

## Instructor Profile



**Dr Khoh Soo Beng,**  
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Director  
PMO Innovations Sdn Bhd

*IAOIP Certified Professional Innovator  
Innovation 360 Licensed Practitioner  
Six 'I's@ Certified Practitioner  
Design for Six Sigma Black-Belt  
Stanford d'School d'Thinker (Design Thinking)*

Dr Khoh Soo Beng has > 28 years of experience in a wide spectrum of roles in manufacturing, design engineering, IT, 6-Sigma Black-Belt, program management, and innovation in Fortune 500 MNCs based in Malaysia and abroad. He is instrumental in establishing the CREST's Connected Healthcare Cluster and Digital Health Malaysia, where medical practitioners and technologists in Australia, UK and Malaysia, collaborate and innovate advanced health and wellness solutions with IoT, Big Data, Medtech and electronics. He is also the Northern Region Innovation Forum lead and contributed to Malaysia's National IoT Strategic Roadmap spearheaded by MOSTI as a member of the working committee.

Dr Khoh's technical expertise include real-time embedded systems, automotive Controller Area Network (CAN)bus- commonly known as the Internet of Things(IoT) today, digital dashboards, knowledge management, Lean, Six Sigma methodologies & tools (DFSS, DMAIC, Lean, VOC, KJ, Kano, QFD, CPM, DFMEAs, FMEA, FTA, TRIZ), product design & development, design thinking and innovation. During his service at Motorola, Dr Khoh piloted the Paperless Office & Digital Dashboards, manufacturing MES / SCADA back in the late 90s (today is known as Industry 4.0). He was consulted by the UK industries and helped Rockwell Automation (formerly Allen Bradley) with DeviceNet design and its Conformance Test Specification.

As a certified Design for Six Sigma (DFSS) Black-Belt of Motorola, Dr Khoh mentored design engineers to design products that met & exceed customer expectations, as well as the pervasive use of analytics and data-based decision-making. As Innovation Champion, Dr Khoh spearheaded Motorola Penang innovation initiatives and facilitated innovation workshops to develop new innovative design concepts; and was recognised as Motorola Innovation Champion of the Year in 2013. As Inventor Mentor, he helped engineers to file novelty ideas into patents. He was inducted as a Motorola Science Advisory Board Associate, i.e. top 1.5% Motorola Global Technical Staff. Other recognitions include Motorola CTO Innovation Framework Award (2013) and Senior Engineering VP Quality Star Award (2007). He has worked with many renowned innovation gurus, futurists, and spearheaded & institutionalised many rounds of innovation-related change management projects during his career.

Dr Khoh is a change agent and experienced trainer in Innovation, Industry 4.0, IoT and Digital Health. He regularly does keynote speeches and guest lectures at prestigious conferences and local universities. Dr Khoh holds a PhD in Electrical & Electronics Engineering and has > 50 published papers in IET, IEM, IEEE, SAE transactions, Six Sigma and professional research journals. He is member of IAOIP, IET, IEM and a senior member of IEEE.



CUTTING EDGE

# THE INTERNET OF THINGS TO TAKE OFF IN MALAYSIA

BY JENNIFER JACOBS

It's been called everything, from pervasive computing to "everyware" to the "Internet of Things" or if you're speaking to Cisco, the "Internet of Everything". However, this new industry, which has only become a catchphrase in Malaysia this year (a national blueprint is in the works and should be launched in November), has been long in the works.

Basically, the Internet of Things (IoT) takes computing out of the realm of computers (and smartphones) and brings it to, well, everything — your car, your hairdryer, your shoes, your watch, your garbage bin. Everything that can be chipped, will be chipped (including humans).

Alessandro Bassi, of Alessandro Bassi Consulting, has worked on IoT since 2004, when he joined Hitachi Europe as a researcher for advanced networking topics, and he considers the IoT revolution to be much bigger than mobile telephony and the Internet put together.

In *Inspiring the Internet of Things*, a publication of the Internet of Things International Forum, he says, "I tend to see the IoT as the interconnectivity of objects. It is the capability to uniquely identify and communicate with objects by electromagnetic means."

Jon Holler, master researcher for connected things at Ericsson Research, takes it a step further: "It is really about how to turn vast amounts of specific data into knowledge to share, to be able to reason about knowledge in an intelligent and automated fashion and come to conclusions and decisions. This should be done without the need for having humans in the loop."

In other words, it's a step towards artificial intelligence.

Naturally, this brings up a host of questions about privacy and security. To be always online, linked to a variety of different objects — some known, some unknown — that are quietly recording information and building profiles of us, is unnerving for some. For others, it is merely the next logical step in the evolutionary process, where the convergence of humanity and technology becomes seamless.

Malaysia does not seem to be interested in some of the more philosophical debates in the industry, but it sees the potential and wants to be part of the ecosystem. According to research firm Gartner, IoT is expected to

from the chip makers to application developers and service providers.

Now all that remains is to bring these together in a coherent manner, find out what everyone is doing and try to synchronise the development of products, platforms and technologies.

This is where the IoT initiative comes in. It started in April, when Collaborative Research in Engineering, Science & Technology (Crest) organised a workshop in Penang with Gartner. More than 30 companies attended and Gartner ran through the industry perspective and market and technology trends in this relatively new area.

In the breakout session after the presentation, the industry shortlisted four key areas, or "verticals", in industry-speak, for Malaysia to focus on — healthcare, transport, smart cities and retail.

Germany-based embedded computing company Kontron agreed to be the industry lead for the healthcare cluster. A few months later, Motorola stepped up to be the industry lead for the transport cluster.

As there were already a number of companies working to develop technology related to healthcare, this cluster took off first, and Crest agreed to facilitate its development.

In subsequent workshops, it mapped out the "quick wins", as well as medium and long-term goals for the sector. Crest research and programme director Dr Khoh Soo Beng says a quick win, or short-term goal, is going for what he calls an "integration play".

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IoT is not rocket science. We don't need earth-shattering technologies. We are looking at the existing technologies and how to integrate them to formulate a solution for areas such as rehabilitation, child growth and development, and elderly care. > **Khoh**

to formulate a solution for areas such as may not have practical applications. babies do not like it. This then would

The screenshot shows the Star Online website interface. The main article is titled "Malaysia makes AI-enabled stethoscope" under the "NATION" category, dated Saturday, 27 Jan 2018. The article features a photo of three men, including Dr. Noor Hisham and Dr. Khoh Soo Beng, and discusses the development of the Stethee, a world's first intelligent stethoscope. The article text includes: "PETALING JAYA: Stethee, the world's first intelligent stethoscope, made in Malaysia, has the potential to be used in remote and rural areas, said the Health Ministry. The artificial intelligence (AI)-enabled stethoscope system was announced yesterday as a disruptive digital medical device made for the global market. It is the first device in the world that evolved from the traditional stethoscope which has not been updated in the last 200 years, said Health director-general Datuk Dr Noor Hisham Abdullah. (Disruptive technology refers to any enhanced or completely new technology that disrupts and replaces an existing technology.) Dr Noor Hisham said a group of medical practitioners and clinical researchers at the ministry's Clinical Research Centre in Perak is currently involved in the evaluation of the Stethee Pro stethoscope. "It will disrupt how we listen to the heart and lungs with detailed and accurate

On the right side of the screenshot, there are advertisements for "Satay" from Kuali and "Avengers: Infinity War" from GSC Showtime.