Robotics and artificial intelligence - inquiry

May 2016

The next big thing – the 'App of Apps' – we have the technology and the organisation to lead the world in the coming 'revolution'

Summary

While all of us discuss the role of robotics and AI we are all missing what should be obvious – a simple re-alignment of existing technology - to create no less than - a new technological revolution.

If the members of the committee take just a little time to consider this simple proposal, it shall become clear that the UK could lead this coming revolution. It will almost certainly become the 'next big thing' in the fullness of time, it is just that it has not quite happened yet. What this proposal offers is truly groundbreaking for the UK – to create the future before it happens elsewhere, (almost certainly in the USA), and take the rewards for leveraging the technology first.

And the UK has a jewel in the crown to enable this development. The NHS - a massive world leading organisation - is the vehicle to create this new way of working with the size, the structure and the consumer confidence to pull together the technologies required to create the 'app of apps'.

The NHS is a perfect candidate for the 'app of apps' as it needs this progression to enable efficiencies and health care improvements.

Detail

It is my considered view that the following this idea is both workable and potentially groundbreaking. It is based on a coming 'revolution' in the way we all use technology. This revolution is going to happen – can the NHS take the UK into a leading position? I believe it can, as the NHS has the core requisites as a world leading organisation. The benefits are massive, both for the NHS and for the UK - perhaps to lead the world in this coming revolution.

In due course, over the next 10 to 30 years, the intelligent, integrated data processes that this idea promotes will be developed for the wider community and by default shall then become available for use within the NHS.

Specifically, for the NHS, this idea brings forward this opportunity by **many** years. Fundamentally this idea is about applying and leveraging existing technologies. As such this offers a low risk path to establish a new (world leading) process for intelligent application integration.. This process has the ability to provide the NHS with quick gains in efficiency and cost reduction, while providing for future improvements in health outcomes – see below – example scenarios.

Furthermore, as the core process for the NHS are a subset of a community wide 'revolution', the NHS would be able to leverage this technology, perhaps on a licenced basis, to a wider UK and international audience. This has the potential for the UK to lead in this coming technical 'revolution'.

The reason why the NHS is a possible vehicle for this idea and why it has not, (as yet), been established by other organisations is because it requires:-

1) a large organisation
2) a high level of trust for holding and accessing personal data
3) an extensive reach into the wider general public
4) a business model that provides direct benefits for the idea's development

5) significant financial and business leverage to provide for extensive business partnerships
6) an organisation that is seen to be independent and considered with high esteem

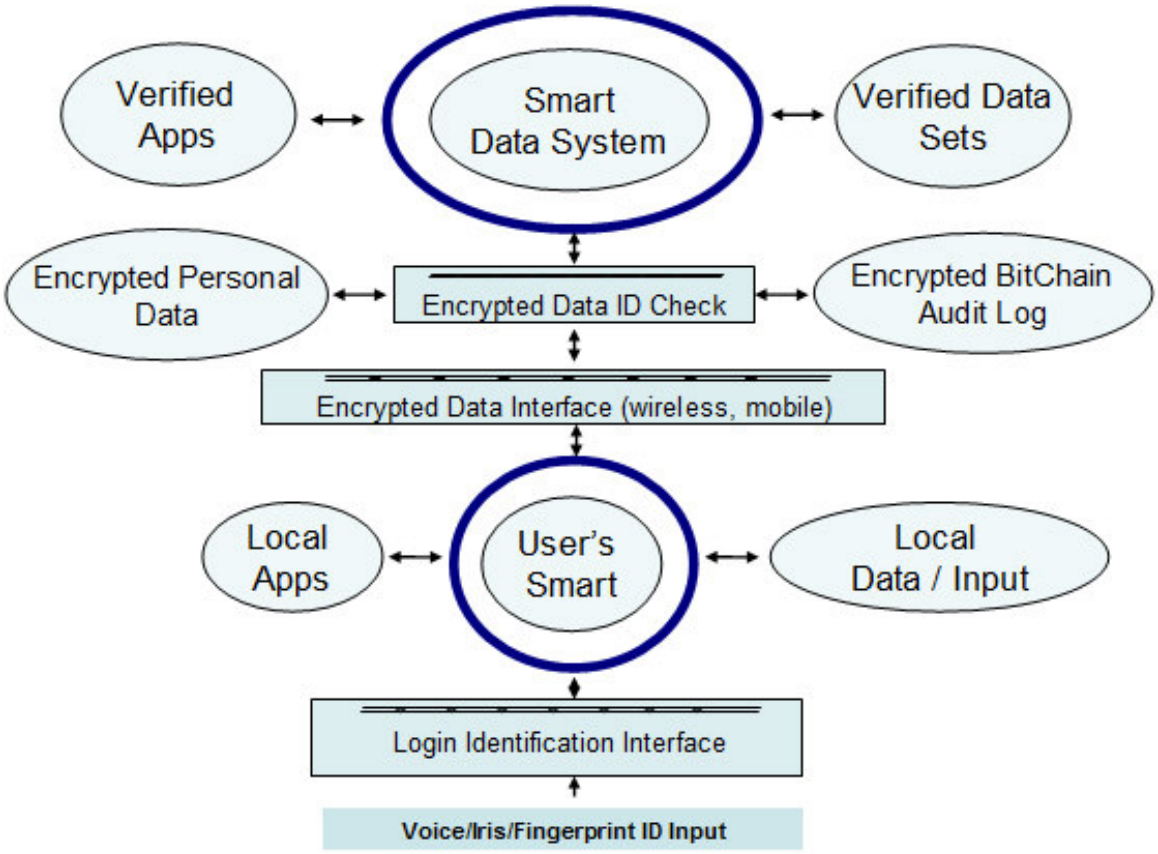
The NHS has both the size and the need to establish this technology. Significantly, the technology already exists in different guises and as such the technical risk is small. Interestingly, this new process for creating joined up applications can be implemented initially within small scale environments, both as a creative solution for tricky problems and as a test-bed for larger applications. This allows the NHS to develop and deploy this process with little financial or publicity risk.

The basis of this idea requires with the creation of a standard data communication format that provides for data integration between applications running on smart phones (and similar). A central process such as the intelligent communication and learning systems (such as from Google, Apple, Microsoft, assistant.ai), provides the 'glue' in the middle. Big data, personal data and local smart phone data provides the information that will enables improved communication and will also allow many decisions to be automated. The integrity and security of the data across all processes is key to wide adoption of this 'app of apps' technology.

Further detail of the core technologies and their integration can be found at:

http://www.commonsensethinking.co.uk/app.html

It can be quickly seen that this idea is in essence very simple – the difficult bit is having the organisation to promote it - in terms of size, public awareness and public support. The NHS is one of the few in the world that can achieve this in the short term.



Example NHS Scenarios

Administration Processes

Rostering

- All staff (who opt in) will provide their location & availability.

- This may include their availability status based on emergencies (graded), overtime status and future likely status (eg due to illness, family emergency etc)
- Central & local system apps can identify UK wide and local staffing needs based on general health data, emergencies, staff availability
- Local app can review local needs (inputs by on ward staff) and call in 'stand by' staff to fulfil requirements
- Potential to have staff travelling locally nearby hospitals to fulfil needs.
- Only when there is no other NHS staff will temporary staff be used thus reducing staffing costs

Appointments

- All patients (opt ins), automatic diary appointments and confirmations
- Central app reviews scheduling based on patient load, urgency, staffing, emergencies, automatic changes to diary appointments with positive confirmations.
- These applied to outpatients, general practices, elective surgery
- Links to traffic systems, and ambulance provision
- Smoothes loading, integrates with staff availability, providing cost effective use of resources.

Reduces staffing for administration, provides improved use of resources, learns over time for future needs, and provides more accurate future staffing forecasts.

Elderly – Improved care at home

- Monitoring apps – health sensors, medicines, emergencies, appliances
- Home apps – control of appliances and error reporting, automatic systems for heating, lighting, hot water, electricity use, emergency lighting.
- Home supplies – automatic stock system based on rfid tags, auto ordering
- Communication via Tablets – voice and video providing automatic help backed up by central control staff
- Local visiting staff reduced as requirement on 'as need' basis
- Possibilities for self help groups, friends groups, online gaming groups, monitoring of potential depression or memory issues over time.

Allows much improved monitoring and reduces the need for hospitalisation or use of care homes, alerts carers and health professionals much sooner to potential issues reducing emergency care. Provides a safer, more caring environment while improving the potential for mental wellbeing.

General Health Improvement

- All people (opt ins) get priority care and possibly health points (that could be used for say special care or private bed or quicker appointments etc)
- Monitoring apps – health sensors, fitness sensors, inputs for food, alcohol, smoking.
- Mental health – logs general and communication activity and predicts potential issues
- Feedback app provides information on 'health points' gained or lost

Over time, increases awareness of health issues improving general health and reducing the future load for NHS.

A short review of general applications:-

Organisational issues such as arranging meetings, or just going down the pub

The app of apps would know who was doing what when. A brief enquiry to the app of apps via the smart interface would allow the central system to evaluate other people's engagements or whereabouts and directly communicate with their app of apps to evaluate the likelihood of this enquiry. If necessary and sensible, (eg not if the individual was potentially available), the app of apps system could ask the other people for a direct reply. Agreement would then be made between the two systems without any further intervention, updating diaries and future whereabouts. Updates would be automatically available, (depending upon set parameters), so for instance the app of apps could update its owner regarding a potential arrival at the pub and also suggest what they are likely to want to drink.

Purchasing items or services

The app of apps knows much about its owner, including pre-set requirements, current and future location, and financial information. A query to the app of apps asking it to find the best price, route, availability, would create a detailed set of possibilities. The central smart system could advise on the likely best alternatives. On selection, perhaps after further interrogation of the system, the purchase would be made, with the app of apps undertaking all communication, payment and administration necessary. The financial transaction, delivery details, timing, future notifications etc would all be automatic. For the provider, the transaction would also be completely seamless with the payment, accounting and with stock and availability systems being updated automatically. Such integrated smart technology would also provide for huge efficiency improvements and create a true end to end just-in-time provision for almost everything.

Automating basic provisions and forward planning

Many of life's boring chores could be consigned to the app of apps. Such items such as insurance, car tax, paying standard utility bills, re-negotiating best provision of services, diary entries that require some action (eg birthdays, holidays, travel), standard purchases along with provision of basic foodstuffs and stock items, could all be dealt with and completed with little or no intervention by the user. The app of apps could be primed to review all such provisions and check availability, price, consider alternatives and then provide timely information when a change was likely to improve provision. For instance, a forward planning system would consider the stock position and likely future stock of important items, making sure that the purchase and delivery was secured before the stock became scarce. Knowing the holiday or travel dates and likely destination, the forward purchase at best price could be considered maybe pre-booked subject to confirmation and agreed when destination confirmed.

This is a personal vision from a UK individual who has no political or commercial allegiance, May 2016

The author has a background in both business and technology. Work experience includes consultancy within the fields of management, finance, IT & strategy within both large and small organisations with forty years researching science and technology and currently running an IT business in Buckinghamshire.

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