

JULY 2023

inside zhzero





Message from Izak

Welcome to the July edition of Inside Zhero. Besides our feature on the Internet of Things, this issue is also jam-packed with exciting events that took place this month!

Fun fact – Already over 16 billion IoT devices are out there, and the number could jump to 30 billion by 2030 – more than 3 times the population of us humans.

IZAK OOSTHUIZEN

Bestselling Author,
Founder and MD



In this issue

Our feature “The Internet of Everything” highlights IoT’s proliferation in our daily lives.

We’ll also take a look at security concerns around IoT and all the remedial action you can take.

TECHNOLOGY BEYOND TODAY

On 12 July, Izak was a guest on a panel discussion hosted by Economist Impact. Economist Impact is part of **The Economist Group** and is a think-tank of creativity that engages an influential global audience. Annually, it hosts 80-plus events in over 30 countries on topics that convene world-class thought leaders on a range of strategic business issues.

Taking place at JW Marriott Grosvenor House on Park Lane, 'Technology beyond today: investing, innovating and inventing to shape the future' explored major trends and emerging innovations that are likely to transform the technology industry and the global economy in the near future. The panelists discussed the challenges and opportunities these present as well as opportunities for growth. Izak's take on the synergy between new technologies and cybersecurity was a great success and an eye-opener for some.

"There'll always be technological advances. We need to embrace change but the basics remain the same – secure your network and protect and backup your data."

- Izak Oosthuizen -



Spotlight on Zhero!

Last month we prematurely announced that Zhero had been awarded the sought-after title of 'Best International SME IT & Cybersecurity Support Company 2023' by the highly-respected SME Awards. This month we can show off the official trophy from SME Awards in recognition of this achievement.

Besides serving as a testament to Zhero's unwavering dedication to providing exceptional IT and cybersecurity support services to SMEs, we also owe this remarkable achievement to the hard work and commitment of every member of the Zhero team.

With this award, Zhero reaffirms its position as a trusted partner for SMEs seeking best-of-breed IT and cybersecurity services. We remain dedicated to empowering our clients through technology and ensuring their success and security in today's digital landscape.



SM
NEWS

IT Awards 2023

Zhero

Best International SME
IT & Cyber Security Support
Company 2023



You don't need a £1m security budget

On 15 June, Izak joined some of the UK's cyber leaders at the London Market Forums 2023 Cyber Resilience Leaders Summit. Presenters included Gary Brailsford-Hart, the Director of Information & CISO at City of London Police, and Simon Newman, the CEO of the Cyber Resilience Centre for London.

Everybody loved Izak's presentation about a minimum required cybersecurity framework for SMEs and some of the future challenges they face, including IoT, AI and SaaS.

Izak's diversity of content and pragmatic opinions went down very well and the event was an inspiring opportunity to share cybersecurity and risk mitigation strategies!



Building tomorrow today

Our UK office had the pleasure of providing Manav, a Year 10 student from Queen's School in Watford, with a 3-day work experience. Manav is currently studying computer science for his GCSEs and is fascinated with all things IT.

During his short visit at Zhero, Manav attended the Economist Impact event where Izak gave us his low-down on cybersecurity challenges facing new technologies. He also had an eye-opening onsite with Gavin, was dumbstruck by the enormity of the Level 3 data centre and had a fleeting introduction to Zhero's strategy.



"During my experience at Zhero, I have really enjoyed working with the team. Chris has supervised me and always answered any queries I have had. I've learnt a lot over the course of my work experience including my amazing experiences and couldn't have asked to do it at a better place. I have enjoyed Zhero and was amazed by the way they operate. I cannot thank the Zhero team enough for this opportunity, especially Chris, and would love to come back in the future."

-Manav

CRUSH IT CHAOS



Tune in here:



zhero | PODCAST

THE INTERNET OF EVERYTHING

Our fascination with connecting everyday objects and devices - which we now call the Internet of Things (IoT) - has been with us for over 50 years, even though it didn't have that name back then. Way back in the 1940s, our great-grandfathers were reading Dick Tracy comics and getting excited about his cool two-way radio watch.

In 1989, Dan Lynch, the President of the Interop Internet networking show, told John Romkey at the 1989 show that he would give him star billing the following year if he connected a toaster to the Internet.

Who could have resisted a challenge like that? Romkey rose to the occasion and used a simple networking protocol to turn the toaster on and off. A human still had to insert the bread.





What is IoT?

The IoT is all about connecting everyday objects to the Internet so they can talk to each other. These things can be anything from regular household items to industrial tools and devices. Think laptops, smartphones, refrigerators, coffee machines, Apple watches, and Google Home – and don't forget our popular PAs Alexa, Siri, and Cortana. British technology pioneer, Kevin Ashton puts his own spin on IoT:

“What the Internet of Things is really about is information technology that can gather its own information. Often what it does with that information is not tell a human being something, IoT just does something.”

The first IoT device

In the 1980s, a group of computer science students at Carnegie Mellon University in Pittsburgh came up with what could arguably be considered the first-ever IoT device - a networked Coke machine. These boffins designed a processor board that could detect when someone bought a Coke and when the machine's last bottle in any of its dispensing columns was purchased. Through the ARPANET, which was the early version of the Internet, users could connect to the machine and check if it had any Cokes available.

IoT gets it's name

Fast forward to 1999, and the term "Internet of Things" was officially coined. Just a year later, in 2000, LG Electronics made a groundbreaking move by introducing their Internet-connected smart refrigerator, further pushing the boundaries of IoT innovation. The original voice of the Sony PlayStation game, Crash Bandicoot, Brendan O'Brien once said:



"If you think that the internet has changed your life, think again. The Internet of Things is about to change it all over again!"



Cloud computing and IoT

One remarkable aspect of IoT is its ability to capture and process large amounts of data from multiple locations. This distributed nature of IoT applications results in the collection and collation of vast quantities of information. That's where the cloud comes in and proves its immense value. The cloud provides a scalable and efficient infrastructure for storing and analysing this extensive IoT-generated data, enabling seamless access and utilisation across different devices and applications. In short, the cloud plays a vital role in making the IoT ecosystem truly functional and useful.

IoT becomes a reality

IoT became a reality thanks to the widespread availability of microprocessor chips and operating systems like Linux and Android, which could be seamlessly integrated into various "things." These smart devices play a crucial role in the IoT ecosystem as they gather data from embedded sensors and transmit it over the Internet. This data is then stored, processed, and delivered through end-user applications and dashboards.

Smart IoT

From Smart Retail to Smart Banking, Smart Agriculture, Smart Home, and Smart City — you'll find IoT applications everywhere these days. It's no longer a surprise to see everyday items, whether personal, household, business, healthcare, automotive, agricultural, or industrial, coming with built-in Internet features.

Businesses have eagerly jumped on the Internet of Things bandwagon, using it to keep tabs on their inventory, track shipments, and deliver goods right to customers' doors. IoT is making waves in factories, where it helps control production lines, and in agriculture, where it automates irrigation systems and keeps an eye on livestock health. And let's not forget the consumer side of things!

You've probably encountered IoT-enabled products firsthand, like smart dishwashers, fridges, TVs, watches, cars, thermostats, fitness gadgets, and more. IoT has truly transformed our lives across industries, and it's just getting started!

“And just like any company that blissfully ignored the Internet at the turn of the century, the ones that dismiss the Internet of Things risk getting left behind.”

-Jared Newman-



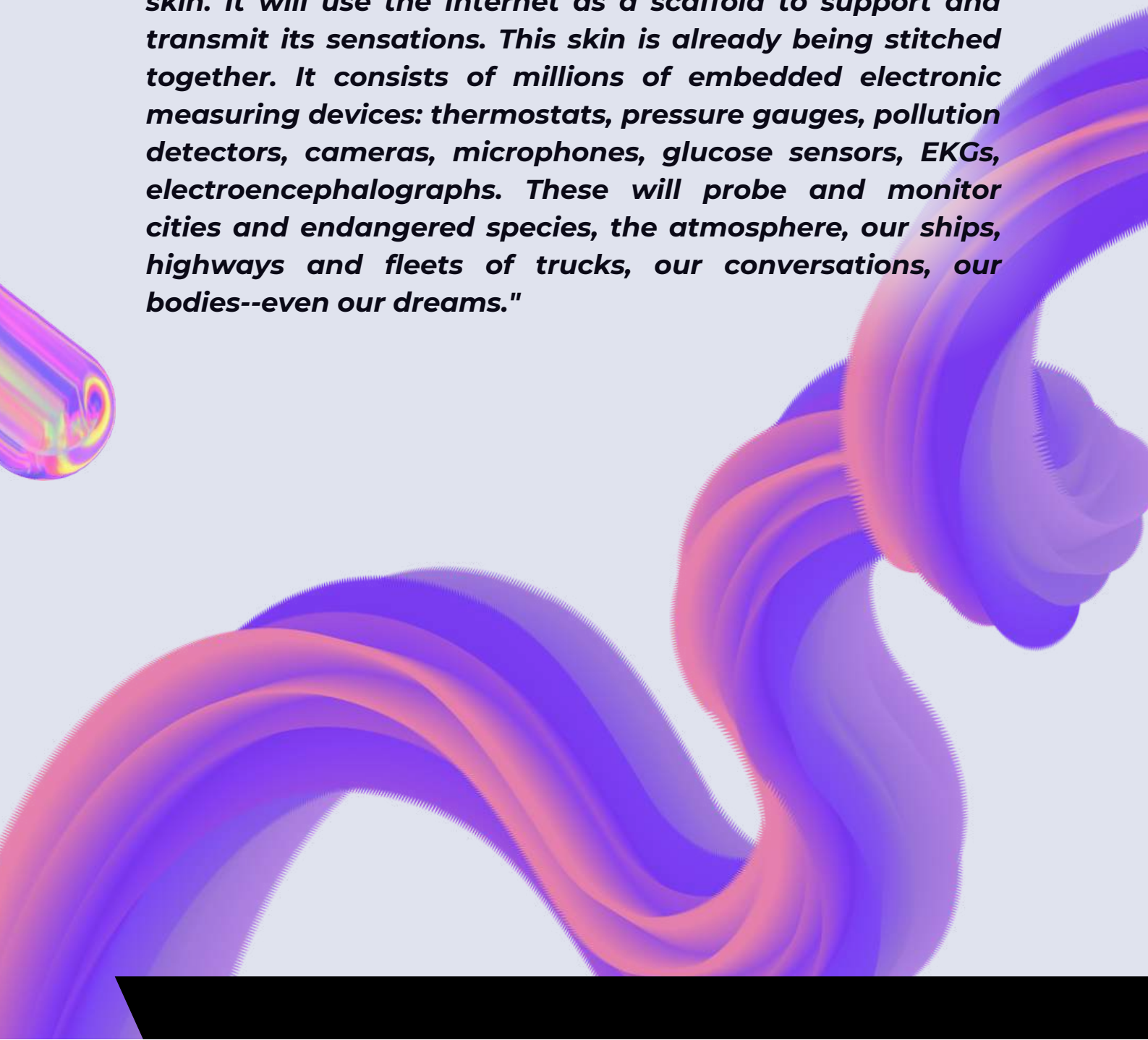
Technology makes it possible

Cool advancements in different technologies have made it totally doable to bring IoT into our lives:

- **Affordable and efficient sensors** - sensor tech has become cheaper and better, so now more manufacturers can hop on the IoT train. These sensors help collect data from the environment and make smart features possible.
- **Easy-peasy connectivity** - we've got loads of internet protocols that make it super simple to connect sensors to the cloud and other IoT devices. That means smooth data transfer and real-time communication between devices.
- **Cloud computing to the rescue** - cloud platforms are everywhere now, giving businesses and regular folks easy access to scalable infrastructure. You don't have to worry about managing all the hardware – just tap into the cloud for storage, processing, and analysis of your data.
- **Smart analytics and machine learning** - thanks to fancy advances in analytics and machine learning, we can quickly dig into all the data that IoT generates. With all that info stored in the cloud, businesses can spot patterns, trends, and valuable insights to boost their operations and decision-making.

In 1999, Neil Gross, a Professor of Sociology told Business Week:

"In the next century, planet Earth will don an electronic skin. It will use the Internet as a scaffold to support and transmit its sensations. This skin is already being stitched together. It consists of millions of embedded electronic measuring devices: thermostats, pressure gauges, pollution detectors, cameras, microphones, glucose sensors, EKGs, electroencephalographs. These will probe and monitor cities and endangered species, the atmosphere, our ships, highways and fleets of trucks, our conversations, our bodies--even our dreams."

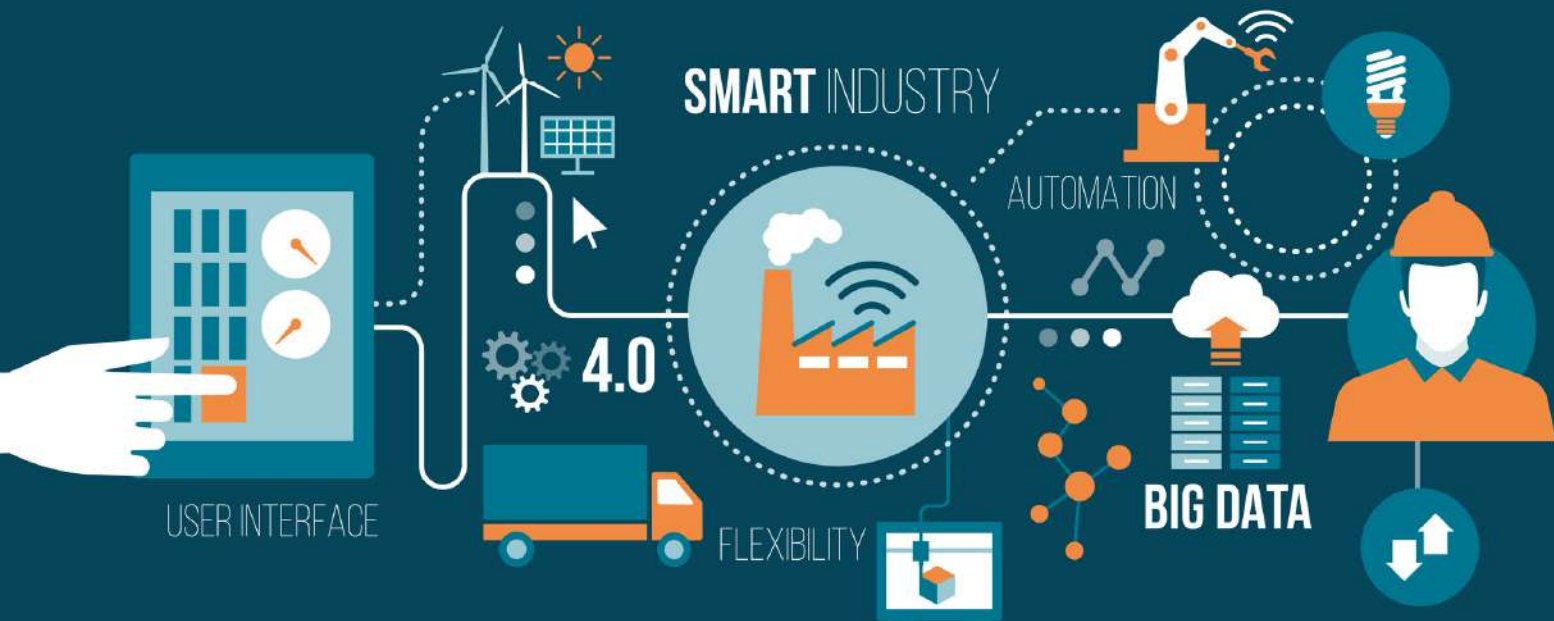


Helping our planet

With the world facing serious challenges, industries turn to IoT for solutions.

- Take 'The Climate Pledge' where big players like Mercedes Benz, Amazon, Microsoft, and Unilever are teaming up to achieve zero net carbon emissions by 2040. They've been driven by the increasing wildfires and floods caused by extreme weather events. To make it happen, companies are investing in IoT-based energy and resource management.
- Governments are also realizing the need to cut down on fossil fuels. Companies like Ford are going all-in on electric fleets, leading to investments in smart grids and smart city planning.
- The pandemic has pushed us to adopt remote work, telemedicine, and automation of many tasks. Cloud vendors like AWS are catching up by focusing on IoT cloud services, offering communication services and tailored solutions for IoT systems.





Enterprise and IoT

On the subject of security, an IoT-powered solution leverages real-time data to proactively mitigate cybersecurity attacks. It can even prepare incident responses and security policies based on network activity, ensuring a robust defence.

Another application is utilizing customer analytics for informed decision-making. Enterprises now have access to an unprecedented amount of real-time data, enabling them to make data-driven choices like never before.

ITIL (Information Technology Infrastructure Library) comprises best practices for managing IT assets and services.

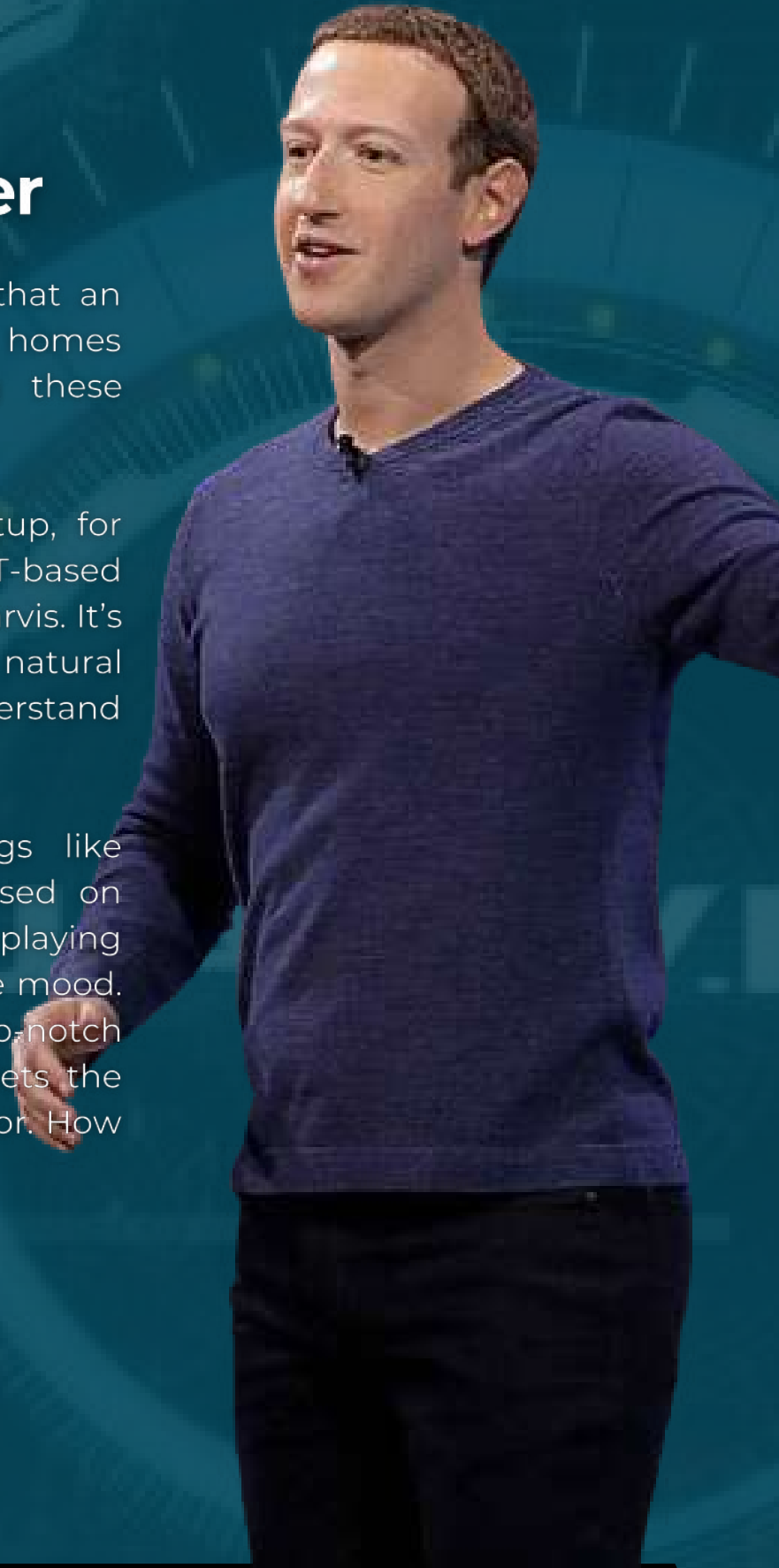
These practices focus on aligning IT services with business requirements. With the increasingly complex enterprise infrastructure, where devices communicate with each other, it is crucial to strategically consider IoT integration into the ITIL framework, enriching the library with valuable insights from IoT data.

Javis, the software butler

It's mind-blowing to think that an estimated 309 million homes worldwide will be rocking these smart systems.

Take Mark Zuckerberg's setup, for example. He's got his own IoT-based smart home system called Jarvis. It's super high-tech, using fancy natural language processing to understand voice commands.

Jarvis takes care of things like adjusting room lighting based on who's there and playing personalized tunes to set the mood. And let's not forget the top-notch security. Facial recognition lets the family know who's at the door. How cool is that?





The IIoT Revolution

The Internet of Things revolutionizes the factory floor by giving physical devices a digital edge. Industrial IoT (IIoT) takes IoT to the factory level, often known as the fourth wave of the industrial revolution or Industry 4.0.

- In most factories, maintenance management relies on enterprise asset management (EAM) and computerized maintenance management systems (CMMS). By integrating IoT-enabled sensors, these systems can extend the lifespan of machines and ensure their availability and reliability.
- Real-time device monitoring enables predictive maintenance and optimal machine health. Condition-based maintenance (CBM) is a maintenance strategy that monitors the health of assets and performs maintenance only when necessary. IoT makes CBM possible, resulting in cost savings.
- The aggregated data from monitoring helps optimize product development and quality testing. It has the potential to improve various operations, from packaging to overall management. IIoT can also automate many manual maintenance tasks, leading to streamlined mass production.

Internet of threats

Many IoT devices are not designed with security in mind and problems include software vulnerabilities and cyberattacks - especially concerning for industries like healthcare, finance, manufacturing, logistics, and retail, all already using IoT systems.

Just to give you an idea, in the first half of 2021 alone, there were a whopping 1.51 billion breaches of IoT devices.

Stephane Nappo, the Global Head Information Security for Société Générale International Banking says:

“The Internet of Things devoid of comprehensive security management is tantamount to the Internet of Threats.”



IoT security challenges

IoT security is all about keeping the Internet of Things safe and protected. It covers everything from the physical parts and applications to the data and network connections. Securing IoT systems is a tricky business, mainly because a lot of those smart devices have limited computing power and resources. They just can't handle fancy and resource-hungry security functions like their non-IoT counterparts. As a result, they tend to have more vulnerabilities. Here are a few reasons why IoT systems often end up with security issues:

- **Limited computing capacity** - IoT devices can only do so much with their limited processing power. It's hard for them to incorporate solid built-in security measures.
- **Weak access control** - Some IoT systems have dodgy access control mechanisms, making it easier for unauthorized troublemakers to exploit vulnerabilities and gain entry.
- **Patchy patching** - IoT devices may not get regular patches and updates due to technical limitations or tight budgets.
- **User laziness** - Not everybody updates their IoT devices regularly. Some folks just leave them hanging with outdated software, making them sitting ducks.
- **Lack of User Awareness on IoT Security** - Many of us don't know enough about IoT security, which can lead to weak settings or falling for tricks by scammers.
- **Outdated devices** - As time goes on, older IoT devices might not receive software updates anymore. That leaves them open to vulnerabilities that won't be fixed.
- **Physical attacks** - Attackers can get crafty and physically tamper with IoT devices or hack them using sneaky radio waves.

Protect your IoT

Here are some awesome tips to keep your IoT devices and data secure:

- **Limit Access** - only give access to your IoT devices to those you trust. Keep it exclusive and avoid sharing with just anybody.
- **Use a Firewall** - set up a virtual wall to shield your IoT devices from internet baddies.
- **Use Encryption** - make sure your data is encoded when it's sent between your devices and the network.
- **Train Employees** - teach your team about IoT security tricks, like spotting sketchy emails, using strong passwords, and being careful with new apps. They'll be the Jedi Masters of IoT security!
- **Use a Separate Network** - keep your IoT devices on their own special network, away from your main network for personal or business devices and data.
- **Regular Backups** - back up your device settings and important data regularly. That way, if anything goes wrong, you won't lose everything.
- **Keep Software Up-to-Date** - always update your IoT device software. Those updates often come with security fixes to keep the bad actors out.
- **Update Firmware Regularly** - don't forget to update the firmware on your devices too. Firmware updates add extra layers of security and fix any bugs or glitches.
- **Monitor for Suspicious Activity** - watch for any weird or suspicious activity on your IoT devices or network. If something doesn't seem right, investigate it.

IoT in time

1993



First webcam prototype

The Trojan Room Coffee Pot was installed at Cambridge University to monitor coffee remaining in the brewing machine

2013

Sensors

Sensors are used to accurately sense the environment and people could control home lighting, garage doors and thermostats all from their phones

2020

Thermal cameras

Heat detection cameras started popping up in public spaces to measure people's temperature during the pandemic



First IoT device

Connected Coca Cola vending machine

1982



2005

The Nabaztag

An ambient electronic device shaped like a rabbit was able to alert its owner, speak to them and stream MP3s



2014

World's first Smart City

Smart Docklands; Dublin



Meet the team



Anas Fauroos

ON-SITE ENGINEER

Hi Anas! What made you realise you want to go into the IT industry?



I have always enjoyed technology and how dynamic it is. I am able to learn something new every day! I am really pleased to be a part of the world of IT.

What's your most-used productivity tool?



Most definitely MS OneNote. It has so many features that integrate into other MS products, making taking and circulating notes a breeze.

How would you describe yourself?



I'm easy-going and always up for a challenge. I have a problem solving personality and love solving IT-related challenges.

What do you enjoy the most about your role?



I really enjoy working with clients in different sectors. It is giving me a good understanding on how IT works per industry.

Do you have any hidden talents or hobbies?



I am a music fanatic. I am also the outdoorsy type and enjoy going for long walks and picnics with friends (when weather allows).

What is your favourite movie or TV show?



Animation movies are my favourite. I still love Finding Nemo; the Kung Fu Panda series is top of my list.



LONDON

162 Farringdon Road
London
EC1R 3AS

SPEAK TO US

+44 20 7183 3975



zero
delivering better IT faster