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WHITE PAPER

Innovation in Healthcare IT

Changing Views, Changing Direction

This paper discusses the need for innovative IT solutions for better healthcare. It is part of a series of white papers on key aspects affecting the move toward an Enlightened Healthcare Ecosystem. The other two papers focus on *Healthcare Challenges and Trends* and the *Convergence of Healthcare and Pharma*.

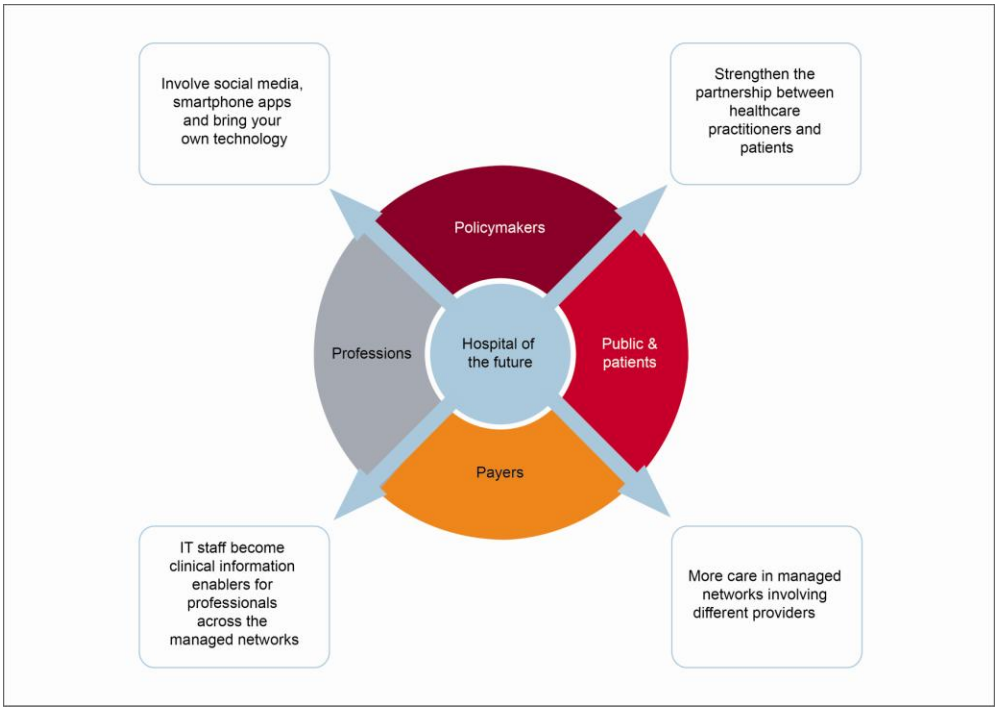
CHANGE IS IMMINENT

Delivering healthcare is one of the most complex human activities. In recent decades, major transitions have taken place in diagnostics, pharmaceuticals and treatments resulting in shorter length of stay in healthcare facilities. The current transition to more personalized care and to longer term managed care pathways means that healthcare IT systems are changing direction.

But this change may not happen smoothly. Conventional IT debates about healthcare infrastructure, database, application and user training are based on the priority of organizations. Typically only a few people are interested in the finer details and the value this adds to the healthcare delivery.

Technical design of healthcare IT is just one aspect. Considerable effort is put into complying with policy, finding funds and convincing senior “clinical champions” to lead and motivate colleagues to use these systems. In general, the process of introducing IT systems in healthcare is frustrating, often due to changing specifications and expectations during the extended delivery processes. And now the healthcare professionals and technology planners are pressured by the public, patients and their family and friends to introduce reforms.

FIGURE 1: KEY STAKEHOLDERS



The new generation of healthcare staff and patients are comfortable with technology. They have seen how technology has transformed the way society functions in other facets of our life. That is why they see that healthcare needs a new approach. Pressure from the demand side means that the traditional information technology approaches need to be refreshed. Patients and care givers are moving beyond requesting email contact with clinicians. They now want to use interactive web sites and use apps on their smartphones to connect. There is a growing demand from clinicians to use social media and smart devices, such as iPads to help them support multi-shift working patterns, team work and mobile working.

It is getting increasingly evident that the lessons learned from other industries can be applied in healthcare to save money and time. These include looking at governance as a whole process, reusing existing data by exposing it appropriately as a service to staff and patients; undertaking deep analysis of information to improve predictability and planning; and using standardized network and equipment services to avoid the cost penalty of special equipment and obsolete assets.

How to work with change?

How do board members, clinical leaders, CIOs and IT directors find their way through this seemingly complicated maze of new technology? The issues are well known – the need for proven deliverables can inhibit innovation; and some will find reasons not to change even when there are persuasive clinical, technical and economic cases. Further, the scale of investment needed to impact an organization's processes means a complex business case and many challenging activities.

Then there is the need to accommodate visions from centralized agencies that do not deliver local results. And debates with suppliers that always seem to be about managing tension – reducing costs, changing specific applications, interoperability, migrating data, increasing services and riding a technology upgrade path.

Health service delivery has massive variety. It entails mixing important short term acts such as conversations and care tasks with hugely complex interventions and long term services. Then there are the processes that run in the background. Policies, standards, measurement, analysis and highly specific research activities all demand attention. And as society undergoes change, there is a public agenda that debates both value for money and measurement of both statistics and reputation, the balance of risk moves. So is there more risk in change or are we better off without implementing the change?

Change is never easy. Especially when there are tough decisions to be made, clinical services to be delivered and normal business to be run. All the stakeholders have a case for attention, and there are many decision points about new projects in a naturally risk-averse environment, although healthcare often delivers rapid responses and excellent results under pressure.

SPAN OF CONTROL

A UK hospital founded in 1473 is changing its aims and structure. In the last quarter century, 19th century buildings have been gradually rebuilt, made more approachable and given a new purpose. Key goals are now stated in public documents as:

- Deliver high-value care for patients and families
  - Provide care at the right place at the right time
  - Listen to patients
  - Make sure we perform as well as top performing hospitals and health services
- Improve the health of local people
  - Measured by life expectancy, identifying risk, intervening earlier
- Build on our culture of innovation and continuous improvement
  - Develop integrated care models where all care providers work together and focus on the patient
  - Make sure our services are as efficient as possible and routinely compare to others for quality, safety, costs, patient experience
  - Transform our culture so leaders can support the staff to create a culture of care and compassion, innovation and excellence to continue to improve the quality of our care.

The key change is that the organizational shape is moving from a “hospital on a site” to a local health service delivering services across a community to include new direct services and collaboration with other providers for indirect services. Other providers may include primary care and local clinics, social services and voluntary bodies, and a variety of private sector providers. Care delivery is moving from a focus on high cost hospital settings to community and domestic settings.

In Europe and North America, the health delivery model is transforming in this way. Policymakers are addressing longer-term chronic diseases, supporting the motivation for self-care and lower cost settings, and complementing important clinical productivity advances that have driven shorter length of stay.

Such services require a high degree of coordination; otherwise they would lead to high cost of administration and laborious paperwork. The span of control needs to move from direct services within hospital departments to more complex delivery.

INTRODUCING NEW APPROACHES

Typically, efficiency and productivity within the hospital boundaries are measured by waiting lists and length of stay. This now needs more diverse measures of longer-term resource allocation and outcomes on patient pathways. A typical patient experience now includes multiple service providers in geographically dispersed settings and shared care models between clinician, hospital, community services, social services and private providers.

The organizational change massively increases complexity especially in the use of information to support health and care delivery.

FIGURE 2: KEY PRIORITIES

This scenario puts the hospital manager in a fix. What about protecting confidential information? How do you obtain patient consent? How do you predict demand and plan capacity? And most of all, what is the best possible way to deliver more services at lower unit cost? All this while, the key components in complex patient pathways need to be managed.

Coordinated managed care services do not follow the same model as hospital provider services. They involve more community services and hand-over processes. And the key question that always needs an answer is – who is in charge of the overall process and the next activity for this patient? Solving the “blocking” issues of information governance around who has rights and access to patient and care information has been mainly achieved, and certainly definitions and data integrity are now more helped than hindered by information systems compared to paper files.

There are more effective patient access models now. They use services, such as self-service kiosks and patient portals that encourage more self-care. This way the patients can themselves clarify the importance of record protection.

All health organizations have a range of investments in systems and processes. Generally information systems themselves have been through several upgrade cycles, including major reengineering such as client-server architectures. Cumulative investment in information systems mean that the changes required by all health delivery services and organizations have now less to do with new capital investment and more to do with managing the range of patient data held in diverse systems.

Three major influences are likely to impact in the short to medium term:

Patient communications and security

Broad consumerization of technology is dramatically increasing the speed of IT adoption. For instance, more and more individuals are using iPad, smartphones and social networking to browse, purchase and make shopping decisions online. So usage and the procurement landscape have to respond appropriately. Typically, the suitable technology is selected, bought and paid for on a shorter depreciation cycle. Further, the products and services have to be more flexible and adaptable even visually. They should especially be able to share data with open, yet secure standards.

Health providers have to consider how patients and care givers want to develop and sustain communication with specialists, link into their records and become part of the important population cohort that is able to contribute to self-care. This moves all aspects of “tele-health” into normal use – e-consultations, where captured data and plans are jointly shared by patient and clinical teams. The aim is to involve patients as partners in their own care and avoid re-hospitalization.

While nothing replaces the value of personal contact between clinicians, patients and care givers, there is now a new dimension to important relationships. Several clinicians now show the patient information on a computer screen such as graphed results over time and X-ray images. The next step is sharing information in more than one way. This works both ways. The patients expect regular feedback about their condition and self-service apps. And if they are able to use their own gadget for accessing information then the staff can also use their own preferred hardware through Bring Your Own Device. This will ultimately lead to saving budgets and increasing usage. And it is important to monitor relative success in pathways, developing insights and training and rapid reaction about deploying what works well and stopping poor processes. This approach, called Applied Customer Insight, is already used by other businesses.

The benefits are clear:

- Improve patient experience by saving time and travel
- Better manage the clinical workload
- Improve monitoring of post discharge and chronic conditions
- Transfer some basic responsibilities to patients
- Reduce health provider direct costs through using common services such as email/web services/video conferencing or Skype.

Meanwhile, patient groups are already campaigning for free Wi-Fi in hospitals. Health services have to be able to manage patients who are comfortable with email, social media and online shopping.

Patient portals enable secure and private contact between patients and specialists right from the start of the patient diagnosis and treatment at the University College Hospital (UCH) Macmillan Cancer Centre. Patients can leave the campus and be recalled for scheduled care through text messages.

Re-use of technology

The maturity of the information held in health systems means there is high process compliance and research value. It is quite common to see successful services get roadblocks because they do whatever it was that makes them leaders a little too long. It is better to use pre-emptive self-destruction and renewal. FORTUNE Magazine in 1994 quoted Lewis Platt, then-CEO of HP as saying: “We have to be willing to cannibalize what we’re doing today in order to ensure our leadership in the future. It’s counter to human nature, but you have to kill your business while it is still working. Or as they say in Silicon Valley, it’s better to eat your lunch before someone else eats it for you.”

Focusing innovation on re-using and applying existing resources (cannibalizing existing investments) means a focus on the real value of what is being done. Re-using data in a new service architecture means decisions are taken about duplicate data.

New large-scale views of all the information about a patient means that process conflicts are removed and redundant supporting processes are stopped or replaced. Thereby using more standardized common processes so both staff and patients see systems as useful and not as a hindrance.

If clinicians have a ”single view” of the patient, they can see all the details pertaining to that patient, including demographics and all professional contacts, all diagnostics and events, documents and consents, alerts, allergies and medications. Most health systems have clear governance rules and such integrated services actually improve security.

And by moving away from a ”systems focused” to “services focused” plan, the policy of re-using saves scarce capital and makes better use of revenues.

Are we big enough to maintain in-house services?

Healthcare computing and the digital storage of patient records started half a century ago. Providers rightly continue to worry about the return on investment, managing the cost curves between revenue and capital, the demands of a modern infrastructure and the introduction and sustainability of new systems.

Information systems are usually allotted a small budget in most health environments, but can be mission critical. And typically most healthcare services favor serving specific responsibilities and a focus on managing current services and situations.

But the true value of in-house services is not to drive to the lowest cost or lowest percentage of revenues and so create the cheapest mediocre provision, or to delay investment to the last possible moment. It is to be able to leverage technology while not being responsible for their creation. And to apply readily available bought-in services not duplicate them. The economics of the ICT industry means in-house services can now focus on supporting clinical informatics. Working with health professionals on specifications, project delivery and support to enable patient and clinical services, to address whole processes and the important touch-points, and reduce the cost but maintain the quality of interactions.

So the challenge is to blend in-house services with outsourcing services and enjoy economies of scale. For example, by merging help desks, virtualizing servers, or managing systems and desktops remotely. This is now almost the norm for most sectors with mission critical systems. Supplier management is important and needs specific service management thinking.

By concentrating on service management and using external providers wisely, in-house staff can develop roles focused on processes and patients with clinical and health process design, rapid deployment and improving quality of patient services.

Process management software used in car manufacturing and insurance claim processing was implemented to manage the patient flow at UCL Hospitals.

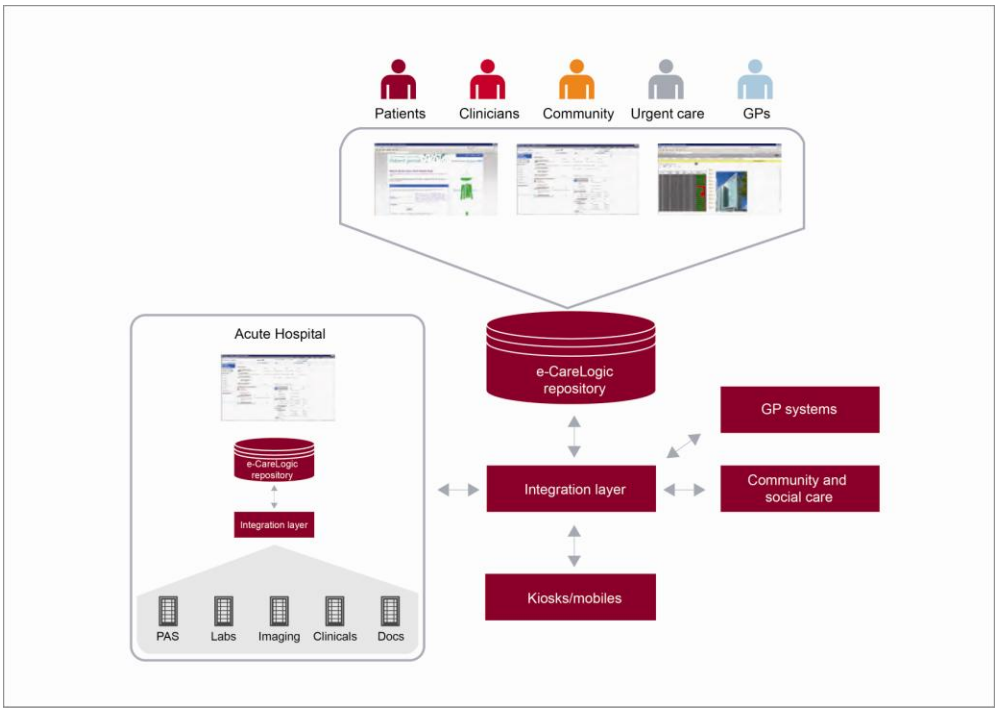
CGI CAN HELP

As a major supplier to health systems integration and business services, we have considerable experience in developing and integrating innovative business, clinical and IT solutions for patient-centric care management, electronic medical records, healthcare administration, health information exchange, health analytics, enterprise content management, military health, public health, translational research and pharma and life sciences.

As an example, our innovative e-CareLogic solution provides a proven approach to information aggregation and portals, supporting clinical processes and patient management across multiple locations by releasing and reusing existing information both for patient care and organizational management.

We welcome the chance to be a part of a new enlightenment for each player in the healthcare ecosystem, from governments to enterprises to individuals.

FIGURE 3: CGI LARGE-SCALE PROVEN E-CARELOGIC ARCHITECTURE INTEGRATING PATIENT INFORMATION AT SCALE AND INSURANCE CLAIM PROCESSING TO MANAGE THE PATIENT FLOW AT UCL



ABOUT CGI

Founded in 1976, CGI is the world's fifth largest independent information technology and business process services firm. CGI has more than 68,000 professionals in 400 offices and centers of excellence in the Americas, Europe and Asia Pacific. Our comprehensive portfolio of services includes business and IT consulting, systems integration, application development and maintenance, and infrastructure management, as well as more than 100 IP-based solutions. CGI defines success by exceeding expectations and helping clients achieve superior performance.

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