Soft solutions for hard problems

Dr Joe Taylor investigates how software can drive the integrated care agenda

As we adopt new models of integrated community-focused care much attention has been on the structural and funding reorganisation required to deliver new paradigms of provision. Now is the time to turn to the operational changes needed to make these workable realities, and ask how software providers can rise to meet the challenge.

Software systems are vital for the delivery of care, and as care becomes more complex software platforms must become simpler to use and more accessible than ever before. Software must address three key themes as health and social care provision is integrated:

- With a large number of different software platforms in-place within and across provider organisations, how can the interoperability of these platforms be secured to maximise their value?
- How can staff working in people's homes have better access to clinical information and tools to enable complex care to be delivered outside of dedicated settings, and how can we better use the data patients themselves collect to support their health and wellbeing?
- As activity and funding is pooled across provider organisations, how can clinical and activity data be aggregated and understood to measure the effectiveness of new models of care delivery?

The dismantling of the National Programme for IT (NPfIT) is freeing providers to invest in better and more innovate software platforms, but integrating them will remain a challenge

The end of the NPfIT and return to more local decision making has the potential to let 'a hundred flowers bloom' as software commissioning decisions are further devolved to NHS trusts. While this approach holds the promise of a Darwinian triumph, in which the best solutions are identified and widely adopted, it isn't without risk. In the absence of strong central direction some trusts are likely to lag behind in their adoption of digital solutions, and implementation of disparate systems is likely to causes challenges for future platform integration.

The NHS Digital Maturity Programme has developed an index (the Clinical Digital Maturity Index - CDMI) to track the progress NHS providers are making in enabling their care through IT (figure 1). It's a valuable and important tool to drive uptake of IT with proven financial and clinical benefits, such as ePrescribing. However, the CDMI lags behind the requirements of integrated care systems and is a poor measure of preparedness for the new care models being tendered. Trusts must not treat the CDMI as a gold standard, but as a base set of technologies on which further progress should be built. Unfortunately, latest figures show many trusts have some way to go in fully meeting the CDMI criteria.

Large NHS provider organisations each have more than a hundred software platforms operating across a broad range of clinical and non-clinical departments. Ensuring that each is fit for purpose relies upon effective commissioning at every level of the organisation, but making sure that information is shared between them to avoid duplication and take advantage of potential synergies requires an overarching IT strategy. Far too often such strategies are poorly articulated and don't recognise the role software will play in future organisational integration.

In order to succeed software providers must be selfless in their willingness to invest in cross-platform integration, whilst centrally there need to be clear data standards supporting information exchange. The Health & Social Care Information Centre (HSCIC) has developed the Interoperability Toolkit (ITK), which is a set of common specifications, frameworks and implementation guides to support interoperability within local organisations and across health and social care. However, NHS providers will require increasing external support to achieve the potential of software integration.

Specialist data integration providers are becoming important partners for NHS organisations, although 35% of integration platforms are developed in-house. As the number of organisations delivering care in collaboration rises, the complexities of the platform integration challenge will increase. Existing and new system integrators are likely to benefit from rising demand and a reduced ability to generate in-house solutions equipped to address these challenges. Existing players, such as Cerner, which has captured circa 5% of

the acute NHS market for data integration, are likely to grow. At the same time new small integration providers will continue to emerge in the market.

Many of the UK's care providers are not well equipped to drive the innovation in software that could prove make or break for the success of integrated care. Software providers able to anticipate and pitch solutions to new challenges emerging from different care models will prove most successful. Engagement in the process of developing integrated care solutions will position software companies at the forefront of care transformation.

The NHS has a poor reputation when it comes to IT but there are local success stories that show the way forward, especially in out-of-ward care

Software hasn't always worked well in the NHS; the NPfIT was beset with cost overruns, delays and in the words of the Public Accounts Committee provided "little clinical functionality". However, such public failures overshadow a number of successful software initiatives developed by NHS providers alongside the care software industry.

Access to patient records in the field and 'on-the-go' has traditionally been abysmal. It's no doubt a complex problem, but community providers must solve this issue to deliver hospital-standard care in the home. Today when care is delivered out-of-ward, most workers depend on paper notes and update their activity and observations to a central system when they return to base. It's a process not just hugely inefficient but also prone to error.

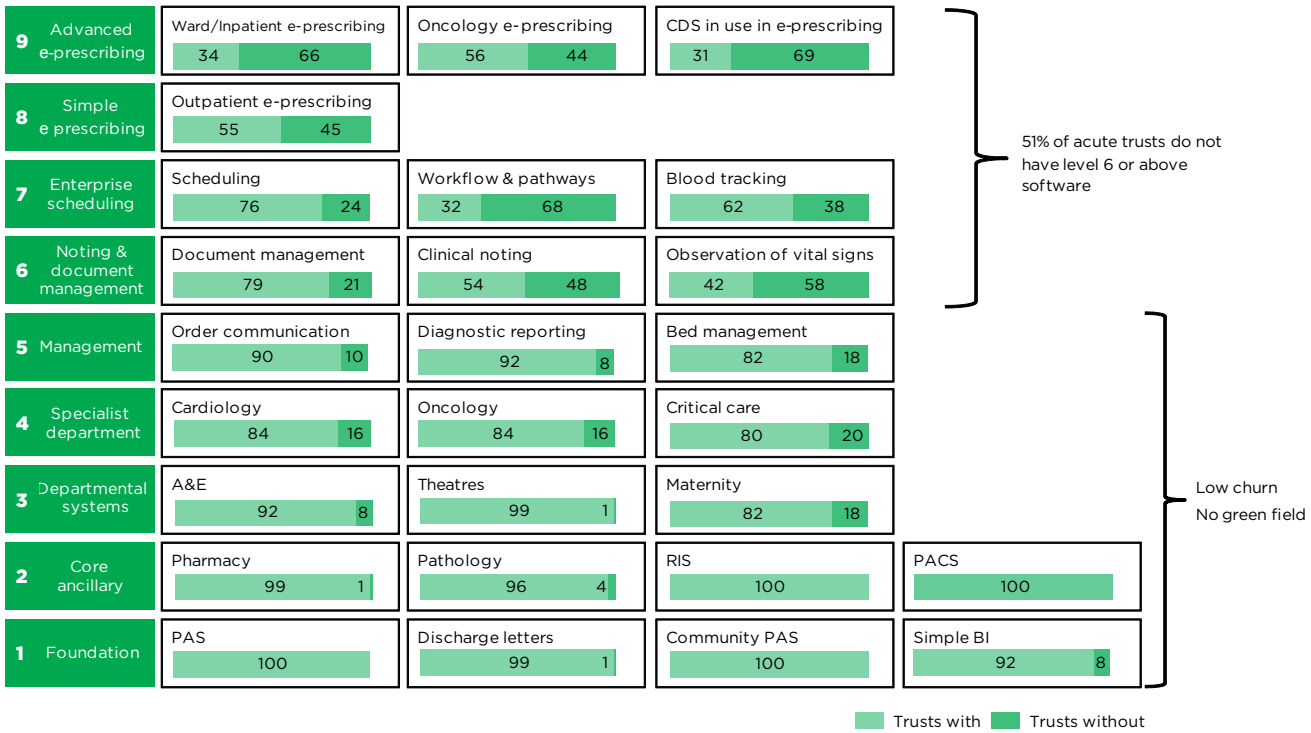
Kainos has developed its tablet based Evolve platform for EPR access that is now deployed in more than 70 hospitals in the UK. However, further growth is likely to be driven by its ability to offer secure mobile functionality in community settings. Platforms that can operate seamlessly across inpatient, outpatient and in-home environments have clear advantages for integrated provider economies looking to adopt a common system across different types and locations of care.

TotalMobile is an example of a company succeeding in providing community EPR access that's highly valued by its early customers, including Virgin Care, North West London NHS Trust and number of Local Authorities. The tablet-based platform has the potential to give staff access to rich clinical patient data and customisable tools that improve workflow and activity reporting. Access to tools previously restricted to warded-based staff not only allows more care to be delivered in the home, but also makes the most of valuable and increasingly scarce community staff. Importantly, TotalMobile also supports rostering of community staff to maximise efficiency and match staff to clinical need.

Joining-up care for patients means staff can be shared across multiple health and social care settings, at least in theory. In reality, disparate systems for the allocation and pay of staff ties the hands of even the most innovative of commissioners. Whilst the acute hospital staff deployment market ▶

FIGURE 1: ACUTE TRUST DIGITAL MATURITY PENETRATION

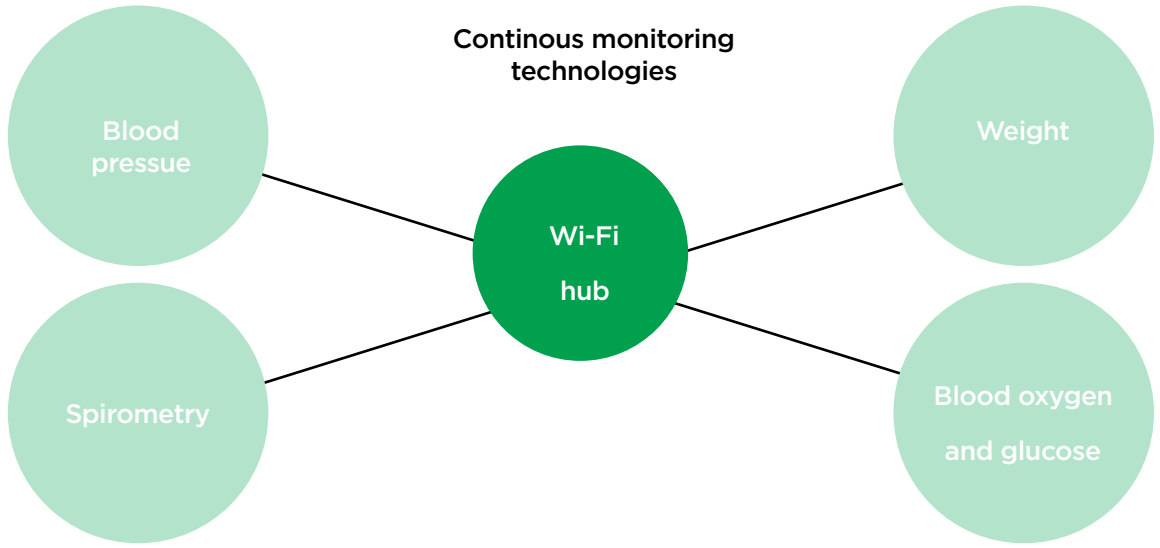
Many trusts are currently failing to meet the highest levels of the NHS Clinical Digital Maturity Index



Sources: NHS Trusts Reports; Candesic analysis

FIGURE 2: TECHNOLOGICAL INNOVATION TO SUPPORT COMMUNITY CARE

A new generation of relatively inexpensive technologies is supporting the continuous monitoring of patients in their own homes



is dominated by Allocate Software, the picture is more mixed amongst community providers. A shift by community providers to adopt similar eRostering to that now near universal in the acute sector is a starting point to support this type of cross-setting working, and represents the first steps towards realisable integrated workforce management

Remote patient monitoring will prove an important way to support people in their own homes, and reduce demand on acute services

In addition to access to EPR and other pure software tools in the community, there's an emerging need for software to integrate data collected from a new generation of hardware supporting care and monitoring out-of-ward. Remote monitoring has become more common, and will prove of particular value for patients with long-term conditions (LTCs) *(figures 2)*. The ability to monitor and track changes in symptoms can support early intervention and avoid the acute deteriorations that see patients admitted to expensive and unpleasant hospital stays. We already have a huge amount of experience of how effective this approach can be – diabetics who regularly monitor their own blood glucose have much better glycaemic control and improved clinical outcomes. However, collection of vast swathes of clinical data at a distance from care providers poses its own peculiar challenges.

Data needs to be collected from multiple devices, aggregated at the level of individual patients, evaluated to identify important trends and visualised in a way that makes sense to patients and care professionals alike. This is no mean feat. Tunstall Healthcare, a UK based company, has principally grown through supporting local authorities in remote monitoring of older people living in supported accommodation and their own homes. It is now increasingly active in the development of telehealth and telemonitoring systems to support people with LTCs, an area likely to prove of growing value over the next five years.

Whilst traditional providers of care have been slow to take advantage of the transformative potential of technology to improve health and wellbeing, patients have not been. Health and fitness apps have become ubiquitous, and their use continues to increase amongst people with ongoing cause to see medical professionals.

The act of a patient handing over their smartphone in the confessional of the consulting room has become commonplace. Many of us are active collectors and curators of information about our inner workings; we want to share this goldmine of information with the experts but don't yet have a way to do so easily. So when we think about the future of care software it's essential that we recognise the bottom-up drive for mHealth adoption alongside the provider-led requirements for closer, more collaborative, activity.

Integrated software platforms will have to collate data from a plethora of third party software providers. NHS England has unveiled a library of clinically approved mobile apps to support patients in management of their own health and wellbeing. Whilst these apps are considered to be useful and safe for patients, there remain no widespread mechanisms by which data can feed into individual EPRs.

Apple's HealthKit combined with its phone, tablet and watch, alongside the myriad of third party monitoring hardware is providing some consumers with an aggregated data platform. HealthKit allows apps that provide health and fitness services to share their data with the new Health app and with each other. A user's health information is stored in a centralised and secure location and the user decides which data should be shared with each app. However, such approaches still do not address the question of how data collected by individuals can be incorporated into their own EPRs for the benefit of their formal care provision.

Last year, EMIS announced the launch of a mobile personal health record (PHR)

that links the whole-life medical records of 40 million UK patients with health and fitness measurement devices and apps through integration with HealthKit. Patients in the North West London clinical commissioning group (CCG) are thought to be the first who will have access to the initiative, with the potential for subsequent nationwide rollout.

In tendering for integrated care models, commissioners have to set out objective outcome measures and ensure they can be quantified

When Candesic surveyed NHS community software commissioning officers earlier this year we found their number one priority was for software that could record outcome and activity data. Community providers are moving from block contract arrangements to payment by activity and outcomes arrangements, so they need to know what they're doing and what they're achieving.

It seems like old-fashioned common sense that providers working together can achieve more, less expensively and to the benefit of all by working together than they can as siloed organisations. However, the models of care integration and community delivery are diverse, and we need a way of judging their relative success. Commissioners don't simply need to develop clear goals and objectives for their pioneering delivery models, they have to specify the data on which basis their success will be judged and evaluated. Integrated care software solutions need to do more than empower care delivery, they must also provide the means to measure it.

Whether it's CCG initiatives, or within the context of joint provider bids, activity and outcome data will become essential to securing community contracts and is likely to form the basis of payment. The existing block contract arrangements haven't incentivised providers to collect and analyse activity data; a surprisingly large number don't have granular data sufficient to understand their clinical activity.

What's needed is more than time and attendance information; the relationship between specific clinical activities and patient outcomes must be understood to ensure that limited resources are deployed most effectively. Across provider types, developing software platforms need not just to support the delivery of care and operation of services, but must incorporate means of measuring the impact of new care models.

The future of integrated care will rely on innovation among existing software providers, alongside new market entrants

It's easy to accept true technological innovation as the province of the start-up, the remit of young companies. But to do so is to overlook the transformative potential of software providers who have already secured their place in the UK's care market.

Within the framework of new funding models and an evolving commissioning landscape software providers can not only support but also shape the future of care delivery. Providers who are already engaged with those delivering new models of care are well placed to secure their role in its future. Identifying providers able to embrace innovation and engage in service transformation will be essential for investors in the UK care software market. ■

Dr Joe Taylor is an engagement manager at Candesic – a boutique health and social care, and educational consultancy. Candesic recently supported HgCapital in their £110 million acquisition of Allocate Software, a specialist workforce deployment platform used by the NHS.

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