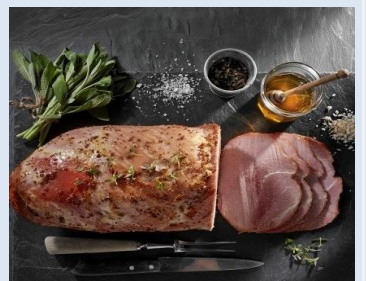


MONTANARO

ASSET MANAGEMENT

SUPPLY CHAIN INVESTIGATION

November 2018



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1. ABOUT MONTANARO

Montanaro was established in 1991 and is based in London. We have one of the largest and most experienced specialist team in Europe dedicated exclusively to researching and investing in quoted Small & MidCap companies.

We manage over £2.5 billion on behalf of leading financial institutions, including pension funds, insurance companies, endowments, family offices, charities, sovereign wealth funds and wealth managers. Many of these institutions require ESG considerations to be integrated into the investment approach applied to their assets and have chosen to work with us due to our long history of ESG related investing.

As advocates of Sustainable Capitalism, we apply a holistic approach to company analysis. Emphasis is placed on environmental, social, and governance factors alongside fundamental attributes. We work closely with our companies to encourage sustainable business practices, which we believe play an integral part in the creation of long-term shareholder value.

As Responsible Investors, we seek to influence the long-term performance and sustainability of our investee companies through constructive engagement and active voting.

Montanaro is a signatory to the UN PRI, the Montreal Pledge, the Carbon Disclosure Project, the UK Stewardship Code and the LGPS Code of Transparency. We are also proud to publically support the aims of the Task Force on Climate-related Financial Disclosures.



2. CONTRIBUTORS

We would like to thank all of the companies included in this report for engaging with us so constructively.

The views expressed in *Supply Chain Investigation* are those of Montanaro.



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3. INTRODUCTION

SUPPLY CHAINS - A BRIEF HISTORY

The term “*supply chain management*” was first uttered by Keith Oliver, a management consultant, during an interview with *Financial Times* journalist Arnold Kransdorff in 1982¹. Yet ideas on how to rationalise production processes were formed much earlier. In 1911, Fredrick Taylor, a mechanical engineer, wrote *The Principles of Scientific Management*². Taylor’s paper focused on the importance of extracting maximum efficiency from a workforce and its operations.

Taylor witnessed “*the great loss which the whole country is suffering through inefficiency in almost all of our daily acts*”. In his opinion, the remedy was to be found in the systematic management of production, rather than “*some unusual or extraordinary man*”. Such sentiments ring true today. Companies with well-managed supply chains can benefit from results which are “*truly astounding*”³.

The UN Global Compact – the world’s largest corporate sustainability initiative⁴ – supports such a view: “*when done right, a global supply chain can deliver significant benefits to companies in the form of reduced costs and enhanced profitability and shareholder value. It can also contribute to much-needed economic and social development, resulting in higher standards of living for millions of people*”⁵.

Yet challenges have arisen from today’s global complexity. Poorly managed supply chains can jeopardise the future of a business. Mismanaged, and “*companies leave themselves open to significant operational and reputational risks. Impacts to people and environment can also be substantial and severe*”⁶. Examples of companies that have suffered from supply chain issues are numerous and include:

- **Boeing:** the aircraft manufacturer embraced outsourcing in an effort to reduce costs and lower the production time of the 787 Dreamliner. A poorly managed supply chain had the opposite effect: costs soared and deadlines overran. Company engineers blamed low quality components sourced from suppliers. Some estimates indicated that 5,000 nuts and bolts needed to be reinstalled.
- **European Horsemeat:** in 2013, a scandal erupted after foods advertised as beef were found to contain undeclared horse meat. A number of UK supermarkets were implicated and 10 million suspect burgers were taken off the shelves. Complex supply chains and a lack of traceability were given as reasons for the scale of this “food fraud”.
- **Rana Plaza:** the collapse of commercial buildings in the Rana Plaza complex in Bangladesh in 2013 killed 1,134 people. An investigation into the collapse revealed “*the uncomfortable truth that these tragedies are the almost inevitable result of a highly disaggregated sourcing model which has become the basis of global supply chains*”¹.

¹ Keith Oliver interview with Arnold Kransdorff published in the *Financial Times* on 4 June 1982

² In 2001, The Fellows of the Academy of Management voted *The Principles of Scientific Management* the most influential management book of the 20th Century: <http://www.bus.lsu.edu/bedeian/articles/MostInfluentialBooks-OD2001.pdf>

³ *The Principles of Scientific Management*, Frederick Winslow Taylor, 1911

⁴ The UN Global Compact, www.unglobalcompact.org

⁵ [Why supply chain sustainability matters for your company](#), UN Global Compact, Ms. Anita Househam

⁶ Ibid

THE NEED FOR SUSTAINABILITY

Issues – and catastrophes – like those above have occurred in part due to poorly managed supply chains. It is little surprise, therefore, that decades after he first uttered the words “*supply chain management*”, Oliver’s more recent article, *When Will Supply Chain Management Grow Up?*⁷, poses a question that has yet to be answered.

Perhaps an answer is closer than we think, however. A range of stakeholders are working together to improve supply chain disclosure so that companies, customers and investors can make better informed decisions. As the United Nations has noted, “*supply chain sustainability is increasingly recognised as a key component of corporate sustainability*”⁸.

Building supply chains with “sustainability” at their core appears paramount to delivering better forms of business conduct. This idea sits at the heart of the United Nations’ definition of a sustainable supply chain:

“The ability to identify and trace the history, distribution, location and application of products, parts and materials, to ensure the reliability of sustainability claims, in the areas of human rights, labour (including health and safety), the environment and anti-corruption”.¹

The aim of a sustainable supply chain is that the sourcing and production of products by companies becomes beneficial to a wide range of stakeholders: “*in economic, social, ethical and environmental terms*”⁹.

The benefit of this approach is that it can provide an avenue for businesses to help tackle some of the world’s most pressing challenges. In other words, sustainable supply chain management can help businesses to deliver positive impacts. Via supply chains, companies can help to support international aims, such as the UN Sustainable Development Goals¹⁰:



⁷ *When Will Supply Chain Management Grow Up?* Strategy & Business, by Tim Laseter and Keith Oliver, 2003

⁸ *Supply Chain Sustainability, A Practical Guide for Continuous Improvement - Second Edition*, United Nations Global Compact, BSR, 2015

⁹ Ibid

¹⁰ <https://sustainabledevelopment.un.org/sdgs>

ACROSS THE CHAIN

Making supply chains sustainable is far from easy, given that they “*consist of continuously evolving markets and relationships*”. International standards can help: “*by integrating the UN Global Compact Ten Principles into supply chain relationships, companies can advance corporate sustainability and promote broader sustainable development objectives*”¹¹.

Yet such standards should be treated as a starting point only. Investors should be wary of companies hiding behind industry awards or glossy sustainability reports. This is what we refer to as “*The VW Problem*”. Volkswagen won a number of prestigious Ethics and ESG awards (see: [Volkswagen wins international sustainability award](#)) in the run-up to the 2015 diesel scandal.

A fuller understanding of supply chains requires investors to truly conduct research *across the chain*. This includes the financial impact of a supply chain – such as the monetary implications of outsourcing – but also the wider effect of a company: its environmental footprint and its social impact. Company engagement is key. We see this as a fundamental part of our duty as long-term and responsible investors, not just at the due diligence stage, but during the ownership period too.

4. COMPANIES

In this report we have selected a number of companies operating across a wide range of countries and sectors. Each company has a distinct approach to supply chain management. Some have vertically integrated operations, while others outsource production. Some supply chains are international, others more local. Some companies source just a few materials, while others have more diverse sourcing requirements.

In all cases, information was predominantly sourced via direct engagement with the companies: meetings with management; calls with company representatives; dialogue with industry experts; and site visits.

The aim of the report is simple: to learn more about supply chain management and how, as investors, we can encourage companies to achieve greater supply chain sustainability.

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¹¹ *Supply Chain Sustainability, A Practical Guide for Continuous Improvement - Second Edition*, United Nations Global Compact, BSR, 2015

***“UNDERSTANDING
COMPANY SUPPLY
CHAINS FORMS A
CRUCIAL PART OF
OUR RESEARCH”***

4IMPRINT



Country: UK (Headquarters: Wisconsin, US)

Product/service: Promotional Merchandise

Market Cap: £525 million

No. of employees: 950

Fact: 5,000+ products available with 24 hour shipment

Analyst: Stefan Fischerfeier

4imprint was founded in 1987 and is the leading direct marketer of promotional products in the US, Canada and the UK. Promotional products include pens, bags, drink containers and clothes, which can be decorated with a company logo or personal brand and gifted to customers as part of a marketing campaign.

SCALE AND INVENTORY

Despite being listed in the UK, more than 95% of revenue is generated in the US. The competition among 25,000 promotional products distributors is intense, but just 1,000 of them own half of the market by revenue.



Like much of the industry, 4imprint outsources product manufacturing and suppliers hold inventory. The result of this strategic decision is that efficient management of their vast, global supply chain is crucial to the success of the business.

Margins and returns must be carefully managed and the supply chain must work flawlessly to ensure that 4imprint is seen as *the* reliable player in the market.

GLOBAL SUPPLY

4imprint products are manufactured across the globe. China is the dominant manufacturing country for hard goods. Apparel is more disparate, covering Central America (Dominican Republic, Honduras, Guatemala and Nicaragua), Asia (Vietnam, Cambodia and India) and Africa (Egypt and Ethiopia).

As investors, we need to acknowledge that the global spread of 4imprint's supply chain potentially exposes the business to a greater degree of ESG risk – in areas such as human rights and labour practices – than might come from a pure domestic play. Due to this, we have engaged extensively with the company in order to better understand how they go about auditing their supply chain.

SUPPLIER TIERS

4imprint use approximately 100 "Tier One" suppliers in the US. All of these have contractual relationships with the company. These suppliers are primarily holders of stock, although some also have manufacturing capabilities (mainly for plastic and paper based products).

The stock held by the Tier One suppliers comes from 1,000 or so "Tier Two" manufacturers, more than half of which are based in China. These companies make the goods that 4imprint ultimately sells. Over the last twenty years, 4imprint has forged close relationships with these manufacturers. Although the relationships are not contractual, 4imprint is able to monitor product quality and working practices at these facilities in detail.

Further down the supply chain sit roughly 1,500 "Tier 3" companies. Typically, these are manufacturers of components and raw materials, offering capabilities such as milling, dyeing and plating. These items are sent up the chain to the Tier 2 manufacturers.

4imprint have visited a small number of the

Tier 3 companies, but the relationship is less close.

SUPPLIER ASSESSMENT

The supplier assessment process and decision to add a new supplier involves several teams: Merchandising; Supply Chain Compliance; and Supplier Operations. The final decision rests with the Senior Vice President – Merchandising & Supply Chain.

Key indicators reviewed include financial stability, management style, product pricing, production time, customer service support, supply chain management processes, likely future marketing support and contribution. In addition to these economic factors, 4imprint also assesses ESG and CSR factors.

Finally, the future potential spend over the coming three years is forecast, so that 4imprint are comfortable that the on-boarding of a new supplier is worth the investment.

Ongoing performance measurement includes on-time shipments, claims, transparency, and the general willingness to support 4imprint's business objectives, as well as compliance with 4imprint's code of conduct which covers working practices and ESG related factors

CASE STUDY

In 2015, the lithium battery "power bank" came to the market as an easy way for consumers to recharge their mobile phones and devices on the go.



The relatively low price point and branding potential made these an excellent promotional

gift and they were very successful. However, a number of components were subject to recalls due to over-heating, creating a serious product safety risk.

To weed out low quality products further down the supply chain, 4imprint conducted their own review of regulation and best practice. They also conducted a number of site visits to suppliers' factories. They concluded that they would only purchase power banks that meets United Laboratories (UL) Listed standards UL2054/UL2056.

This voluntary US standard sets high requirements in terms of quality and fail safe guidelines. Usefully, UL conduct their own site visits to factories in order to audit the materials coming into – and leaving – the sites.

A conclusion from these audits was that employees at battery manufacturing facilities incur higher fire and safety risks due to the sheer number of lithium batteries in production on the premises.

In response, 4imprint commissioned a consultancy firm to produce guidelines for the manufacturing and handling of such products. This was produced in English and Chinese and implemented across 4imprint's supply chain to improve worker safety.

The guidelines helped to ensure that production was taking place in the safest possible environment. Simple things, such as having the appropriate fire safety equipment on hand, became a mandatory requirement for the Chinese based Tier 2 suppliers.

RAISING STANDARDS

Working with other stakeholders to improve working practices is a clear area of focus for 4imprint. One example is their work with the tertiary education sector in the US. Universities and schools are a large market for 4imprint.

4imprint hold a Category B Licence with the Fair Labour Association (FLA)¹². Companies who work with FLA affiliated colleges and universities are themselves required to register with the FLA. The purpose of the organisation is to place an *“onus on companies to voluntarily meet internationally recognised labour standards wherever their products are made”*¹³.

While most licensees are based in the US, *“these companies source from factories around the world”*. The FLA’s code of conduct is aligned to that of the UN Global Compact and could be considered the equivalent of the UK’s Ethical Trading Initiative. Guidance focuses on areas such as child labour, forced labour, health, safety and environment, hours of work, and pay.

4imprint have aligned their own Code of Conduct with the FLA’s *“Principles of Fair Labour and Responsible Sourcing”*. Team members are actively involved in educational sessions and working groups within the FLA.

CUSTOMER FOCUS

It was interesting that in our discussions with the company, they noted that the majority of customers do not request information or require compliance on sustainability or ESG standards. When ordering large amounts of promotional items, many customers are simply focused on price and delivery: *“what will it cost and how long will it take to receive my order?”*

Despite this, management informed us that incorporating ESG factors into their assessment of suppliers *“is simply the right thing to do”*: for 4imprint; employees across the supply chain; and customers.

However, 4imprint customers are beginning to

ask how products are made, and more specifically, what they are made from. With time, this is likely to become a bigger area of focus for the industry, requiring even tighter supply chain standards. Certainly, the demand to reduce plastic consumption via consumables is growing.

BUSINESS CRITICAL

4imprint should be well placed to deal with this trend. Their clear focus on treating suppliers as partners allows the company to gain transparency into working practices across their supply chain. This means that they can help to raise the standard of working practices in locations that are many miles from their Wisconsin headquarters.

Such an approach makes clear financial sense. As the CEO mentioned to us, the management of the supply chain is *“business critical”*. Correctly managed, it allows 4imprint to be more effective product developers, bring new products to market faster than the competition, and be more effective price negotiators as they gain a better understanding of the cost drivers.

A *“golden rule”* drives their approach to supply chain management: *“treat others how you would like to be treated”*. This approach should have positive consequences on companies and employees across their global supply chain.

¹² *“FLA is a collaborative effort of universities, civil society organizations and socially responsible companies dedicated to protecting workers’ rights around the world. We are an international organization with a dedicated staff and board, headquartered in Washington, DC, with offices in China, and Switzerland”*: <http://www.fairlabor.org/about-us>

¹³ <http://www.fairlabor.org/about-us>



Country: Switzerland

Product/service: Actuators

Market Cap: £2.1 billion

No. of employees: 1,558

Fact: 6.3 million actuators fitted in 2017

Analyst: Stefan Fischerfeier

Belimo was founded in 1975 in Switzerland. It is the global technology leader in actuators. These devices measure, meter and control air and water flows in heating, ventilation and air conditioning systems (HVAC) in buildings.

OUTSOURCING

Belimo outsources almost 90% of components and parts manufacturing, so that it can focus on assembling its actuators. Each actuator requires printed circuit boards, electric motors, housing components and sensors. These all need to be sourced.

Stock levels of components and parts are high to counteract any supply chain bottlenecks. In addition, Belimo attaches great importance to high quality product standards. Therefore, sustainable and efficient supply chain management is a crucial part of management's focus.

The procurement team comprises 35 employees located at the Swiss headquarters and local teams in Italy, the USA and China. Each material category has its own dedicated global sourcing team coordinated from Switzerland. The categories are electronics, mechanics, valves, sensors and injection moulding parts.

The team manages 600 global suppliers mainly through direct contact (90%) and has a purchasing volume of CHF 250 million. 150 suppliers are core partners for strategic components.

THE RIGHT PARTNER

In the HVAC market¹⁴, Belimo is well-known for premium actuator solutions. The focus on quality is noticeable throughout the whole company and procurement is no exception. The company usually pays higher unit prices to premium suppliers, who can provide sustainable quality supplies over a long period of time (10 years plus). Such suppliers are viewed as partners by Belimo.

One of the main reasons to enter into long-term partnerships, rather than looser supplier relationships, is the long product lifespans. Belimo's oldest product has been on the market for 30 years. Changing suppliers can cause challenges and could have negative impacts on product quality.

HUNTING FOR SUPPLIERS

On average, Belimo adds two to five new suppliers each year due to new material or component requirements from its internal product development team. Adding new suppliers creates a lot of work. When Belimo had to add to its suppliers in Italy, they had a choice of over 1,000 companies. They ended up selecting just two.

In order to find the right partner for a component category, the procurement team invests significant amounts of time and money before on-boarding a new supply partner.

During the first supplier evaluation, Belimo sends several employees to the supplier to inspect factories. A "Code of Conduct" is reviewed in detail, and the teams are guided by a standard, customised supplier questionnaire.

During the interview process, the team aims to get a 360-degree view of the supplier by investigating a full spectrum of aspects including: shareholder structures; financial data; sub-suppliers; distribution capabilities; product qualities; production technologies;

¹⁴ Heating, ventilation, and air conditioning

certificates and internal quality controls.



Moreover, the team takes particular care to evaluate industrial safety, governance and environmental protection. Belimo asks suppliers to apply international environmental management standards such as ISO¹⁵ 14000/01. These standards offer guidance on how suppliers can improve resource efficiency and reduce waste. In addition, Belimo ensures that all electronics suppliers apply recycling processes.

SPECIALISED ITEMS

For its world leading fire & smoke actuators (which operates dampers providing protection against toxic smoke before and during a fire) Belimo purchases special supercapacitor batteries capable of producing a fast and strong discharge to close the dampers in case of a power outage.



The battery is a strategic component of the actuator, but there are just seven small and three large supercapacitor battery manufacturers worldwide. In such a small

market, choosing a supplier can be difficult.

After a 6-week due diligence period with several site visits, Belimo rejected one of the three large manufacturers due to ethical and cultural differences as the manufacturer also supplies batteries to producers of landmines.

SUPPLIER AUDITS

After on-boarding a supplier, initial purchasing volumes are small in scale. Belimo works with the supplier to improve procurement, production and delivery until it is satisfied the supplier can manage larger orders.

The first delivery from a new supplier is audited by a third party, before the supply is shipped to Switzerland. Following this, the supplier is regularly audited by internal and external auditors – within the first few years there are several audits per year.

The audits are guided by global measurement standards Belimo has established to monitor its global suppliers. These cover safety, quality, risk management, stock availability and Code of Conduct standards.

Each supplier undergoes the same rigorous audit procedure during the audit process. The audit process also includes reports about second-tier suppliers (the suppliers to the suppliers).

Belimo is usually involved in selecting second tier suppliers. In mechanical assembly units, Belimo also determines the price range and conditions for the second tier supplier. One Chinese supplier of casting components for Belimo's Butterfly Valve changed its foundry supplier without informing Belimo. Belimo found out and were unhappy with the working conditions and decided to change supplier.

WORKER SAFETY

Labour practices are an area of focus. At every

¹⁵ International Organisation for Standardisation

visit to suppliers, the company inspects workbench conditions including machine quality and “maintenance schedule compliance” (i.e. are labourers working a legal number of hours?) as well as details about personnel conditions such as salaries, holidays and lunch hours.

By way of example, Belimo’s management informed us that Chinese regulations did not require Chinese machine workers to wear safety glasses while operating certain drilling machines, in contrast to Swiss regulations. Despite this, Belimo insisted that safety glasses were provided to workers in order to follow the Swiss Code of Conduct.

Belimo have found that suppliers selling to automotive markets have the highest standards, whilst Telecom suppliers tend to have lower standards. Belimo’s focus on worker safety meant that they gave Foxconn¹⁶ a wide berth due to its poor working conditions (the electronics contract manufacturing company suffered from a series of employee suicides at its Shenzhen factory in 2010).

Belimo’s products can help their customers to run buildings with greater energy efficacy. This can help them to meet their own environmental targets, such as becoming Net Zero Energy.

BRIBERY & CORRUPTION

Bribery and corruption are tackled by an internal policy called “The Four-Eyes Principle”. Several people across different departments are involved in signing contracts. In addition, any annual purchasing contract higher than CHF 250,000 needs to receive sign off from top management.

A further safeguard is provided by a relationship management tool that monitors daily component price movements. Any price variance of more than 1% will trigger an e-mail

requiring the procurement team to investigate the origins of the price move within the supply chain. This is impressive given the vast number of components in Belimo’s supply chain.

In general, Belimo is not concerned about corruption and bribery from its Chinese suppliers, which are mainly electronics suppliers, as they are publicly listed and are subject to stringent regulations. Belimo only chooses Chinese electronics suppliers with a strong global reputation.

PARTNERSHIP

The close partnership between Belimo and its suppliers establishes long-term visibility and certainty for both Belimo and its suppliers. Suppliers are able to manage profitability and returns by making well-planned, long-term investments in machines and labour. Belimo benefits by having good visibility across its supply chain. It can therefore focus on providing its customers with an uninterrupted supply of quality products.

¹⁶ A Taiwanese electronics contract manufacturing company

MEDIDATA



Country: USA

Product/service: Pharmaceutical software

Market Cap: £3.4 billion

No. of employees: 2,000

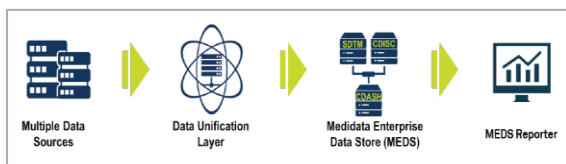
Fact: 15,000 clinical trials have been run on Medidata's platform

Analyst: Camille Rigaud

Medidata Solutions develops software for pharmaceutical clinical trials. Today, the average cost of developing a drug has increased to \$2.6bn, up from c.\$1bn in the early 2000s.¹⁷ Despite rising costs, the success rate remains below 10%. Medidata's goal is to simplify and reduce the cost of research by providing a system that can handle all aspects of clinical trials from start to finish. For example, the software helps to increase the efficiency and effectiveness of the design, planning and management of clinical trials by better selecting patients based on previous studies in the same therapeutic area.

UNCONVENTIONAL SUPPLY CHAIN

Medidata does not have a traditional supply chain as it relies on data sourcing and cleansing. Yet big data scandals such as the Facebook and Cambridge Analytica issues (*"Data collected on 50 million users were exploited for political gain"¹⁸*) highlight the need for investors to consider such unconventional supply chains, just as they would for more standard forms of supply, such as the shipping of tangible goods.



One of the products Medidata has developed is the Medidata Enterprise Data Store, a database of de-identified¹⁹ data from some 12,000 studies. It is unique in that no other

company in the market has developed a database which can compete in terms of scale.

SOURCING & PROCESSING

We spoke to the company to ask how this data is sourced and processed.

Sourcing: data is sourced from sponsors, primarily pharmaceutical companies or contract research organisations (CROs) who provide research services to pharmaceutical companies. Medidata has to pay a fee to each sponsor for the secondary rights to re-use the data on a *de-identified* basis. In other words, the data cannot be traced back to the sponsor or the patient. Generally, Medidata has managed to secure 80% of secondary rights, a number which has been stable over time.

"Data unification layer": this entails cleaning and harmonising the data which is done by a dedicated team of 70 data scientists. Since the input data has been formatted as per the sponsor's requirement, it needs to be standardised for coding purposes. For example, the gender field can be populated in up to 18 different ways, so this needs to be standardised. The data also needs to be de-identified which effectively means removing the sponsor's name, patient's name, social security number and address. Age is an important factor in a study, and must therefore be retained. Overall, this is a manual and lengthy process and according to the company, the time taken is equal to 150 years' worth of working hours.

Following these steps, the data is ready for coding and use in algorithms that feed into a reporting tool called MEDS Reporter. The MEDS Reporter is designed to help pharmaceutical companies in their decision-making process when it comes to clinical trials, both from an operational and clinical standpoint. It is important to note that in

¹⁷ Company Presentation, Financial Analyst Day, 2017

¹⁸ Facebook in storm over Cambridge Analytica data scandal, Financial Times, March 18 2018

¹⁹ Certain personal information is removed

order to be able to use the MEDS Reporter, Medidata's customer must be a contributor to the Medidata Enterprise Data Store.

DATA RISKS:

Given the nature of Medidata's supply chain, the company must keep abreast of new legal and compliance requirements that arise, such as data protection laws.

Although data is de-identified, sponsors' data is stored on Medidata's servers. The hardware and servers which hold the data are located in the US and Germany. Some European customers are not comfortable having their data sent to the US.

The company has invested heavily in data protection and has hired third party providers to test the robustness of their systems from a cyber-security perspective. To date, they have not had any instances of compromised trial due to a data breach, and no litigious cases have been brought to court.

The EU General Data Protection Regulation (GDPR), which was implemented in May 2018, does not raise any particular issues for them. Medidata were already compliant with this new regulation. Ultimately, Medidata's customers are responsible for ensuring that patients are happy for their data to be collected and used in clinical trials.

Data is a new area for governments, regulators, companies and investors to consider from a supply chain management perspective. Given data breaches typically hit a large number of people and institutions, controls and disclosure around the use of data are critical. We will watch developments in this area closely.

BRUNELLO CUCINELLI



BRUNELLO CUCINELLI

Country: Italy
Product/service: Luxury fashion brand
Market Cap: £1.8 billion
No. of employees: 1,365
Fact: Believers in “humanistic capitalism”
Analyst: Andrea Shen

Brunello Cucinelli is an Italian luxury brand based in Solomeo, a small hamlet close to Perugia in Italy’s Umbria region. The “Made-in-Italy” provenance is essential to the success of the brand. Herein lies the challenge for investors. At times, the inherent quality of the “Made-In-Italy” tag can mask exactly how – and with what – products are made.



FAÇONISTI

A trusted network of sub-contracted manufacturers – known in Italian as “façonisti” – are crucial to the production of Brunello Cucinelli products. These are Italian based, medium-sized artisanal private firms. Each specialises in different elements of production, ranging from tailoring, processing of fabrics, knitwear processing, delicate appliqué works²⁰, leather goods, and other accessories.

FATTO IN ITALIA

“Made in Italy” is central to Brunello Cucinelli’s façonisti network. It is a merchandising hallmark of quality: of material, design, and production. Yet issues exist with the term.

An article published during the Autumn 2018 Fashion Shows in the *New York Times* – *Inside Italy’s Shadow Economy*²¹ – found that “within a distressed labour market, thousands of low-paid home workers create luxury garments without contracts or insurance”.

The New York Times



This investigative piece “may shock those who see the “Made in Italy” label as a byword for sophisticated craftsmanship”, but the findings should make every socially conscious investor sit up and look further into the supply chains of retail companies.

As the journalists point out, while these workers “are not exposed to what most people would consider sweatshop conditions”, they “are allotted what might seem close to sweatshop wages”, a result partially of Italy’s lack of a minimum wage.

THE BRUNELLO APPROACH

After the article was published, we engaged with Brunello Cucinelli in order to better understand how the company manages its network of suppliers and ensures high standards of working practices.

At the time of IPO in 2012, Brunello Cucinelli

²⁰ Ornamental needlework

²¹ Published on September 20, 2018

used around 300 artisanal firms. This has since increased slightly to 333, which employ almost 4,200 people. Currently 265 firms (~80% of their *façonisti*) are based in Umbria. The remainder are located in the regions of Veneto, Tuscany, Marche and Lazio.

We spoke to *The New York Times* journalists who indicated that the poor working practices that they uncovered are more prevalent in Italy's southern territory of Puglia, where availability of labour is exploited by some practitioners. Nonetheless, it was reassuring that Brunello Cucinelli informed us that *"the company does not use any kind of shadow economy labour"*.²² *The New York Times* supported this view.

SUPPLIER SELECTION

All suppliers and *façonisti* have to comply with Brunello Cucinelli's Code of Ethics. The focus is on ensuring mutually beneficial relationships that works throughout all phases of the economic cycle.

Quality control is one of the key parameters which Brunello Cucinelli monitors on a consistent basis. The selection of suppliers depends on whether they have the *"means, organisational structure, technical skills, experience, quality systems and suitable resources for Brunello Cucinelli's needs and image."* They also have to comply with Italian labour legislations and other health and safety rules.

If Brunello Cucinelli discovers wrongdoing or a failure to comply with their Code of Ethics, they will engage with the supplier to improve behaviour. The relationship could be terminated if there is no improvement.

SUPPLIERS AS PARTNERS

In order to drive sustainability across their supply chain, Brunello Cucinelli launched a

"Supply Chain Programme" in 2015 in conjunction with an Italian bank. The aim of this was to help small independent suppliers secure better commercial terms. This can *"facilitate the launch and development of Made in Italy production...[and help them to] obtain flexible support for their operating needs, banking services, and credit requirements"*.

In turn, this can lead to more sustainable forms of business by providing small companies with the foundations needed to drive employment and growth.

Suppliers benefit from such a partnership approach. The Italian newspaper *Corriere di Arezzo* reported that Ade – a Brunello Cucinelli supplier – has improved its own working practices thanks to the *façonisti* network. Ade effectively replicates the Brunello Cucinelli method of looking after its employees.

Interestingly, our analysis of the company's financials indicates that Brunello Cucinelli's margins would be higher if they became vertically integrated (i.e. if they brought all manufacturing and production in-house). Despite this, we are happy to support the company's *façonisti* model. We believe that the company's off-balance sheet social focus will have long-term benefits to the sustainability of the business model as a whole.

THREE ELEMENTS

Brunello Cucinelli's supply chain has three major elements:

1. Raw materials: specifically yarns, fabrics and hides
2. The façonisti: the artisans who are responsible for certain elements of production processes
3. Other materials: for packaging and laundry materials (part of the fulling process²³)

²² Email to Montanaro from Pietro Arnaboldi, Brunello Cucinelli Head of Investor Relations, 03/01/2018

²³ A step in woollen cloth making which involves the cleansing of cloth (particularly wool) to eliminate oils, dirt, and other impurities, and to make it thicker.

The raw yarns are predominantly cashmere and are sourced directly from the Kashmir region. Brunello Cucinelli has personally developed long-term relationships with farmers. This is an area of the supply chain where investors have limited visibility: it is not clear how these suppliers are selected, and the effect a high-end luxury brand has on the wider market, in regions such as Kashmir.



Once selected, the yarns are spun and woven by Italian suppliers to the specifications required by Brunello Cucinelli.

A key supplier is Cariaggi Lanificio, an Italian cashmere specialist. They are responsible for about 50% of Brunello Cucinelli's cashmere yarn needs.

Other fabrics come from Lanificio Ermenegildo Zegna and Loro Piana. Both businesses are highly respected in the luxury goods industry. They are vertically integrated, with direct sourcing of yarn, and are therefore able to supply woven fabrics to Brunello Cucinelli.

Around 40% of the yarns (by weight) are pure cashmere, but Brunello Cucinelli also uses wool, silk, and cotton. In terms of procurement value, cashmere accounts for 62% of the spending.

Of the €87m the company spent during the 2017 financial year on raw materials, about ~90% was spent on Italian suppliers domiciled in Italy. The remaining 10% goes to suppliers in Japan (denim), Turkey (cotton), Spain (leather hides) and others.

RAW MATERIAL ORDERING

Planning for a new fashion season begins early to allow for the sourcing of supplies. For example, the Autumn/Winter 2018 was completed and ready to present at the beginning of the year. The in-house team design and create up to 60 prototype pieces per day. From these prototypes, they will narrow the collection down to roughly 1,100 items for womenswear and another 600-700 for menswear.

Once the collection is finalised, the raw materials are ordered and procured. A quality assessment is then carried out by Brunello Cucinelli and the raw material is forwarded to the *façonisti* community for production.

PACKAGING

The sourcing of materials for packaging is another prominent feature of Brunello Cucinelli's supply chain. These include paper, cardboard and plastic.

The company used 657 tons of packaging paper and cardboard in 2017, a decline of 2% compared to 2016. They are continuing to reduce packaging spend, partially by directing a higher proportion to recycled paper and Forest Stewardship Council certified paper, which reached 40% of total paper and cardboard materials in 2017, compared to 30% in 2016.

Since the primary raw material (cashmere) is expensive, they are wrapped in plastic to avoid damage. It is difficult to find alternatives, so the company reuses the plastic covers. This helped to reduce total plastic consumption by 15% in 2017 compared to the previous year.

NILORNGRUPPEN



Country: Sweden

Product/service: Label manufacturer

Market Cap: £66 million

No. of employees: 444

Fact: over 1.5 billion labels delivered in 2017

Analyst: Andrea Shen

Nilorn specialises in the design and production of labels and various types of hang tags. With a market cap of just £66 million, the company is a true European SmallCap. From a supply chain perspective, the company is interesting given Nilorn supplies much bigger brands, forming a niche part of the fashion supply chain. In the last few years, the company has noticed a significant change in the demands of its customers. *“Sustainability of product”* is the new mantra.

Previously labels and hang tags were not a huge area of focus for retail clothing brands. Recently, however, brands have become more design conscious than ever. Clothing labels and tags are now considered part of the overall design concept. This has changed not only how labels and tags have to be designed and manufactured, but the types of materials that they are made from.

BRAND LIFESTYLE

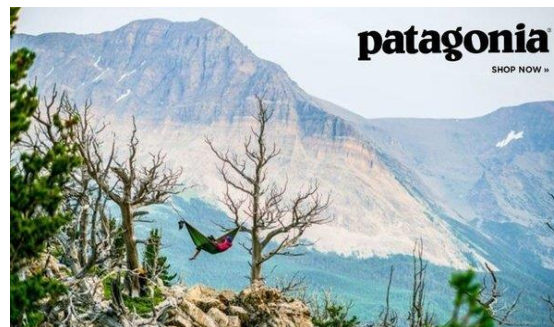
During the last five years, Nilorn CEO Claes af Wetterstedt has witnessed the increased focus on sustainability first hand. Customers expect their labels and tags to match the identity of their brands.

Many clothing companies sell their brand as part of a lifestyle. Outdoor garment brands such as Kelly Hansen, Patagonia and AmerSport, place sustainability and nature at the heart of their brand DNA.

Labels and tags form part of this DNA. It would be hypocritical, for example, if Patagonia – a sustainable outdoor clothing brand – sold a

piece of clothing with a hang tag made from plastic, which could eventually end up as micro-plastic beads floating in the ocean.

This has required flexibility from Nilorn given their position in the middle of the supply chain. Indeed, when we spoke to Claes, he noted that *“if Nilorn does not do this [match their clients’ sustainability drive], we will be out of business in 5 years”*.



This has been a complicated task, given over 80% of Nilorn’s production is outsourced to third party suppliers, of which there are more than 300.

DOWN THE CHAIN: SUPPLIERS

To ensure that Nilorn’s suppliers meet industry standards, Nilorn is a member of bluesign® and SEDEX. Both act as supply chain auditors, ensuring that information on suppliers is shared and sustainable materials are used.

bluesign®: A system that manages inputs across the entire textile supply chain to jointly reduce its impact on people and the environment.

SEDEX: one of the world’s largest collaborative platforms for sharing responsible sourcing data on supply chains, used by more than 50,000 members in over 150 countries.

These industry bodies have helped to shape the standards that Nilorn expects from their suppliers.

However, with such a large number of suppliers and tight customer deadlines to meet, the primary focus is on selecting the right suppliers from the start. Detailed due

diligence is key. There are a number of things Nilorn uses to help:

Nilorn Supplier Handbook (NSHB): the handbook acts a guide to Nilorn’s suppliers, setting out the standards that Nilorn expects: *“the implication for you [the supplier], your factory and sub-contractors”*.

Site visits: Nilorn carries out formal inspections of facilities, and ensures that they have access to management and employees’ records. Findings are documented and *“observations and improvements [are] provided with a corrective action plan”*.

Meeting standards: Nilorn expects suppliers to meet their own standards. Importantly, they are willing to spend time helping to improve the behaviour of suppliers: *“the supplier is required to provide details of its Environmental Policy including plans for improvement goals. If no such policy exists, Nilorn shall work with the supplier to implement”*.²⁴

Focus on materials: suppliers are expected to provide disclosure on their sourcing and use of raw materials: *“suppliers must promptly provide information regarding material content and chemicals that have been used in connection with production.”*²⁵

Social focus: some of Nilorn’s suppliers operate in countries that fail to promote working conditions in line with the UN Global Compact. Nilorn’s standards are helping to promote better working conditions: *“personal protective equipment, including gloves, mask, apron, safety goggles and rubber boots, shall be readily available for all employees, free of charge and properly maintained”*.²⁶

Environmental focus: Nilorn offers guidance to suppliers to limit waste water and energy usage, while promoting cleaner air emissions and transportation methods and improved rates of recycling.

To do such thorough due diligence on 300

suppliers clearly takes time, and while Nilorn works with suppliers to improve standards of practice, sometimes suppliers fail to improve.

Nilorn culls 30-50 suppliers each year. Some are no longer required due to business reasons – Nilorn may no longer require a certain material – while others are culled for compliance reasons. A range of different actions (to the ultimate extreme of cancelling orders) is employed. This is a relatively high turnover rate and in our opinion increases the risk of a supplier being taken on that does not meet Nilorn’s standards in the first place.

UP THE CHAIN: CUSTOMERS

If that is the work Nilorn does with its suppliers down the supply chain, a different sort of relationship exists with its customers.

Nilorn both responds to the demands of retail brands and also tries to influence them.

This is having a positive impact on the types of materials used in production. Approximately 10-15% of labels are made out of recycled polyester and nylon threads. The remainder of woven labels are made from polyester. Nilorn has been working with customers to reduce the use of plastic hang tags with the aim being to reduce this to “zero” over time.

Approximately 35% of hang tags are made out of Forest Stewardship Council certified paper and paper board. Cotton is no longer used because of its negative environmental footprint (mainly relating to the crop’s vast water consumption).

Nilorn has recently hired a sustainability manager with significant textile and weaving experience to take their approach to sustainability to the next level. In particular, they are working to adopt and support the aims and objectives of the UN Sustainable Development Goals.

Pleasingly, this drive towards greater sustainability is having a positive business

²⁴ Nilorn Supplier Handbook, 2018 pg. 4

²⁵ Ibid

²⁶ Nilorn Supplier Handbook, 2018 pg. 4

impact. In some markets, such as Germany, Sweden, Norway, Switzerland and Austria, they have won material orders precisely because they have been able to offer the best end-to-end sustainability solutions.

RAISING STANDARDS

Nilorn's relationship with both its suppliers and customers is having some interesting effects. As we noted in the introduction to our paper, working conditions in Bangladesh, particularly in the retail sector, are poor – and tragically sometimes dangerous to life.

The reason Bangladesh is important to the global retail supply chain is in part because of its location: it is close to where many raw materials are grown.

As Nilorn needed to have a presence in the country, they decided to invest in their own facility. After a period of significant investment, production began at Nilorn's site in Bangladesh in 2017.

About 16-20% of Nilorn's production is now completed at their Bangladesh facility. They wanted to have a "*state-of-the-art*" facility that puts into practise their views on working conditions and sustainability.

As management said, "*there is nothing more credible than doing it yourself*". In our opinion, projects such as this can help to raise the standard of the wider market in Bangladesh. This should be the aim of every company, wherever it is based.

CRODA

Country: UK

Product/service: Specialty chemicals

Market Cap: £6.4 billion

No. of employees: 4,300

Fact: 377 products launched since 2012

Analyst: Alex Magni

Croda is a chemical company which specialises in surface chemistry. It manufactures products in areas such as consumer skin creams, life sciences (agro-chemistry, seed coatings, drug excipients, omega-3) and industrial surfactants for polymers, lubricants and coatings.

A SUPPLY CHAIN CONGLOMERATE

The global chemicals industry derives approximately 90% of its products from fossil sources. In order to help reduce the impact of climate change, the industry is under pressure to reduce its reliance on fossil fuels. Croda currently derives 30-40% of its products from fossil fuel based commodities, significantly less than the industry average. The rest is sourced from sustainable biobased sources.

According to Chris Sayner, Croda's VP Customer Alliances, Corporate Sustainability, the company is working hard to reduce this figure further. This is a complex operation. Croda is a conglomerate that makes hundreds of products and intermediates. These touch a large number of core consumer and industrial supply chains.

Chris informed us that Croda is focused on both reducing energy consumption and the use of certain raw materials in its supply chain. Croda is working closely with industry and environmental bodies to drive best practice across the globe. In-house experts sit on industry bodies to help inform and guide policy.

Interestingly, responsible sourcing has become a central part of discussions with the large consumer products companies. In other words, sustainability is having an impact on product development and financial decisions.

CRADLE TO GATE

Croda performs a cradle-to-gate²⁷ life cycle analysis on an increasing number of its ingredients to identify further possible reductions in its carbon footprint. Croda has got to the stage where all of its raw materials are mapped across the supply chain, from source to final product. The carbon attributable to Croda's raw materials is calculated and included in the life cycle assessments of Croda's products.

New products are developed against "The 12 Principles of Green Chemistry" framework²⁸ to ensure that they are as sustainable as possible:

The 12 Principles of Green Chemistry

A framework for designing or improving materials, products, processes and systems.

1. Prevent Waste
2. Atom Economy
3. Less Hazardous Synthesis
4. Design Benign Chemicals
5. Benign Solvents & Auxiliaries
6. Design for Energy Efficiency
7. Use of Renewable Feedstocks
8. Reduce Derivatives
9. Catalysis (vs. Stoichiometric)
10. Design for Degradation
11. Real-Time Analysis for Pollution Prevention
12. Inherently Benign Chemistry for Accident Prevention

*Anastas, P. T.; Warner, J. C. *Green Chemistry: Theory and Practice*, Oxford University Press: New York, 1998, p.30. By permission of Oxford University Press.

www.acs.org/greenchemistry

Since 2012, Croda has launched 377 new products. During this period, the average number of Principles that new products complied with increased from 9.0 in 2012 to 10.6 in 2017. In addition, the amount of renewable raw materials within new products launched since 2012 has averaged 62%.

²⁷ Not to be confused with cradle-to-grave: Cradle-to-gate is an assessment of a *partial* product life cycle from resource extraction (*cradle*) to the factory gate.

²⁸ *Green Chemistry: Theory and Practice*, P.T. Anastas, J.C. Warner, Oxford University Press, 1998

BIOBASED ALTERNATIVES

Surfactants²⁹ in general have traditionally been derived from petrochemical sources, giving rise to high carbon footprints and fewer sustainability credentials. Croda has been at the forefront of moving towards bio-based alternatives, which will help the industry – and clients – to reduce the manufacturing carbon footprint of certain products.



A step towards this was Croda's 2017 acquisition of Enza Biotech, a Swedish biotechnology company, which uses biotechnology to alter the chemical structure of naturally derived compounds that have superior functionality and compatibility. The environmentally friendly production process yields products that are 100% renewable and biodegradable.

This is encouraging positive change further up the supply chain. The Personal Care industry, for example, has a reliance on petrochemical-derived raw materials. Croda supplies many of the leading players in the industry. They are encouraging customers to use biobased alternatives, which are renewable, biodegradable, and have lower carbon footprints than traditional materials.

Perhaps the most important, however, is that certain biobased ingredients have superior performance. Some examples of these biochemical alternatives are explained below.

²⁹ A surfactant is a compound that lowers the surface tension between two liquids, between a gas and a liquid, or between a liquid and a solid.

SUSTAINABLE ETHYLENE OXIDE

Ethylene oxide³⁰ is a fundamental building block in the production of many surfactants. Croda supplies 40 industries with surfactants including coatings, crop care, home care, lubricants, nutrition, personal care, pharmaceutical, veterinary, and water treatment solutions.

The wide functionality of ethoxylates means Croda is embedded in many high value supply chains. For example, 30-40% of all skin and hair care products released in the past two decades contain ethoxylates. However, ethylene oxide, a key raw material, is traditionally sourced from petrochemical sources.

In an effort to reduce the dependence on such petrochemical sources, Croda has invested in a bio-ethylene oxide plant in Delaware, North America. This is the company's largest CAPEX project to date. Croda will use bio-ethanol as feedstock to replace petrochemicals in the manufacture of ethylene oxide, which in turn enables the production of 100% biobased surfactants.



The new range of ECO surfactants are completely renewable, with identical performance to traditionally-derived sources. They also have lower carbon footprints. The impact of this investment is material, both to Croda and the companies it supplies.

IMPROVEMENT

There is still work to be done, however. Most of the remaining non-renewable sources come

³⁰ Ethylene oxide is a flammable colourless gas with a sweet odour. It is used primarily to produce other chemicals.

from petrochemical sources. Croda believes that many of these may be replaced with sustainable sources over time, although it will need to find bio-derivatives that can be produced at scale, where the economics work.

The company will still look to defend its margins and any cost increases it incurs from alternative sources will need to be passed on. Its use of palm oil is an example of where the economics of alternatives do not yet stack up. So they are working with other stakeholders to ensure that its position in the supply chain is as sustainable as possible.

PALM OIL

Palm oil is a contentious crop. Its growth has come at the expense of rainforest, particularly in Southeast Asia. Currently, world production of oil crops stands at about 170 million tonnes per annum. Of this, palm represents 40%, and yet takes up only 7% of the acreage. As such, farmers view it as “a gift of a crop”. Its oil yield is twice that of coconut and ten times that of soya crops.

For the personal care industry, palm oil derivatives can have a value multiplier of 50 to 100 times. Currently, the economics for palm oil alternatives do not stack up.

In 2012, Croda conducted a comprehensive audit of its palm oil supply chain. Following this, they engaged with customers. The feedback they received was that palm oil needed to be certified in line with the industry led Roundtable on Sustainable Palm Oil (RSPO). Customers indicated to Croda that they were willing to support higher prices for RSPO-certified palm. Today, Croda are an active participant in the RSPO.

Part of the complication for Croda has been to phase the supply of RSPO palm into its 13 main processing sites. This has taken longer than intended, but they remain focused on meeting a 100% target.

RSPO CRITICISM

That said, the RSPO has been the target of criticism. A perceived weakness is the inability to certify that crop has not come from deforested areas. Croda is working with a third party on improving traceability of palm oil to mills and plantations.

Croda adheres to the Sustainable Palm Sourcing Guidelines and is pursuing the Amsterdam Palm Oil Declaration, which is a commitment to 100% sustainable, legal and deforestation-free sourcing, including increased traceability of palm oil, by no later than 2020.

UN SDG ALIGNMENT

In 2016, Croda identified 10 of the United Nations’ Sustainable Development Goals (SDGs) where it felt it could have the greatest impact, being: Zero Hunger (2) increasing crop yields through its seed enhancement business; Health and Well Being (3); STEM Education (4); Affordable and Clean Energy (7); Decent Work and Economic Growth (8); Industry, Innovation and Infrastructure (9); Responsible Consumption and Production (12), with a focus on traceability in their palm oil supply chain; Climate Action (13) through its ECO product range; Life Below Water (14) through its biodegradable marine lubricants; and Life on Land (15) through carbon offsets and supporting a project to help preserve rainforests in Indonesia.

ENERGY & WASTE

Croda continues to seek renewable sources of energy, whether from wind or solar sources, or from capture of waste gases and biomass. In 2007, it derived 4% of energy from non-fossil energy. This had increased to over 24% by the end of 2017. Croda has drastically reduced the amount of waste sent to landfill, from 9,111 tonnes in 2007 to 1,771 tonnes in 2017. This reduction is equivalent to 560 household waste trucks.



Country: Sweden

Product/service: Vegetable oils & fats

Market Cap: £3 billion

No. of employees: 3,399

Fact: Over 140 years of fats experience

Analyst: Henrik Schmidt

AAK is a global leader in specialty vegetable fats, where its ability to mix and treat different vegetable oils to create specific properties sets the company apart. Its business is divided into three divisions; Food, Chocolate & Confectionary and Technical products & feed.

AAK sources raw materials from all over the world, including corn, shea, palm, coconut, rapeseed, soya, sunflower, and olives. The chemical composition of vegetable oil can change depending on where, and the conditions in which, crops grow. To source its produce, AAK has cast its supply chain net wide.



THE AAK CODE

AAK integrates the principles of the UN Global Compact, as well as the Core Conventions of the International Labour Organisation (ILO) and the UN Guiding Principles on Business and Human Rights, into their own Code of Conduct. Suppliers must sign up to this Code.

The Code of Conduct sets clear standards regarding legal compliance, human and labour rights, the environment, and anti-corruption.

SUPPLIERS LARGE & SMALL

Suppliers of differing sizes operate across AAK's supply chain. In West Africa, for

example, approximately 10% of raw materials are supplied by smallholders. This provides clear support to local communities via sustainable employment.

However, 90% of suppliers are intermediary companies selling and transporting the actual crop to AAK facilities. It would be too difficult to source 100% of raw materials from smallholders given the sheer number of farmers this would involve. This means that, for investors, a challenge can arise in tracing certain raw materials to plantation.



SMALL SUPPLIERS

The shea tree is a wild tree growing in an area called "the shea belt", south of the Sahara Desert. Countries with the highest population of shea trees include Benin, Burkina Faso, Ghana, Ivory Coast, Mali, and Togo.

Shea is a sustainable crop as the wild trees on which the shea kernels grow do not require fertilisers or pesticides. Shea trees do not grow on plantations, partly because of the very long maturity period. However, the trees are grown in crop fields, a technique known as agroforestry³¹. These farming systems have existed for centuries.

Traditionally, shea kernels have been collected and processed by women. The edible fruits fall from the trees in a period when few crops are being harvested, making shea an essential food source in parts of Africa. Part of the shea crop is also sold by the women farmers. This provides an important source of income to families.

AAK informed us that they have more than 60 years of experience sourcing shea kernels from

³¹ Agroforestry is a land use management system in which trees or shrubs are grown around or among crops or pastureland.

West Africa and that they have attempted to support this traditional way of farming. Working in close cooperation with shea traders and women's groups, AAK has built a sourcing set-up across shea production areas as well as logistical hubs in the coastal areas.

In 2011, AAK were one of the founding members of The Global Shea Alliance, which is a multi-stakeholder, non-profit organisation. The purpose of the alliance is to drive a competitive and sustainable shea industry worldwide, improving the livelihoods of rural African women and their communities.



In 2009, AAK initiated a programme to enhance responsible sourcing of shea kernels in Burkina Faso. The programme has since expanded in scope and now focuses on providing support via interest-free micro credits, training, and trading directly with the women collecting shea kernels. In 2015 the programme spread to Ghana. More than 130,000 women now benefit from this.

LARGE SUPPLIERS

Palm oil is the most produced and consumed vegetable oil in the world, accounting for 30% of the world's vegetable oil production. Palm oil is seen by some as a critical raw material in feeding an ever-growing global population.

Yet palm oil production has raised concerns due to deforestation and its effect on endangered animals. As we have seen in our report on Croda's supply chain, sustainable palm oil production is seen as an increasing necessity.

AAK is a founding member of the Roundtable

³² *Proforest* is a world leader in supporting the sustainable management and sourcing of natural resources

on Sustainable Palm Oil (RSPO). The company informed us that they continue to be heavily involved with the RSPO and its Board.

Yet, as with Croda, we must conclude that the RSPO does not yet offer a perfect solution. AAK source the majority of their palm oil from palm suppliers who themselves source from a multitude of smallholders. This means there is limited visibility on traceability of raw materials to plantation, control around plantation expansions and the wider effect certain farming techniques have on workers and indigenous communities.

Due to such limitations, AAK has launched a policy to focus on increasing the sustainability of palm oil in its supply chain.

The key points of this policy include:

- Increase volume of RSPO certified palm oil.
- Source palm oil produced without destruction of High Conservation Value (HCV) areas, High Carbon Stock (HCS) forest, or peatland of any depth.
- Ensure that Free, Prior and Informed Consent (FPIC) takes place prior to new plantation development.
- Ensure traceability of palm oil supply to mills (2014 target), and achieve traceability to plantations by 2018/19.
- Retain a commitment to support smallholders.

AAK's Palm Oil Policy applies to palm oil, palm kernel oil, and their fractions of all origins. The policy was developed, implemented and monitored in close partnership with Proforest³². AAK now also publishes a list of all mills it sources from on their website³³. It appears to be moving in the right direction.

COCONUT

AAK has been sourcing coconuts from India and Sri Lanka since the 1930s. Today, AAK sources coconut oil from the Philippines, Indonesia and India. These three countries

³³[The AAK mill list](#)

account for 70% of global production.

Coconut trees are often found along the shorelines in the tropics, since they can tolerate saline and sandy soils, while other plants do not thrive under these conditions. This brings two benefits:

The first is social: coconuts form an important source of income given they grow on soil with limited fertility. Coconut-growing countries in Asia-Pacific rely on the sale of coconut products as export income. The majority of coconuts are produced by smallholder farmers.

The second is environmental: coconut trees help to protect sandy shorelines from erosion from the sea due to their elaborate root systems.

The traditional coconut supply chain is long and complex because the growing areas are far away from the mills that extract the oil from the dried coconuts (called “copra”). Middlemen connect the farmers with the mills and deliver important logistical services.

As with shea, AAK actively supports smallholders in the supply chain. In order to simplify the supply chain for these small farmers, AAK has started a direct sourcing project in Indonesia. Its partner mills collect the copra directly from villages, helping to ensure that a bigger share of the value goes to the farmers.

DISCLOSURE

The company does not provide a breakdown of the volumes or values of specific oils that it sources each year. It also provides limited information regarding the geographic location that raw materials are sourced from. This may be due to seasonal changes that affect supply, however.

There are three raw materials where the company provides detailed sourcing information: Shea, palm and coconut. While the level of detail here is rather good, we

would have liked to have more detailed information on specific volumes and regions. There is also a need for further information relating to other vegetable oils, in particular soya.

CRANSWICK



Country: UK

Product/service: Meat processor

Market Cap: £1.5 billion

No. of employees: >10,000

Fact: >59,000 pigs processed per week

Analyst: Nere Asumendi

Cranswick is a meat processor that supplies fresh and processed food products to UK food retailers. Products include fresh pork, gourmet sausages, premium cooked meats, traditional air-dried bacon, fresh and cooked poultry, pastries and charcuterie products.

PUBLIC SCRUTINY

The food processing industry is unique in that it deals with the health of animals across its supply chain. As a result, media attention is high and consumers are alert to animal welfare and food safety issues. Demand for transparency is high.

Such scrutiny is heightened for listed companies like Cranswick who are also subject to shareholder scrutiny.

In addition, Cranswick's main customers are large players in the food industry such as Tesco and Sainsbury's, as well as foodservice restaurants like Itsu and McDonald's. Issues in Cranswick's supply chain management can have a direct impact on the reputation of these global brands.

A VERTICAL SHIFT

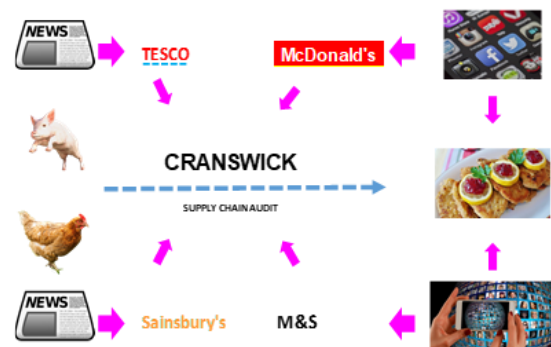
Meat processors can manage their supply chain either by outsourcing production, or by doing everything themselves ("vertical integration"). Cranswick do both.

While the company mainly sources from other

suppliers, in the last few years management have taken steps to vertically integrate parts of the supply chain in order to improve traceability and security of supply.

One aim of this is to reduce transportation times between farms and their suppliers. For example, 100% of chickens travel less than 25 miles from farms to the processing facility³⁴.

As the company informed us during our discussions, this shift means that it is increasingly responsible for food production "from farm, to fork".



PORK

In 2013, in response to growing demand for "British Made" products, and in order to give customers greater assurance about provenance, Cranswick re-entered pig rearing via the acquisition of East Anglian Pigs.

Cranswick informed us that they now nurture all their own pigs from birth, under the RSPCA farm assurance scheme.

Two pig herds are dedicated to producing premium meat for Tesco's *Finest* and Sainsbury's *Taste the Difference*. Traceability and provenance are the differentiating factor for these categories.

However, only 17% of Cranswick's UK pig needs are sourced internally. While Cranswick is unlikely to fully cover its pig meat needs in-house (the UK is only 53%³⁵ self-sufficient in pig meat), the company expects to increase its

³⁴ Cranswick Annual Report & Accounts, 2018

³⁵AHDB Pork: [Pig meat supplies forecast](#)

self-sufficiency rate. The remainder is covered through the acquisition of pigs from other UK pig producers or the import of cuts of meat from mainland Europe (20% of their pig meat requirements).

CHICKEN

2014 marked Cranswick's entry into poultry with the acquisition of Benson Park. Cranswick aims to be fully vertically integrated in poultry. Unlike pig meat, this should be achievable as the UK has a 75% self-sufficiency rate³⁶, although Cranswick expect its Cooked Poultry business to obtain some chicken from external sources from time to time.

In 2016, Cranswick also acquired fully integrated poultry producer Crown Chicken. Another integrated production facility in Suffolk is being built. This will be a world class premium processing facility. Cranswick will continue to invest in existing upstream activities to ensure that the supply chain remains fully integrated.



A UNIQUE SUPPLY CHAIN

Within the food production industry, Cranswick aims to be a supply chain management leader. This focus has led the company to achieve a Tier 1 ranking in the global Business Benchmark on Farm Animal Welfare ("BBFAW"). This is an impressive feat.

This recognition has been driven by Cranswick's holistic and integrated approach

to sustainability in the supply chain:

Premium product: The company created the premium pork (sausages and bacon) category in UK supermarkets. When people pay more for something, they ask for higher quality. Higher quality sausage and bacon is achieved via outdoor bred pork, using whole cuts of muscle, and the use of ingredients such as fresh, rather than dried herbs.

Management oversight: Supply chain management is a core focus for Cranswick's Executive team. The CEO, CFO, and CD³⁷ hold monthly meetings with the different departments (Fresh Pork and Farms, Convenience, Gourmet Products, and Poultry) where they review the supply chain. It forms an integrated part of the business plan. This is important as it makes the supply chain visible and is something that investors ask about at Annual General Meetings.

Focus on animal welfare: *"Performance of our livestock is closely linked to our environmental and welfare commitments."*³⁸ Cranswick only sources pigs which are farm-assured under industry recognised assurance schemes such as Red Tractor and/or RSPCA. Animal welfare officers (independently trained and certified by external organisations who run industry recognised welfare courses)³⁹ are responsible for inspecting the animals as they arrive at site, whilst they are in the lairage⁴⁰ and also for ensuring that all animals are handled in the most humane way possible.⁴¹

Long-term supplier agreements: Remember the Tesco supplier scandal of 2015? It spelled bad news for Tesco's share price, but good news for suppliers like Cranswick who had a solid track record of supply chain security.

³⁶Poultry Pocketbook, AHDB, 2018

³⁷ Commercial Director

³⁸ cranswick.plc.uk

³⁹External organisations such as Bristol University, LivestockWise (Pigs) and Poultech (Poultry).

⁴⁰ A holding pen for an animal

⁴¹ cranswick.plc.uk

Following Tesco's Board shake-up, the food retailer sought to establish longer term agreements with suppliers that ensured a more collaborative approach. This helped partnerships to develop between suppliers such as Cranswick and the supermarket giant.

Other food retailers followed Tesco's lead. Thanks to Cranswick's consistent track record of service, it won new business. Its focused approach to supply chain management has helped the company to grow.

Audits by multiple parties: Cranswick subjects its own pork and poultry operations, and those of its UK and continental European suppliers, to strict audit controls by internal and external auditors.

Furthermore, given the collaborative environment of the meat industry where transparency and traceability are key to success, periodic audits from customers and organisations like the British Retail Consortium are a regular feature. There are a lot of eyes on Cranswick to make sure that standards don't slip. Audits include:

- Arrival checks: when animals arrive at Cranswick's processing sites, a team checks the assurance and traceability of animals against the Red Tractor certification. Information is stored and verified using an online database.
- Shareholder reporting: Cranswick also provides audit updates in publically available quarterly reports. These include data on the number of supplier audits performed over the period; a record of any major issues that occurred; and a statement on minor non-conformances.

INVESTMENT & IMPROVEMENT

Increasingly, consumers want to understand the carbon footprint of what they eat. Cranswick is responding to this by monitoring

the environmental impact of parts of its supply chain. This includes carbon emissions, and water and energy usage.

In addition, there are certain industry practices that, from an animal welfare perspective, need to be improved.

One example is a recent engagement case we had with Cranswick about tail docking⁴², a practice that is widespread within the pig meat industry. 70% of the pigs Cranswick source are tail docked, especially in places in Europe where pigs are reared indoors.

Cranswick's Technical Director explained that tail docking is only done with the permission and supervision of farm vets, and that it is needed to stop tail biting between pigs. Cranswick is working with a number of universities on projects to reduce the incidence of tail docking, including the use of predictive sensors.

We will continue to monitor such developments in this high profile supply chain. An obvious benefit of Cranswick's dual supply chain is that it is well placed to learn best practice from its own suppliers and to roll these ideas out across its own vertically integrated farms.

This should allow Cranswick to continue responding to growing consumer demand for traceability and transparency in food production, and to stay ahead of the competition.

⁴² The removal of portions of an animal's tail.

5. CONCLUSIONS

Supply Chain engagement does not offer a neat beginning, middle, and end. If our report has reinforced one thing, it is the immense complexity that supply chains bring to company analysis.

With this in mind, what are the key lessons from our research?

- 1. Supply chains are increasingly visible:** As we saw with Brunello Cucinelli, consumers increasingly want to understand *“how and with what”* their products are made. Our discussions with the *New York Times* highlighted that if an item seems too good to be true, *“then someone or something is probably being exploited along the supply chain”*. This focus on provenance is also apparent in the food industry. Cranswick’s competitive advantage is founded on the quality of their produce. Tesco *Finest* sausages must be exactly that: the finest.
- 2. Supply chains are not black or white:** A positive in one area – be it financial, environmental, social or governance related – can have negative implications elsewhere. AAK’s smallholder support is laudable, delivering clear positive impacts on underserved communities. Yet using smallholders can increase the complexity of a supply chain given the vast number of suppliers involved. Using alternatives, however, can raise traceability challenges.
- 3. Economics matter:** Croda is working hard to develop products that can reduce the environmental footprint of the chemicals industry. The economics of new products must stack up, however. The balance between a company’s ESG responsibilities and its financial objectives can be a difficult juggling act.
- 4. Raising standards:** Certain countries fail to meet internationally accepted standards of labour practice. Companies that source from such locations may need to invest in order to ensure the sustainability of their supply chain. Nilorn’s investment in their own factory in Bangladesh is one such example. The presence of multi-nationals providing safe working conditions alongside fair pay, can help to lift the overall standard of developing markets.
- 5. Vertical integration or outsourcing:** There is no clear advantage of one model compared to the other. Selection is made for the long-term benefit of the company and its suppliers. Factors outside of a company’s control – in 4imprint’s case the reality that many of their products are only made in China – will impact the nature of the supply chain model that the company chooses to operate.
- 6. Non-tangible supply chains:** Certain estimates suggest that 80% of company value is now tied up in intangible assets. A result is that investors need to consider unconventional supply chains, such as in the case of Medidata’s intangible data, just as they do for the movement of tangible goods.

7. **The VW Problem:** While increasing levels of disclosure are to be welcomed, investors should be cautious about relying exclusively on glossy reports or industry standards. Investors need to go further in order to truly understand how a company operates. For example, we have visited Belimo not only at their Swiss headquarters, but also at their warehouse in Connecticut. Companies are usually happy to talk to engaged investors and answer probing questions if it means their operations are better understood.
8. **Greater sustainability:** As we have seen with all of our companies, looking after one's supply chain can deliver clear benefits. Firstly, proper supply chain management can reduce risk. There are many examples of companies whose market capitalisations have plummeted due to supply chain failings. Investing in supply chain oversight is simply a cost of doing business. These costs can be offset by the enhanced efficiencies a well-run supply chain can bring. In turn this can lead to greater competitive advantages and better financial performance. Businesses with well-run supply chains should be well placed to take advantage of the \$12 trillion⁴³ in new business opportunities that will be unlocked by the UN Sustainable Development Goals by 2030. Identifying these businesses, however, will require investors to continue doing their homework *across the chain*.

We once again thank all the companies and their representatives who took the time to engage with us at such length in recent months.

⁴³ *Better Business, Better World*, Business & Sustainable Development Commission, 2017

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