AGRI-FOOD ECOSYSTEM

Ecosystem Creators:

SCM SUPPLY CHAIN MOVEMENT

Argon&Co*

CONTENT

Building a Network Digital Twin to future-proof a US dairy processor

Through the development of a full Network Digital Twin, Argon & Co helped the dairy business build a dynamic and future-proofed network that could deal with changing customer needs, supply chain disruptions and price volatility.

Handling approximately 10 billion pounds of milk across 11 plants each year, the client produces a full line of dairy-based products that are distributed across retail, food service, commodity and speciality markets. As part of a broader business transformation strategy, we were engaged to help steer a more efficient and more effective network model.

Multiple optimisation opportunities across its current-state supply chain were identified, and different network scenarios and configurations were also created to develop the client's optimal future-state supply chain.

To drive real and effective change for the business over the long term, the skills of an internal team within the business were developed. The team was trained and equipped with the capabilities to independently continue to deliver modelling value for the business through ongoing optimisation, evaluation and improvements.

Several 'get-rights' were identified to ensure the true value of the client's Network Digital Twin was realised. The first of these was the optimisation of the total value of milk. This included available supply, secondary market opportunities, plant and asset utilisation, the demand for end products such as fresh milk, cheese and butter, and the full cost-to-serve certain demand.

The Network Digital Twin also had to create a coherent through-chain model to be a success, aligning objectives and cross-model synchronisation. Equally, it needed to be capable of modelling complex variables like seasonal milk composition, by-product management and inventory planning.

Other 'get-rights' included optimising for a multi-modal outbound network across truck, ocean and rail shipping, and change management, which would see its key team members involved in the model build right from the start so that they could ultimately 'own' the model.

From model design to handover, the full project took just four months in total. It has been a key accelerator of digital transformation across the business, helping to identify 12% in annualized savings in outbound logistics alone.

Insights gathered from the Network Digital Twin helped inform the client's 10-Year Future Network Strategy, while new site locations that aligned with its future Demand Growth initiatives were also identified.

Going forward, the client can continue to evaluate its $500m Production Facility Investment through insights from the Network Digital Twin, with an internal team that can be self-sufficient in its efforts to keep up with an ever-changing sector landscape.

SUMMARY

A U.S. dairy company used a Network Digital Twin to future-proof its supply chain, boost efficiency, and save money.

The project identified key optimisations, empowered internal teams, and uncovered 12% logistics savings.

In just four months, the project became a cornerstone of the company's ongoing digital transformation, setting it up for long-term agility, efficiency, and growth.

Improving forecasting through machine learning for a French multinational

The client ran two warehouses and employed approximately 200 people, with staff optimisation positioned as one of the company's most significant challenges.

The client's logistics planning process was based solely on its sales forecast, which would generate inadequate levels of detail needed to improve planning operations. The client's Logistics Manager would combine a thinly detailed sales forecast with several conversion ratios in an effort to forecast team workloads, but ultimately this was not delivering sufficient accuracy.

Argon & Co centered its adjustments of the warehouse activity planning process around a single machine learning tool. The bespoke tool that we built for the client could visualise forecasting and validate the projected workload.

The automated tool benefitted multiple areas of the business, helping the client to boost forecasting accuracy and consequently optimising its workforce. Having a ubiquitous tool for the entire business to utilise also granted employees improved visibility on their shift schedules, and helped identify opportunities to revise shift hours according to business needs. With an increase in operational transparency, working conditions improved for employees, and interim resources could also be allocated more effectively.

The machine learning forecasting tool also helped the client anticipate transportation capacity reservation on its sites – something that was particularly important during peak times, when spaces were limited. With more accurate forecasting in place, the client was able to reduce inefficiencies in the transportation of its goods, and improved its relationships with carriers as a result.

A prototype of the forecasting tool was developed in just six weeks. After a six-week pilot, the tool was fully integrated into the client's operations – with the full process taking only two months.

Since integrating the tool, the client has seen multiple operational improvements that offer both commercial and cultural value. Forecasting accuracy has increased by 13 percentage points since the client integrated the machine learning tool into the business. This accuracy reduces the likelihood of over-forecasting, and has enabled the client to address long-held over-staffing issues.

The automated nature of the forecasting tool has also reduced the time required for planning and validating workloads by 50 percent. This has freed up employees from a significant portion of administrative tasks, and they now have more time to explore new and innovative ways to optimise operations further.

SUMMARY

A French multinational food company used a bespoke machine learning tool to enhance warehouse forecasting, improve staffing efficiency, and streamline planning operations.

The tool boosted forecasting accuracy by 13 points, cut planning time in half, and helped resolve over-staffing and transportation inefficiencies.

In just two months, the forecasting solution brought tangible operational and cultural improvements, empowering employees, optimising resources, and laying the groundwork for smarter, more agile logistics.

Food industry is forced to innovate sustainably

Changing agri-food Ecos

The agri-food ecosystem and its supply chains are undergoing rapid evolution, driven by factors such as technological advancements, climate change, shifting consumer preferences, inflation and regulatory changes. To facilitate necessary collaboration and digitalisation within agri-food supply chains, consulting firm Argon & Co and Supply Chain Movement have mapped the entire ecosystem: this comprehensive visualization includes farmers, suppliers, manufacturers, logistics companies, wholesalers, data providers, governments, business customers, and consumers.

By Martijn Lofvers & Roberto Uding

A growing emphasis on sustainability and climate resilience is seeing farmers increasingly adopting sustainable practices such as regenerative agriculture, precision farming, and organic farming to mitigate environmental impact and enhance climate adaptation.

How the landscape is evolving

Digital transformation and smart farming represent another major trend. The use of IoT devices, sensors, and big data analytics is optimizing resource use, predicting crop yields, and improving decision-making. Additionally, automation and robotics are revolutionising the sector. Drones, autonomous machinery, and AI-driven tools for tasks like pest detection and crop monitoring are boosting productivity and reducing labour costs.

The rise of alternative proteins and food innovation is also reshaping the food landscape. Concerns over animal welfare and environmental sustainability are driving the development and consumption of plant-based and cultured meats. Novel foods, such as insect-based and algae-based products, are gaining traction as sustainable options.

Supply chain transparency and traceability are becoming crucial. Blockchain technology ensures that consumers can track the origin and journey of their food, thereby enhancing food safety and quality assurance. Changing consumer preferences and increasing health consciousness are driving demand for organic and non-GMO foods. Advances in genomics and nutrition science are enabling personalized diets tailored to individual health needs.

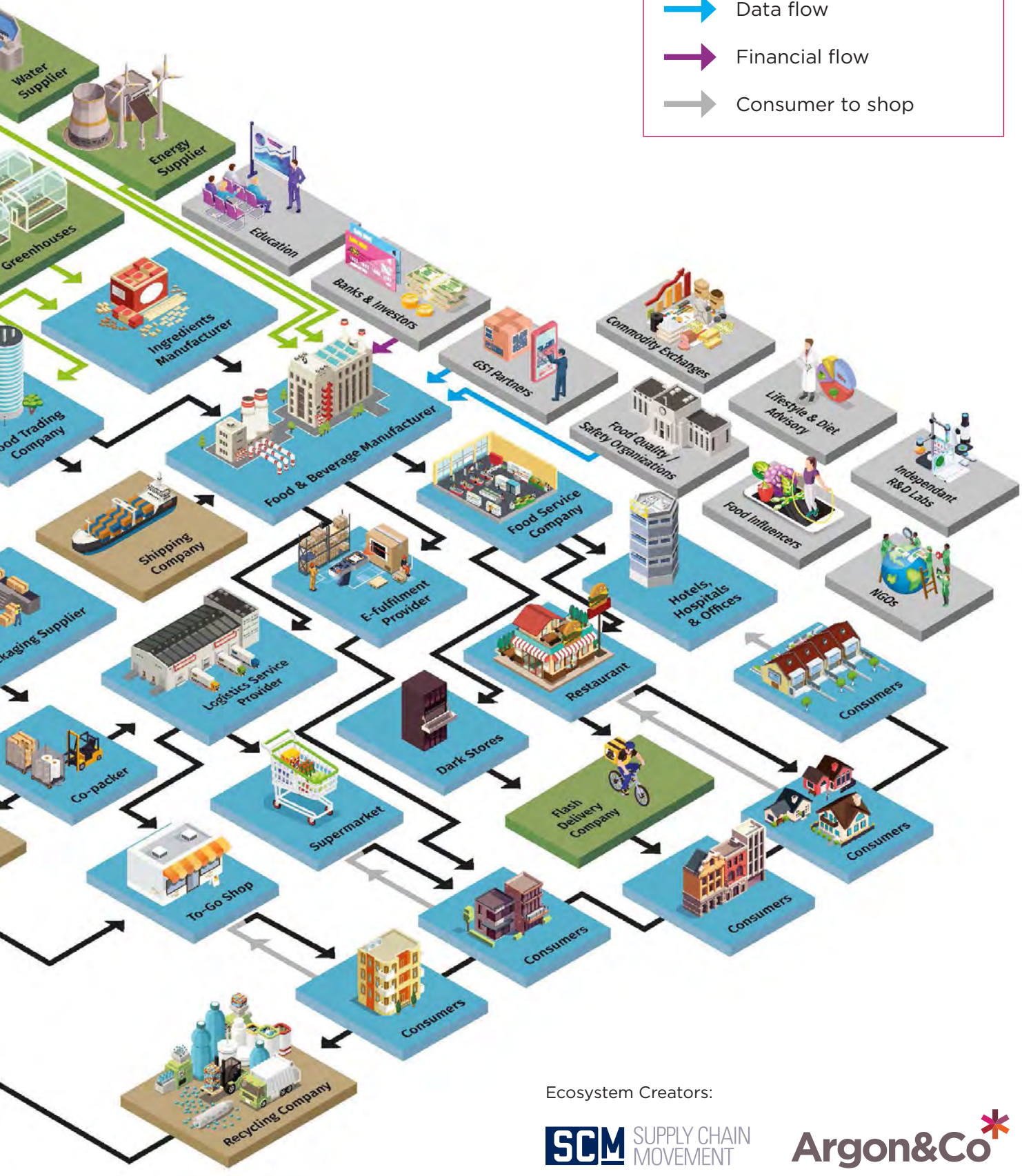
Policy and regulatory changes play a pivotal role in this transformation. Governments are implementing stricter environmental regulations to reduce the agricultural carbon footprint and promote sustainable practices. Shifts in international trade policies and tariffs are affecting global supply chains, influencing the availability and prices of agri-food products.

Collectively, these trends are driving the agri-food ecosystem towards greater efficiency, sustainability, and resilience in the face of global challenges.

system

EXPLANATION

- Traditional flow of goods
- Biological flow of goods
- Data flow
- Financial flow
- Consumer to shop



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Integrating a data-driven approach to improve pricing and margin optimisation for an agro-ingredient manufacturer

The client faced a number of significant challenges in managing pricing across its supply chain. For one, sales pricing in the oils, spreads and margarine sectors is highly volatile, driven by fluctuating raw material costs. Purchasing them at the best price in a global market is a constant balancing act, with prices varying by ingredient type, speciality, product group and commodity. On top of this, pricing contracts with customers were often unclear, leading to missed opportunities for optimal margin management.

A lack of clarity and consistency paired with the ongoing fluctuations in costs of delivery, processing, transportation, tariffs and compliance with food safety regulations made it difficult for the sales team to make fully informed decisions on pricing.

To help address these challenges, Argon & Co worked closely with the client to develop a comprehensive pricing dashboard tailored to its team's needs. The dashboard provided the sales team with real-time visibility into key pricing metrics, including floor prices, target prices and customer-specific pricing thresholds. With all the key information in one place, the team could make data-driven decisions and respond swiftly to market fluctuations.

To ensure the seamless integration of the new technology into the client's operations, we facilitated a number of workshops between the sales and product management teams. By fostering closer collaboration and bridging knowledge gaps, the teams were unified in their approach to pricing and margin management. The product management team took ownership of setting data-based pricing guidelines, giving the sales team tangible price ranges that could be used in negotiations. This would give the sales team the best chance of delivering optimal prices.

Argon & Co's approach to the challenge was rooted in rigorous data analysis and validation. The team worked closely with the client to develop analytical models that accurately reflected the business's operations. Multiple regression models were used to validate pricing strategies and ensure the dashboard provided actionable insights. Data that skewed performance metrics or did not align with actual business practices was identified and quarantined, ensuring a clean and accurate historical view of business performance.

The impact was immediate and substantial. Within the first year of the project, the client achieved over €8 million in margin improvements. Procurement processes were streamlined, and sales contracts were updated to reflect a more efficient and risk-mitigated way of working.

This partnership demonstrates the power of data-driven decision-making and cross-functional collaboration as a means to overcome complex supply chain challenges. By creating a unified pricing operating system and fostering a culture of transparency and cooperation, the client was able to navigate market volatility, improve margins and position itself for long-term success.

SUMMARY

A food sector client used a tailored pricing dashboard to tackle volatility and inconsistency in supply chain pricing, enabling faster and more informed sales decisions.

The tool empowered cross-functional collaboration, aligned pricing strategies, and drove over €8M in margin improvements within a year.

Built on robust data models and seamless integration, the project reshaped procurement, streamlined contracts, and laid the foundation for transparent, data-driven pricing practices.

To integrate or not to integrate: Network modelling for a leading UK food retailer

Argon & Co partnered with one of the UK's leading food retailers after it acquired another UK grocery wholesaler in 2018. The client engaged us to review its own networks as a food retailer as well as those of its acquisition, and explore the long-term benefits of integrating the two.

The client wanted to see modelling for both networks, separately and together, to identify practical ways it could improve the cost effectiveness across all of the existing sites before making a decision on operational integration.

To provide a comprehensive overview of the leading food retailer and the grocery wholesaler it acquired, we generated a series of virtual 'blue-sky' distribution networks across the individual company sites, as well as one integrated network. This was done through Cosmic Frog, a cloud-based modelling platform that offers rapid comparison across supply chain scenarios to select the most resilient designs.

After generating the virtual distribution network models, test scenarios were run which helped establish how well-developed these networks were. These scenarios included sharing facilities across the two networks, and the closure of certain sites. With a range of opportunities identified, we provided pragmatic recommendations to the client. Alternative financial evaluations were provided for each scenario, including a cost/case saving and a pros/cons list, along with an assessment of the existing depot capacity model.

The client needed a rundown of its options across a range of scenarios, so both blue-sky and pragmatic networks were explored. While blue-sky network scenarios evaluated an ideal level of network modelling, and included an optimal number of sites, the pragmatic network scenarios offered a more realistic view on efficiency opportunities.

Modelling across these multiple scenarios, we narrowed down the client's options for further study based on ROI. The research uncovered several avenues for the client to drive network efficiencies, with potential savings of up to 2% on its own operating costs and up to 4% for the grocery wholesaler it acquired.

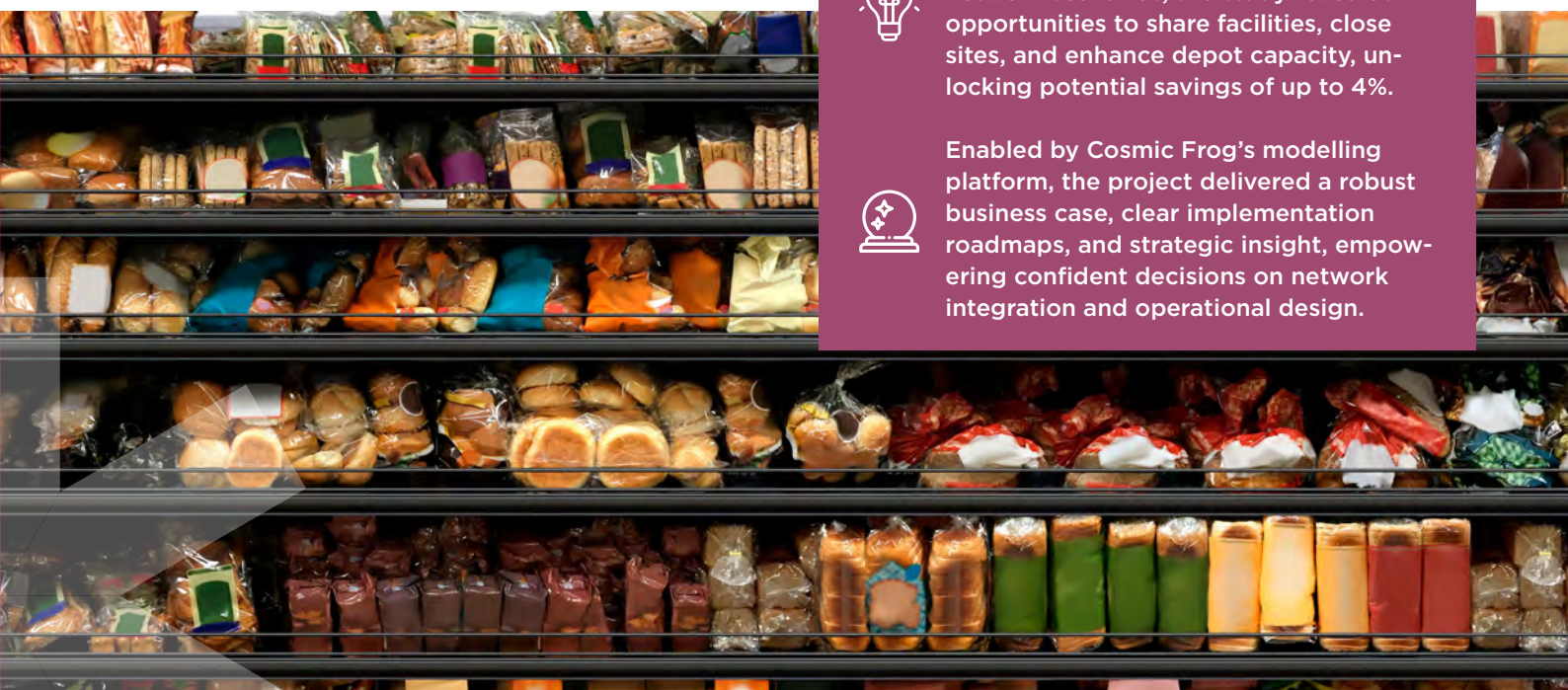
Argon & Co provided the client with the robust financial business case it needed, along with a thorough risk analysis of its recommended options. It also provided potential implementation roadmaps, and shared enhancement recommendations for its depot capacity tool.

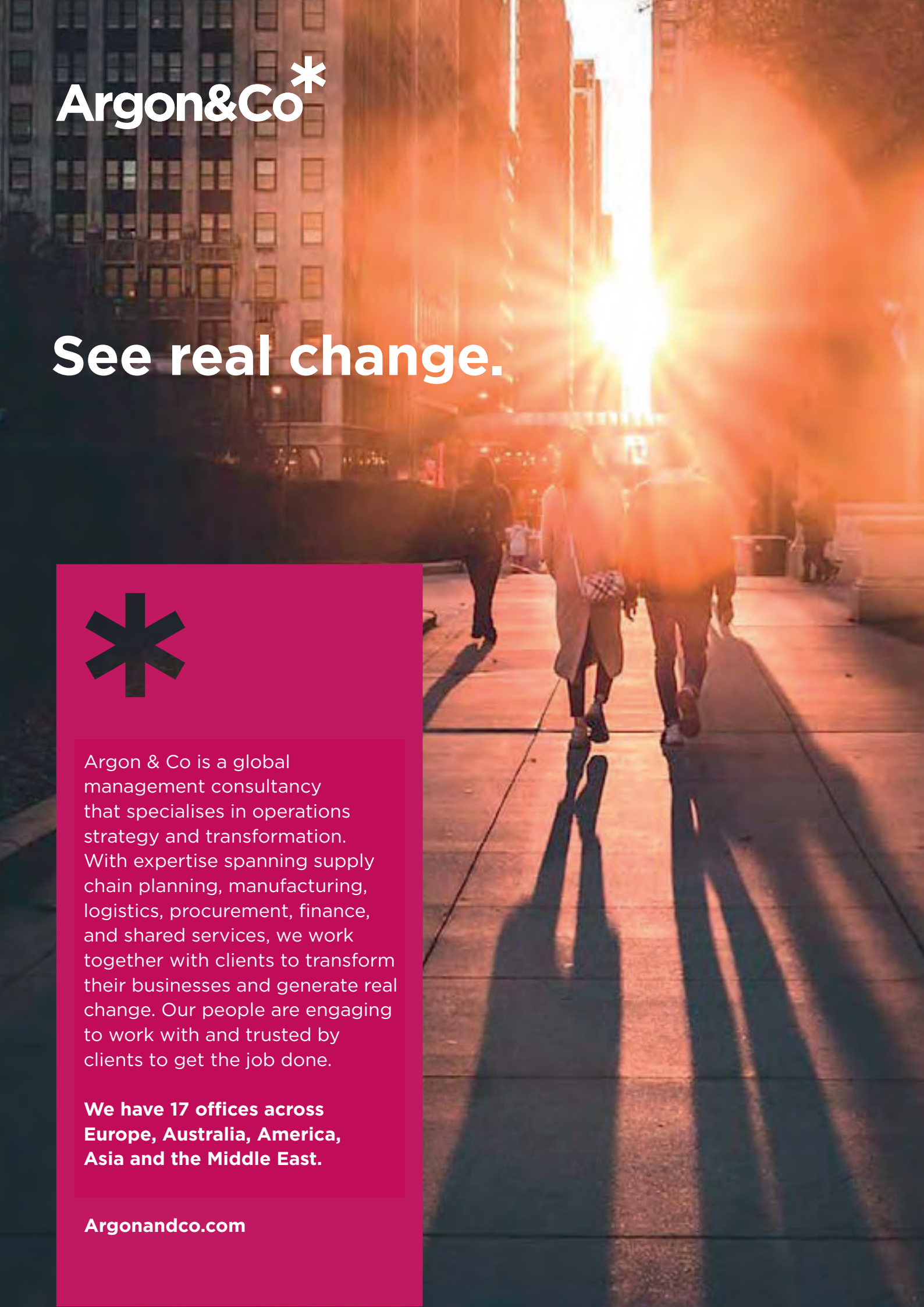
SUMMARY

A UK food retailer used network modelling to assess the potential integration of its operations with a newly acquired wholesaler, aiming to uncover long-term cost efficiencies.

Through virtual 'blue-sky' and pragmatic network scenarios, the study revealed opportunities to share facilities, close sites, and enhance depot capacity, unlocking potential savings of up to 4%.

Enabled by Cosmic Frog's modelling platform, the project delivered a robust business case, clear implementation roadmaps, and strategic insight, empowering confident decisions on network integration and operational design.





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See real change.

Argon & Co is a global management consultancy that specialises in operations strategy and transformation. With expertise spanning supply chain planning, manufacturing, logistics, procurement, finance, and shared services, we work together with clients to transform their businesses and generate real change. Our people are engaging to work with and trusted by clients to get the job done.

We have 17 offices across Europe, Australia, America, Asia and the Middle East.

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