Secure, trusted environments enable businesses to meet their green transportation goals

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As the world assesses post-pandemic priorities, reducing environmental impact remains at the top of most businesses' lists. Transportation has played a critical role in keeping supply chains moving and providing customers with the products they need. However, a return to traditional workplaces provides an opportunity to re-assess everything from commuting to travel. Vincent Korstanje, the chief executive of Kigen, tells George Malim, the managing editor of IoT Now, that IoT is enabling the practices and processes that are making transport – both of passengers and cargo – greener. However, much work remains to be done and trusted, secure environments are critical enablers of both transport providers' business models and increased user adoption of alternate, greener modes of transport

George Malim: IoT has been widely spoken of as an enabler of businesses as they set sustainability and environmental, social and governance (ESG) targets. What trends are you seeing?

Vincent Korstanje: I'm definitely seeing IoT and sustainability rising up in the leadership agenda. We certainly see this in the conversations we're having, working closely with leading brands in digital security and securing IoT devices. Even if you look at the macro level, there is a lot of external data that supports this increased prioritisation of ESG. Analyst firm **IoT Analytics**, for example, has reported that the terms IoT and sustainability are being used together with increasing frequency in the leadership and investor briefings CEOs hold. The firm has reported there was a 23% increase of this last quarter

compared to the third quarter of last year, and an 86% increase compared to the same time a year before.

This illustrates that two things at play. One is that IoT is now in a new era and it's a lot more widely understood. The other is that people are a lot more guided by how can they make the world and the processes businesses depend on smarter. This goes hand-in-hand with renewed attention to sustainability as we turn to thinking about what the post-pandemic world looks like.

One of the things that we hear a lot of the CEOs and leaders pay attention to is **BlackRock** CEO, Larry Fink's regular letter to CEOs that is issued at the start of the year. This year, the letter highlighted the importance of ESG criteria for creating ▶

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enduring value for stakeholders. As IoT becomes more and more integrated into a business's processes, it's starting to really show impact and attract investment. The comments that he made are backed up by a staggering 96% increase in sustainable investing since 2019.

GM: Is it sufficiently well understood that IoT apps, systems and devices can provide the results businesses need to hit their green targets?

VK: I think we are still early in our journey to adopt IoT across several sectors, but it is becoming easier. There is much greater understanding now and education has created awareness of being able to connect and what the technology of IoT can do for your own business is starting to grow substantially. More and more people talk about how IoT is such a critical piece in that digitalisation and this digital transformation is one area where sustainability goals can be achieved.

There needs to be more education to increase knowledge of how IoT can help reduce CO_2 production, for example, but uptake also depends on the complexities that a specific sector operates within and the associated ecosystem. One area that that I think is really worthwhile is to build a greater understanding of how IoT can support radically changing business models. These are where the big gains are and where businesses can achieve efficiencies and hit their green targets.

An important aspect that is helping tremendously is how security can de-risk this pivoting and changing of business models for businesses. Understanding of the place security has in IoT is really starting to kind of gain much more momentum.

GM: Do you have any examples of how customers are harnessing the power of IoT to achieve green transport? ▶
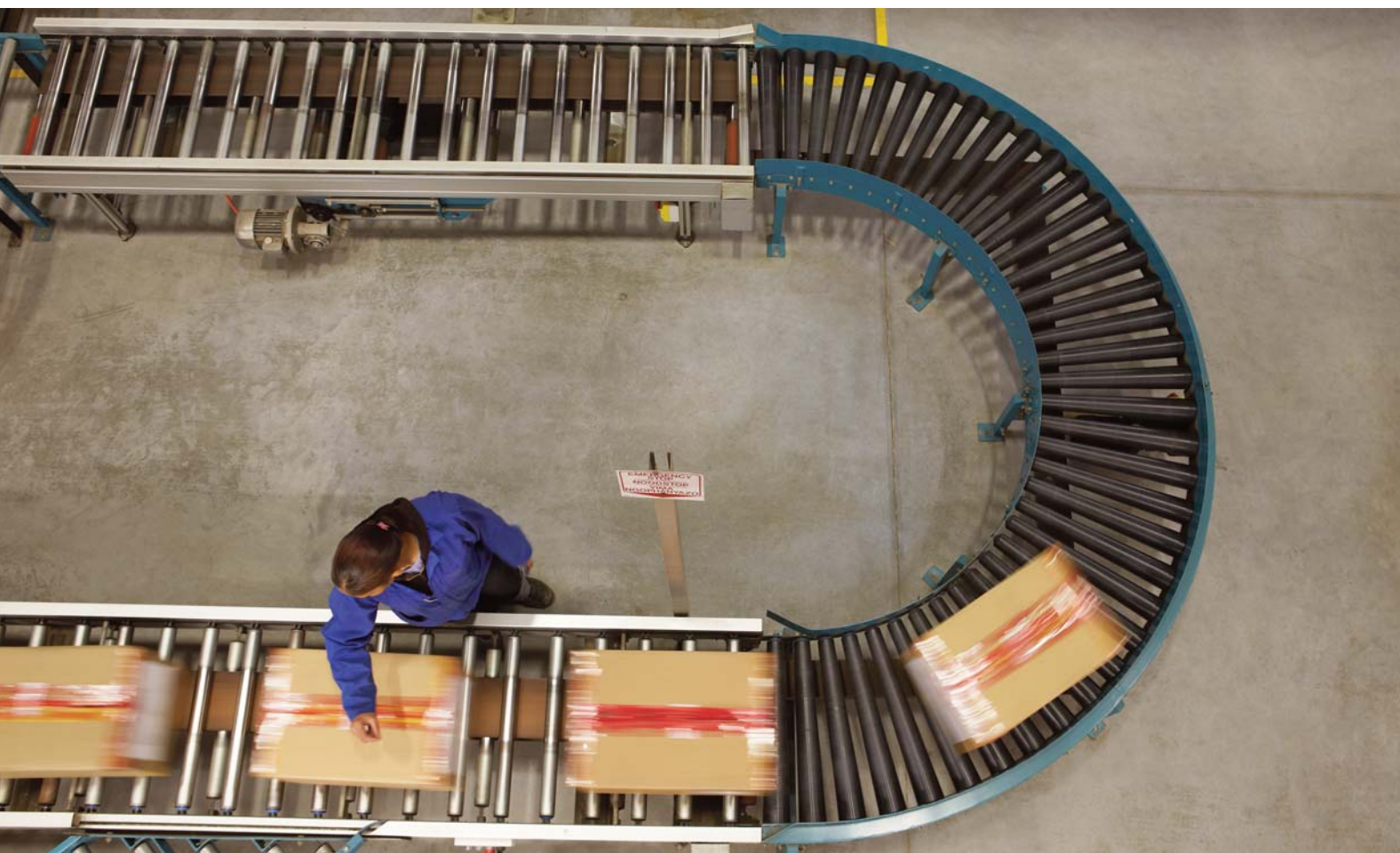
VK: Kigen is all about embedding security into any level of connectivity, and any IoT service that will result in trusted exchange of data. One key element of this is actually measuring how your goods and supply chain are moving. Green shipping has long been the goal of several businesses, particularly those where shifting boxes is a big part of their activity. There's a lot of activity around that area because tracking the goods, understanding the environmental conditions and travelling the least amount of miles as greenly as possible are all outcomes that businesses are starting to see through greater level of secure tracking. Tracking and logistics plays an enormous part in green shipping and integrated SIM (iSIM) is changing the dynamics of what we what we had seen previously as tracking solutions.

Aside from shipping, green transportation is, of course, a vast landscape that encompasses urban transportation and is very visible to everyone. This US$8 trillion market is being disrupted by ride sharing, autonomous driving and micro mobility. This is a really interesting area because, if we consider the share of e-bikes and e-scooters, according to research from the **Institute for Transportation and Development Policy** (ITDP), if the share of e-bikes rises to 11%, we could see a 7% decrease in CO2 emissions from the entire urban transport sector by 2030. This sector accounts for 50% of urban trips in the US or 70% of urban trips in cities like London so it's a huge impact in terms of how businesses and governments and cities can really provide better services.

The effects of these are obviously much cleaner air, much better transportation and better mobility to get from A to B. Behind the scenes, these systems tend to be quite complex but, for user-facing scenarios, they need to be really simple. This is where trusted and secure services come into play and can support and enable the value chain of governments, cities technology providers, people who provide the services for the scooters and, of course, the end users. All of those need to

make sure that they're working in a way that data is secure for anyone having to share their ride information, or their location information, for example.

GM: Do you see IoT offerings helping to change user behaviour or will IoT be used more as an enabler of new processes and practices that will change transport's environmental impact?

VK: We think the combination of secure by design, trusted IoT, and the ability to build trusted services is truly something that can change user behaviour without it being mandated. From the user perspective, we've been in this cycle in the past where if something is password-oriented or user-input oriented it becomes a challenge to manage. By having security by design, IoT, it becomes fairly manageable in that you can understand how things are produced, how to manufacture trusted goods, as well as enable the services to be easy for the user. Security becomes a commodity that is managed for the user by the solution provider. The companies that take the onus to actually have this social contract with their user will win. Security is going to be an essential part of the users' experience and will allow companies to gain the longer term engagement of their customers. Ultimately IoT is an enabler of changing user behaviour because the combination of practices and processes it supports creates both operational efficiencies and user benefits. The idea should be that the new practices and processes ease the burden on the user to adopt some better ways of doing things. Environmental benefits follow from that.

GM: Should passenger and cargo transport be considered separately or do IoT solutions translate well across both types of transport? Is there really an overlap because track and trace of a shipping container is really similar to track and trace of a micro scooter in a ride sharing scheme? The principles are the same, the execution is different. ▶

VK: From a technologist's standpoint, you're absolutely spot on that they are very, very similar. However, different industries have different business models and different specifics that need to be accommodated. In terms of IoT solutions that translate across the activities we've been involved with a common thread is how to standardise in a way that we preserve the key elements of security and the chain of trust. The goal is to make it simpler for the businesses as well as the users and the businesses that are providing the service. The challenge is how to do this while allowing flexibility, scalability and choice. I think IoT solutions will translate across both the cargo and passenger market but with subtle adaptations to take account of the expectations of each.

GM: What do you see as Kigen's role in equipping transport organisations to operate with minimised environmental impact and how do you see initiatives developing?

VK: Kigen is all about democratisation of trust. And we're trying to create a marketplace that disaggregates the supply chain because we believe that, in this new era of IoT, innovation can come from businesses of all sizes. Security shouldn't be restricted only to those that can invest a lot in it, services should be secure by design. This is where Kigen comes in, we help empower businesses to manufacture trusted goods that are connected and allow them to be securely and remotely SIM-provisioned, while enabling businesses to work with standard compliant trusted services models.

We're really supplying the ingredient OS of any SIM type. That SIM has undergone a huge amount of evolution, and now can be used across several form factors. The ones that excite us take the same robustness and reliability insecurity of the plastic sim that we've known for decades and bring that into an embedded format or form factor that is truly integrated into a processor. This means it has the secure hardware enclave and environment that works with the software to enable a secure transfer of data from its' origin through every link in the chain in the data exchange to the cloud.

This allows businesses to be able to choose where their data cloud and data services are connecting. When you enable choice and flexibility in this space, you are removing the burden for companies that have traditionally had to work with two different supply chains, making it simpler and easier for say medical, goods transportation, or logistics companies to make use of eSIM and the evolving standards around remote SIM provisioning. All of this leads to more streamlined and interoperable data exchange that can support these actionable insights that can help businesses and users be more green across transportation or any other sector.

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