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Food&Drink

BUSINESS

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GS1® **Australia**

Navigating your
technology challenges

Navigating the changing world

More than 45 years ago, GS1 triggered the product identification digital revolution through the barcode. Today, it has the tools to support the value chain trends of tomorrow.

TWENTY years into the internet revolution the disruptive impact of technology is accelerating, challenging industries to adapt, grow and thrive by leveraging new developments in digital connectivity, automation, artificial intelligence and personalisation.

Looking to capture a larger share of consumer and corporate spending, businesses are leveraging technologies to optimise their operations. They are also collecting and analysing more and more information, turning data into actionable intelligence.

Manufacturing companies are rapidly evolving to Industry 4.0 environments. They are looking for new ways to integrate information about equipment, components and subsystems for optimal throughput, cost savings, predictive maintenance and overall improvements in asset productivity.

> " Without clean, accurate and aligned data, none of these technologies works outside the four walls of the business enterprise."

Businesses and organisations can no longer afford to operate in silos. Instead, they need to actively collaborate with their trading partners, customers, and consumers.

Companies must work toward increased transparency and interoperability across their respective systems and processes.

GS1 globally administers its system of supply chain standards. We commissioned an industry-based report to identify business trends and the technologies to capitalise on them, for stakeholders across the supply chain. Those current and near-term top business trends are:

• data security and privacy;
• traceability;
• sustainability;
• on-demand logistics and services;
• automation and "Smart Everything";
• empowered consumers; and
• mass customisation.

All of these put immense pressure on businesses to innovate and update.

Security and cyber security drive significant investment across the GS1 value chain, from upstream providers, through manufacturing and transport, and especially in retail and the use of products.

Traceability is a key enabler for trust and safety in the supply chain between manufacturers and suppliers as well as brands and consumers. The challenge is increasing supply chain efficiency and improving product safety, value and integrity, while also meeting regulatory requirements to track and trace the movement of foodstuffs.

Continued efforts to reduce plastic waste, food waste and improve fuel efficiency in transportation, as well as ensuring fair labour practices, are at the forefront of business strategies when considering sustainability.

There are calls for more and more automation throughout transport and logistics processes, looking for increased efficiencies when making on-demand deliveries, which is a market growing exponentially.

Everything that can be connected, will be connected. Internet of Things (IoT) technologies and concepts encompass a diverse collection of energy, transportation, logistics and services optimisation.

Mass customisation of products and services is possible in many industries. Identifying customisation opportunities that create value for the customer with smooth, swift and inexpensive transactions while also achieving a manageable cost structure and cost level for the producer, even as manufacturing complexity increases, is required.

Using a combination of disruptive technologies addresses the trends prioritised by an organisation.

IOT, SENSORS AND BIOMETRICS

The impact of IoT on how we live, play and work is enormous and wide-reaching. It is creating a design platform that enables the development of a variety of applications in every industry. Across the value chain, IoT promises to improve cold chain monitoring for food and create radically new consumer experiences by connecting home devices to each other.

ARTIFICIAL INTELLIGENCE

Artificial intelligence is a powerful set of data technologies that supports the accelerated growth of other enabling technologies, such as improving voice recognition for digital assistants, enabling computer vision for self-checkout systems, supporting autonomous logistics and self-driving cars.

OPEN, STRUCTURED AND LINKED DATA

Almost any useful B2B or B2C application needs data from multiple sources.

Integrating this data is extremely difficult, especially if it is unstructured, uses different identifiers for the same things and does not follow recognised standards.

Linked data uses the concepts, standards and technologies of the internet to connect objects, people, places, products and documents.

If this connected data is made available using a well-defined structure and under an open licence, it becomes easy to integrate, enabling the rapid development of applications that actively put products and services in front of consumers.

AUTONOMOUS LOGISTICS

There is a surge of applications taking advantage of autonomous systems for logistics. These technologies are impacting baggage-handling systems at airports, drones assisting in last-mile delivery, automated ways to optimise pallet loading, and a multitude of picking, packing, and moving of goods throughout warehouses and fulfilment centres.

BLOCKCHAIN AND DISTRIBUTED DATA

Interest in blockchain has expanded beyond cryptocurrencies to become a way to share data and information across a large number of participants, such as stakeholders in a supply chain. It offers potentially greater security to prevent data or transaction alteration.

Blockchain technology has emerged as a potential enabler for traceability, especially in food safety applications.

It offers new capabilities, such as Smart Contracts to aid in business efficiency and automation. This is helping re-ignite interest in other ways to manage distributed data, such as edge computing and distributed data warehouses.

COMPUTER VISION (CV)

Vision systems can observe environments and make decisions about the physical environment to support a variety of applications.

CV is an enabler of many business trends, notably automation and Smart Everything as well as on-demand logistics and services.

It supports quality control inspection steps in food production and improves manufacturing efficiency. It is also a key component in helping advanced robotic systems that automate the movement of goods in a warehouse.

CV is gaining attention as it helps identify products and consumers in new self-checkout retail environments.

VOICE RECOGNITION

Voice recognition and natural language processing have progressed significantly in the past few years and are beginning to impact commerce.

New voice chatbots are helping companies automate customer service.

Brands, companies and marketplaces will increasingly look for opportunities to connect with consumers through apps and create new voice conversations to improve product research, answer questions about use of products and simplify purchases.

ROBOTICS

Robots have advanced dramatically from stationary, single purpose robotic arms. Today's robotic systems take on many forms, whether carrying out a series of actions autonomously or semi-autonomously (e.g. performing stock picking or assembly and movement of palettes in warehouse and logistics operations) or acting in concert with other robots or people for more complex tasks.

AUGMENTED, VIRTUAL AND MIXED REALITY

The ability to super-impose digital images and information into the real world using mobile phones, displays and wearable headsets is improving accuracy and efficiency in industrial and commercial settings. Within manufacturing and logistics, AR/VR systems are combined with computer vision to enable workers to see the digital picking list in their smart glasses, or to identify where a product is located.

DISRUPTING SINCE 1973

Underpinning all these technologies is data. Without clean, accurate and aligned data, none of these technologies works outside the four walls of the business enterprise.

Future trends cannot reach their full potential without alignment between trading and collaboration partners in supply chains.

More than 45 years ago, GS1 triggered the digital product identification revolution through the barcode.

Today, it has the tools to support the value chain trends of tomorrow. The GS1 system of standards around product identification, data capture and sharing between supply chain partners, is in place.

GS1 (www.gs1au.org) can guide industry through the complexities of modern supply chains to help businesses capitalise on the opportunities presented by new trends. ✪

The Internet of Things is having an impact right across the value chain.