I think, therefore I am

Technological innovation spans more than seven decades at Hursley Park, part of the IBMUK Lab Campus. It's a 21st century laboratory in an 18th century country estate, as Sue Hughes discovers

Historic houses are frequently full of portraits. It's fitting, therefore, that on moving past the main reception at IBM Hursley you are faced with portraits – not Old Masters but photographs of IBM Master Inventors, men and women whose work has changed how we do things. It makes you think – and indeed the word THINK (the company's original motto) is in capital letters adjacent to these faces.

IBM owns the Georgian Grade II Listed building and 100 acres of surrounding parkland; initially rented as a temporary measure it soon became a permanent home. It is discreet, largely hidden from view, and the company enjoys a good relationship with locals.

The IBM UK Laboratory Campus has a collegiate feel. Dave Key, a senior software engineer who hosts museum tours in addition to his 'real' work testing CICS software, summed it up: "It's not just a place of work, it's a place of learning.

"When Southampton's Supermarine works were bombed in the Second World War, the Spitfire design team were moved to Hursley Park to work under camouflaged hangars. When Supermarine left in 1958, some employees chose to remain, bringing their mathematical and other transferable skills to IBM."

On entering the museum, you begin with the origins of IBM.

Founded in 1911, IBM stands for International Business Machines and the first things you notice are unexpected: delicatessen scales, station clocks, clocking-in machines and punch cards. These reflect IBM's origins but also underpin everything we think of as computing and led to synchronised machines which calculated and tabulated information using binary data.

Fast forward to the 1960s and Hursley's hand in developing disk drives to store the ever-increasing amount of data and replace boxes of cardboard punch cards. In 1969 these massive 35cm magnetic

> ## Cogito
> ## ergo
> ## sum
> ### René Descartes

disks, susceptible to contamination until sealed 'Winchester' drive versions were produced, could hold a whole 2MB of data! It really makes you think about the iPhone's 32GB in your pocket...

Hursley was also developing processors, including System 360 – the grandparent of modern mainframes; the software they run and the machines to utilise them, like the Lloyds Cash Point ATM.

Amongst the software is CICS, described as 'probably the most successful piece of software of all time', it processes tens of billions of online transactions every day, from your shopping to the latest mobile apps!

"Of course Hursley cannot claim to have invented everything but we've played our part and a bit more! It's about innovation, always rising to the next challenge and problem to solve. In that respect, it has consistently come up with a better machine for doing jobs," Dave continued.

Dear to my heart as a writer is a wonderful collection of typewriters! Take a close look at the return key symbol on any modern keyboard and you will see an arrow with a little hooked back shape – it harks back to how we swiped a typewriter arm at the end of a line!

The museum is currently refurbishing these machines, some using 3-D printing technology – old meets new. Moving through floppy disks and the emergence of tablet technology, the genius is in innovation. Batteries and hardware became smaller and lighter in the 1980s, bringing portable PCs which eventually morphed into modern laptops and tablets.

A stop at the Internet of Things (IoT) demonstration lab is like being let loose in future gadget heaven, an amazing array of really cool stuff!

"All systems are purpose-built,

expensive and bespoke, yet machines have been talking to other machines for 40 years, but things are far easier than in the late 1990s when IBM Distinguished Engineer Andy Stanford-Clark rigged up a home mousetrap monitoring system," explained Mike Blake, briefing consultant.

Using cheap sensors (and a free app and IBM's cloud software) we can now achieve a quick fix resulting in 'smarter buildings'; it's important – because by 2050, 80 per cent of buildings that will be available already exist today, so retrofit options are vital. The IoT can connect electric switches which power all sorts of devices. I merely enjoyed a taster, a quick look into a smarter and more economical future.

Imagine an antenna which can connect 5,000 devices across a 25km range (further than bluetooth) and cost effectiveness springs to mind. Sensors monitoring hot water temperatures to prevent Legionella offer hospitality venues significant savings and real time reports. IBM works with partner organisations to produce affordable connected products (for example, infrared temperature sensors) which store data in the cloud.

Telemetrics offer the potential to bring to market simpler and better functioning goods, such as washing machines (most people only use three programmes).

"A printer can order ink when running low. But take it one step further," said Mike, "and people will buy into leased print services, almost going full circle back to the days when past generations hired a television from Radio Rentals."

Finally, I discovered how IoT technology is powering the Healthy House project at Hursley Park. Sensors are being installed to create an automated environment control system for opening and closing blinds, maintaining desired heating temperatures and profiling a room's occupants. This is 21st century innovation being brought into play in an 18th century house.

IBM's Watson platform is behind the Healthy House project; it's a cognitive computing system that enables a new partnership between people and computers (what some call Artificial Intelligence). Watson is working with businesses, scientists, researchers, and governments to outthink our biggest challenges.

If we can harness this to improve a home environment in a non-intrusive manner in 2017, just THINK what we might be doing with it in 20 years' time. It's another story.