The market for EHR systems has been further concentrated in the past ten years; there is little movement due to a limited offer in combination with high transition costs

Introduction to this report and this executive summary

The reason for this market survey comes from a request from the ACM to analyze and identify how these markets function, in terms of structure and behavior. The market survey identified obstacles to market forces. Justifications for obstacles in structure and behavior have also been investigated and reported in the market survey. The market survey was carried out by means of desk research, a survey and interviews.

This report contains a factual representation of the findings resulting from this market survey. No conclusions or recommendations have been made.

1. Structure

Features of the offer

The market for EHR systems has become more concentrated in recent years. ChipSoft, of Dutch origin, has shown growth and has been the market leader in the Netherlands for some time. Epic, a large American supplier, entered the Dutch market in 2006. This was Epic's first step in Western Europe. Over the past 14 years, Epic has demonstrated its ability to serve the market and has acquired the second market position. Other EHR suppliers active in the Netherlands are Cerner/SAP and Nexus. The market share of Cerner/SAP (American/German) is declining. Nexus (of German origin) is on the rise in the Netherlands.

Characteristics of the question

The EHR systems currently in use are of the third generation. This generation is characterized by the integrated character between the hospital information system (HIS) and the Electronic Patient File (EPD). Furthermore, an important (worldwide) trend can be observed that more and more a standard process design is being chosen instead of hospital-specific design. Market leader ChipSoft is relatively ahead with its "standard content“ solution. Many hospitals in the Netherlands have opted for this solution in recent years. The choice of standard content makes it relatively easy to achieve hospital-wide standardization when implementing a new EHR.

The University Medical Centers (UMCs) use the EHR from Epic or ChipSoft. The only exception to this is Maastricht UMC+, which uses a combined solution from Cerner/SAP. The general hospitals interviewed in this market survey indicate that the Nexus EHR is on the rise, mainly due to the low costs and the fact that the EHR is open.

Nature of product

Broadly speaking, the EHR suppliers offer comparable functionality. The EHR of Cerner/SAP has good integration possibilities with the Enterprise Resource Planning (ERP) system of SAP. As a result, the business support of hospitals with the EHR from Cerner/SAP can be better supported. The HIS is provided by SAP and focuses entirely on supporting this part of the hospital.

The HIS / EHR suites from ChipSoft and Epic have the most functional depth according to the hospitals. They are very similar in scope.

The Nexus EHR is still partly under development, according to Nexus. Due to the lack of a fully-fledged medication module in particular, it is perceived by the market as incomplete. Nexus indicates that the medication module will be available in 2021. Hospitals using Nexus indicate that they complete the missing functionality with a specialist product. For example, in hospitals there are a number of domains where specialism-specific functionality is often used. In order to properly cover the entire process, links must then be built with the EHR.

Barriers to Entry

Entering the market for EHR systems as a new entrant is difficult, according to the interviewed EHR suppliers. The market is not attractive to new parties, particularly due to legislation and regulations, local organization and code systems (for example DHD and Snomed). Scale is needed to justify the investments in the required specific developments for the Dutch market.

The Dutch market, according to the interviewed parties on the supply and demand side, also has a high complexity due to the many programs of the government concerning ICT and digital care. Supporting these programs costs the EHR suppliers a lot of time and attention.

Hospitals say they do not quickly switch to another EHR because this type of system is highly integrated with the processes in a hospital. Implementing an EHR is also expensive. The transition costs and the time required for transition are very high, according to the interviewees. Selection and implementation takes an average of 1.5 to 2 years. Many hospitals therefore indicate that they are in a "locked-in" position.

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Interoperability is the most frequently mentioned criterion in the survey and ChipSoft's EHR is the most widely used in the market; yet this EHR is not perceived as "open"

Interoperability is, on the basis of the quantitative research conducted, the most frequently mentioned criterion by hospitals when selecting a new EHR. The ChipSoft EHR is not perceived as open by hospitals, but is used by approximately 70% of the hospitals. The popularity of ChipSoft can be explained by the fact that the EHR is proven, ChipSoft has a tight (and successful) implementation method and the EHR brings a high degree of standardization in the hospital.

The other EHR systems from Cerner/SAP, Epic and Nexus, are perceived more “open” by the hospitals that use them. The openness of a EHR is determined by a number of factors according to the supply side, including access to the data structure, a clear 'data dictionary', the presence of open APIs (an API is software to independently develop interfaces with the EHR) and (international) standards are the most important.

Openness of EHR systems

The openness of the EHR system is essential for the further development of data exchange. This openness is expressed in the extent to which these systems offer an entrance and an exit to easily open up information (in standard formats) and to receive and process information in your own system (preferably by means of an API).

In addition, openness is a measure by which other suppliers gain access to information for developers. Hospitals see large differences per EHR supplier in this respect. The American suppliers Epic and Cerner and the German Nexus have a wide range of (open) APIs and an environment in which developers can retrieve manuals, test environments and advice.

The ChipSoft EHR is experienced by its customers as “closed”. According to hospitals, open APIs are not used. The "entrance" and "exit" to the EHR is provided via Zorgplatform and via custom interfaces on the ChipSoft communication server called COMEZ. ChipSoft itself indicates that it provides many APIs to exchange data with other information systems. ChipSoft emphasizes the risks of using open APIs and recommends not using them. ChipSoft indicates that the database is completely open and accessible to other information systems.

Data exchange

Several suppliers are active in the market(s) for data exchange. The EHR systems have a lot of influence on the way in which data exchange is structured. They facilitate the disclosure of medical data from the EHR. There is a noticeable development that the EHR suppliers are playing an increasingly important role in the exchange of data. They facilitate data exchange from the EHR, instead of other information systems. This is due to the driving effect of national subsidy programs such as VIPP (Acceleration Program for Information Exchange Patient and Professional) and the growing role of regional cooperation. When hospitals use the VIPP program, they receive a subsidy.

In addition to the EHR suppliers, many different information systems are seen in the market that enable data exchange. A distinction can often be made between information systems based on the hospital and systems that focus on regional (or national) cooperation and data exchange.

It also concerns various subdomains (niches in the market) where more than once a data exchange supplier has a significant market share. These exchanges mainly concern a specific use case or application; for example the exchange of data from the first to the second line. Examples are ZorgDomein (referral functionality from first to second line) and Point (transfer from hospital to VVT).

There are not many national infrastructures for data exchange or national generic facilities in the Netherlands. A prominent example has for a long time been the Landelijk SchakelPunt (LSP) of VZVZ (Association of Healthcare Providers for Healthcare Communication). This is a public-private partnership that is funded by health insurers (ZN).

Suppliers of EHR systems are also entering the market(s) for data exchange. The EHR suppliers offer specific products for data exchange (more or less) in addition to their own EHR solution. ChipSoft has developed its Zorgplatform for this purpose and offers it as part of its enterprise suite (called ‘All You Can Hix’). Epic offers Care Everywhere to its customers, which is part of its enterprise suite.

With Care Everywhere, Epic hospitals can exchange patient files with each other. The ChipSoft Zorgplatform is part of the enterprise license and enables HiX hospitals to mutually exchange data in HiX. Data exchange between HiX and Epic-using hospitals is possible if the Epic-using hospital purchases a license for Zorgplatform.

Nexus recently announced a partnership with Founda. This platform enables Nexus customers to make links with information systems of other healthcare providers. The collaboration has not yet been proven in practice.

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In the coming years, hospitals will mainly invest in further development of the EHR. This is a signal that the market has relatively high barriers to switch between supplier

Ask for data exchange

The demand for data exchange systems is characterized by the following factors:

- Demand is fragmented or program-driven. Due to the different versions of EHR systems in use by hospitals, the demand for data exchange systems is fragmented and heterogeneous. Each hospital has its own focus areas with regard to data exchange systems. An exception to this is VIPP. The VIPP program ensures, driven by subsidies, that hospitals achieve the goal that VIPP has set.
- Demand is organized around a multitude of operational and non-operational standards. Hospitals indicate that there is no coordination with regard to the structure of data exchange. Suppliers of data exchange systems indicate that adherence to standards has a limiting effect, because standards are not yet operational (not yet in use by hospitals). This creates the situation that hospitals wait for the suppliers to make the standards available. Or vice versa, because the information systems in hospitals are not (yet) compatible with the standards of the suppliers.
- The demand for data exchange systems and the financial basis for this are not in balance. Hospitals indicate that more and better data exchange is needed, while costs are high and only a limited income stream is available. For example, hospitals finance most of the costs of data exchange with primary care institutions and no DTCs in the area of data exchange are available.

2. Behavior

Purchasing cooperation

There are no partnerships between the EHR suppliers. The EHR suppliers do, however, work together with partners to develop specific solutions. Cerner has a strategic partnership with SAP to jointly deliver an integrated HIS (SAP) and EPD (Cerner). Recently, Nexus announced a partnership with Founda for an integration platform that can link the EHR with information systems of other healthcare providers, such as GPs.

The purchasing of a EHR is generally done independently by the hospitals, whereby the purchasing function is centralized within the hospitals.

There are cases in which hospitals have jointly purchased a EHR (usually with merger partners) and even a single case (Coöperatie Zorg op Zuid) in which a EHR has been jointly implemented.

Hospitals with the same EHR have often joined forces in partnerships. They unite to gain a better position towards the EHR suppliers; although the objective differs per partnership. The differences are driven by the way in which the different EHR suppliers deal with the customers. These relationships are often aimed at gaining more control over the further development of the product; purchasing is not discussed or is only discussed to a limited extent.

Entry and exit

In the past 15 years, various suppliers have tried to enter the Dutch market with a EHR solution. Well-known entrants are the suppliers Alert, Epic, CSC (with the acquisition of iSoft), McKesson and Siemens. In 2014 Siemens signed a contract with ErasmusMC and UMC Groningen for the implementation of the EHR called Soarian. During the implementation, Cerner took over the activities of Siemens. The implementation stopped early 2015 due to severe issues including a lack of confidence. The last most successful entrant to the EHR market was Epic in 2006. After an acquisition, Nexus has been active in the market since 2015.

Replacement market

On the basis of the survey and the interviews, we find that a number of hospitals may consider replacing the EHR. This is driven by the pressure on costs and the desire for (more) flexibility and interoperability. The latter should also ensure that new innovative technology can be used more quickly for better care.

However, it is the expectation of the hospitals that the market will not move quickly when the variation in choice remains low. In particular, the (relatively) high transition costs and the (often enormous) impact of the change that a transformation with a EHR requires from a hospital, ensures little movement. Implementations are taking place, but no hospital has switched from the ChipSoft or Epic EHR to a third system.

Investment behavior

The suppliers Cerner/SAP (14-16%), ChipSoft (36-38%) and Epic (32%) say they invest a large part of the turnover in the further development and innovation of the EHR. The users of Epic endorse the investments in the EHR. These figures for further development and innovation are unknown for Nexus.

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The Netherlands is at the forefront in the application of IT in healthcare, but carries the red lantern in relation to the countries around us in terms of data exchange

Innovation & further development

The hospitals that use the EHR from ChipSoft, Epic and Nexus indicate that they will make every effort to further develop the product in the coming years. The hospitals with the EHR from Cerner/SAP will mainly invest in replacing the EHR.

Pricing strategies

According to their own words, the EHR suppliers use a price list internally. This price list is not transparent to the hospitals that orient themselves, so that the in-transparency of the price is experienced by the interviewed hospitals. All EHR suppliers indicate that when hospitals show interest in the products, a calculation is made and the hospitals gain insight into the prices that are used.

There are differences in the licensing models used, but a "subscription fee" is currently the most popular. Cerner/SAP, ChipSoft and Epic base the price on factors such as the number of beds, the number of outpatient visits and the number of lab orders from the hospital. Nexus, which mainly bases prices on the hospital's turnover, adjusts the price if the hospital's turnover changes. Cerner/SAP, ChipSoft and Epic also adjust the prices to the size of the hospital, but not in the meantime. Epic uses fixed prices and does not give a discount. Epic indicates that they do not negotiate with hospitals in order to create equal opportunities for its customers. Hospitals experience high costs, especially at ChipSoft and Epic, for developing and maintaining links to subsystems and point solutions.

Agreements and conditions

The hospitals aspire to improve data exchange: exchange more data and in a better way. They often know the needs of the care providers in the region and would like to determine their own agenda with regard to the pace and specific organization of data exchange. The hospitals indicate that they can often only exchange data from the EHR within a standardized setup. Because they need the EHR supplier for accessing and returning information in the primary process, they experience a great deal of dependence on the EHR suppliers.

Hospitals like to be fully informed about the functionality, operation and prices of products for data exchange. ChipSoft customers indicate that prices are not always transparent to them. This supplier does not work with fixed rates and, according to its customers, does not share a roadmap with intended developments.

3. Result

Sales and profitability

The turnover of the EHR suppliers is in line with their market share. ChipSoft has the largest market share in the Netherlands and therefore also the highest turnover (EUR111.9 million in 2018). They have more employees in the Netherlands (580) than the other EHR suppliers. Epic (75 employees in the Netherlands) has realized a turnover of EUR43.5 million in 2019. No data is available for Cerner/SAP in the Netherlands. Nexus has 125 employees in the Netherlands (in 2019) and a turnover of EUR14.3 million.

ChipSoft made a profit of EUR 51.8 million in 2018. The hospitals interviewed understand that it is a private company, but they think the profitability of ChipSoft is currently not well proportioned to the limitations that are identified and for which a solution is being requested, especially with regard to interoperability. Epic is known to have made a profit of EUR 12.7 million in 2019 and Nexus a profit of EUR 0.9 million.

Growth

Hospitals are risk averse by nature. This caution is partly fueled by the multiple failures of the introduction of new EHR systems on the Dutch market. For this reason, a proven solution is more often chosen that demonstrably works in the Dutch healthcare market.

Hospitals and EHR suppliers do not expect the market for EHR systems to grow further in the coming years. The market is saturated according to the interviewed hospitals and EHR suppliers, and does not invite new entrants to invest in this market. It will take a long time for a significant market share to be acquired by an entrant.

In the market survey, the hospitals have indicated that they will mainly invest in the further development of the EHR in the coming years. The hospitals and the EHR suppliers do not expect any new entrants to this market.

The market does offer opportunities for point solution providers, and it is expected that new entrants will appear in this area in the coming years. For these parties it is important to be able to link with other systems, including the EHR.

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There is a need for action and more guidance from the government to accelerate in a targeted manner

Innovation

ChipSoft customers indicate that the development agenda is not or insufficiently transparent. ChipSoft itself indicates that the user groups have been set up to further develop the standard content. ChipSoft does not charge extra costs for this. Hospitals with standard content are compensated for participating in the user groups because requirements and wishes are picked up and developed more quickly.

Users of Cerner/SAP indicate that developments are a long time coming. Cerner/SAP themselves indicate that they have mainly developed for medication and radiology in recent years. Epic's customers indicate that Epic appears to be developing mainly for the American market. They say they have little influence on the international development agenda. Epic states that most of the customers are in the US, so most requests come from US customers. However, every developed feature is also made available to Dutch customers. The hospitals are satisfied with the quality of the functionality. There is a perception of Nexus that they are sometimes slow to develop, mainly because of the many participation options that are possible.

The ChipSoft Zorgplatform is seen by hospitals as a well-designed platform. According to the hospitals interviewed, it is remarkable that this platform is necessary to exchange patient files between ChipSoft-hospitals. ChipSoft requires its customers to use the Zorgplatform; it is the only exit from the EHR that customers can use to exchange patient files with other hospitals.

Hospitals indicate that their ability to innovate is limited due to the obstacles experienced in the field of interoperability and data exchange. They see that this means that opportunities for improving care are being missed.

The constructive and sustainable exchange and bringing together of data can lead to many new (scientific) insights to improve the quality of care. Health insurers share this insight and indicate that the Netherlands is also lagging further behind in this area in international comparisons.

Quality & customer satisfaction

Hospitals are not satisfied with the quality and speed of data exchange developments. Developments in this area require a great deal of coordination between healthcare institutions and a great deal of investment in time and money with various suppliers, including the suppliers of EHR systems and suppliers of information systems for data exchange. Initiatives often result in high costs and limited results.

4. Conclusion

The hospitals continue to opt for the EHR from ChipSoft or Epic because they are risk averse and they want systems that are proven in the Netherlands. ChipSoft is known for the tight and successful implementation strategy that has been proven in the market and has brought standardization. The agreements made with ChipSoft and Epic are being fulfilled, according to the interviewed hospitals. ChipSoft is tough in the negotiations, according to the hospitals. They are not always transparent about prices and hospitals experience unexpected or higher costs.

In addition, according to the interviewed hospitals, ChipSoft does not always want to interface with an information system of a supplier that supplies a substitute. By definition, these parties have a difficult position to fill. According to the hospitals interviewed, it is remarkable that the ChipSoft Zorgplatform is necessary to be able to exchange between ChipSoft and Epic hospitals. And that Epic customers have to buy a license for Zorgplatform before exchange with HiX can take place.

The hospitals, in their own words, are not always able to organize themselves well enough towards the suppliers in the market and, especially during negotiations, to keep their backs straight. We see this picture with both the EHR systems and suppliers for data exchange. In addition, there is limited control from the government to enforce the use of standards for data exchange and there are many programs and initiatives to establish data exchange. However, these programs do not always follow the standards that international suppliers have embraced. The Ministry of Health, Welfare and Sport itself indicates that it can play a role, due to the Electronic Data Exchange in Healthcare Act, standardization and governance on standards. The Ministry of Health, Welfare and Sport recognizes that there is no control over standards. The Ministry of Health, Welfare and Sport is considering appointing a holder of the standards system who can supervise that standards are open, free of licenses and do not deviate from international standards.

The hospitals interviewed indicate that there is a lack of regulation with regard to the EHR suppliers. The hospitals would like to see a EHR supplier obtain a license before the EHR can be used in the Netherlands. For example, one of the criteria that should be tested is interoperability.

In the market survey, hospitals have also expressed astonishment at the many investments that are still required in mostly local infrastructure to host the EHR systems. The mostly outdated technology of EHR suppliers does not currently make it possible to offer the EHR from a Cloud (as a Service). This is an obstacle to innovation according to interviewed hospitals.

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