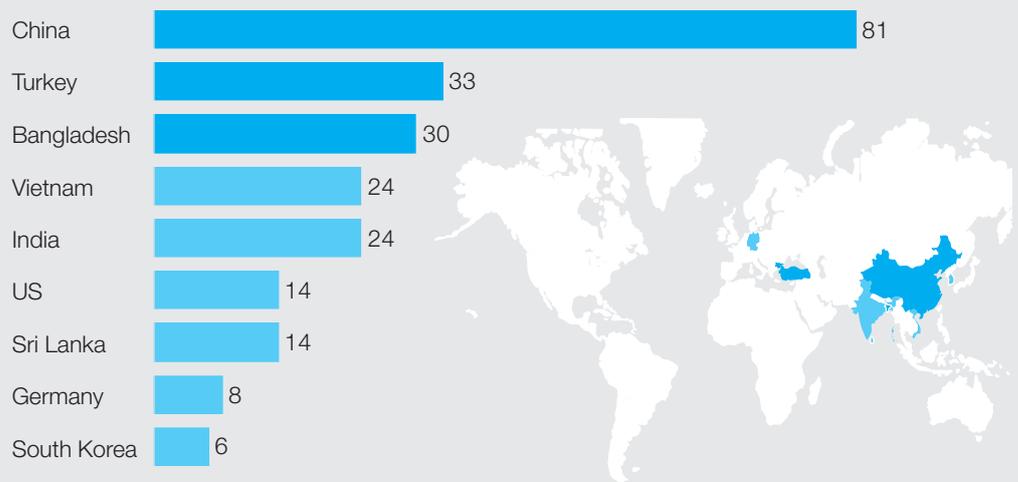
Indeed, the CPOs in our survey rated China much higher in sourcing digitization than any other country (Exhibit 12). Both American and European players viewed China as the clear leader in digitization. American executives also ranked the US high on the maturity of sourcing digitization, while European executives ranked Turkey in second place behind China.

## Exhibit 12

### China is the clear leader of sourcing digitization in the eyes of sourcing executives

"Which 3 countries do you see as the best performers in terms of sourcing digitization maturity today?"

Percent of respondents who ranked the respective countries within top 3, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

## BEYOND SOURCING: DRIVING DIGITIZATION OF THE FULL PRODUCT DEVELOPMENT PROCESS

If companies are to succeed in the digitization of sourcing, they will need to extend their focus well beyond sourcing departments and core sourcing processes. If they are to transform their operating models and become truly consumer-centric, they will need to drive end-to-end process efficiency, cross-functional and cross-company collaboration, and deeper immersion in the manufacturing process.

For that reason, our CPO survey looked beyond just sourcing and gauged the expected impact and current maturity of digitization in four other areas: assortment planning, design, production, and logistics. The survey identified major potential for impact in all these areas (Exhibit 13). Particularly promising opportunities include predictive analytics in production and demand planning, 3D design and virtual prototyping, digital printing, automatic/dynamic inbound planning, and radio frequency identification (RFID) in manufacturing and the inbound supply chain.

In all these areas, we also asked CPOs to rate their organizations' current digitization maturity. In nearly every category, a majority said current maturity was low or very low. Only in digital printing did a sizable proportion of companies rate their maturity as high. Respondents also reported progress in predictive analytics, 3D design and virtual prototyping, and automatic/dynamic inbound planning in logistics. Nonetheless, there remains a wide gap to close if digitization is to achieve its full impact potential in these areas.

### Predictive analytics: a clearer crystal ball

The sourcing executives we surveyed saw greater impact potential from predictive analytics than from any other digitization lever – yet a huge gap remains between organizations’ current digitization maturity levels and that potential.

This reflects the fact that predictive analytics in demand planning has not yet been widely applied across the industry, although solutions have been available for some years. Beyond assortment planning or allocation, predictive analytics can leverage machine learning to strengthen trend forecasting, optimize decision making in the creative processes, and improve design performance. Companies can also use predictive analytics in demand planning to analyze hundreds to thousands of internal and external variables that influence demand, such as weather, trends from social networks, and sensor data. They can harness Bayesian network and machine-learning approaches to uncover and model the complex relationships between these variables and shifts in demand, and thus derive an accurate and granular demand plan.

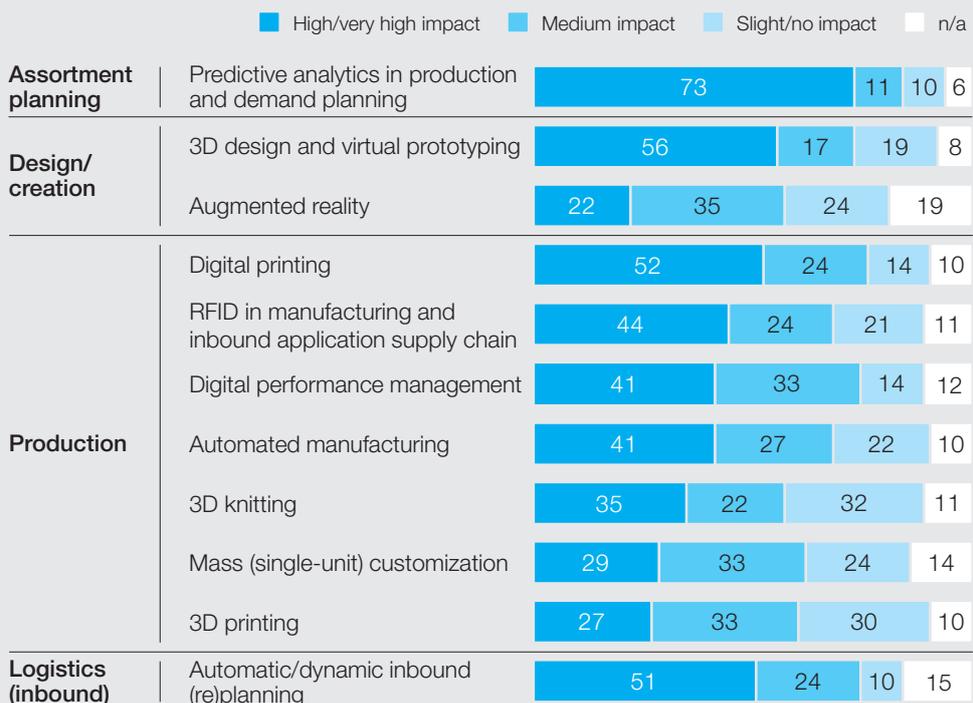
In short, predictive analytics allow companies to tip the balance of the “art versus science” discussion towards science. These new technologies enable a significant improvement

### Exhibit 13

#### Sourcing executives identified predictive analytics as the area where digitization could have the highest impact beyond the core sourcing function

“Over the next 5 years, what level of impact will the following digitization opportunities interfacing with apparel sourcing will have?”

Percent of respondents, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

in demand forecast accuracy. Also, the days of a “single truth” regarding the forecasting numbers are over: these advanced algorithms provide probability distributions of the expected demand volume rather than a single forecast number. This allows for targeted discussions, including upside potential and downside risks in sales and operations planning, and advanced inventory management approaches. In the current market environment, which is suffering from excess stock and markdowns, this offers a huge performance potential. It could also have significant positive impact on sustainability.

### 3D design and virtual prototyping: a real game-changer

The transition from traditional manual design to 3D design could be a real game-changer for the industry, unlocking far-reaching innovation in design. Virtual sampling, for example, cuts out significant time in the product development process. Players that have implemented 3D design and virtual sampling report reductions of two weeks or more in the sampling process and often a 50 percent reduction in the number of samples needed and the cost involved. Together with integrated fabric or ingredients libraries, companies can also integrate real-life costing into the process. Some solutions link the 3D sample directly to marker efficiency, and thus drive improved efficiency and waste reduction in automated cutting processes.

At the same time, 3D design and virtual prototyping enables closer collaboration between functions throughout the production development process as well as with suppliers. Several brands, including PVH and Hugo Boss, have gone further and taken these technologies into their sell-in process<sup>15</sup> (Martijn Hagman, Chief Financial Officer of Tommy Hilfiger Global and PVH Europe, comments on this approach on page 28). The applications possible at these later stages include virtual showrooms and virtual catwalks.

### Digital printing: democratizing design, cutting lead times

Digital printing was one of the biggest topics at the 2017 Texprocess trade fair in Frankfurt. With 32 percent of sourcing executives rating the maturity of their organization high in digital printing, it is clearly the most advanced aspect of digitization in apparel manufacturing. Together with automated cutting, this technology can dramatically reduce production time, increase flexibility, and reduce waste. Digital printing can also “democratize” design by creating the flexibility to run multiple small batches. We should emphasize, though, that digital printing should not be seen as a stand-alone solution. Instead, it should be seen as part of a fluent digitized process that includes 3D design, virtual grading, virtual size fits, and costing.

### Automated inbound planning: transforming logistics

Automatic order processing and real-time (dynamic) replanning can lower costs in logistics through automation of manual tasks, higher reliability due to granular feedback, and superior customer experience through immediate and reliable responses. The ultimate goal is a completely “no-touch” process, where no manual intervention is required between order intake and order confirmation. Real-time replanning enables order date confirmations through instantaneous replanning of the production schedule and replenishment.

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<sup>15</sup> <http://www.textilwirtschaft.de/business/unternehmen/hugo-boss-hugo-boss-startet-mit-digitalen-showrooms-205826>



# Martijn Hagman

Chief Financial Officer

Tommy Hilfiger Global and PVH Europe

## Building a better business with Speed 360

**PVH is known for its leading brands such as TOMMY HILFIGER, CALVIN KLEIN, and Van Heusen. In 2016, the TOMMY HILFIGER brand launched a major initiative called “Speed 360” to accelerate internal processes and drive innovation in every aspect of the business – from design and development to sourcing and production to warehousing and distribution.**

Today’s consumers want everything fast, customized, at the best quality, and reflecting the latest trends. As an apparel company, you have to respond: and that requires a true transformation in both your way of working and your business model. That’s why we called our program Speed 360 – our objectives are speed-oriented, but we are also examining our organization from a 360 degree perspective. We aim to significantly reduce our lead time by optimizing processes, streamlining procedures, removing buffers, eliminating redundancies, and having more direct interaction with our vendors. We then aim to leverage digitization on top of that. For example, digital pattern making, 3D design, 3D fitting, and 3D virtual display will enable time savings, and also allow us to evolve in our transactions with retail customers and test our products in the market.

It’s not only about lead-time reduction, however. Being more consumer-centric means responding “better,” not just “faster.” We are reducing the size of our overall collection development by being more focused and taking an end consumer approach. We are looking more closely at our retail spaces to make sure they have the right selection of options that drive our core business. From there, we will layer on additional options and styles to cater to the needs of different markets.

There also needs to be a more balanced flow of product to the market. Take outerwear as an example. Traditionally, outerwear ships all in one go very early in the season. But now we have multiple drops across the season so we can offer our customers “buy now, wear now” as demand changes.

The role of the offshore sourcing teams will evolve as our design and development teams have more direct interaction with central supply and our vendors. There is an increasing focus to build up vendor capabilities, and empower and certify them to maintain quality standards. Digitization will enable us to achieve much more transparency regarding the performance, compliance, and corporate responsibility of our vendors.

To achieve our Speed 360 transformation with TOMMY HILFIGER, we are initially focusing on process optimization. In parallel, we are developing digital solutions that can be implemented along the way. As many of the tools needed are not there yet, we are working to custom-develop them with our partners and integrate them into our business as they become available. For example, with 3D design and everything that comes around it (including digital patterns, digital fitting, and rendering), there are programs for the individual elements but no end-to-end solution. Selecting the right partners is key as there are many good companies in this space and even more start-ups that pitch faster, better, and more integrated solutions. In a landscape that is evolving dramatically every 12 to 18 months, the challenging question is: Who do you partner with and to what extent do you partner with them?

Digitization has huge potential to transform the industry, but it’s impossible to achieve this completely independently. You need to invest in stronger vendor collaboration models and also in different types of partnerships for digitization. Everyone in the industry will need to decide how to transform their own organizations in order to be able to work in these new collaboration and business models.

### Radio frequency identification (RFID) in manufacturing

RFID and other sensors are used in the manufacturing process in multiple ways. These include management and optimization of production line efficiency, securing intellectual property, and tracing of the origin of materials with sustainability or quality control in mind. For example, Welspun has used these technologies to trace cotton from cradle to point of sale. Yet only 16 percent of sourcing executives in our survey rated their organizations' maturity high on RFID. This is indicative of the early development stage in the industry.

### Looking to the future: the transformative potential of blockchain

Another digitization opportunity to watch is blockchain technology (the global distributed ledger). It has the potential to completely transform the way information and transactions are captured, owned, stored, and shared among companies and whole ecosystems – and thus radically increase transparency across the supply chain. In addition, it will enable much easier end-to-end tracking of products along the value chain. While there are still fundamental questions to solve before blockchain can be widely adopted in the apparel industry, we believe companies should closely watch the rapid developments in this space.

### MARCH OF THE MACHINES: MODELING THE POTENTIAL OF AUTOMATION

No discussion about the impact of digitization on the apparel industry would be complete without a focus on automation in production, which could lead to a major revision of sourcing decisions with a significant macroeconomic impact on today's main sourcing countries. Indeed, some think tanks have published staggering numbers on the workplaces at risk. In the manufacturing sector as a whole, the McKinsey Global Institute (MGI) recently estimated that 64 percent of work has the potential to be automated by adapting currently demonstrated technologies; this represents 231.3 million people in 50 selected countries across the world in 2016.<sup>16</sup>

In China, the automation potential in manufacturing (across all sectors) represents 93.3 million employees. With its aging population, China has a high degree of interest in the rapid adoption of automation. The government's Made in China 2025 campaign actively supports automation and digitization, although its focus so far has been mostly on the automotive and electronics sectors. Advanced economies such as the US and Western European countries are also turning to automation to remain competitive and to overcome the economic growth gap caused by their own aging workforces. Programs such as the German government's Industry 4.0 are focused on the development of smart factories and digitized end-to-end processes.

We took a close look at this topic, both in our CPO survey and in our discussions with sourcing executives, suppliers and academics. We also analyzed adoption rates for automated apparel production in China, as the main sourcing country, as well as the US, where pioneers have started to revolutionize garment manufacturing. This research helped

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<sup>16</sup> *A future that works: Automation, employment, and productivity*, McKinsey Global Institute, January 2017 <http://www.mckinsey.com/global-themes/digital-disruption/harnessing-automation-for-a-future-that-works>. This study profiles the McKinsey Global Institute's methodology to provide scenarios for potential adoption rates of automation in various industries

us answer two important questions: How quickly will automation become a major driver of sourcing decisions? And will automation displace or complement human labor in low-cost sourcing countries?

For the first question, the CPOs we surveyed agreed overwhelmingly that automation is coming fast. We asked them: “When will automation in manufacturing reach a significant enough level and become the major driver for sourcing decisions instead of labor cost?” More than 60 percent of respondents believed this threshold would be reached by or before 2025. Nearly all the rest believed it would happen by 2030. Only a few sceptics doubted that automation would become the key decision driver within the next 20 years.

For the second question, however, the picture is much more nuanced. Most of the sourcing executives, suppliers, and academics we interviewed do not see the future as an “either/or” between automation and labor cost. Instead, these industry leaders and experts expect both models to coexist in the medium term: labor-dependent, low-cost country sourcing will continue, while sourcing from (semi-)automated suppliers or from companies’ own automated factories will ramp up in parallel.

This reflects the fact that adoption of automation is driven not just by technical feasibility but also by economic feasibility. So, even when the technology exists to enable automated production, its expected economic benefits may not outweigh its costs – and manual production in low-cost countries may continue to be competitive. Colin Browne, Chief Supply Chain Officer at Under Armour, reflects on this on page 15 of this report. He expects a “multispeed model”: high-end, quick-turn products will be produced in (semi-)automated plants in the US and other developed markets, while longer lead-time commodity products will be produced in low-cost countries, where technology will support, not replace, the workforce.

#### Automation in China’s apparel production: the step change ahead

MGI’s analysis shows that 89 percent of time spent on current work activities in China’s garment industry will have the technical potential to be automated by using currently demonstrated technologies.<sup>17</sup>

As China’s wage levels continue to increase and its workforce shrinks, however, there will be an ever-greater opportunity cost of failing to automate. While some Chinese garment producers continue on the traditional path of diversifying their manufacturing footprint by investing in lower-cost sourcing countries, others have started to invest in automation. Esquel, for example, is known for its investments in R&D to develop innovative manufacturing solutions, made over many years.<sup>18</sup>

Yet China’s actual adoption of automation is expected to reach only 13 percent by 2025, in an “earliest scenario” modeled. The reasons for the seemingly slow take-up of automation include China’s relatively low wages in the global context, legal and policy

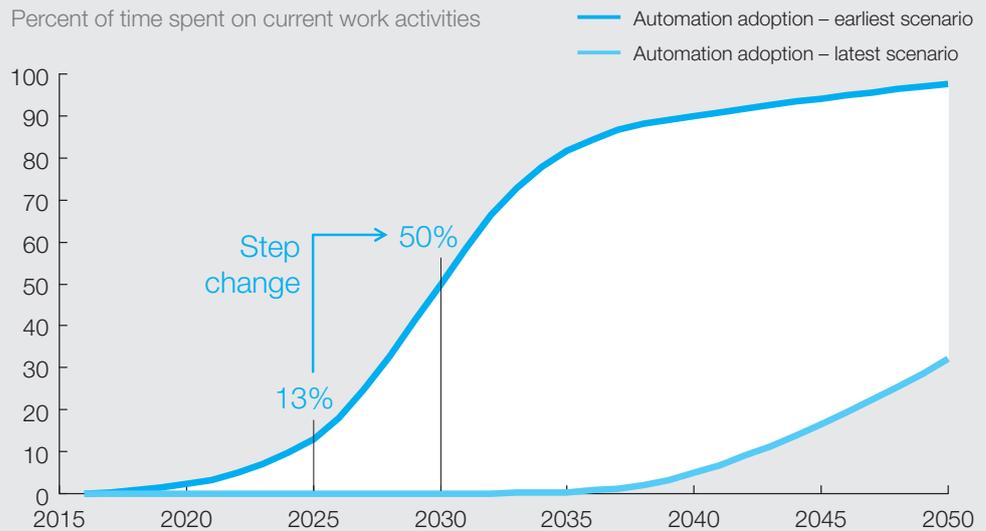
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<sup>17</sup> This figure refers to time spent on current work activities; this work does not include new types of activities and occupations that will be developed. In general this will translate into jobs

<sup>18</sup> [https://www.just-style.com/interview/esquel-ceo-says-automation-core-to-competitiveness\\_id126642.aspx](https://www.just-style.com/interview/esquel-ceo-says-automation-core-to-competitiveness_id126642.aspx);  
<https://sourcingjournalonline.com/will-china-lose-market-share-due-rising-labor-costs/>

## Exhibit 14

### Automation of garment manufacturing in China could achieve an adoption rate of up to 50% by 2030



SOURCE: Expert interviews, BLS; O\*Net; FDI Benchmarks, Oxford Economics United Nations Population Division; McKinsey Global Institute analysis "Future that works"

obstacles, organizational impediments to change, difficulties in integrating technology, and economic viability.

As better and cheaper automation solutions will become available and barriers to adoption will lessen, a step change in adoption of automation could happen by 2030, when the adoption rate will reach 50 percent of time in MGI's earliest adoption scenario (Exhibit 14).

#### Will automation accelerate re-shoring in the US and Europe?

Automation is often mentioned in the context of re-shoring manufacturing to developed economies such as the US and Western Europe. So far the most prominent examples of "made by robots," however, are focused on footwear such as Adidas, Clarks, and Nike.<sup>19</sup> In our survey, we therefore asked apparel CPOs in both the US and Europe to report on the trend to re-shoring in their own companies – and to reflect on the role that automation is playing in this trend.

As mentioned earlier in this report, almost half of the respondents said they planned to keep the mix of local production volume stable, but more than a third of them planned to

<sup>19</sup> <http://news.nike.com/news/nike-s-manufacturing-revolution-accelerated-by-new-partnership-with-flex>; <https://www.adidas-group.com/en/media/news-archive/press-releases/2015/adidas-first-speedfactory-lands-germany/>; <https://www.retail-week.com/sectors/fashion/clarks-to-bring-shoe-manufacturing-back-onto-home-soil/7022210.article>

increase their engagement with re-shoring. The sourcing executives we surveyed were nearly evenly split on whether automation of manufacturing would lead to re-shoring to the US or Europe in the short term. However: only 8 percent of respondents strongly believed that automation would drive a return of manufacturing to the US or Europe within the next five years (Exhibit 15).

It is interesting to note that European sourcing executives were more likely than their American counterparts to express belief in re-shoring driven by automation. Although a higher share of US executives expect a re-shoring trend in their own organizations, few see automation as the major driver of this trend.

These findings suggest that automation of garment manufacturing has not yet reached the required benefits and return of investments to convince a large number of companies of its power as a trigger for re-shoring. Even pioneers in the field are skeptical. When asked about re-shoring on a large scale, Adidas stated in the *Financial Times*: "It is a complete illusion to believe that manufacturing can go back to Europe in terms of volume."<sup>20</sup>

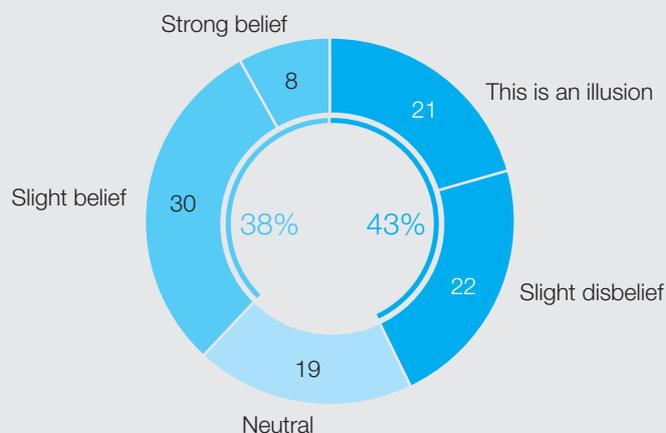
While automation may not indicate a large-scale industrial renaissance in Europe and the US, it will certainly support the emergence of high-tech local production in those regions. An example is Adidas's test of the "storefactory" in its "Knit for You" pop-up store in Berlin, Germany, in early 2017.<sup>21</sup> Billed as a test of new flexible production technologies

## Exhibit 15

### Respondents remain skeptical of automation's potential to drive re-shoring

"Given the trend towards automation, to what extent do you believe manufacturing will return to the US/Europe within the next 5 years?"

Percentage of respondents, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

<sup>20</sup> <https://www.ft.com/content/39b353a6-263c-11e7-8691-d5f7e0cd0a16>

and new business models, the store was supported by the German government and brought together industry partners, store design companies, and academics, including Dr. Yves-Simon Gloy of RWTH Aachen University, featured on page 34. The “storefactory” allowed customers to customize the design of their sweater through interactive technology, created an exact fit through a digital body scan, then made each sweater to order with 3D knitting. Rather than being an alternative production approach to today’s fashion value chain, though, such store-based microfactories are focused mainly on enhancing customer experience.

In the US, pioneers like SoftWear or Sewbo are going further, and working on fully automated production systems for T-shirts and other garments. For example, SoftWear’s “Sewbot” robots can handle the production of T-shirts and soon jeans. China-based Tinyuan Garments, which produces T-shirts for Adidas, announced in 2016 that it would invest \$20 million in a plant in Little Rock, Arkansas.<sup>22</sup> Although the plant will employ 400 people, its 21 production lines will be largely automated using SoftWear’s technology. When fully operational, the system will make one T-shirt every 22 seconds.

Driven by such technologies, adoption of automation in the US garment industry could reach 77 percent of workers’ time by 2025 in MGI’s earliest adoption scenario – with a step change occurring between 2020 and 2025. Yet 97 percent of garments sold in the US today are imported, according to the American Apparel and Footwear Association. As our CPO survey suggests, not even the rapid adoption of automation is likely to prompt the large-scale return of apparel manufacturing to American shores.

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<sup>21</sup> <https://www.adidas-group.com/en/group/backgroundstories/specialty/research-enabler/>

<sup>22</sup> <http://www.innovationintextiles.com/automated-sewbot-to-make-800000-adidas-tshirts-daily/>; [http://usa.chinadaily.com.cn/world/2017-07/25/content\\_30244657.htm](http://usa.chinadaily.com.cn/world/2017-07/25/content_30244657.htm)



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## Profound changes on the horizon for apparel supply chain stakeholders

**The Institut für Textiltechnik (ITA) is one of the leading research institutes in the field of materials, production processes, and products for technical applications of textile structure. Together with McKinsey and various technology providers, the ITA recently opened the Digital Capability Center (DCC), which serves as a hub for delivering capability building in a real-life demonstration and learning environment as well as a test base for piloting and scaling up new digital solutions.**

The most profound change we will see in the apparel supply chain of the future is the ability to collect data in real time in the production process and use it to increase production efficiency. Production lines can be optimized by means of targeted data exchange and even the individual processes themselves (such as sewing) can be improved in terms of efficiency via automation, self-optimization, and the use of artificial intelligence.

We are going to experience changes in how people interact with machines. In countries such as Germany, Italy, and Japan, human-machine interactions will be driven by demographic change and the shortage of skilled workers. Trends are moving toward integrated production technology and hybrid processes in which multiple process steps are bundled in one machine. And mass customization helps enable producing in closer proximity to customers.

Initial applications can be seen for human-machine communication, such as voice-controlled sewing machines. Other changes, such as artificial intelligence in big data, will take more time. Some technologies will take several years before they are mature enough, such as fully automated weaving. In comparing digital solutions, the collection of production data aided by sensors (e.g., with RFID) will have the greatest effect on process efficiency and product quality. Adidas's "storefactory" is a good example of where things could go. This is a new approach in which product development, from customized product design right up through production, is actually occurring in the store. Such an application is promising from an economic standpoint.

Companies need to always consider the economic payoff of automation in mass production, given the scope of investments needed. The use of robotics is already widespread in automobile production and could one day also be in sewing processes. RFID – or technology for reading and moving data – is a very promising field too, especially when applied to all stages from the manufacturing floor to the point of sale. Start-ups such as digiClothes

technologies are developing interesting solutions for optimizing retail processes and creating customer behavior insights by "digitizing" clothing production.

I am somewhat skeptical about 3D printing, however, as the materials need to be wearable and comfortable. Further innovations in material development are needed to the point that 3D-printed products display properties similar to those of woven fabrics. The maturity of digitization in the fashion industry is in the early stages. While some players use RFID on the manufacturing floor and others utilize some human-machine interaction tools, self-optimization and robotics are not yet widely employed. There is a lot of interest, but implementation is still scarce.

The largest hurdle in implementing digitization is the human factor. The ability of organizations and their employees to adopt, administrate, and implement technologies is lacking. Therefore, fashion companies need to look for partners and collaborate beyond the borders of the industry. This is why the RWTH Aachen cooperates with McKinsey at the Digital Capability Center (DCC). The DCC allows for testing digitization solutions as well as providing the means for digitization and implementation. The DCC is also a learning facility, where a digitized textile production line can be observed firsthand.

Ultimately, whether digitization will cause a shift in apparel production (e.g., increased nearshoring) depends on many more factors than just technological feasibility. But the technological limitations still need to be overcome, especially in interface-related issues such as accessing data from older textile machines. Overall, the greatest advantages of the new technologies are that they make production more efficient and rapid, provide improved quality, allow for more customized products, and create new business models.



enabled collaboration and partnerships will enable more direct interactions between designers, buyers, and suppliers. At the same time, automation of manual processes could mean reduced headcount in apparel companies' sourcing offices.

To have lasting impact, though, the approach to digitize procurement in apparel will need to be focused heavily on improving speed and flexibility. Most companies recognize that increasing their investments in digitization of sourcing will be necessary if they are to stay or become best in class. But they will need to adopt a tailored approach to focus these investments on areas where real competitive advantage can be achieved.

If the forecast of a reduction in the number of suppliers is realized, it will be even more important for apparel companies to focus now on strategic suppliers that have the will and capability to actively contribute to an improved supply chain using digital technologies.

In a world characterized by rapid change, heightened competition, and a new generation of savvy consumers, there is no time to lose in digitizing apparel sourcing.

To unlock the full potential of digitization, sourcing executives will need to harness technology to accelerate the transformation of internal processes, external partnerships, and organizational culture. There are five foundations that executives can start building today:

- **Talent and mindset.** Companies need to acquire and develop savvy talent internally and externally to drive the digital transformation. Key steps include breaking down long-established silos in the product development process and bringing in new people with technology or analytics backgrounds and business acumen. To energize and retain this talent, companies need to adjust their way of working – this will include creating small, cross-functional teams in a flat hierarchy; leveraging test-and-learn approaches for new developments; and, most of all, making decisions quickly, based on facts. Executives also need to make a conscious effort to increase the risk appetite and external orientation of their sourcing teams, and encourage them to experiment with new tools.
- **External collaboration and engagement models.** To achieve a competitive edge in a digitizing world, companies need to invest in building alliances and strategic partnerships. This includes connecting and partnering with strategic suppliers, technology companies and customers, as well as experimenting with new collaboration models that include start-ups and fashion schools. Developing these ecosystems, with each partner bringing its distinctive core competence, will enable much faster innovation and adoption of new technologies. It is critical for the success of such ecosystems that they are dynamic and agile and able to adjust quickly to new developments.
- **Digital infrastructure.** Companies can act now to design a target infrastructure and draw a road map for faster, more sustainable impact. That road map should prioritize areas for investment and development, based on solid business cases. It would be a mistake to wait for an all-encompassing solution: instead, companies need to invest early in the best available solutions and link them in the back end. They will need to draw on both internal talent and external communities to build, acquire, and experiment with new digital tools.

In building their digital infrastructure, companies can adopt a “two-speed architecture.” This means building a second, faster layer of infrastructure to drive innovation, alongside legacy IT systems which can take years to change. By contrast, a separate speedy system to develop new apps and tools can often be built in just a few months.

- **Advanced analytics.** Companies can step up their use of big data and analytics where it creates real value. Key steps include defining value drivers and use cases, building relevant point solutions, and achieving early successes and embedding them into the broader digitization road map. Companies can use tools such as dashboards, interactive apps, and live data streams to enhance their overall analytics posture.
- **Process redesign and end-to-end digitization.** Companies can harness digitization to drive further the transformation to a demand-focused model. Building on the first stage of optimizing end-to-end process efficiency and supply chain flexibility, they can identify high-value cases for digitization and then develop a road map that identifies available solutions and partners to drive further digitization in priority areas. They can move quickly from testing these solutions to scaling them across the business. With new digital technologies at hand, companies can adjust their processes to capture the benefits of these innovations. In some cases, specific process steps might not be needed anymore, or can be combined into one integrated step. A good example is the planning process. Widely automated and fully integrated closed-loop demand and supply planning breaks down the traditional boundaries between the different planning steps and transforms planning into a flexible, continuous process. This integrated process will be much faster and less costly and will enable better decisions for the company as a whole.



Digitization is not an end in itself. Rather, it is a powerful enabler of progress in all the main drivers of future success in apparel sourcing, including the continued optimization of sourcing country strategy, truly strategic supplier partnerships, better compliance and risk management, and a doubling down on end-to-end efficiency. Apparel players have a major transformation ahead of them, provided they integrate all these elements. Effective digitization will help them deliver that transformation faster and with much greater impact.

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