

The Internet of Things in a hotel context

- how are hotels employing it?
- what can technology add to business in the future?

Simon l'Anson

September 19th 2014

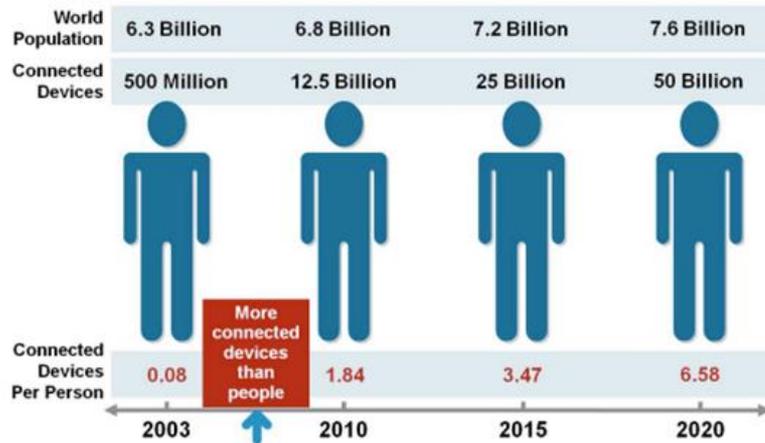
What is a “thing?!”



“a thing, in the Internet of Things...(is a natural or man-made object **that can be assigned an IP address and provided with the ability to transfer data over a network.**”

How many things are out there?

- The number of IP enabled/connected devices has already long surpassed the number of people of the planet



Source: Cisco IBSG, April 2011

- This trend will continue to grow at an accelerated rate

So what is the “Internet of things?”

- Commonly known as the IoT, or IoE (Internet of Everything)

It is “the interconnection of uniquely identifiable embedded computing-like devices within the existing Internet infrastructure. Typically, IoT is expected to offer advanced connectivity of devices, systems, and services that goes beyond machine-to-machine communications (M2M) and covers a variety of protocols, domains, and applications.”

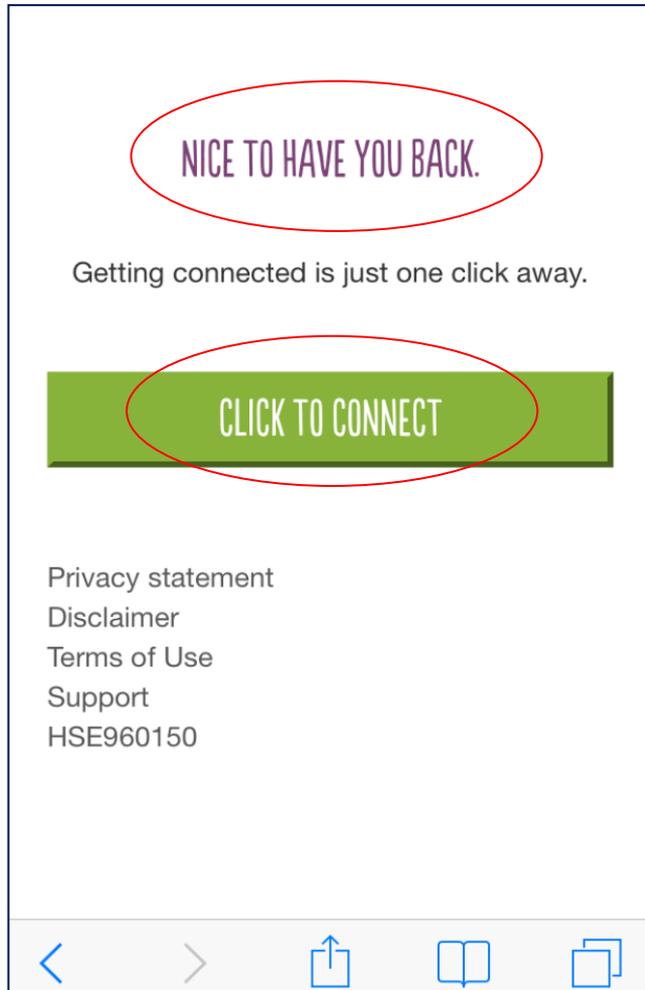
Microsoft offers a simpler explanation

“The Internet of Things is not a futuristic technology trend: it’s here today, and it starts with your things – your devices and sensors, the data they produce, your cloud services and business intelligence tools. That’s the Internet of your things. **By implementing a strategy to capitalize on the Internet of things, you can stop just running your business and start making it thrive.**”

How does that affect me, the hotelier?

- Microsoft is right – intelligent management & use of the information (or data) gleaned via the IoT opens up many opportunities to create competitive advantage
- Within Hospitality we already start to see examples of IoT driving:
 - Personalisation of services to the guest
 - Targeted Marketing based on preferences/behaviours
 - Better management of resources to drive efficiencies and cost savings
 - And many more...

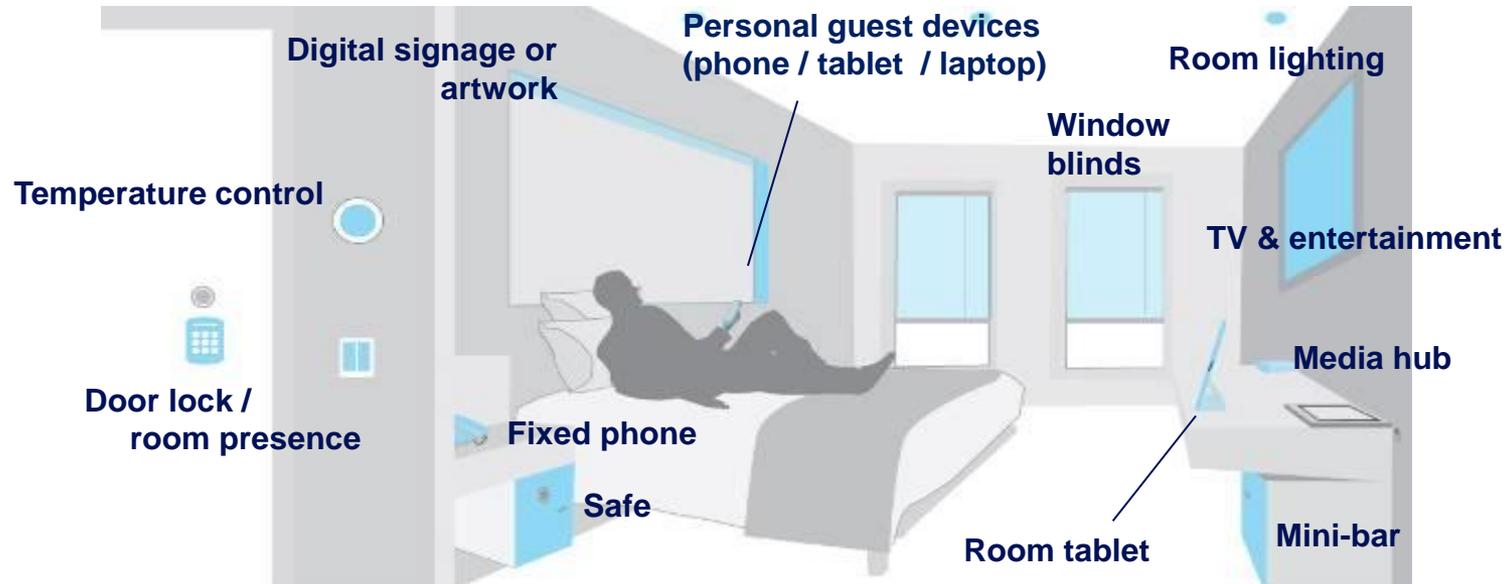
Example #1 – IoT as vehicle to recognise & reward



Customisation & Personalisation

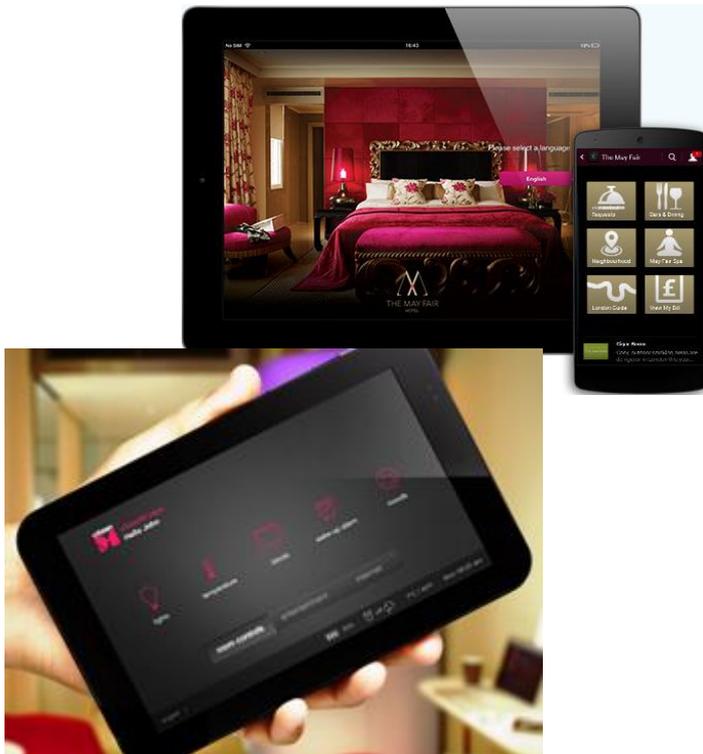
- Scandic has personalised its HSIA service
- There is an opt-in process at first login
- Walk into any (participating) Scandic hotel thereafter and you get this message.
- Match that with the simplest, easiest login process in the industry and you have a winning formula to delight your guests.
- This is a great example of how the IoT can be used unobtrusively to enrich a guests' experience

Example #2 – IoT as a way to drive personalisation



- The smart room is already here
- More and more hotel applications as well as guest devices are going IP – creating ever greater technology complexity for the hotel
- However, harnessed correctly this complexity can be turned into an opportunity

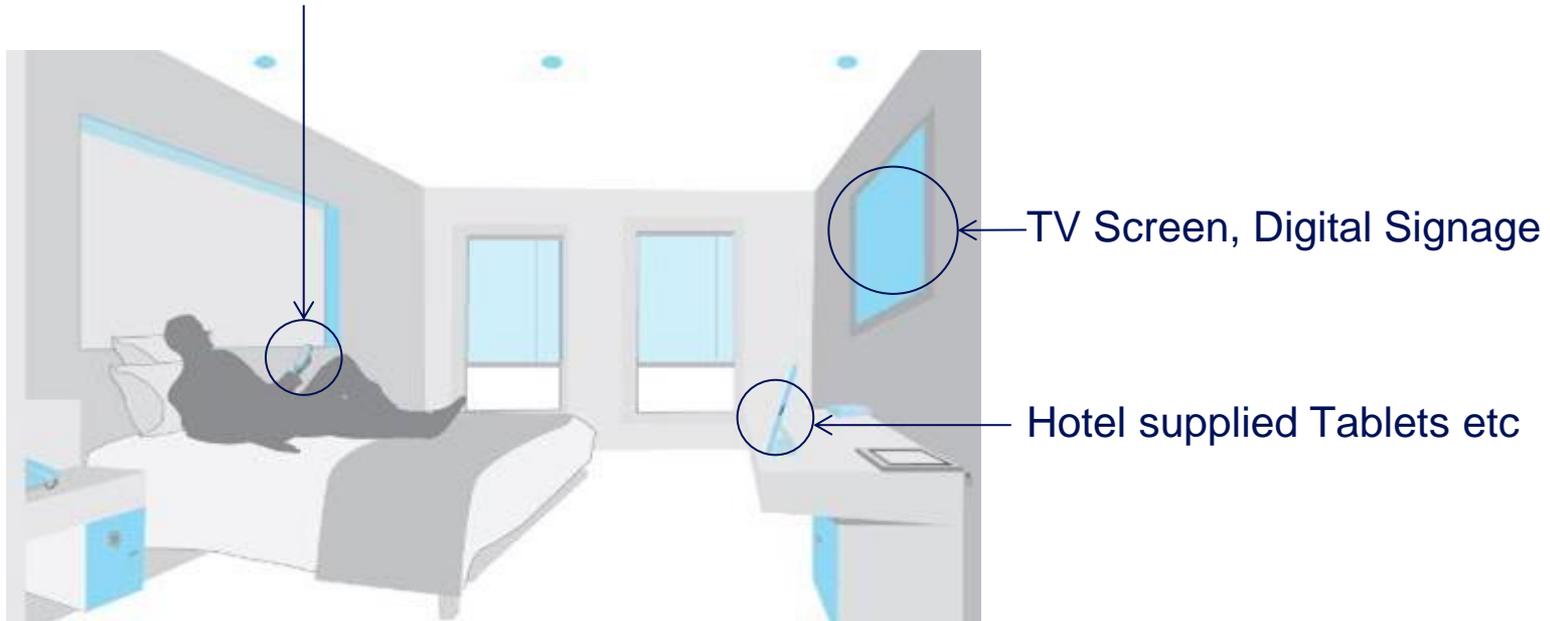
IoT as a strategic enabler



- Initially with tablets, and increasingly via SmartPhones hotels have unprecedented opportunity to deliver personalised services to their guests
- The adoption of smarter & smarter rooms has enabled hotels, for the first time, to start to customise the experience at check in, and deliver a specific configuration to the room based on stored preferences
- As the IoT grows, and the number of things increases, this capability to personalise will only grow

Example #3 – IoT Touchpoints are selling opportunities

Smart Phone / tablet / Laptop



- Harnessing the opportunities the Internet of Things offers not only enables hoteliers to take personalisation to new levels but also drives the selling/upselling of services

Focus on in-hotel Mobile over WiFi networks

- The latest generation of WiFi Access Points start to offer location-based services
- What is more they also come in at an affordable price point
- As a result hoteliers will no longer “lose” proximity to their guests
- This technology enables them to know where the user’s device is on their property...
- ...and if (similar to Example #1) the guest has registered his device, the hotel also knows who that person is
- And this is extremely valuable information



Done right, everybody benefits

- This is what Microsoft means by making your business “thrive”
- Real time data permits near real time offers & campaigns
- This gathering of information also enables hoteliers to make informed business decisions with a more complete perspective on guest behaviours & preferences

		Traditional Marketing		IoT Driven Targeting	
E-mail/SMS	Targeted campaigns	😐	generic, usually based on limited information	😊	focused, real time
	Time Sensitivity	😞	the sales opportunity may have passed	😊	push an offer when relevant
	Location Sensitivity	😞	location knowledge not dynamic	😊	reactive/predictive to actual location
Digital Touchpoints	Targeted campaigns	😐	Generic, usually based on limited information	😊	tailored for each guest
	Time Sensitivity	😐	sensitivity measured in days/weeks	😊	real time offers
	Location Sensitivity	😞	slow reactivity/difficulty to predict	😊	adaptive messaging

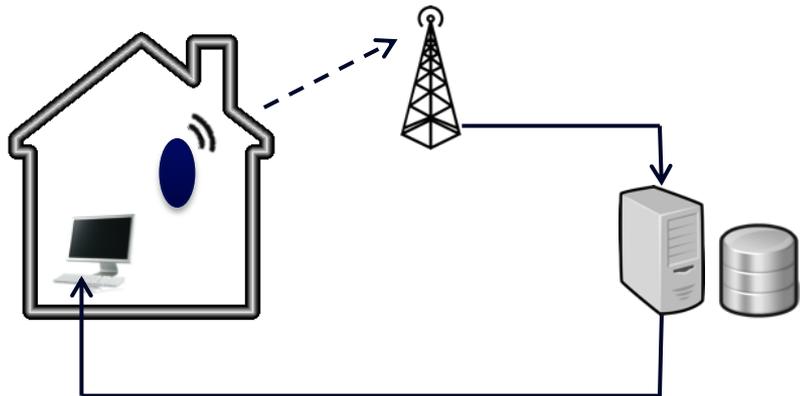
And the business model will start to change too

14



Example #4 – IoT as a driver of efficiency

- Project partners: Swisscom, Amphiro, Hotel SEEDAMM PLAZA
- Approach
 - Water consumption is monitored continuously
 - Data (volume, temperature, time) is captured and stored locally
 - Data is transmitted wirelessly to backend
 - Rule based data processing on the server
 - Decision logic as part of user front end



An overview of the system



- Miniaturized water flow generator to enable energy harvesting for energy-autarkic systems
- Smart water metering for energy and water monitoring and management
 - Water consumption (liters)
 - Temperature (°C)
 - Energy efficiency class (A to G) with polar bear animation
 - Energy consumption (kWh)
- The device harvests its energy from the water flow – self-powered, no batteries needed
- consumption app available in the app-store and Google Play



The benefits of its implementation

- Extensive testing carried out in a user study of 700 households in Switzerland
- Implementation of the device has lead to average savings of...
 - i. 440 kWh**
 - ii. 8'500 liters**
- ...per household and year – this equates to a consumption reduction of **23%**
- Added benefit of helping Legionella prevention in public buildings (including hotels); management of the water temperature is more effective as a result of the solution

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

ewz
Die Energie

Unil
UNIL | Université de Lausanne
HEC Lausanne

 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Bundesamt für Energie BFE

amphiro
«>>»


swisscom

Where is our industry today?

- It's a completely mixed bag – from a practical application & affordability perspective this is still a relatively immature phenomenon
- And for standards too
- There are significant significant implications on existing infrastructure & the interoperability of systems
- Security becomes even more important...

Nobody wants headlines like this...

Watch Sky News **LIVE** 18 September 2014

HOME UK WORLD US BUSINESS POLITICS **TECHNOLOGY** ENTERTAINMENT STRANGE NEWS WEATHER

Hacking Expert 'Took Control Of 200 Hotel Rooms'

A security consultant gains control of the lights, blinds and temperature systems of 200 luxury hotel rooms in China. 9:05am UK, Thursday 07 August 2014



Top Stories

- Decision Day For Voters: Scots Go To Polls
- IS Planned Beheading In Australia, PM Says
- Thai Murders: DNA 'Does Not Match'
- Support For Brit Muslims Make 'Mercy' Plea For UK Hostage
- Toronto Mayor Has 'Rare And Difficult' Cancer

A computer expert took control of 200 luxury hotel rooms after spotting a security flaw in his complimentary in-room iPad.

Security consultant Jesus Molina was staying in the five-star [redacted] hotel in the Chinese city of Shenzhen, when he said he got bored one evening.

He started to play around with the in-room iPad and reverse-engineered an insecure home automation protocol called KNX/IP.

By doing so, he was able to control lights, blinds, temperature and other things in his room.

He discovered that by changing the last digit of the device's IP address he could take over other devices elsewhere in the hotel.

Where are we today?

- It's a completely mixed bag – from a practical application & affordability perspective this is still a relatively immature phenomenon
- And for standards too
- There are significant significant implications on existing infrastructure & the interoperability of systems
- Security becomes even more important...
- Universal acceptance is by no means guaranteed – the sharing of our data – whether known or anonymously - and pushing customised experiences, promotions and so forth is a very personal thing
- Is privacy dead in the 21st century?

In conclusion

- We stand on the cusp of an unprecedented technical age.
- There are numerous hurdles still to overcome
- However the opportunities to really make a difference abound

Thank you