

CIO perspectives on digital healthcare

Saudi Arabia

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OVERVIEW



The Accenture CIO Survey is a multi-country assessment of the digital health transformation across the healthcare ecosystem. The survey as a whole covers seven countries across three continents, and highlights the perspective of the individuals at the forefront of the transformation: the Chief Information Officers.

This part of the survey features the perspective of four CIOs in Saudi Arabia, interviewed in February-March 2017. The survey is based on an analysis of three hypotheses:

- Page 6 **CIOs need to transform their organisations to meet consumers' growing demands, and to leverage digital technology to lower operational costs**

- Page 10 **CIOs need to get stakeholders, and especially doctors, on board for digital health**

- Page 14 **CIOs need to take on a new role, adopt new skills and get resources to lead a successful digital health transformation.**



The digital transformation

The Saudi government is pressing ahead with the country's digital health transformation: In April 2017, the Ministry of Health launched the National Health Initiative under the National Transformation Program 2020.

This includes 42 separate schemes and involves strong support for continuing progress in digital health, with a focus on improving healthcare quality. The initiative does not involve building new hospitals, but instead emphasises increasing access using remote health services, via a Ministry of Health portal.

Every Saudi citizen will have their personal national medical health record. There will be a greater focus on preventive health, with more and better health education, and training for stakeholders in the sector.



The CIO's perspective

Saudi CIOs are delighted by the new National Health Initiative, as it will provide a further boost to their credibility and positions. Even prior to the Initiative, Saudi CIOs have generally held significant executive decision-making ability within their institutions. However, as in many other countries, Saudi CIOs face the challenge of being called upon to do an ever-broader array of tasks.

They are responding to this challenge in a variety of ways, including outsourcing non-core business; building relevant knowledge and expertise about digital health everywhere in the institution and among physicians and clinical staff; and integrating IT functions with those of other departments, such as the biomedical department.

Over time, CIOs expect that these approaches will help stakeholders take ownership of digital health initiatives themselves, with the CIO function as an enabler. Perhaps, in the longer term, integration with other departments will become so deep that the CIO function (or parts of it) will even merge with those departments.



HYPOTHESIS 1

CIOs need to transform their organisations to meet consumers' growing demands, and to leverage digital technology to lower operational costs

Finding: Surveys^{1,2} found that clinicians and citizens alike want greater, real-time control of health data, from any place at any time. Patients demand full access to the information in their electronic health and medical records, and they demand complete ability to update and control access to their data. How can CIOs prepare their organisations for these new services, and how can they maximise the impact this transformation has on patient accessibility and clinical outcomes?

¹ Accenture 2015 Doctors Survey:
<https://www.accenture.com/us-en/insight-accenture-doctors-survey-2015-healthcare-it-pain-progress.aspx>

² Accenture 2014 Consumer Survey
<https://www.accenture.com/lv-en/insight-accenture-consumer-survey-patient-engagement-summary.aspx>

Support from the government

Progress on digital health in the Saudi healthcare sector depends heavily on the level of support from the government. While the government has long been generally supportive, the National Health Initiative, announced by the Ministry of Health in April 2017, will give significant renewed impetus to the digital health ambitions of CIOs. Institutions' strategic focus on digital health is likely to improve as the National Health Initiative is implemented.

Driving efficiency through automation

One common thread for CIOs has been a focus on driving efficiency improvements through automation. This includes automation of office administration and logistics, inventory, human resources, support services and other areas. For one of the CIOs we interviewed, the overriding priority was improving internal work processes through automation. At least two of the CIOs we interviewed have experienced significant progress implementing Enterprise Resource Planning software and a Picture Archiving and Communication System (PACS).

Gaining control over data management

To better serve his institution, one of the CIOs we interviewed identified -- several years ago -- the need to gain more control over relevant data. This lack of control had slowed his team's ability to be responsive, as it was frequently dependent on Health Information System (HIS) vendors, and the time it took them to make decisions. Related to this problem, different departments sometimes outsourced data services to different vendors, resulting in a panoply of different systems across the institution.

The CIO has been redressing this situation with considerable success, gaining control over data management related to the institution's core businesses. He has focused on introducing systems that are scalable, to accommodate the needs of different business areas (eg, cardiovascular, laboratories, or physiotherapy). This has permitted the CIO team to become a much more responsive function within the organisation, in turn increasing its influence and status. Moreover, elimination of legacy subsystems has provided substantial efficiency gains and cost savings.

Gaining control of data management has been associated with a move to insource core business, and outsource everything else. It has permitted the CIO to leverage and create value from data that previously existed, for example on social media and messaging services.

Upturn in digital health funding

The low oil price environment over the last two to three years has implied substantial fiscal tightening across many sectors, including healthcare. This has affected some of the healthcare institutions we interviewed far more than others: In some cases, it has clearly slowed CIOs' ability to make progress on digital health. However, the Saudi government's efforts to diversify the economy provide a more positive context for the healthcare sector going forward. In particular, the National Health Initiative is likely to involve releasing substantial funding for digital health.

"We have had to gain control over data management and unify systems. Before, every island had its own system."



Eng. Abdulaziz Al Rumaih

CIO, National Guard Hospital

CIOs feel they cannot yet tap the potential of the cloud

In Saudi Arabia, use of the 'public cloud' for digital health has not yet taken off. Several institutions have developed their own 'private clouds' or are considering doing so. CIOs feel constrained in pushing for cloud services by three related factors: i) The maturity of cloud services on offer is still low; ii) regulation of cloud services is still being developed; and iii) the legal framework governing security and privacy of health data -- always of concern -- is not yet fully established. Some of the CIOs we interviewed would be keen to outsource to a cloud provider when progress is made on these factors. They prefer to wait for the cloud environment to mature before beginning to use it.

However, for the CIO of the General Directorate of Medical Services of the Armed Forces, using the public cloud is not even an option for security reasons; instead, this institution is building its own cloud from scratch. This has forced the CIO to abandon some projects where the risk of data breaches was deemed to be too high.

CIOs see themselves as a hub for innovation

CIOs find that a lot of innovation comes from within their own organisation -- more so than from outside. However, the flows of ideas within the organisation present dilemmas for the CIO and are not yet working optimally. For example, CIOs have tried to be open to ideas from junior employees, which sometimes can be good ideas independently of what their managers may think. However, managers may prefer to 'filter' such ideas before they are presented to CIOs, and/or organisational rules may stop ideas from going further. In turn, CIOs feel that they need to respect managerial oversight and discretion -- but they suspect that many good ideas never make it to the level of the CIO because of such managerial 'intervention'. In future, one solution to this problem may be greater use of internal crowdsourcing, or other approaches whereby ideas can be provided anonymously for the direct attention of the CIO.





HYPOTHESIS 2

CIOs need to get stakeholders, and especially doctors, on board for digital health

Finding: CIOs have a growing set of stakeholders to consider and a more diverse set of agendas to take into account in relation to digital health transformation. However, there can be a crucial disconnect between the enthusiasm many of those stakeholders have towards digital health and their ability to interact with new processes and applications. How can CIOs partner with doctors and other key stakeholders, both within and outside their own organisations, to solve today's issues and shape tomorrow's digital health services?

The CIO needs to be an enabler for other stakeholders

As some leading healthcare institutions in Saudi Arabia, eg, the National Guard Hospital, introduce enterprise architecture, an increasing amount of institutional knowledge is being captured. However, there is still some way to go, particularly with regard to capturing knowledge that is 'tacit' (ie, knowledge related to skills or experiences that is difficult to codify and transfer to others). The National Guard Hospital has set up a Health IT Council whose objective is to align the business culturally and technically with the enterprise architecture.

Nonetheless, the actual and potential benefits of digital health are generally well understood among stakeholders. For example, at the National Guard Hospital 90% of 120 Key Performance Indicators are automated. This alone demonstrates a substantial penetration of digital health, reflecting successfully on the CIO's role.

Coordinating data governance with physicians is a challenge

Physicians in the country are very demanding with respect to their IT needs. They tend to be highly engaged with the CIO function, for example sitting together on key system implementation/informatics committees and being involved in the co-creation of digital health services. This is a clear positive for CIO efforts to develop digital health. At the same time, related data governance issues are not yet resolved. For example, some physicians prefer to use their data first for publications, or for private consulting contracts, before sharing it with the healthcare institution. CIOs in Saudi Arabia can find it difficult to persuade physicians to let go of their data.

Sometimes this reluctance on the part of physicians can be related to a preference not to adhere strictly to hospital policies. For example, one such policy states that antibiotics should only be prescribed by Infectious Diseases Consultants, not other physicians, even if they are senior. Some senior physicians feel that their experience, combined with access to specifically relevant data, means that they should be able to make decisions without regard for the policy.

Incentives are being provided to physicians to encourage adoption of best practices in participating in digital health platforms. These are generally not financial in nature. Instead, physicians are sent thank-you letters; given certifications; allocated time specifically for fulfilling digital health commitments; and are offered privileges, such as IT training courses or deeper search privileges in databases. These incentives have worked quite well. In future, promotion or bonus incentives may also be considered. One CIO pointed out that establishing a sector-wide standard would be a useful way to establish financial incentives.

Linking patients into the loop

Several of the CIOs we interviewed underlined that the flow of information from physicians to patients is still limited. One CIO noted that the only compelling reason for sharing data with patients is if patient feedback would permit adjusting the care plan. But the other institutions we interviewed note that patients having access to more of their data serves both to empower and to evaluate them; the CIOs of these institutions are proactively seeking to increase the flow of information to patients.

"The key is for the CIO function to keep affirming that IT is only an enabler: it is the businesses themselves that take ownership. This is what makes them engage with our systems. Proposing systems without the full engagement of business owners is the first step to failing."



Dr. Khaled Al Odhaib

CIO of the General Directorate of
Medical Services of the Armed Forces

These findings correspond to the conclusions of Accenture’s 2016 Consumer Survey on Patient Engagement in Saudi Arabia³, which noted that access to Electronic Health Records is increasing but is still far behind desired access levels. At the same time, our interviews suggest that patient education is regarded as important, for example via social media and text messaging.

Some physicians prefer not to show patients their progress notes, arguing that these may cause the patient unnecessary worry. But patients may argue that they can complement the progress notes with their own knowledge/research about their medical situation. Accenture’s 2016 Consumer Survey on Patient Engagement notes that there is an opportunity for physicians to “increase the level of transparency and improve communications with patients” in Saudi Arabia.

CIOs have yet to figure out an appropriate solution. The legal angle is not totally clear (how much information must a patient be given?). One solution proposed (but generally not yet implemented) is to establish an online labelling system for data that specifies which data should/should not be shared. Resolving this issue is likely to become more important as consumers become more demanding.

“Stakeholders are becoming more demanding -- the young generation are the new influencers and customers.”

 **Dr. Osama Al Swailem**

CIO, King Faisal Specialist Hospital and Research Center



³ Accenture, ‘Patients Want a Heavy Dose of Digital’.

Accenture's 2016 Consumer Survey on Patient Engagement found that consumers who use technology to manage their health use websites (44%), apps (40%), social media (41%) and wearable technology (14%). Remote consultation (24%) and remote monitoring (12%) are also used. All the CIOs we interviewed noted that their institutions provide high quality apps, wearables and remote care for patients.

But some of the CIOs that we interviewed recognise that -- although progress has been made -- there is significant further scope for increasing digital collaboration between patients on one hand, and physicians and healthcare institutions on the other.

Inter-institutional collaboration

In an initiative led by the Ministry of Health's Council of Health, CIOs from five leading healthcare institutions in Saudi Arabia (which together provide some 80% of healthcare in the Kingdom) are collaborating on sharing electronic medical records. These include, for example, patient data such as notes on the last visit to a physician, and data on allergies or recent surgeries. Each patient has their own identification number under this initiative. Planning is underway to both broaden and deepen the collaboration, and this will receive strong new impetus from the National Health Initiative.

At the level of data sharing with the government (the Ministry of Health and the Ministry of Finance), progress has been somewhat slower but is moving in the right direction. The government stakeholders understand the benefits of digital health and are becoming more demanding, like other stakeholders in digital health. This trend is likely to intensify under the new National Health Initiative: the Ministry of Health is moving away from its role as operator of health facilities, towards being only the 'developer' of the national health system, ie, responsible for its structure and actively regulating and monitoring, with an increased focus on healthcare quality.

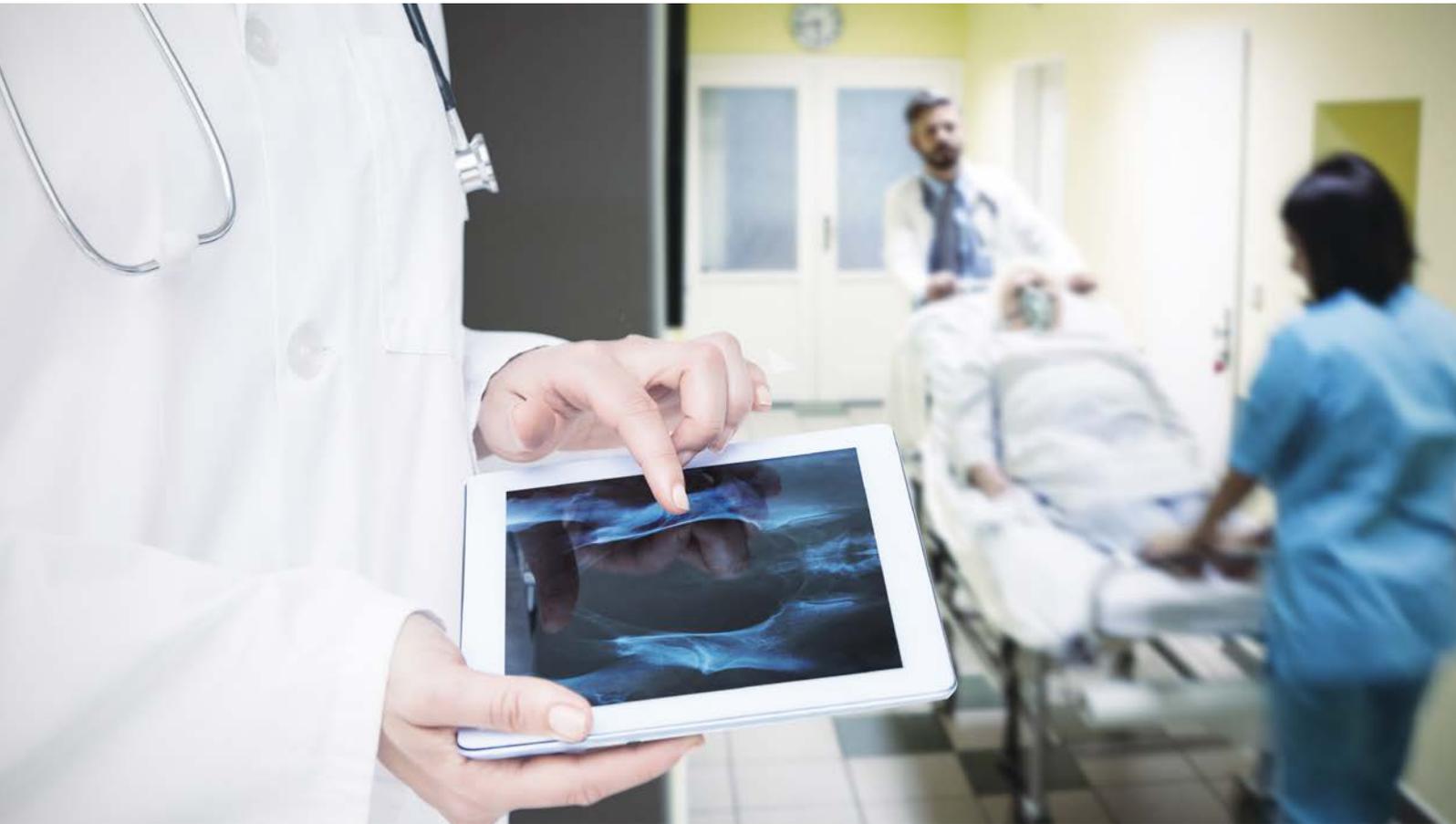
"Nothing is on paper anymore; everything is digital -- even consent forms."

"Telehealth is still at an early fundamental stage and needs time."



Eng. Abdulaziz Al Rumaih

CIO, National Guard Hospital



HYPOTHESIS 3

CIOs need to take on a new role, adopt new skills and get resources to lead a successful digital health transformation

Finding: New services, and new types of service, are in high demand from patients and doctors alike. As use of the cloud, analytics and data sharing rises, CIOs are facing challenges that require them to adopt new skills and build different teams to lead and deliver digital health transformation. How does the modern CIO approach this?

CIOs have the power they need to transform their institutions

Reflecting the nationwide importance given to developing digital health even prior to the new National Health Initiative, the CIOs we interviewed sit on the boards of their institutions (with one exception among the CIOs we interviewed) and seem to feel strong backing from their CEOs.

The backing they will enjoy going forward as the National Health Initiative is implemented will push CIOs to aim higher and be more ambitious in their goals.

How to resolve the challenges of an expanding role for CIOs?

As in several other countries, CIOs in Saudi Arabia are being called upon to do an ever-broader array of tasks. This is a major challenge for half of the CIOs we interviewed, while the other half view it as manageable. The solutions offered by the CIOs we interviewed include the following:

- Focus on outsourcing, and particularly letting go of non-core business.
- Build knowledge and expertise everywhere in the institution and among physicians and clinical staff. This can involve training programmes -- especially 'train the trainer' programmes, which have a multiplier effect. In one of the institutions we interviewed, physicians and clinical staff are only issued with a user ID after they attend training sessions. This ensures that they complete the training.
- Integrate with other departments. For example, one CIO suggested that collaboration between IT and the biomedical department is becoming so intense that these two departments could merge in three to five years. Depending on how such a merger were structured, it could in effect ramp up the number of staff working for or with the CIO.

The new skills needed are scarce

CIOs note that there is a shortage of “the right talent” in areas such as data management and mining, analytics, business intelligence, network engineering and statistics, and that this is a big problem for digital health implementation. One CIO suggested that there are many capabilities that his institution is struggling to build or buy from the market; another noted that the lack of experienced, trained staff was one of the leading barriers to introducing digital health services. The problem extends to the difficulty not just of finding skilled staff (which often is by referral), but then also to keeping them. There are high expectations that new education and training programmes under the National Health Initiative (led by the Ministry of Education and the Ministry of Labour in coordination with the Ministry of Health) will, over time, help to bridge the existing skills gaps.

“IT is leading the organisation's transformation due to massive support from the CEO. Moreover, every leader in the organisation needs to help drive the digital health agenda. Digital health is not an IT project; it is an organisation-wide project.”



Dr. Khaled Al Odhaib

CIO of the General Directorate of
Medical Services of the Armed Forces



CONCLUSIONS

The new National Health Initiative is hugely significant and positive for the future of digital health in Saudi Arabia. Now that the government has determined the path to take, the whole healthcare sector will follow this direction in the coming years. CIOs' previous concern that the Ministry of Health was slow to give its green light for digital health initiatives has now dissipated. Looking ahead, CIO expectations are likely to turn more towards implementation: Can the Ministry deliver what it is promising, and how quickly? However, this will not stop CIOs from pushing ahead themselves to develop digital health within their institutions.

CIO SURVEY - GEOGRAPHIC COVERAGE





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