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# Where is the Future:

## 5 Trends Independent Software Vendors in Healthcare Should Explore

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white paper

# Summary

What are the next big healthcare trends independent software vendors (ISVs) should explore and invest in? Driven by new emerging pain points in the use of electronic medical health records, ISVs will face both new challenges and new market opportunities. As competition from all sides increases, the innovation and discipline of software vendors will be challenged in the coming years. In this white paper, we explore a number of significant trends that will shape the future of ISVs and deliver new solutions for an ever-growing health IT market.

2015 was overshadowed with scandals of health data breaches, health data attacks and current security weaknesses. Experts say that criminal attacks in healthcare are up 125% since 2010. This is important news for ISVs providing healthcare software solutions to providers.

Nevertheless, the power and responsibilities of electronic health records (EHRs) is undeniable. Leading experts conclude that EHR systems have already proven to be effective in improving patient care, increasing patient safety, streamlining work processes at healthcare facilities, and reducing treatment time.

## With Great Power Comes Great Responsibility

But to quote the Spiderman movie, “with great power comes great responsibility”. From this point forward EHRs are becoming a more important element of the healthcare ecosystem, and software vendors will need to become more aware of which new technologies they want to invest in, so it is important to make the right choices now.

To meet the challenges of healthcare providers and patients, ISV solutions will need to sit in a sweet spot that fits seamlessly into the US healthcare provider’s systems or in a patient’s pocket. These solutions need to fit the provider’s operational workflow and structure as precisely as the elements of a jigsaw puzzle. And with the global EHR market value expected to grow to $23.98 billion by 2020, huge rewards are at stake.

## How Did We Get Here?

With all honesty, the emergence of electronic medical health records for US providers didn't start off as a romance. Today, scientific results suggest that patient trust in physicians, and security in the physician-patient relationship, override most patients' concerns about information technology. But it took years for EHR technology systems to be accepted by doctors.

Today ISVs who want to introduce and implement technology solutions, need to increasingly understand the importance of the physician-patient relationship, the emotional drivers to use technology in front of the patient, the limitations of technology, and how both parties feel when technology is being used.

Back in January 2009 the Health Information Technology for Economic and Clinical Health Act (HITECH), a $30 billion initiative, tried to transform healthcare delivery via widespread use of EHR systems. Change and adoption accelerated when the federal government could afford to push for a paperless future of healthcare data. According to the Centers for Medicare & Medicaid Services, the federal government backed an initiative to drive healthcare to paperless operation by spending more than $25 billion in incentives for adopting EHR. Today, as many as 478,000 health care providers receive payment to participate in the Medicare and Medicaid Electronic Health Record Incentive Programs.

## HEAD TO HEAD COMPETITION (TOP 20)

Which are the leading electonic medical records (EMR) software products

| Software | Customers | Users | Followers | | |
|---|---|---|---|---|---|
| | | | Twitter | Facebook | LinkedIn |
| eClinicalWorks | 100000 | 600000 | 18175 | 4797 | 9224 |
| McKesson | 40000 | 200000 | 9610 | 11586 | 118763 |
| CureMD | 39322 | 192186 | 3701 | 12911 | 2853 |
| Practice Fusion | 17000 | 150000 | 10727 | 21262 | 5904 |
| Allscripts | 10000 | 180000 | 12750 | 5490 | 50789 |
| Cerner | 10000 | 75000 | 25926 | 13643 | 75528 |
| Greenway | 13000 | 100000 | 6772 | 3142 | 7678 |
| iPatientCare | 10262 | 64652 | 1263 | 247 | 689 |
| Epic | 295 | 273000 | 0 | 7502 | 126 |
| athenahealth | 8776 | 12139 | 13673 | 6180 | 21198 |
| Nextgen | 4400 | 85000 | 16220 | 3125 | 11094 |
| e-MDs | 9100 | 30000 | 3095 | 876 | 2071 |
| NueMD | 8000 | 24000 | 2133 | 1446 | 978 |
| Kareo | 6000 | 9000 | 7100 | 22587 | 3027 |
| Praxis | 5500 | 40000 | 845 | 90 | 195 |
| SOAPware | 5000 | 30000 | 788 | 2039 | 328 |
| Amazing Charts | 6800 | 10000 | 1268 | 1408 | 1020 |
| CareCloud | 2000 | 10000 | 6242 | 2610 | 4874 |
| Meditab | 100 | 30000 | 361 | 918 | 1115 |
| AdvancedMD | 4400 | 10000 | 1272 | 857 | 4994 |

Graphic's data source: Capterra

# The EHR Market Today

For electronic medical record (EMR) products, it turns out that there are just a handful of companies that rule the US market place. Capterra, which connects ISVs to buyers, currently counts 307 EHR products on their website. The top 5 products alone cover more than 200,000 customers and more than 1.4 million users.

Capterra reports that the market size for this area could amount to $6 billion, and grow at a rate of 16% per year. Other sources, including a report by Kalorama Information, suggest that the EMR market is expected to grow at only 7 - 8% over the coming five years. It roughly meets the calculations of consulting firm Accenture, which expects the U.S. market for this sector to reach $9.3 billion with 7.1% annual growth.

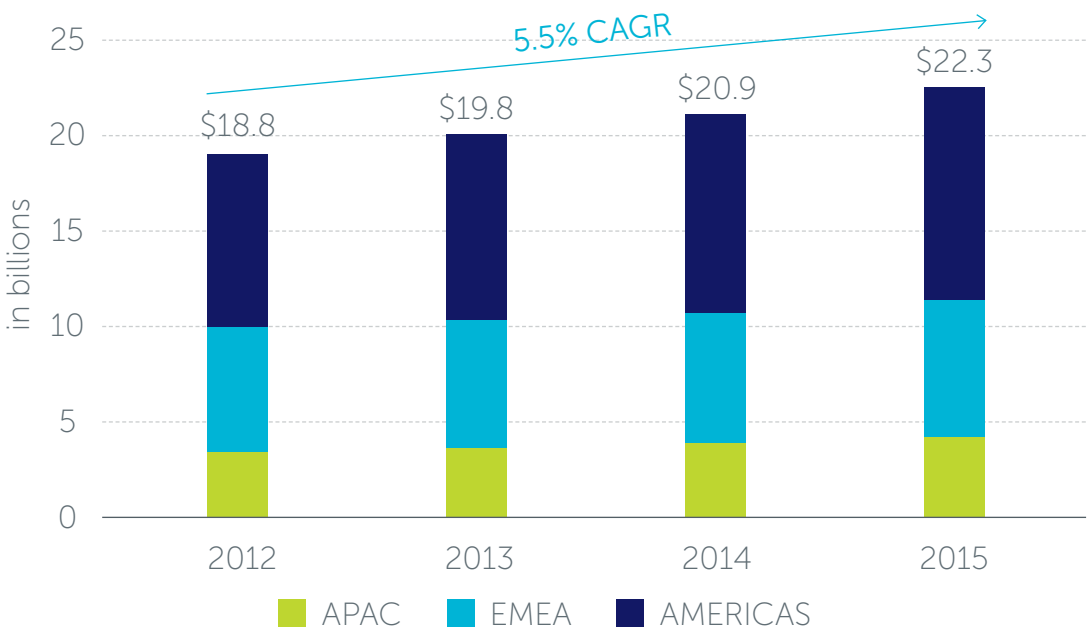
On a global scale, Accenture announced at the 2015 HIMSS conference that the global EHR market would reach $22.3 Billion by the end of 2015. This would mean the US accounts for almost 42% of the global EHR market.  Despite the growth, the ability of healthcare leaders to achieve sustained outcomes and proven returns on their investments, would pose a significant challenge to the adoption of electronic health records. But new solutions by ISVs are expected to appear. According to Silicus, a strategic partner to ISV services, vendors are now challenged to enhance their software product offerings, add new capabilities, and provide prompt support.

In the process of changing market needs, innovative solutions will emerge that can better adapt and scale electronic health records to meet the needs of specific patient populations as well as the business needs of health systems. These new software solutions will be able to deliver on their data analytics promises, deliver improved portability features, and will most likely be produced by ISVs.

With steep learning curves and already the next cycle of platform migrations kicking off, existing vendors will be challenged to sustain the innovation that is much needed in this market. The investments made to date into the products must keep up with the healthcare industry trends: mobility, analytics, genetics and true interoperability.

## GLOBAL FORECAST FOR ELECTRONIC HEALTH RECORDS (EHR)

Accenture study Estimates EHR Market to Reach $22.3 billion by end of 2015




An Accenture study shows the global market for electronic health records (EHR) is estimated to reach $22.3 billion with North America projected to account for roughly half with $10.1 billion

Source: Accenture Analisys, 2014

## EHR vs. EMR

While both have often been used interchangeably, one of the major distinctions which healthcare software system vendor athenahealth points out on their website, is that the Office of the National Coordinator for Health Information (ONC) suggests that EMRs contain the patient's clinical data, while electronic health records would go slightly beyond the information array. EHR data would focus on the broader total health of each patient. This adds an important element to the discussion of how and where ISVs are likely to create new products and services for the different healthcare sub-sectors.

athenahealth also presents an interesting case, on its own. According to a 2014 PWC report, the software company is ranked 85 on the Global 100 software leaders list. With $407.50 million in revenue in 2012, the company has become one of the strongest software players in the US. Successful software solutions such as athenahealth are now competing alongside software giants such as Google and Apple.

# Five Trends Independent Software Vendors in Healthcare Should Explore

## 1. Mobile Health Data: Patient-Centric Devices Make Everything Go Mobile

In the 2014 EHR Software Buyer Report, Software Advice presented their results from talking to medical practices searching for EHR software solutions. An analysis from 385 integrations which aimed at uncovering physician's most common pain points, revealed that mobile support topped the list of requested features. According to Software Advice, almost 40% of buyers wanted systems that would allow access from tablets or smartphones. Maybe more importantly, the report suggests that some of the buyers expressed great urgency for a mobile access feature. Such demand-driven trends should give ISVs an important clue to where the market is moving.

### INCREASED MOBILE ACTIVITIES (in %)

Physicians report performing more healthcare activities on a mobile device during the last four years.
2014 HRI Clinician Workforce Survey and 2010 HRI Physician Survey.

| Physician's Activities | 2010 | 2014 |
|---|---|---|
| Access electronic medical records | 12 | 45 |
| Prescribe medications | 14 | 41 |
| Review images | 7 | 32 |
| Communicate with patients | 21 | 31 |
| Receive data from a medical devices | 11 | 20 |
| Initiate and track a referral | 6 | 17 |
| Conduct clinical consult from different locations than patient | 5 | 12 |

Source: pwc.se

Another survey by Software Advice suggests that 58% of users who access their EHR via a mobile device were 'very satisfied', while only 28% of non-mobile users expressed their contentment.

A report by Black Book Rankings from 2013 revealed that 122 vendors had plans to launch fully functional mobile access or a native app for their EHR offering by the end of 2013, while another 135 vendors did not specify a timeframe but said that such a move was planned for the near future.

One report after the other seems to point in the same direction: mobile is coming for EHR systems, and it is here to stay. ISVs will have no choice but to adapt quickly if they want to keep up with the fierce competition. From Gmail to mobile messaging apps, access to real-time information on the go has become commonplace for consumers over the past 10 years, so why wouldn't we expect the same for healthcare?

## Mobile Data Security

One big challenge to overcome for ISVs in the discussion of creating patient-centric device solutions, is data security. Over the past 10 years 41% of breaches were caused, not by hacking, but by device loss. Due to the particularly bad record of keeping track of its devices, healthcare has been responsible for more breaches than any other sector for the last decade.

This means that if software vendors decide to add and deploy mobile solutions for their EHR offerings, they need to find ways to overcome human error.

The US startup TigerText for example built a communication platform for health providers that lets them determine exactly how long message communication between healthcare professionals is saved. This way, if a device is lost or stolen, not all data would be exposed, minimizing the damage.

## 2. Cloud-based EHR: Health Records in the Cloud

The Holy Grail is to create a system where anyone entitled has secure access to their data at the point when they need it. This is not only

true for sectors such as retail or banking, but increasingly also for the healthcare industry. No one wants to go back to the days when we didn't have 24/7 access to our email accounts on our smartphones.

Will we think back in a few years and marvel at the days when we didn't have access to our real-time vital signs stored in the cloud? Mahek Shah, an MD at athenahealth described in his Forbes article a growing demand by consumers to have greater access to their data, and options such as portability of the user's own health information.

The technical side of things is feasible. Take a look at one of Shah's examples where his company was able to send Ebola-related, patient travel history questions via the electronic record system athenaClinicals within an hour of a media frenzy after a Dallas hospital sent an Ebola patient home. Shah's positivity about the opportunities of cloud based EHR systems may be based on the fact that cloud based IT infrastructures is capable of seamlessly pushing updates in near real-time between providers and patients.

## 3. Personalized Healthcare & Precision Medicine: EHR systems will become increasingly "tailor-made". A system needs to meet specific demands by specific healthcare specialties for specific needs by specific patients.

In the concept of precision medicine - or interchangeably called personalized medicine - EHR systems could play an ever more important role. For ISVs producing EHR solutions, it is worth looking at precision medicine with a fresh pair of eyes.

Scott Mace explains in his post on healthleadersmedia.com that the idea is to incorporate genomic data into EHR systems. This incorporation into the EHR ecosystem would commonly fall into the category of bright, shiny objects but luckily, EHR providers such as Epic are changing this perception right now.

In September, NorthShore University HealthSystem, an academic health system in the US, published findings about extensions to the Epic EHR system. The findings promise to improve patient safety, research, and clinical outcomes for 10 neurological disorders, with more than 2,000

patients already signed up to participate in the DNA biobank. If this trial proves successful and shows tangible results, more health providers in the US are likely to demand solutions that allow them to integrate similar precision medicine extensions into their EHR environment. As Demetrius Maraganore, Medical Director at NorthShore Neurological Institute explains, it allows the creation of precision medicine at the point of care, using a provider's EMR system.

The other conclusion from Maraganore's discussion is that EHR systems will increasingly need to customize their features to the specialty of healthcare in question. In Maraganore's case, it was neurology, but other areas could equally benefit from customization. Until now, Maraganore explains that most neurologists have expressed frustration with EHRs as the systems seem to be designed to serve a broad spectrum of healthcare interests, including US healthcare's meaningful use program, and would not add value for the practice of neurology, in particular. What ISVs need to think about is how to effectively serve the needs of specific healthcare sub-areas and this can only happen if ISVs work closer together with healthcare specialties.

## 4. A Usability Trend: The Great Need for EHR Software Solutions to Become More User-friendly

One significant category of providers that raised their hands and now want to switch to new EHR system solutions is ambulatory practices according to a report by KLAS. Outpatient healthcare practices are concerned with the features and modules current EHR systems offer and one of the most frequent concerns is usability.

According to an article by HIT, as many as one out of every four ambulatory EMRs systems could be at risk of being replaced. KLAS report author Jared Dowland explained that the findings suggest larger practices intend to consolidate multiple EMR systems and tighten relationships with nearby hospitals. Smaller ambulatory practices however would want to resolve functionality, support, and cost concerns, Dowland reported.

This is an opportunity for both large and small ISVs to offer better EHR software solutions. Whether specifically for ambulatory practices or not, the number one reason physicians gave for switching from their current EHR system is usability, confirms another healthcare survey from 2014 (Healthcare Data Solutions survey). The survey of one million physicians also found that user-friendliness was the most important feature of an EHR system today so ISVs need to build EHR systems with a more usable UX/UI in order to meet their customers' needs and remain competitive.

## 5. Big Data Analytics for Personalized Healthcare

One of the most significant opportunities over the next five years is the use of big data analytics software to predict patients' health. Independent healthcare providers such as Explorys Platform or Lumiata are expected to create and refine solutions that will allow spotting patterns, and even support healthcare providers to predict a person's future health. One indicator of a 'hot' technology is the steep increase in funding for tech startup companies working in that space and 2014 set a record for startup funding for big data/analytics companies in the healthcare arena with $406 million 32 invested, an increase of 161% from the previous year. Large ISVs are expected to face more fierce competition from these well-funded smaller and medium sized tech startup companies. PWC's HRI interview survey confirmed the increasing importance of healthcare analytics software. The use of big data will allow patterns to be spotted and predicted, such as the likelihood of acquiring a disease or being admitted or readmitted to a hospital based on a variety of health, genetic, environmental, and other social factors. Data from EHR systems could complete the composition of a person's predicted future health. Healthcare ISVs with EHR systems on the market, need to think about how their software solutions will be impacted by these changes. If a pattern is spotted, supported by sophisticated machine learning algorithms, predictive systems could allow healthcare providers to anticipate medical problems and adverse events long before they are happening, enabling healthcare professionals to intervene and ultimately save lives.

The movie Minority Report from 2002 draws an interesting picture for the future of police work: how to stop a potential crime before it actually takes place. New predictive algorithms and analytical systems allow

exactly this future for healthcare providers to prevent health issues. However, it could still take several years before providers start using predictive analytics on large patient populations.

## New Terrain

ISVs now need to ask themselves new questions. It will no longer be enough to have answers only on how to acquire, aggregate, standardize, and make data available to people who shape strategies and deliver care. Instead, and more importantly, ISVs need to ask themselves how they can produce the necessary insight seamlessly across providers, in real-time, and bring this insight to the right people inside the organization.

An interesting example of how to leverage the power of big data comes from IBM's research Lab in Israel. This includes IBM's effort to analyze real world evidence (RWE). IBM's team concentrated on using machine learning and deep analytics to understand the benefits of RWE data, which can include EMR, claims data, sources from scientific literature, and even data from social media. So far work has been concluded on disease areas such as epilepsy, diabetes, metabolic syndromes, and mental illnesses. Analytics tools have then been built by the team to deliver semi-automatic data mining and predictive analytics workflows for RWE analysis.

## Conclusion

With great power comes great responsibility. This is true for the role of ISVs producing solutions for healthcare and the rules of the game have become significantly more sophisticated. Healthcare organizations demand better quality modules and features to allow enhanced usability, access to data in the cloud and on the go, and the liberty to analyze data for predicting patients' future health. Robert Rowley, an MD and health-IT expert concludes that the role of EHRs will change as he believes US healthcare has already passed the 'implementation phase' and is now moving towards the 'optimization phase'. It is clear what we need the tools to do but ISVs will now need to find out how to make these tools perform better, become more secure, be easier to use, more scalable and more reliable.

## About the Author

Eugene Borukhovich is a Senior Vice President and Global Vertical Practice Leader, Healthcare, at SoftServe. He is an international expert on healthcare information technology innovation. Eugene is the founder and organizer of Health 2.0 NYC and Health 2.0 Amsterdam and is a leading advocate in healthcare consumer issues and open health data with numerous publications in such resources as MedCity News, CTO Vision, CloudPlugged, The Healthcare Insider, MedCruch, medGadget, and Health 2.0 News. Eugene is a frequent speaker at healthcare IT events, including HxRefactored Conference, Doctors 2.0 & You Conference, HIMSS Europe Webinar, etc.

# About SoftServe

SoftServe is a leading technology solutions company specializing in software development and consultancy services. Since 1993 we've been partnering with organizations from start-ups to large enterprises to help them accelerate growth and innovation, transform operational efficiency, and deliver new products to market.

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