



# Will You Be Victor or Victim of the Emerging Secure, Intelligent, Connected Economies?

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*Since the days of mainframes, convergence has always been the underlying aim of technology. So far, however, it has been thwarted by the sheer profusion of transformational technologies that, while vastly enabling new and better business processes, have been deployed in disconnected fashion, suboptimizing their full value. Now, we believe, asset- and capital-intensive businesses must aggressively pursue the goal of convergence if they are to survive, let alone thrive, in the Secure, Intelligent, Connected Economies (SICE).*

## Today's Disconnected Technology Environment

If you are like most global organizations today, most of your digital transformation efforts have gone into enhancing the customer experience and improving the Backoffice operations.

Your factories, warehouses and supply chain partners were barely connected, and you were thankful when you could exchange data and analytics intermittently. You launched products that could go online, and you hoped that clients would establish profiles on the devices that would enable you to continuously engage with them and control the devices to their liking.

You dreamed of seamless operations, real-time analytics with your partners, and your products as intelligent devices. However, these ambitions were dashed as they relied on high computing power on your devices, high-bandwidth, low latency connections and highly complex integrations across the edge, IIoT platforms and the rest of the value chain.

Your technology departments ensured that you were rife with digital assets – cloud, wireless, cybersecurity solutions, ERP and PLM software – but these assets declined in utility the further you moved away physically from your corporate and retail locations.

Digital transformation results have been disappointing despite the extraordinary amount of time, effort, and expenditures involved. A McKinsey survey<sup>1</sup> of the results of organizations' digital transformations found that only 16 percent of respondents improved their performance sustainably. Even digitally knowledgeable industries like telecom and high tech had a success rate of no more than 26 percent, while traditional



industries reached just 4 to 11 percent. And small companies were found to be more than twice as likely to report success than those with more than 50,000 employees.

The reason for the failed efforts is simple: a digital disconnect.

Organizations have acquired their vast array of digital assets without developing the ability to:

- a) convert vast amounts of data emanating from critical offline assets into valuable information,
- b) integrate such information across the value-chain and associated partner ecosystems in a secure way that creates real-time value, and
- c) put actionable real-time insights at every stakeholder's fingertips.

As a result, they squander the immense potential of digital advances and leave shareholders perplexed and disappointed as promises of great business value fail to materialize.

The persistence of this disconnect is particularly prevalent in asset- and capital-intensive businesses (ACIBs) facing special challenges in today's fast-moving digital economy. Lacking full control and leverage over their wide range of assets, they are unable to harness data from their equipment, scheduling, processes, and people to develop in-depth, actionable insights that enable them to achieve improved business outcomes. Often the bandwidth and latency limitations of existing enterprise blueprints make new business ideas based on connected customers and operations impossible.

As a result, they struggle to keep asset utilization in sync with demand, existing and forecasted. They are vulnerable to economic disrupters like the pandemic, climate change, supply chain chaos, the new normal of remote work and operations, constantly evolving threat landscape, and the "great resignation" that leaves them short of critical talent. They move slowly, timidly, dominated by a risk-averse culture that loses ground to fail-fast, innovative competitors with a start-up mentality. They find themselves with commoditized products and processes that force them into price-based competition, eroding profits and leaving them focused on traditional rather than digital IT advances. All this while they operate across hyper-competitive marketspaces that demand ever more business agility.

Nevertheless, our industry experience and technical research support our belief that such ACIBs **can** maximize the value of their digital assets to reap the business benefits of business greater operational efficiency, lower costs, and, ultimately, increased revenues. How? By adopting and executing the SICE strategy.

## **The Secure, Intelligent, Connected Economy (SICE) Strategy**



To transform and digitize an asset-intensive business model for the purpose of achieving their goals, we are advising ACIB leaders to focus on business plans, revenue streams, and operational improvements that rely on secure connected assets, partners, products, and customers.

As 5G and edge computing connect the various nodes of an organization with each other and suppliers, the resulting Secure, Intelligent, Connected Economies (SICE) will form the bedrock of tomorrow's digital transformation and business initiatives.

The nexus of 5G, edge computing, AI, Smart Devices and cloud will bring hitherto disconnected areas in the organization much closer and offer new value to be harvested at the intersections of these areas.

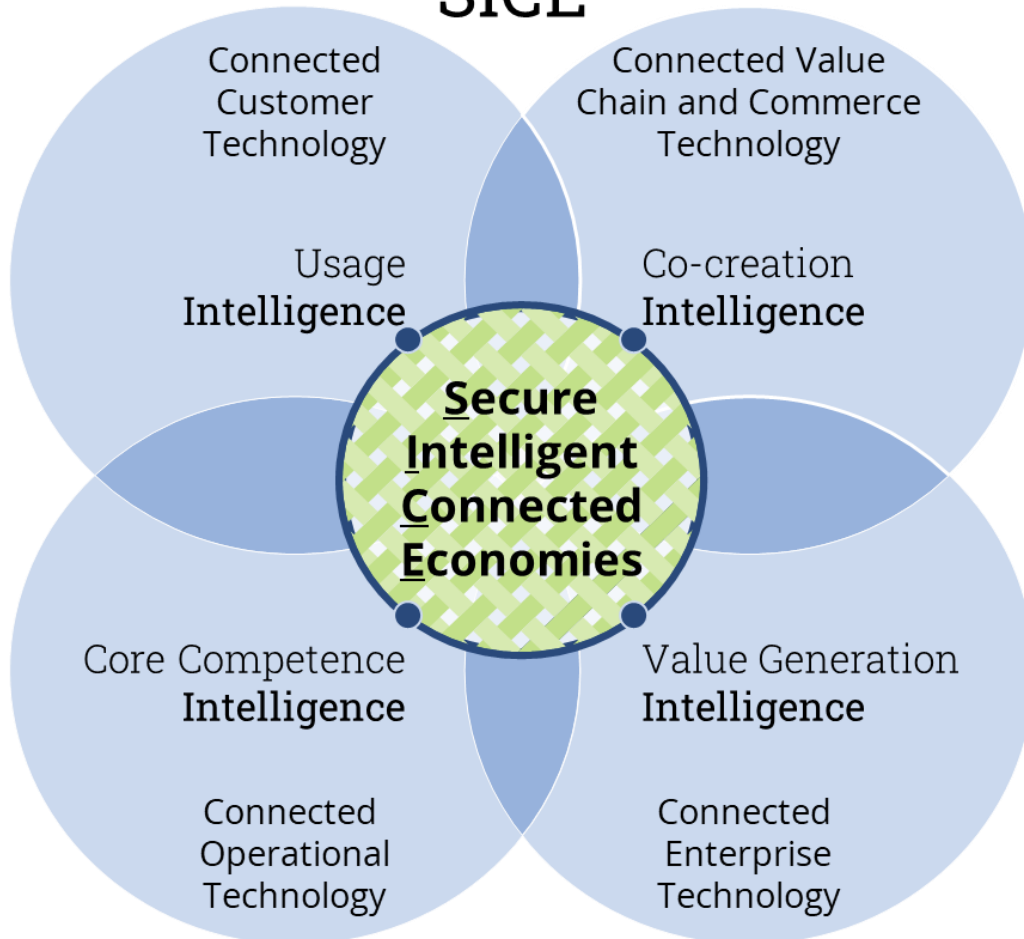
Of the four main technology areas, organizations have tended to invest in the enterprise technology and retail/showroom space – the carpeted area of an organization. The three technology areas that have been left behind in digital transformation are:

- a) Operational technology (e.g., oil rigs, factories, shopfloors, far-flung labs)
- b) Value chain technology (real time interactions between supply chain partners that go beyond data exchange to actual real-time actions and decisions)
- c) Customer technology (where dumb products, with low aperture and without the customer experience sophistication of smart watches and phones, have had to compete with smart home environments)

As these four technology areas converge, the resulting intelligence and value generation at the intersection will create new digital connected touchpoints. Some of these touchpoints will generate new revenue streams while others will ensure customer stickiness or operational efficiency.

We see the result as the new arena of digital transformation – Secure, Intelligent, Connected Economies.

# SICE



- **Secure and Intelligent.** We see a future where new players (mostly telecoms, network equipment providers, and sensor/actuator manufacturers) will create secure and intelligent platforms for connected use cases. This will need a special blend of 5G connectivity, edge computing, AI capabilities, cybersecurity technologies and specific clouds. Enterprises that adopt these new platforms will compliment connected assets with analytics and AI/ML to facilitate autonomous, secure, closed-loop decisioning that continuously translates information into insights that drive intelligent “next best actions” that are contextual, consistent, and guided by clearly articulated business objectives.
- **Connected.** Brand-new real-time connections will ensue between organizations, supply partners, customers and intelligent products. Some of these new connected value chains will be monetized, e.g., increased sales in condition monitoring services for expensive equipment to offset downtime costs.



- **Closed-Loop Economy.** At maturity, they will have designed and implemented a closed-loop integration of their assets and supply chains that enables them to act on the insights without human interactions or dependencies. This will enable new capabilities like Continuous Product and Process Improvement (CPPI), Design for Reusability (DFR), and Retained Product Ownership (RPO). Closed-loop economies along with connected value chains will be the foundation for product-as-a-service business models unlocking further business value.

But how does one go about leveraging the possibilities of SICE?

### The SICE Approach Plan

In today's world, now digital by default, organizations are only just beginning to scratch the surface of the digital possibilities of greater insights and faster or automated response, enabled by IoT. They have yet to convert all the data generated by all these sensors into intelligence and action.

To enable that conversion, their data centers, public and private clouds, edge computing, localization, and servers must be integral parts of IT infra setups across enterprises. Intra and inter-enterprise communication across such hybrid setups will be the norm as organizations seek to take meet market demand with new products and services. At the intersection of such converged IT infra, value-added offerings will be rolled out for the benefit of customers, continuously monitored for value, and continuously adapted as results indicate.

While these customers will be indifferent to the infrastructure enabling their lives, they will value the security, speed, excellence, and seamlessness of their experience. Thus, hybridization, which connects disparate networks and environments, is a reality, but then so is seamlessness, which provides speed and convenience. This reality – the tension between hybridization and seamlessness – will dictate the shape and form of strategies that truly enable the modern enterprises to excel and react with resilience and speed when faced with market disruptions.

We are urging ACIB organizations to pursue the three-staged approach below. This maturity cycle that businesses will need to adopt to get the desired results remains ambiguous now but will gain in clarity as it is pursued.

1. Clarify precisely what business objectives and levers to achieve them are most critical to the organization's ability to profitably grow and compete. For example, should the focus be on efficiently and effectively employing assets for maximum utilization? Or should it be on creating new revenue streams like product-as-a-



service? Lean more heavily into those connected business ideas that were hitherto impossible.

2. Replace their long-term planning culture with an aggressive, risk-taking, fail-fast, innovation-focused “venture capitalist” approach to their digital transformation. Just as VCs manage a portfolio of bets that are evaluated constantly for results and jettisoned as needed, the new connected economy demands that ACIBs manage the transformation of their digital capabilities “portfolio.” That means monitoring them continuously – day in and day out, not annually – always poised to adapt and optimize them according to the business value they are producing (in keeping with ISG’s digital value framework).
3. Understand the journey to digital maturity that organizations will naturally follow. Aim for continuous transformation instead of a large program. Continue to drive toward a north star that might shift and remain flexible on the path to get there.

## **SICE Beneficiaries**

Who could benefit from this SICE strategy? Basically any asset-intensive organization – a technology company, an industrial manufacturer, a fashion retailer, a pharmaceutical giant. Any organization adopting cloud and data platforms can use new digital services to complement its primary lines of business.

If you proceed with the SICE approach, the result would be a connected network of services like data platforms, private cloud environment, embedded cybersecurity services, IoT devices, and/or autobots, and many other such strategic tech stacks. They will all have an underlying framework of intelligent systems like AutoML, AI models, and advanced analytics, enabled by a single view or “single pane of glass” orchestration layer to achieve true integration with control. This will enable centralized, on-demand monitoring and management of hybrid cloud and other IT infra setups.

As you adopt this approach, not only will your connected cloud and data business serve as an incremental business value and revenue driver, but it will provide your customers with an integrated and secure solution.

## **Sample Use Cases**

Any company in the consumer, manufacturing, pharma, or technology sectors is primed to take advantage of this shift in the business model, as these use cases illustrate:

- Original Equipment Manufacturers (OEMs) will explore business model and revenue generation ideas beyond the sale of the product. This will take the form



of product-as-a-service models (like GE renting its aircraft engines to carriers), or after-market growth in parts replacement and connected services (like condition monitoring of critical equipment).

- For multichannel retailers around the globe, the pressing business challenge is the omni-channel buying and return experiences. The SICE concept helps them connect their strong online presence to their physical stores or airport kiosks. Their private cloud environment can then host and analyze terabytes of transactional data and match it up with the most reliable on-time delivery partners.

These connected chains of networks will give their loyal customers a seamless, enjoyable buying experience from the comfort of their homes for acquiring a wide range of products – everything from apparel to footwear to jewelry to large appliances and more. In the last decade most of the global retail chains have invested heavily into building their digital properties, so the concept of SICE requires no significant capital outlay. With a shorter breakeven time, this is an appealing proposition for these retailers. Additionally, their clients can benefit from a seamless and enjoyable retail experience.

- We are especially watching how global telecom operators are aggressively entering this space to form hyperscaler-style connected platform/foundations for companies such as the above. This has turned telecom operators into technology companies. Their biggest business challenge remains how to leverage all their disparate digital assets as a single, unified technology platform while maintaining pace with constantly evolving cybersecurity threats and privacy regulations. Telcos can connect their existing flagship stores and network towers to 4G/5G/LTE services. These can then be connected to their private cloud and data platforms, and they in turn can be connected to the customer's mobile or IoT devices.

An integrated system of AI framework, ML models, and advanced analytics will deliver cutting-edge customized solutions. A seamless flow of services and technology can ensure an undisturbed mobility experience for the telecom clients at minimal incremental cost. Its enterprise clients can benefit by having a single vendor solution. Here, the SICE strategy can find tremendous value.

## **A Typical Technology Layout**

The figure below shows how the systems and technologies will integrate with each other within a SICE environment.

**Sources**

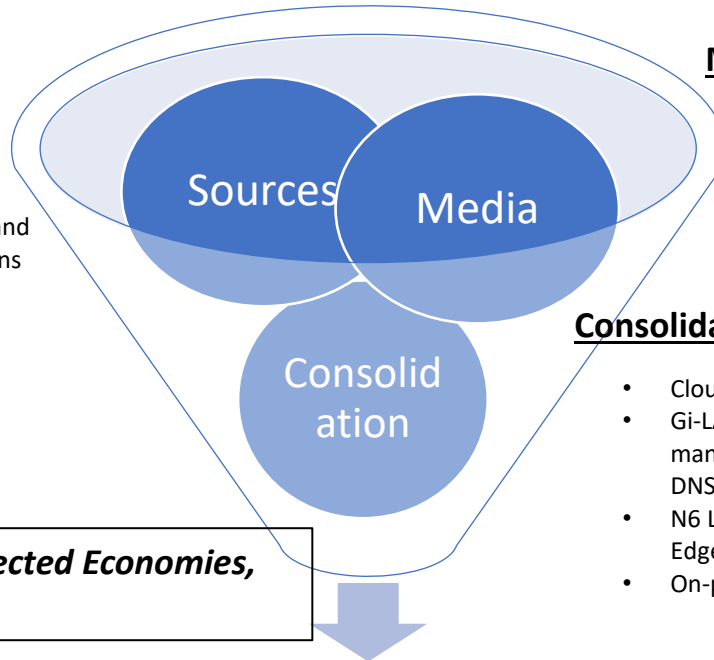
- Geographically and behaviorally segmented customers
- Healthcare, education, and government organizations
- Interactive partnerships
- Authorized distributors
- TV commercials
- Online and other media
- Stores
- Partnerships

**Medium**

- 4G, 5G Wireless
- Wireline
- Broadband networking
- Physical stores
- Towers

**Consolidations**

- Cloud - Big Data, Wide & Small Data
- Gi-LAN functions - traffic management, network security, DNS services
- N6 LAN consolidation - 5G on the Edge
- On-prem solutions



**Outputs**

- Wireless - Smartphones, wearable tech, home solutions, TV
- Residential - Fios Internet, Fios TV, Fios Digital Voice
- Business - Technical Solutions for businesses - IoT, Cloud, Security, Networking

***Secure, Intelligent, Connected Economies,***  
an illustrative example

**Our Vision for the Future of the Secure, Intelligent, Connected Economies**

In the current decade, we expect that a global manufacturing company like John Deere, Siemens, Caterpillar, or Bosch will have its own separate SICE-driven business lines and offerings. We also think leading middleware companies like Talend, Setplex, or Samsara will launch separate SICE revenue stream. System Integrators like Accenture (Industry X.0), IBM, or TCS have long been bullish on integrated offerings, and their shift to integrated cloud and engineering offerings comes as no surprise.

At ISG, we believe that it is not only the technology companies that stand to benefit from the SICE business model. Their end customers like pharma, banks, and multi-channel retailers will benefit hugely, too. Connected networks protected by industry specific security frameworks tailored to their business will not only make them robust and agile but will be a real driver for their growth.

With organizations recognizing the new normal of remote work and operations and focused on improving the customer experience building new revenue streams, we believe that SICE is the next big change in the large enterprise's business model. Only when organizations resolve the disconnect that has to date severely suboptimized their





digital investments will they begin reaping the value of those investments and delivering the business transformation they have long promised their shareholders.

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<sup>i</sup> [The keys to a successful digital transformation | McKinsey](#)

### **Sush Apshankar**

Sush co-leads ISG consulting Analytics solution, and has substantial experience in helping Fortune 1000 organizations adopt real-time insights driven connected enterprise business models.

### **Prashant Kelker**

Prashant works with enterprises to shape their operating models for a digital journey and brings 20 years of expertise in all aspects of applications and platforms, from designing transformations through the whole sourcing lifecycle. Prashant's experience spans a range of industries, including Financial Services, Telecom and Media, Automotive and Utilities, and a range of geographies, including Europe, the Americas and India. Recently, he helped a Fortune 100 automotive giant consolidate its next-generation sourcing for applications, executing digital transformations right up to application management. He has also structured and run a digital transformation strategy and multi-project execution for a large logistics firm in the Nordics and set up a captive offshoring unit for agile product development in India for one of the world's largest publicly-listed European entertainment companies.