IoT and the
Imminent Supply Chain
Digital Transformation

AVERY DENNISON

smartrac
an Avery Dennison company

It's Time to
See the Possibilities

Imagine a technology that shines light in the darkness. With no more spectres in the supply chain or ghosts in the machine. With transparency made possible through connectivity. Creating consequences as intended. The physical in sync with the digital.

Yes, it's time to see what is possible.

———

Made Possible with Intelligent Labels
by Avery Dennison

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Contents

About Avery Dennison

Avery Dennison (NYSE: AVY) is a global materials science company specializing in the design and manufacture of a wide variety of labeling and functional materials. The company's products, which are used in nearly every major industry, include pressure-sensitive materials for labels and graphic applications; tapes and other bonding solutions for industrial, medical, and retail applications; tags, labels and embellishments for apparel; and radio frequency identification (RFID) solutions serving retail apparel and other markets. Head quartered in Glendale, California, the company employs more than 30,000 employees in over 50 countries. Reported sales in 2019 were $7.1 billion. Learn more at **rfid.averydennison.com**

Research methodology
This report is collated using a combination of primary and secondary research methodologies. Primary quantitative research was conducted using SmartSurvey, a multi-question, multiple-choice independent digital platform trusted by a wide range of organizations and businesses worldwide. There were 710 respondents from the US, EMEA and APAC regions in c-suite or management positions, working within technology, logistics, retail, supply chain management and/or sales. Deeper primary qualitative research was conducted through a series of Avery Dennison interviews. This was bolstered by secondary desk research.
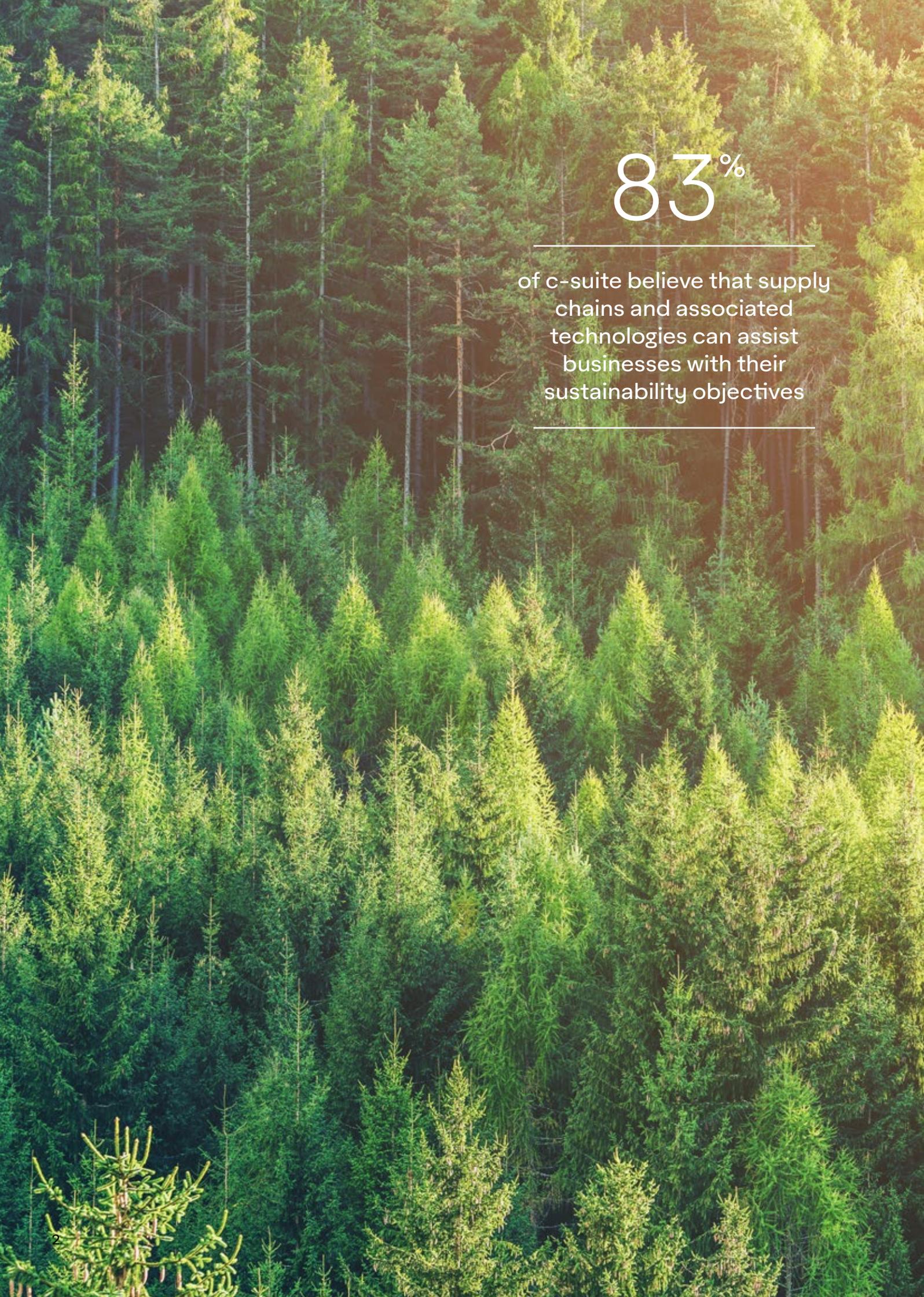
83[%]

of c-suite believe that supply chains and associated technologies can assist businesses with their sustainability objectives

Executive summary

IoT. You've heard the expression. You know the acronym. But what are the implications?

As our Digital Age gathers pace and new game-changing disruptors each, in their turn, emerge upon the stage, we explore the likely role that the Internet of Things (IoT) will play in global supply chain operations and consumer experiences.

As IoT evolves from the conceptual and 'half-invented' and starts becoming 'fully-realized', we speculate on the swift and radical changes soon to be witnessed across critical industry segments, from food chains to circular economies within retail, with physical products not only 'born digital' but where 'second lives' are made possible from the moment of purchase.

In these delicate and uncertain times, and with a global quant panel of proprietary research commissioned just before Q1's 2020 lockdown, there has arguably never been a more timely or prescient temperature read on the mood of industry heads and the c-suite.

With sustainability no longer just a matter of corporate comms and good citizenship, we will see how industries and companies around the world start to more closely scrutinize the cause-and-effect roles they play.

From Fortune 500s to independent owner-operator businesses, increasingly sustainable practices will become a heart-of-the-matter discourse, where board-level action (or inaction) will positively (or otherwise) impact the myriad B2B and B2C decision-making that then follows. The actions and inactions of business leaders will quickly play through the system, leading to commercial and consumer outcomes that will quickly circle back on bottom-line fortunes. Chain reactions, operating as feedback loops.

Through 2020 and far beyond, we will see how better deeds will follow on the back of good and wise words. From brands. From the companies behind them. From technology providers. From business leaders.

In the most public and personal of ways, COVID-19 has brought the very simple principle of 'supply and demand' into stark focus for everyone. Where do my products come from? What goes into them? Are the things I buy made of 'The Right Stuff'? What guarantees do I have that my groceries will be there on the shelf? And if they're not there, can I find alternative means?

As fast-acting companies come to the fore, devising 'Under-Study Supply Chains' as a way to stay in business and get products into people's hands, the landscape is becoming one of pro-action, adaptation and ever-greater self-reliance.

There are many positives that can and should be drawn from this defining moment in time. While perhaps a touch cliché, to say we are on the cusp does not make the reality any less true.

So let me be clear. We are on the cusp. The Supply Chain Revolution is upon us. It is becoming everyone's concern. Everyone's healthy pre-occupation, where many if not most have their part to play. And no question, digital innovation and innovators will lead the charge.

Handled well, with invention and steady nerve, the enlightened pairing of technology and good judgement will define our collective future, both in the immediate and longer-term, in ways that merit genuine optimism. The minutia elements of microchips and RFID tags, of their efficacy and performance, is now tethered to the most pressing global themes of our age. This is the Supply Chain Revolution. And to all reading these words, also know this.

You are invited.

By Francisco Melo
Vice President & General Manager, Intelligent Labels, Avery Dennison

65%

of interviewees identified that 'sustainability' will be an even 'greater priority' than before COVID-19

IoT: from half-invention to the next big thing

As yet, still more column inches than use cases.

Like all descriptors, the 'Internet of Things' is a bundle of ideas and conceptual possibilities arriving ahead of any later reality.

Like so many ideas in the digital technologies space, the 'Internet of Things' is presently a 'half-invention'. Partly happening. Mostly yet to happen. It is an idea conceived, articulated, seeded, and that invites others to latch on and riff.

True of any 'Lexical Sememe', sometimes the invitation inspires and mainstream embrace follows. Other times it's a pass. Non-fiction is riddled with ideas that didn't take hold and soundbites that fell on deaf ears.

But let us be clear. The 'Internet of Things' is a descriptor that will not be making any early bow from the techno-cultural stage. Not only is the term here to stay, but we are at last on the cusp of 'The Half-Invented' becoming truly realized and part of all our daily lives.

Where once the reflexive, 'go-to' references were 'things' like 'smart fridges' able to text you a reminder to buy more milk, the 'killer application' of IoT is rather more on the scale of absolute ubiquity and global benefit.

Internet of Things
– noun

The Internet of things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

Through IoT, we are granted means to evolve the World Wide Web into a truly Physi-Digi operating system.

'A truly Physi-Digi operating system' may sound somewhat grandiose and sweeping, so before we start exploring the themes, use cases and future winners, let's first anchor ourselves with a quick, simple and accessible definition. Within the descriptor above, 'unique identifier' and 'ability to transfer data' are two key and crucial beats.

A 'unique identifier' sits at the heart of an IoT ecosystem.

The UID is the lynchpin without which the whole system disconnects and falls apart. The bright sun around which everything else needs to orbit. Lynchpin, sun, whatever the metaphor, the point stands fixed and firm. Every physical product needs a UID in order to make the promise of 'IoT' an interloping and interconnected reality.

*Source: Wikipedia

78%

of global c-suite &
senior leadership consider
customer experience as part
of supply chain operations

IoT: Made Possible
with Intelligent Labels
by Avery Dennison

'The label'… makes every physical thing part of the 'Internet of Things'

If you can tag any physical item with a unique identifier – and if that tag (call it a 'label') can transmit and connect to the internet – then the 'Internet of Things' moves from concept to reality in a single step.

What does this then all mean, both in literal and far-reaching terms?

Let's start with the literal and 'the humble label'. A printed piece of paper, either applied to a product or that appears on a piece of packaging, has the potential to now also be an IoT-enabler. It's time to 'reimagine the label'.

In 21st Century terms, a label can also now become a 'Physi-Digi' connector. As Hannah Bernard, Avery Dennison's Global Marketing Communications Director for Intelligent Labels puts it in Forbes 2020:

"Take our historic understanding of what a printed paper label is, but build in a micro-chip and antenna and immediately 'The Label' becomes the connecting thread by which any physical item can be cloud-connected. Simply, the right kind of label can make almost any physical thing part of the 'Internet of Things' – and it's when you then consider all this through the lens of production… manufacturing… ingredients… and global supply chains… that things become radically eye-opening."

'Radically eye-opening': an instructive piece of language that really hits the nail on the head.

Deeper insight, fuller understanding, greater understanding of the factors and actors at play: this is the perennial ambition of companies and business leaders the world over. And this is what IoT-enabling technologies can bring to the table.

Boil it right the way down, to the most fundamental building blocks of the way our economic world works, and we are left with 'Supply and Demand'. That simple, that basic, that primary. Nothing more and nothing less.

Complexity, on a major scale, then enters the equation the moment 'Supply and Demand' is played out across 4 dimensions, and across the globe. Global supply chains aren't just the semi-visible chains of manufacturing played out across borders. Supply chains, in their so-many shapes, sizes and natures, are the mesmerising undulations of a global seascape, with our current ability to manage and model them only partly in place.
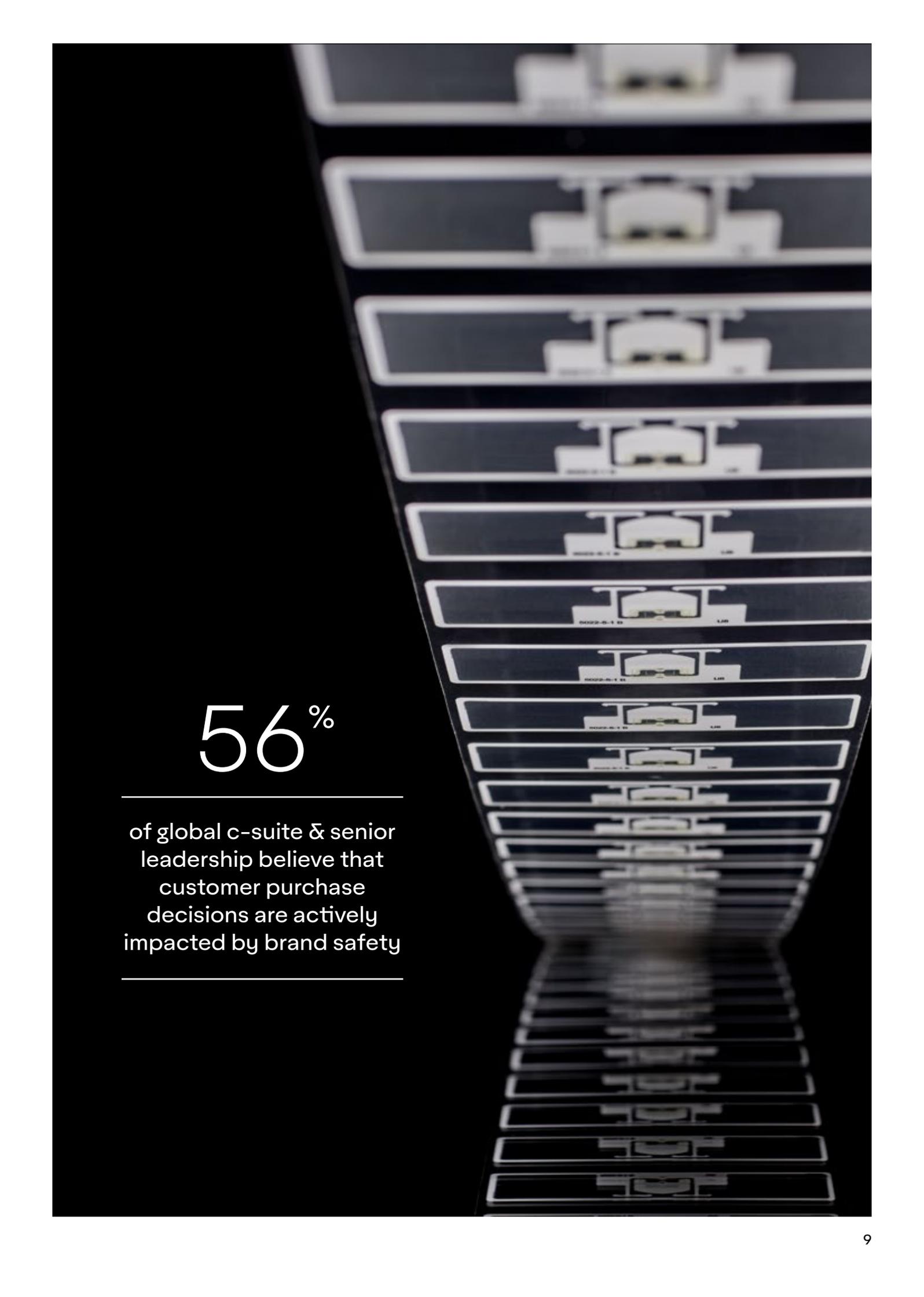
56[%]

of global c-suite & senior leadership believe that customer purchase decisions are actively impacted by brand safety

IoT: Made Possible
with Intelligent Labels
by Avery Dennison (continued)

66

I worry about the gaps. The passages of time that are unknown. A consignment arrives in the dock, could be sitting there for an hour, five, a day, before then being loaded for the next leg of its journey. What happened in that gap? Maybe nothing. But it's unverified. The fear is anything from theft to contamination. I don't want to trust and hope. I want certainty. I want a logistics solution that removes doubt. No more gaps, no more unknowns.

99

Helen Priestley, Global CMO, Avery Dennison,
The Avery Dennison Interviews, June 2019

The tracking, the tracing, the sourcing, the monitoring: these factors and actors, often non-linear and fast-changing, can be made so much more manageable and precise when they can be digitized.

Digitizing the physical and temporal elements of a supply chain is both the Big Picture and Macro Lens focus that will ultimately give birth to 21st Century Consumerism and Capitalism 2.0. To riff on Priestley's above remarks, the gaps can be closed. The unverifiable verified. Fear and doubt can be bled from the system. The unknown known. And it is not just business leaders who are champing at the bit for greater clarity and sense of certainty. This present anxiety and gnawing need is just as much a public and consumer-level pre-occupation.
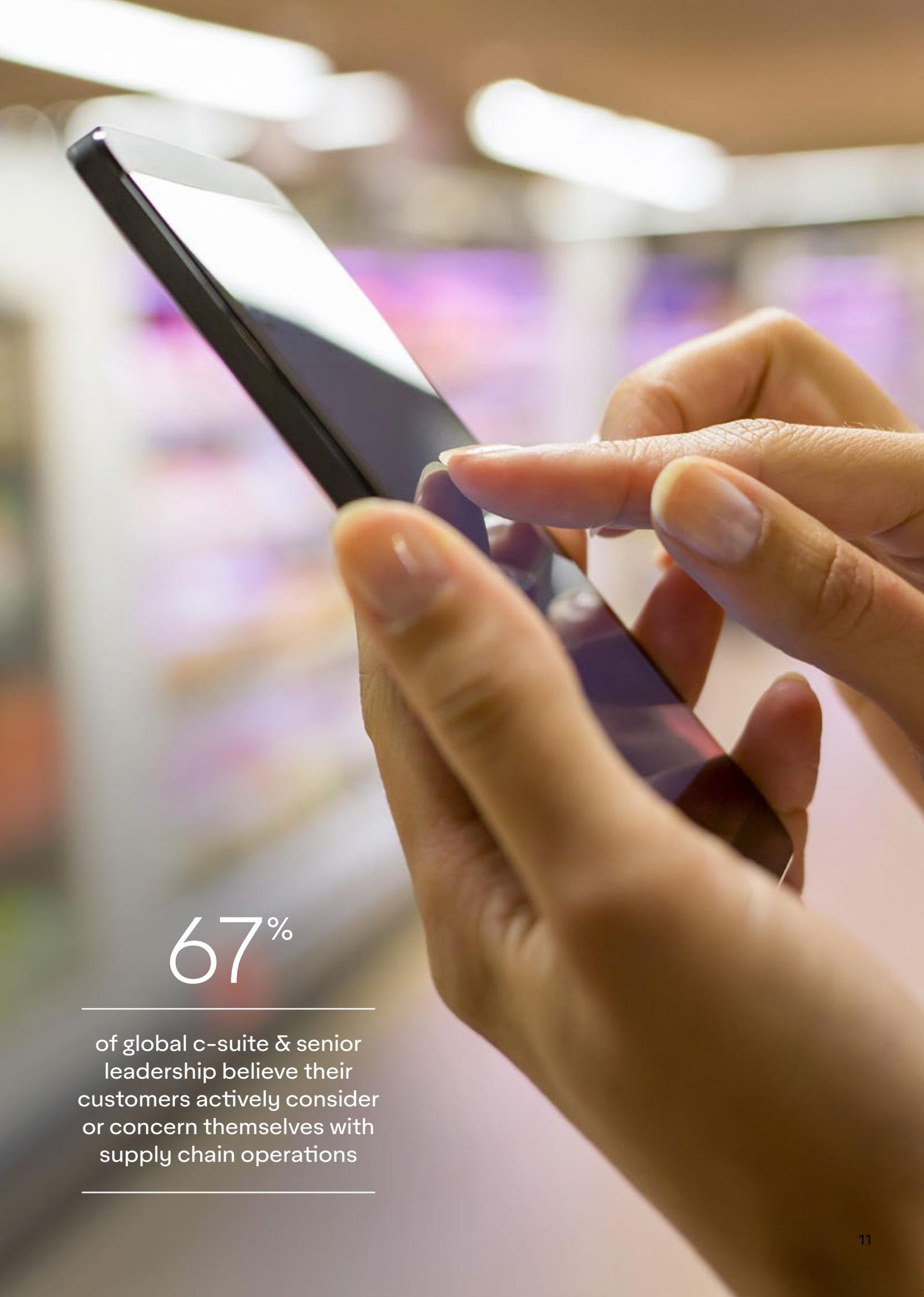
67[%]

of global c-suite & senior
leadership believe their
customers actively consider
or concern themselves with
supply chain operations

The Supply-Chain Revolution just started

Intelligent Labels suddenly make global supply chains 'sustainable and trusted by design'

While we all might personally recall 'supply chains' as fleeting moments in an economics or geography curriculum, long-since filed to our memory bank under 'global manufacturing practices' and the like... the doors get blown off said filing cabinet the moment one considers the truly big issues and global concerns of our times. For that, as only a starting point, think: sustainability, ethical sourcing, corporate responsibility, brand safety and product integrity. In other words: the vast, complex, down-the-rabbit hole concerns that may actually be addressed through 'supply chain best practices', as made possible by the introduction of 'Intelligent Labels' – whereby the supply chain per se can be transformed into an IoT ecosystem that can be tracked, traced, interrogated and held to account.

Though supply chains have typically been considered in somewhat 'behind the curtain' terms, it doesn't mean that they should ever be hidden from view or accountability. And now they don't have to be.

Intelligent Label technologies make it possible for global supply chains to be 'sustainable and trusted by design'. Intelligent Labels make it possible for the 'who, what and where' of every physical product to also become data-points of irrefutable fact and absolute visibility. Where, for example, proof of provenance is assured. With proof of ethically sourced materials and manufacture as a guaranteed data trail.

IoT flashback: it started with a vending machine

There's always value in knowing the origin story

Kevin Lonergan, of business tech title Information Age, describes the terms surrounding IoT as a 'terminology zoo'. He quite rightly cites the absence of clear and consistent descriptors as 'not useful from a practical point of view' and a 'source of confusion for the end user'. Lonergan explains this to the simple fact that IoT is a term that predates our current world of smart phones, tablets and cloud-based computing. Simply, IoT is an acronym with baggage.

It's a generally held view that the term 'Internet of Things' was first coined in 1999 by Kevin Ashton of Procter & Gamble (later MIT's Auto-ID Centre). At that time, Ashton 'viewed radio-frequency identification (RFID) as essential to the 'Internet of Things', which would allow computers to manage all individual things'*. In spite of recognising right out of the gate that, in the most practical terms, IoT requires RFID (or similar) at its heart, 'IoT' has been a concept in on-going search of viability, edge applications and value-proposition for more than 20 years.

Ironically, the first 'edge application' for IoT had a very clear value-proposition, and predated Kevin Ashton's catchy description by 17 years.

As early as 1982, the concept of 'a network of smart devices' was explored by Carnegie Mellon University, who were able to adapt a Coca Cola vending machine so that it could report its inventory and whether newly loaded drinks were sufficiently cold.

It's frequently argued that IoT solutions too often lack (1) a clear use case for end-users, or (2) an equally clear ROI case for companies – yet the Carnegie Mellon progenitors of IoT were able to make both cases easily and succinctly. To them, quite simply, IoT could be an inventory solution, to align stock with demand, prevent over-purchase, and never frustrate consumers with out-of-stock or disagreeably warm soda.
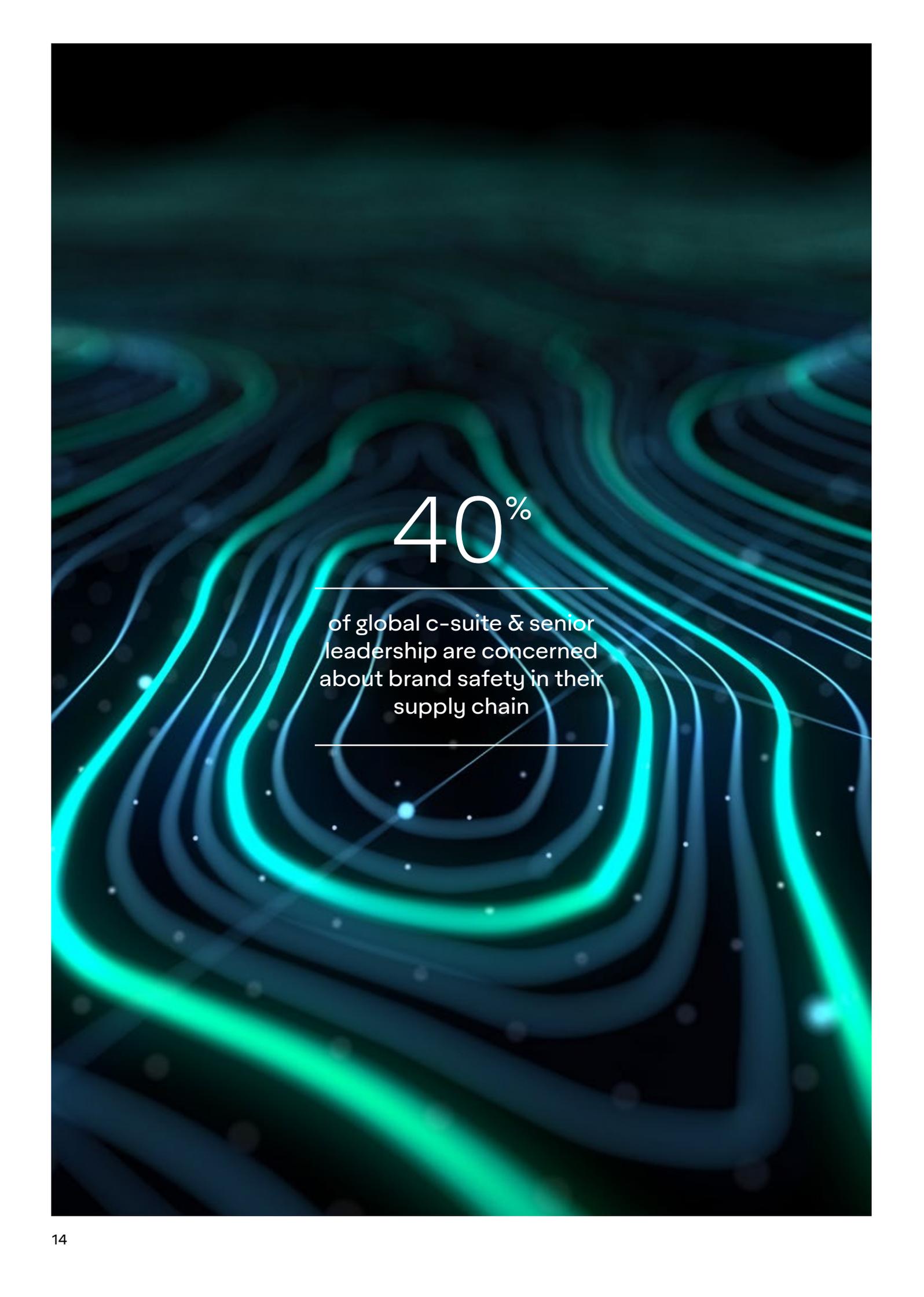
40[%]

of global c-suite & senior leadership are concerned about brand safety in their supply chain

Supply chains get the disintermediation treatment

From castle keeps to even and egalitarian playing fields

One of the earliest themes of our Digital Age was that of 'empowerment'. 'Digital' as a liberating force and open-invitation.

The Digital Age was putting power in the hands of the people, because 'connectivity' also spelt 'access and means'. We could all create, upload, 'share', and our talent would 'out', or not. But either way, you, we, all of us, were invited to the party; an open-market, built on democratic and egalitarian principles, fair and equal for all, with all granted voice to self-express and add to the collective chorus of self-regulation.

'The Internet' was open-source in every sense – which meant that a discernible power shift had taken place, where for the first time, 'The Individual' and 'The Institution' operated on an even and equal playing field. 'Before digital', institutions had represented castle keeps, the keepers of conventional practices, an orthodoxy of rules and behaviors, where the individual had to break in. Want to be an art director, writer, artist, poet, model, film-maker, clothes-designer? Then you had to land a job or apprenticeship or secure formal representation from an agent, gallery, studio etc... Being an 'indie' was a hard slog, putting you on the outside and making 'breaking through' or going mainstream borderline impossible. Then, with 'digital', that all changed. Suddenly, no one had to be an outsider.

Fast-forward to our 'right now', and the principle of 'even and egalitarian playing fields' is being seen within... supply chains. Why?

As ever, because necessity demands invention.

It was farm to fork...
now quay to kerb

The emergence of understudy
and micro supply chains

One *Times* newspaper article recently (April 2020) asked, "What do you do with a boatful of fish when restaurants shut, exports collapse and supermarkets close their fresh fish counters?"

'Sea to Fork' or 'Quay to Kerb' (depending on which turn-of-phrase you find more catchy), has been one such supply chain sub-set to gain mainstream editorial coverage.

Answering his opening gambit, journalist Jon Ungoed-Thomas went on to illustrate the necessary invention now being practiced by Plymouth (United Kingdom) fishing crews.

Community venture Call4Fish.com is but one recent response to what it's co-founder Rodney Anderson calls an 'economic tsunami' facing the fishing industry.

"We started working on it (Call4Fish) on a Friday (March 20, 2020) and we had the website up in 72 hours, and 1,500 boxes of fish were dispatched from Plymouth in the first week" explains co-founder Terri Portmann. "Then we started hearing from the ports."

People still have to eat and people still want to eat fresh fish, but when the usual links in the chain of supply fail, what do you do? The simple answer is invent and improvize.

Call4Fish is an exercise in reducing dependency, and bringing a fast-tracked, 'understudy supply chain' into the spotlight when the big name and proven star suddenly comes down with the flu.

Call4Fish is also by no means alone in taking matters into their own hands, in order to stay in business and get their produce in the hands of end users. Desperate times call for not so much desperate measures, but certainly inventive ones.

Everyday US brands, familiar to all for what they once did, are re-inventing, breaking down their product into its consistent parts, and selling those parts direct to consumers.

When you can't sell a sandwich, but you can sell what you put in your sandwiches, then you do what you have to do. Specifically, pause the core business and run a side-line that serves like a lifeline.

As Subway Grocery declares, "Skip the line and get grocery essentials contact-free from participating Subway restaurants."

Panera and California Pizza Kitchen are equally quick to tactically pivot, turning their businesses into micro-supply chain offerings, where customers have new options and alternatives to the big supermarket chains and the current restrictions and anxieties inherent in visiting them.

Now, restaurants are finding more ways to sell food. Panera and Subway are selling groceries direct, shifting business models to adapt in the wake of the ongoing coronavirus pandemic. On April 1, CPK (California Pizza Kitchen) began selling meal kits which allow pizza fans to make many of the chain's popular menu items at home. Some kits, available through the newly established CPK Market, include pantry items like fresh produce, meats and seafood, milk, beer and wine.

today.com, April 2020

Buy, just don't touch

When contactless and frictionless became touchless and safer

Under the editorial banner, 'Life After Lockdown', a *Sunday Times* article of April 19, 2020 headlined, 'Swedes come up with a new take on safe shopping – no assistants'.

This retail-meets-human-interest piece told of a local shop called Lifvs, nestled amongst fir forests a few miles outside the medieval town of Uppsala.

Inside lifvs are neat shelves stacked with avocados, oat milk, chicken breasts and pickled herring. There is no shopkeeper. Instead, locals in this bucolic hideaway download a mobile app that opens the shop door and allows them to scan products, paying for them online.

Louise Callaghan, *The Sunday Times*, April 19, 2020

Lifvs is open 24/7 and currently totals 14 stores across Sweden. Plans are in place to expand to 80 across Sweden, with Swedish trade authorities based in Italy developing roll-out plans to import the Lifvs model.

"We want people to be able to buy breakfast, lunch and dinner from here", explained Lifvs co-founder Bea Garcia. "For those in risk groups it is often much more convenient and safer to come here than to a big supermarket where they might also have to use public transport. And our older customers are finding the app easy to use."

Of course, frictionless shopping is not a new concept, but it's uptake has hitherto been modest and experimental. It's been a column-inches stealer that has typically taken the guise of pilot scheme and pop-up store and where reluctances to roll-out stem from worries of an impersonal and imperfect customer experience.

Conversely, contactless payments methods have become mainstream, with The London Underground's Oyster card NFC technology (as launched in June 2003) being an early confidence-boosting use case, and with Google and Apple Pay later taking up the reigns and driving behavior ubiquity.

We anticipate a rapid scaling of new frictionless, touchless use cases over the next 24-months. The retail and apparel categories may well lean on IoT-enabling technologies and staff-less stores as a savior solution in response to public anxieties and the ongoing need for social distancing.

It will not be a simple case of returning to a pre-COVID world. New technologies cannot be 'un-invented' any more than certain novel pandemics can be eradicated in a blink. Measures, mitigations and workarounds have to be put in place. This can all be viewed as a set of problems and worries... or as a set of challenges where some of the necessary technology solutions are already at hand.

In much the same way as 'Before COVID' articulates the viruses historic non-existence, 'Post COVID' falsely implies a hard-stop and future absence of the coronavirus. In reality, coronavirus will not be eradicated any time soon. It will be a short-to-medium backdrop to our daily lives and global practices. 'Anno COVID' more accurately reflects the pathogen's ongoing existence in our lives, forcing the need for so many workarounds and out of which new actors and factors will successfully emerge.

Writing in *The Drum*, May 2020, author Simon Pont cites a number of likely winners in our 'Anno COVID' world.

"

Anno COVID, a multitude of clear new winners will emerge. For the obvious, think: broadband and content streaming services; video conferencing providers; social media platforms; e-commerce; digital yoga and meditation services. But then game theory it out to the wider concentric circles. New MedTech players will emerge. First-party data crowd-sourcing and Behavioural Modelling will be big. Wearable tech, Geo-Location and IoT will form new crossovers and start exhibiting themselves as so many mainstream use-cases. 'New Retail' will not only talk up the 'time-saving' benefits of frictionless shopping and touchless technologies, but will be quick to point out the reduced threats to our health.

"

Simon Pont, *The Drum,* May 2020

Feeling good about what goes on your feet... and in your mouth

When our future path needs to be a more circular one.

Writing in *Forbes* (November 2019), commentator Afdhel Aziz cites adidas's Futurecraft. Loop sneaker as "one of the most ground-breaking product launches in recent history". Futurecraft. Loop stands tall (and apart from the herd) as "the world's first fully recyclable circular economy sneaker".

Building – one product at a time – a bona fide circular economy is certainly one compelling benefit that Intelligent Label technologies can help make possible, where the shared desire amongst consumers and retailers is as clear as it is noble and praise-worthy.

David Quass, Director of Business Model Strategy at adidas, explains what to him is as much a personal motivation as a corporate one:

"I've been at adidas for a while and love the brand. Imagining the 'Badge of Sport' decaying on landfill doesn't sit well with me. As consumers we all enjoy buying stuff, yet some of the consequences of consumption on the planet are devastating."

Quass's words capture more than just 'the spirit of feel good' or the want to 'do good'. In these unique times, they are tip-of-the-iceberg remarks that will increasingly feel immediate and personal to the vast majority of us, the world over.

If 2020 is teaching us anything, it's how the natural world can stage an intervention and force a course-correction.

Clearly understood and presently being felt first-hand, how we abuse our planet, exhaust resources and behave 'irresponsibly' puts us on a path. A path of consequence. A path towards future potential devastations.

The food chain can bite back. Just how far can we push 'The Environment' before it decides to push back a little? However, the paths before us are many, none of them inevitable, and the salvations afforded through circular economy solutions will increasingly move from fringe to front-and-centre concerns for a whole host of companies across a variety of segments. In consequence, and soon, there will be much perceptual re-appraisal and re-evaluation of 'the things we buy', what ownership looks and feels like, and what 'value' can mean to us.

> 66
>
> adidas sells around 1.3m trainers a day. Each one represents a product sold... that then vanishes into a global void. There are billions of adidas trainers out there. But at present, there's no such thing as an individual product lifecycle that can be traced. Consider then how patterns of consumption may change. The need for ever-greater self-expression. Increasingly conscious shopping behaviors. The attraction of upcycling and recycling. The idea of viewing a product as a resource... for the next product. Meaning a running shoe becomes an asset, with a residual value; an investment that could be traded. Like a car.
>
> 99
>
> **David Quass,** Director Brand Sustainability Innovation & Business Models, adidas, *The Avery Dennison Interviews*, April 2020

As Quass details, imagine if we all start recognising the residual value of the items in our wardrobe and shoe cupboard? Imagine if we approach the contents of our wardrobe in a similar vein to the way we approach the car in our garage? The contents in each case being an asset class, a set of raw material commodities with residuals that can have a life far beyond that first retail purchase?

Adding support and momentum to the creation of a circular economy is certainly compelling. Ryan Yost, Vice President and General Manager, Printer Solutions Division at Avery Dennison, however brings the argument full circle and back to the goods we put inside us. The retail category per se will undoubtedly be one of the first to widely embrace the introduction IoT technologies to their supply chain practices, and of that apparel has many clear use cases, but Yost is keen to flag the food segment as a retail sub-set where he believes the motivations and benefits feel the most 'urgent'.

"Intelligent Labels and IoT have obvious applications to apparel; how giving a product a second life, for example, will appeal to ethically-minded millennials. And while that's 'really interesting'… it's actually in the food sector where I see the most profound need and where we'll see the fastest adoption. Because what I put on my feet isn't as urgent as what I put in my body. The value and importance of digitizing food supply chains is a three-way value proposition, with clear benefits to food distributors, retailers and consumers.

Out of COVID, we're going to see new supply chain models emerge. New ways of buying. New ways of supplying. 'Subway Grocery' is a good example here. And arguably where 'transparency' is going to become even more important to people, so they have trust in the bigger and smaller players alike the when, where and how of a product arriving at their door."

Ryan Yost, Vice President and General Manager, Printer Solutions Division, Avery Dennison, *The Avery Dennison Interviews*, April 2020

55%

of global c-suite & senior leadership believe that digital technologies across supply chains can assist in solving their concerns & 'big issues'*

*brand safety, trust, product authenticity, transparency, ingredients integrity

The Avery Dennison global panel,
April 2020

We asked

710 respondents
from

technology

c-suite

logistics

management

supply chain management

sales management

retail

across the UK, US, Central Europe, China & Japan

We heard

Do you believe you and/or your organizations are maximizing the potential value across your supply chain operation?

67% of respondents claim they are actively maximizing the potential with

50% of these directly benefiting from efficiencies in time, resources and labor

53% benefiting from cost savings, and

42% increasing overall productivity

Of those who are not exploring the opportunities:

31% the identified barriers were a general lack of awareness of what opportunities exist

35% cited skills gaps, and

35% perceived high costs of investment

We heard

When investigating the concerns and issues around supply chains

29% Product authenticity

30% Ingredients

30% Contamination

30% Storage integrity

30% Trust

31% Transparency

Yet brand safety drives the biggest concern (40%) with a corresponding 35% of respondents wanting to know more about how to solve issues in this area.

76% associate IoT with supply chain management

67% associate RFID technology with IoT

70% associate RFID technology with supply chain management
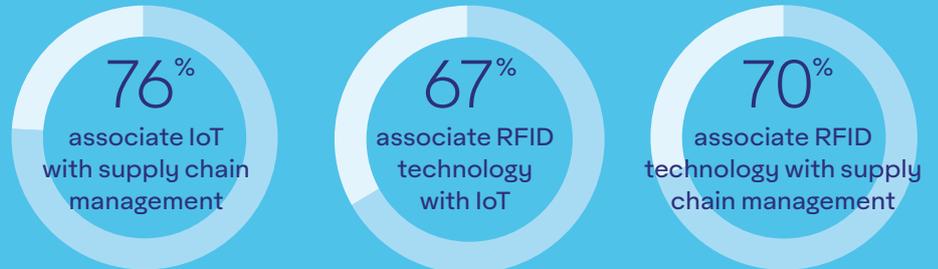
The data clearly highlights a triumvirate of associated factors, each necessitating the other yet we observe a mismatch on the % recognizing how digital technologies can address and solve their concerns or 'Big Issues'.

Do you consider digital technologies to be inclusive of labeling technologies?

86% do consider digital technologies inclusive of labeling technologies yet only

55% believe that digital technologies across supply chains can assist with solving their concerns or 'Big Issues' around trust, product authentication, transparency.

Only 12% claim to be exploring post-purchase and circular economy opportunities, 28% are exploring point of sale and/or consumer engagement, conversely 78% consider consumer experience part of supply chain operations; 60% say at POS, 55% at 'post-purchase' and 42% as part of ongoing consumer engagement.

When asked about sustainability...

83% believe that supply chains and associated technologies can assist businesses with their sustainability objectives

63% believing the COVID-19 pandemic will bring supply chain behaviors into even sharper focus.

65% identifying that 'sustainability' will be an even 'greater priority' than before COVID-19.
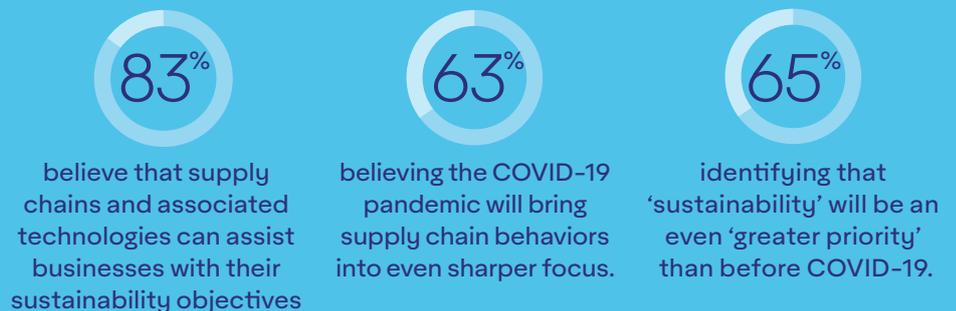
Closing remarks

These are unprecedented times. 2020 does not mark the smooth, uninterrupted, predictable flow of life and work for any of us.

The spread of COVID-19 has brought more than a 'break to the norm'. The necessary changes and adaptations that we have already seen and will continue to witness, around the entire world, are system-level. They are systemic. Structural. The future will require a re-building and a departure from some former practices. At the same time, this isn't as daunting or as onerous as it might sound.

While the unfamiliar can be unsettling, we also know that some changes can be wholly positive and that true progress doesn't happen evenly, but in fits and starts, in jumps and spikes that follow periods of stasis and plateau. There is change that we know should happen, and there are changes we start to make when given a nudge.

COVID-19 is a sharp-elbowed nudge to get on with some of the positive changes that would have otherwise figured in the 'nice to have' or 'maybe a priority for next year' list. In some respects, the arrival of COVID-19 has simply fast-tracked some of our better intentions and made them short-term points of priority. At the same time, making light of our current, collective circumstances would be grossly foolish and blindingly insensitive.

The present world-view, and the lack of certainty within the frame, is wholly sobering. These are incredibly testing times. Depending on the company, the mind-set, and the segment of operation, 2020 will be a difficult and even destructive year for many operators. Yet, many casualties and cautionary tales are possibilities and not inevitabilities. Passive and proactive hands have their equal parts to play in what comes to pass.

As Yakob remarks, our digital future is among other things, "infinite, invisible, interactive and intelligent", with products and people existing "within a participatory, frictionless system". We can and should regard this 'sooner-than-previously-planned' future as an exciting one, with the present-day call to take action being all too-clear and clarion.

Where we can introduce technologies that support 'the functional interoperation' of many moving parts, so much the better, so many more are the benefits. This particular aspect of our future was always going to happen. It's just now likely to happen that bit quicker.

"

The future of digital is infinite, invisible, interactive and intelligent. The future of digital consumerism is participatory, frictionless, stimulus, solutions, systems and sales.

Brands, products, and their content must exist within participatory systems, defined by the functional interoperation of elements, with a user at the center, with the ability and desire to be empowered, enlightened and entertained.

"

Faris Yakob, Futurist & Author, *Paid Attention*

It's Time for the 'Almost Everything Conversation'

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Remember when data was just data? Before it became big. When AI felt like Sci-Fi? When Blockchain might have referred to a piece of jewelry? When Supply Chains were a 'behind-the-curtain logistics thing'... and not something that increasingly matters... to everyone? Where that was then... this is now.

And today invites a very new conservation. The 'Almost Everything Conversation'. Where Supply Chains are no longer just a logistics or a manufacturing conversation... but also a sourcing... traceability... ethics... corporate integrity... brand safety... anti-counterfeit... absolute guarantee... inventory management...and let's not forget.... difference between making-a-profit-and-making-a-loss conversation. Yes, it's fair to say, we've a lot to talk about.

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