The CIS of the future

Clinical Information Systems undergoing the digital revolution / challenges facing IT departments.

Contacts

Albert Fässler
Partner
PwC Switzerland
albert.faessler@ch.pwc.com
+41 58 792 23 22

David Roman
Director, Operational Health Assurance
david.roman@ch.pwc.com
+41 58 792 77 90

Fabian Vögeli
Senior Manager, CIO Advisory
fabian.voegeli@ch.pwc.com
+41 58 792 14 84

Rejhan Fazlic
Senior Manager, CIO Advisory
rejhan.fazlic@ch.pwc.com
+41 58 792 11 48

Digitization as a catalyst for hospital IT

Mobile services such as apps for smartphones and increasing integration between systems are fundamentally transforming the healthcare market. Half of all patients already believe that Mobile Health, or mHealth for short, will improve the healthcare system. Physicians, health insurance providers and the pharmaceutical industry also see huge potential in the corresponding healthcare services, but expect that the innovations will take time to be implemented due to security considerations and reservations about data protection. Mobile health services are more than just technical gimmicks: they enable us to prevent future shortages in supply resulting from demographic change. In 2025, 30% of Europeans will be 65 years old or over. The number of chronically ill people is expected to double in the next 20 years. The healthcare market needs to rise to meet these challenges.

Digitization is having a major impact on hospitals, current IT systems and IT organizations. The core of every hospital IT department, the Clinical Information System **(CIS)**, is also hugely affected. The described future vision , coupled with technological and cultural changes, is placing new demands on hospital IT departments and their information systems. It is not just hospitals and users who are confronted with these new expectations and challenges in terms of adaptability, functionality, integration, data analytics, usability and mobility, but also providers, who must ensure that their current systems can keep up with the technological developments occurring at an ever growing pace.
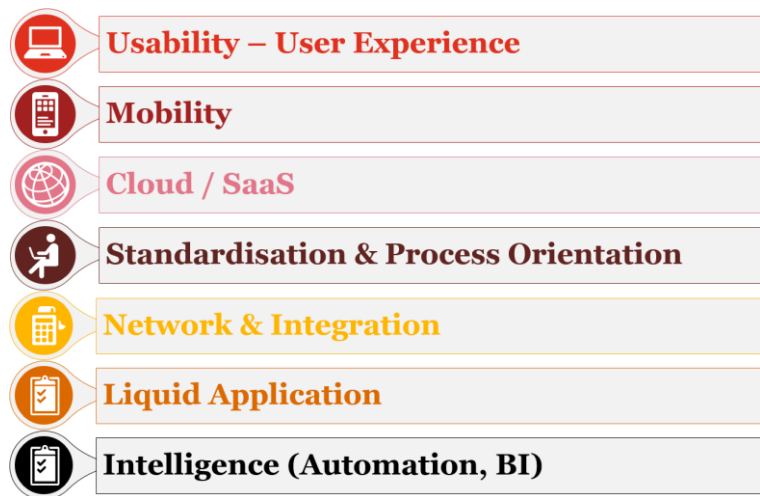

Figure: Manifestations of digitization in core applications (PwC)

Dissatisfaction and developments on the CIS market

The rising pressure caused by new expectations is reflected in the growing dissatisfaction of hospitals with their Clinical Information Systems. An increasing amount of tenders in regards to the evaluation of new CIS on the Swiss market speak for themselves.
As digitization takes hold, new players from the technology sector, such as Google and Apple, are also arriving on the market, just like in any other industry, with a seemingly inexhaustible hunger for investment. Google and Apple now have such a significant influence over the healthcare market that it is merely a matter of time until the same happens to Swiss hospitals and their systems:

- Around one percent of all Google search queries concern information about symptoms and medical conditions

- In Switzerland, according to a GFS survey, 41% of those questioned indicated that on experiencing health problems, they carry out research on the Internet before consulting a doctor.

- If they need to be admitted to hospital, they consult an official or independent website (40% in each case) to help them choose a hospital.

- Google is investing in lenses to measure blood sugar levels

- Apple is developing the health record of the future (HealthKit)

Things that seemed unthinkable just a few years ago are already a reality today. We expect to see an increasing number of international providers such as market leaders Epic, Cerner and Meyerhofer entering the Swiss CIS market and having a significant impact on system selection.

CIS as the weak spot

Current, mostly heterogeneous, highly individualized and historically established isolated solutions do not meet current consumer expectations by a long way, and remain cumbersome and inflexible in their interaction with modern technologies. The solutions in question have often been modified to suit the requirements of individual customers, and in many areas, are no longer comparable to the original software standard. Big Bang implementations are unthinkable, so it is inevitable to find alternative methods to allow a gradual transition, where legacy and modern systems/apps can co-exist and partial modernization can take place one step at a time.

The CIS of the future

Mobile Health will improve the healthcare system. However, for this to happen, the current infrastructure first needs to be enhanced. It is obvious that customers and solution providers must move forward into the future together in order to be able to implement such changes. Most of the systems that are currently in use are technologically obsolete, and offer few opportunities, if any, to incorporate modern technologies effectively and profitably, let alone to analyze data in a structured and straightforward manner.

With its modular structure, a modern CIS allows faster, easier integration of new functionalities and integration of internal and external software solutions. In addition, it is possible or even a matter of course for the solution to be compatible with mobile end devices. Due to the growing proliferation of telemedicine and self-measurement options thanks to "smart devices" and so-called "wearables" that can be used by patients as diagnosis devices, further new requirements are emerging and the pace of system conversions is accelerating accordingly. The relevant data must of course be protected, but there are currently a range of different mechanisms available for this purpose, even if the data is stored in a cloud or SaaS-based infrastructure. Six core developments for medical information systems can be recognized as follows:

1. More and more Clinical Information Systems are moving into the cloud.
2. More and more Clinical Information Systems are also incorporating patient portals.
3. The integration of smart diagnosis devices and telemedicine for patients is a significant part of these systems.
4. Clinical Information Systems are becoming increasingly mobile.
5. Clinical Information Systems focus on patient-centred processes, and the boundaries between administrative and clinical systems are becoming blurred.
6. Data analysis functions are being expanded.

Experts agree that a major development boost will be seen in the next few years. Social and technological factors are forcing both hospitals and providers into action.

There is no standard industry solution

The evaluation and replacement of a Clinical Information System is not an IT project, but an organizational development project in which business must take the lead. Willingness to harmonize processes is, among others, the major success factor! The costs, risks and complexity of a CIS evaluation are often underestimated. Without a clear **application strategy** based on the future expectations of clinics, on technological developments and on the current IT situation, an evaluation should not be embarked upon in the first place. Fundamental issues which are of vital importance for the implementation stage can thereby be addressed before the project is actually launched. Our experience shows that in addition to the factors mentioned above, the burden placed on the operating organization by a changeover is often also highly underestimated, as is the importance of change management. Projects often last longer than planned, which in turn means that the diverse systems in operation have to run in parallel for longer periods of time. This is another factor to take into account during the project planning phase.

There is no such thing as **the** CIS, or **the** standard, just as there is no standard procedure to follow when switching to a modern Clinical Information System. Before attempting to replace a system, the following steps must therefore be taken:

- **Assess the requirements of clinics** – Which services can and should be provided in the future, and which technological assistance or degree of digitization is necessary and useful for achieving this (e.g. wearables, patient platforms etc.)? When should a clinic opt for stable standard solutions, and when should a clinic set itself apart by adopting an individual approach?
- **Define strategic focus** – How much is the clinic prepared to invest? When is stability more important than agility? How innovative does the hospital want to be with regard to IT? Is the aim to be an early adopter or a follower?
- **Adapt the application portfolio** – Which application modules (e.g. CIS) are needed, in which areas does action need to be taken in order to implement the relevant specifications most effectively, and how can they these actions procured? Is a "Best-of-Breed" approach more suitable than building a monolithic solution?

About us

PwC CIO Advisory offers industry-neutral strategic and technological advice, thereby offering its customers flexible assistance with the development of new strategies and integral projects. Thanks to our specialized team in the area of IT Healthcare, we will be happy to help you with an IT or application strategy, IT transformation or other projects.