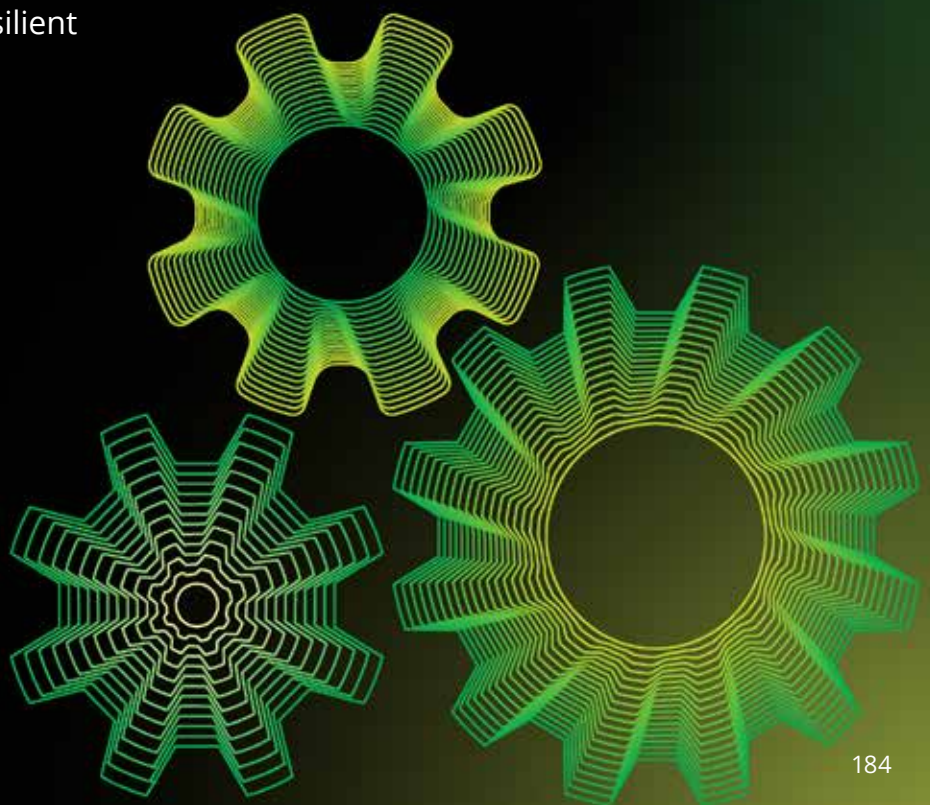
Office of COO and supply chain

The global supply chain landscape is undergoing a radical transformation, driven by increasing complexity, volatility and the ongoing pursuit of efficiency and resilience. Traditional supply chains, characterised by their linear and siloed structures, often struggle to adapt to these dynamic conditions. As a result, organisations are increasingly turning to innovative solutions, such as Self-Healing Supply Chains (SHSCs), to improve their supply chain operations.

This shift highlights the evolution of supply chains, the current state of SHSCs, future trends and challenges and the need for a more resilient and adaptive supply chain ecosystem.



The evolution of the supply chain: From traditional to self-healing

Traditional supply chains operate on a linear, siloed model, which results in limited visibility and reactive responses to disruptions. This often leads to inefficiencies and increased costs. In contrast, the Digital Supply Network (DSN) uses digital technologies to create a more interconnected and dynamic supply chain network. The DSN enhances collaboration, visibility and responsiveness by integrating various stakeholders.

The Smart Human Supply Chain (SHSC), the next evolutionary step, builds upon the DSN by incorporating advanced technologies that can autonomously analyse real-time data, detect bottlenecks and take corrective actions. This proactive approach allows supply chains to adapt to situations and optimise operations, enabling them to anticipate and prevent issues, ultimately leading to increased resilience and efficiency.

Current state of self-healing supply chains

Most chief supply chain and operations officers believe that SHSCs are still in their early stages but are gaining significant traction. While some organisations are actively implementing SHSC technologies and strategies—utilising AI, ML and IoT to automate processes, predict disruptions and respond proactively—many are still exploring their potential benefits.

Reliable and accurate data is essential for effective SHSC implementation, requiring organisations to invest in data quality initiatives and seamless data integration. Additionally, although technology is advancing rapidly, SHSC technologies are still evolving, necessitating careful assessment of their maturity and reliability before deployment. Finally, embracing a self-healing mindset requires a cultural shift that fosters innovation, collaboration and continuous improvement to fully realise the benefits of SHSCs.

Key trends reshaping the supply chain management landscape

- Increased investment in digital technologies, such as AI, ML and IoT

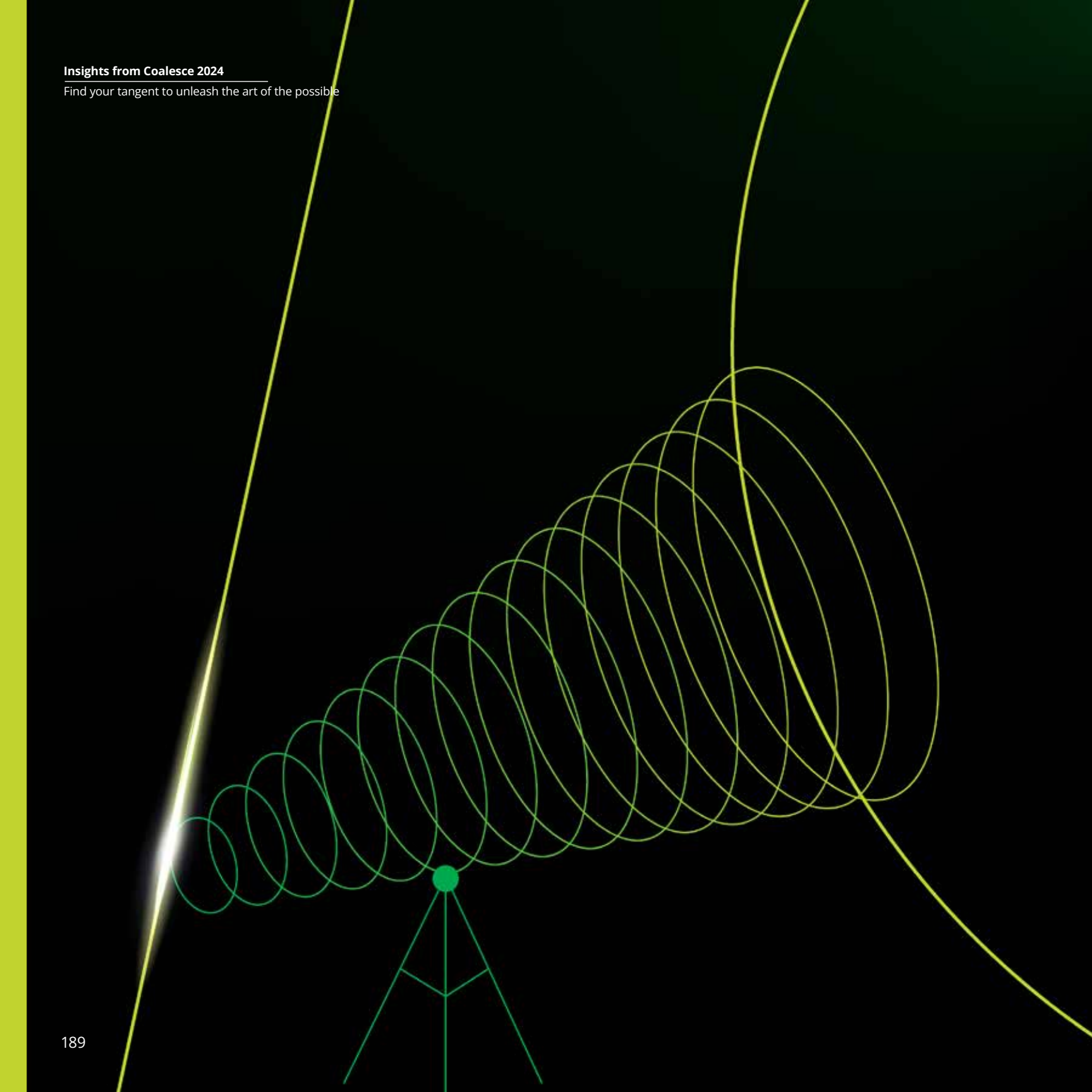
- Strategic collaborations and prioritising cybersecurity to enhance resilience and efficiency

- Growing emphasis on data analytics for informed decision-making

- Emerging roles, such as data scientists, AI/ML engineers, digital supply chain architects, cybersecurity experts and supply chain control tower managers

Role of chief supply chain/operations officer

The chief supply chain/operations officer plays a pivotal role in transforming traditional supply chains into DSNs and ultimately, self-healing supply chains. Key steps involve defining objectives and aligning stakeholders, investing in technologies such as IoT, AI and ML, and redesigning processes for efficiency and agility. Cultivating a culture of change, collaboration and data-driven decision-making is crucial. Additionally, establishing strong collaborations, monitoring performance, prioritising sustainability and ethics, and implementing robust resilience planning are essential to ensure the success of the digital supply chain transformation.



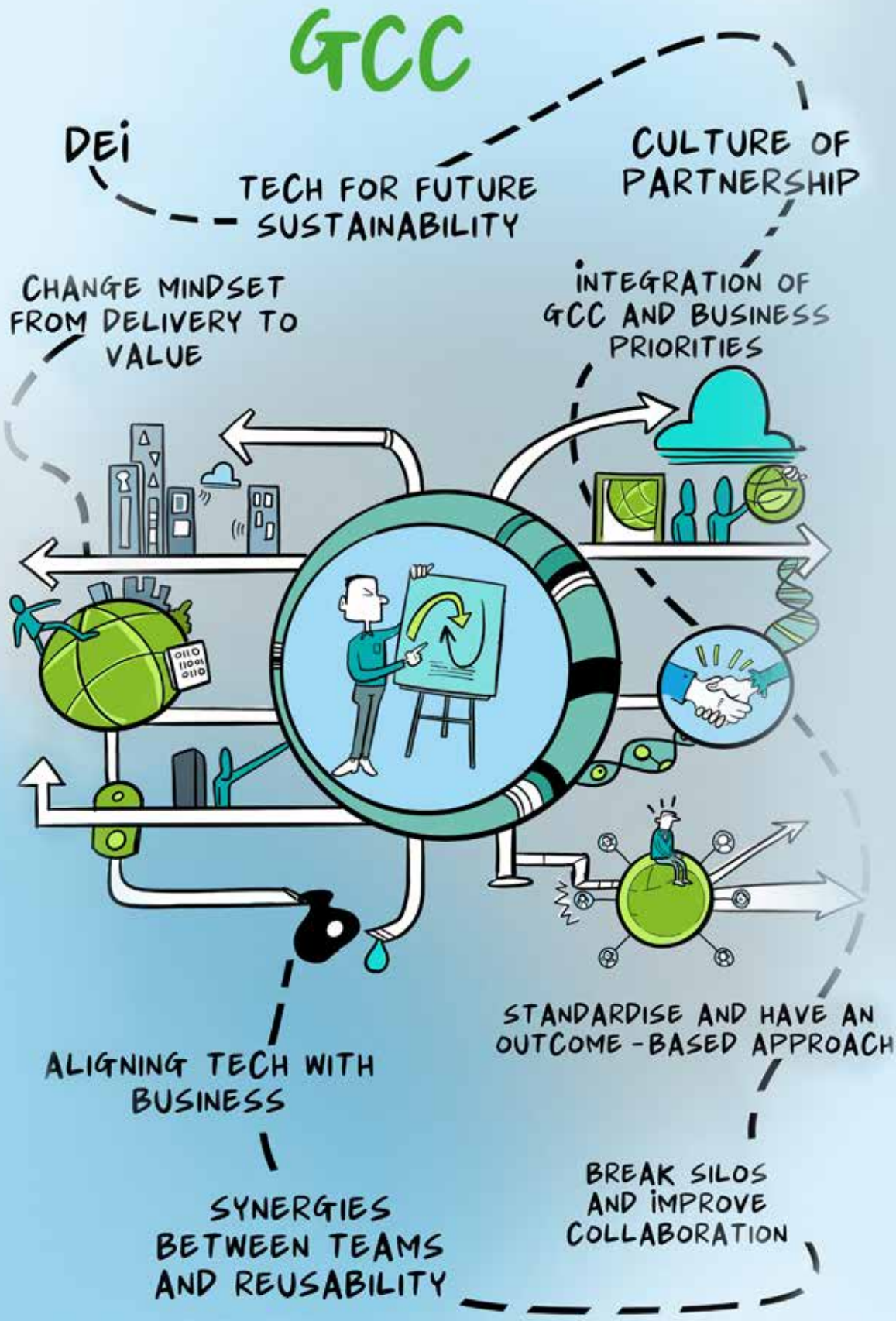
The way forward

As the global supply chain landscape evolves, adopting Smart and Hybrid Supply Chains (SHSCs) becomes a strategic necessity. Despite challenges such as data quality, technological maturity and cultural shifts, the potential benefits of SHSCs—such as increased resilience, efficiency and responsiveness—are undeniable. By embracing digital technologies, promoting data-driven decision-making and fostering a culture of innovation, organisations can create a future where supply chains are proactive, self-optimising and capable of withstanding any challenges. The role of Chief Supply Chain Officers (CSCOs) or COOs in driving this transformation is crucial, requiring a combination of strategic vision, technological expertise and strong leadership to navigate the complexities of modern supply chains.

Annexure: Traditional supply chain vs DSN vs SHSC

	Traditional supply chain	DSN	SHSC
Structure	Linear and often siloed, consisting of distinct stages such as sourcing, manufacturing, distribution and retail	More interconnected and dynamic, using digital technologies to create a network of suppliers, manufacturers and customers	An evolution of the DSN that incorporates advanced algorithms and AI to autonomously manage disruptions
Data flow	Limited real-time data sharing; information typically flows up and down the chain in a more static manner	Enables real-time data sharing and analytics, allowing for better visibility and decision-making across the network	Continuous real-time monitoring and data analysis to identify and address issues before they escalate
Flexibility	Less responsive to changes and disruptions due to its rigid nature	Highly adaptable to changes, as it can quickly reconfigure based on demand fluctuations or disruptions	Capable of self-correcting and automatically adjusting processes in response to disruptions, enhancing resilience
Technology	Relies on basic software for inventory management and logistics, but lacks integration	Utilises advanced technologies such as IoT, AI and big data analytics to enhance operations and predict trends	Integrates predictive analytics, ML and automation to anticipate problems and implement solutions proactively

About 92 percent of respondents indicated their organisations are still in the evaluation or pilot phase in their journey towards building a self-healing supply chain.


GCC
DEI
TECH FOR FUTURE SUSTAINABILITY
CULTURE OF PARTNERSHIP
CHANGE MINDSET FROM DELIVERY TO VALUE
INTEGRATION OF GCC AND BUSINESS PRIORITIES
STANDARDISE AND HAVE AN OUTCOME-BASED APPROACH
ALIGNING TECH WITH BUSINESS
BREAK SILOS AND IMPROVE COLLABORATION
SYNERGIES BETWEEN TEAMS AND REUSABILITY