Interview: Ken Sutherland – President, Canon Medical Research Europe

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With a strong historic footprint in Edinburgh, Canon Medical Systems has based one of its global R&D centres in Scotland from where it develops software for its devices. Ken Sutherland, president, explains how Canon is able to leverage on the talent available in Scotland and what trends he is observing leading towards the healthcare of the future.

How does Canon Medical Systems envision the evolution of its role in healthcare?

Canon Medical Systems Corporation has emphasised healthcare as a very important market for the future. This is in part due to the fact that in its domestic market in Japan, there is a real healthcare challenge marked by an aging population and too few young people choosing to take up a career in health or social care. Just as in the UK but on a more frightening dimension, this reflects recent changes in the population age pyramid which now stands on its top. As a result, it is becoming more difficult to recruit doctors in particular locations. Canon's point of view of this problem is that technological innovation can be part of the solution.

We believe that by providing useful clinical decision support tools (linked to our scanning devices) to expert clinicians, we can increase their efficiency by enabling them to be more data driven. Their time is thus better spent on where they can make a difference in their speciality. We see our role in assisting with as many of the support functions as we can by presenting the expert clinician with the right information at the right time hence allowing them to make the correct diagnosis or the optimal treatment choice as rapidly as possible. In this new model of workflow these clinicians will

now be practicing precision medicine.

We see this field as holding significant long-term interest for Canon Medical Systems Corporation. Recent improvements in healthcare has resulted in people living longer but increasingly develop chronic ailments in their later years. Our belief is that at least part of the answer to their correct care and effective treatment lies in technological innovation.

Can you introduce the historical footprint and activity of your company in Edinburgh?

The business that is now Canon Medical Systems Europe based here in Edinburgh, was originally acquired by Toshiba Medical in 2009. In January of this year, we rebranded to Canon, after Canon group acquired Toshiba Medical. We are a fully owned subsidiary of the research and development centre of Canon Medical, and we report directly into the R&D organisation in Japan for which we have a support function in both, research and development.

The majority of our people here are hence active in R&D, but because our systems are software-based, we employ a combination of software development engineers and people in more scientific and clinical functions. In the latter space, we have a series of functions such as algorithm development for automatic recognition of features within scans or patterns within data sets. We also develop a lot of software around data visualisation and interpretation. In the end, it all boils down to using data to help doctors to treat patients.

From Edinburgh we deliver the developed software to Japan who integrate it with the devices. This is a huge benefit for us because our innovation is then re-exported from Japan to the global healthcare market, but it does mean that we are somewhat remote from the final product. That means that our relationship with our customers is indirect, which is not ideal in terms of rapid and effective innovation. To counteract this problem, we have found it useful to build relations with clinical experts locally, so the end users of our products here in the UK can help us to innovate to better meet their needs.

[Featured_in]

Through regular collaboration with real clinical users we’re starting to see the benefits of ‘innovation at the edge’: where on one side, there are clinical experts who do not really know what is technically possible and what leading-edge technology can deliver, on the other side technical experts who do not understand the clinical problems. If you put the two together you obtain disruptive and genuinely transformational innovation.

What makes Edinburgh the right environment for a business such as yours?

Fundamentally, we are a people business, so we have to recruit and retain talent in specialised domains. In Scotland, we benefit from the world-renown universities here where both locals and foreigners study. Many chose to stay in Scotland, providing us with a great pool to find talent in. That is a fundamental ingredient in terms of innovation and the software algorithm development

part of the business. The other part of the business involves external relationships with clinical experts within the NHS. Also, access to data is key when it comes to the development of these novel algorithms, hence our interest in working with local clinical experts working in the NHS. Henceforth, I am concerned about Brexit but mainly when it comes to talent. If our innovation output is still positive and internationally competitive, then Canon Medical Systems will continue to operate in Scotland. For this purpose, we need to be able to continuously recruit talent in Scotland, talent that, independent from its origins, can easily stay and work in the UK.

What can be the role of Scotland in paving the way for new technologies being utilised in healthcare?

I contemplate this as follows: there is where we are at and where the market evolves. Canon Medical Systems is essentially a supplier to hospitals, clinics, secondary or tertiary care. However, this might change in the future, because the balance of healthcare expenditure might shift and be focused more on remote (or home) care and patient self-management.

In Scotland, a significant proportion of the population lives in rural parts, and it does not necessarily make sense to have patients from the isles coming down for treatment or diagnostics to the large cities in the South. I see this challenge as an opportunity for companies like us in Scotland. Tests and procedures accomplished through locally administered care provide data we could access and provide to clinical experts when they make a diagnostic or treatment choice augmenting the pre-existing imaging data and other in hospital data about the patient to allow an optimal diagnosis to be reached more rapidly and more efficiently.

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How can Canon Medical Systems act as a partner to the NHS?

Although we do not have a commercial side to our operations at our site in Edinburgh—there is of course a Canon Medical sales and marketing organisation in the UK, based out of Crawley—we are viewed, at least locally in Scotland, as an innovation partner to the NHS. Indeed, we take active part in many Scotland-based projects. Only recently have we announced our participation in an industrial strategy challenge fund UK project that we are trying to build up in Scotland. It will be focused on artificial intelligence in radiology and pathology imaging.

Today, we see the diffusion of innovation and uptake as challenging in the UK. In parallel, we work closely with NHS Scotland and with individual clinical specialists. We have our own network of people we work with—not just here in the UK but across the world. However, our partners in the NHS are often very busy with time-consuming jobs and do not have much time to allocate to innovation. We hope that funding coming from Innovate UK will help address this shortfall and enhance the ability of the NHS across the UK to access new, home grown, innovation.

Do you think clinicians will more and more become data analysts in the future?

There is the trend that clinicians are increasingly challenged because of the sheer volume of data that is being made available to them. In general, it is a great thing that our clinicians can access more data, but it can cause information overload. As professionals, they are obliged to analyse the data precisely and assimilate an ever-increasing quantity of data, for which they do not necessarily have the capacity.

One role industry here is to innovate to create clinical decision support systems that simplify the task of the clinician by adding together different types of data to help practitioners make the optimal treatment choice as rapidly and as easily as possible. For our customers however, it is not just about images, it's about all patient data, and so we are increasingly becoming an imaging and data company. Rather than replacing clinicians with AI as some have said, we want to strike a balance between what technology will do and the clinician's role will be in the future. In a nutshell, we believe that the solution lies in the clinician making the clinical decision and technology providing as much support as possible to enable that decision to deliver the best possible outcome for that patient.

What is the strategic significance of this country and your unit to your global group?

Scotland plays an important role for several reasons. First of all, our demographics are very interesting: the Scottish population is like a microcosm of a much larger population. Scotland has a history of major manufacturing in areas such as shipbuilding and steelwork, and a strong professional base with financing and legal professions. This results in a diverse population displaying many different ailment patterns and a diverse genetic background.

Secondly, we have what is essentially a centralized national health service. The structure in Scotland is different from the one in England, not as fragmented and with little private care. Most Scots access care through the NHS which means that most of their data is held within the NHS. Moreover, each patient in Scotland has a unique identifier number called the CHI number.

Finally, there is a historically very positive attitude towards life sciences and innovation in Scotland, and we profit from a history of important innovations.

In Scotland, we combine a forward-thinking NHS with a strong academic base. Not only do we see fantastic ideas born out of our universities, we are also developing people who want to be innovators, who want to invent and want to come up with new ideas. The people we hire have been trained in that environment of substantial innovation, which is an attitudinal thing. For a small country we have quite a diverse group of specialisms within the life sciences sector.

It is probably more potential than reality but if we could put all of that diversity together with the NHS acting as a sort of demand generator, we have the potential to do much more. The drawback is that for a business like Canon Medical, the financial incentives to come and set up business in Scotland are not major. We want to continue to create wonderful solutions here in Scotland that

work in Scotland, but that can then also be deployed globally.

I think it would be particularly beneficial for companies like us to work with SMEs on projects, together with the NHS and academics, here in Scotland. We could form a collaboration on technology or components, so that we could in-license it. Our channel to market which goes through our parent company in Japan, could become a route for other technologies, not just ours, if we are willing to partner and encounter interest from others. This would be an example of the often quoted ‘triple helix’ model of innovation where public and private organisations work together with academics to create workable, useful and innovative solutions to real problems.

We have a company slogan that says: ‘made for life,’ and it has impacted us greatly in the past. Our focus is on long-term and our philosophy that any mid-term investment leads to a long-term reward, particularly in innovation. That innovation core is very strong within the company. The history of innovation and the willingness and the desire to innovate, and to innovate for the good of people, is strong here in Scotland and in Japan and that is part of why we have been successful in our collaboration.

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