The Evolution of the EMR in the Internet Era
High healthcare expenditures, and rapid growth in informatization

In 2014, China’s total healthcare expenditures exceeded 4 trillion yuan, with a CAGR of 20.67% over 10 years. China’s healthcare spending accounts for only 6% of its gross national product, compared to 9% in OECD countries. Taking into consideration of the large population and purchasing power, as well as the growing aging population, there remains a great growth potential in China’s healthcare market. In addition, the healthcare information technology industry in China will continue to grow through 2020 to reach 40 billion yuan with an 11.1% CAGR over the next few years.

Rising household disposable income, and diverse demand for medical services

With China’s rapid economic development and rising income levels, people’s expectations for healthcare have changed tremendously. For example, this demand is longer limited to just the treatment of disease, but also includes data privacy and information security, and the scope has extended to encompass healthy living and wellness. Many are willing to pay a premium for higher quality medical goods and services, and this diversity of patient demographic and disease profiles have become strong drivers of horizontal and vertical development across the industry.

Fig 1: Huge potential in healthcare IT market

To transform the nation into a “Healthy China”, both public and private institutions continue to explore the potentials offered by the combination of “Internet+Health” in creating new care delivery models. As a new means of reform and innovation, the concept of “Smart Health” has a vision of balanced distribution of medical resources, easier access to physicians, and lower costs of care. In this internet era, the electronic medical record (EMR) remains a cornerstone of “Smart Health” in China; the question remains, where will it take us?

1. Global Health Expenditure Database of WHO
Surge in market investments, and new rounds of medical structure development

In recent years, many domestic and foreign enterprises have begun to realize the importance and significance of medical information data, and have made heavy investments. Compared to the US and other countries with more developed markets, China’s “Internet Health” industry is still in its early stages. But the trillion-yuan industry has attracted a large number of investors, including internet giants, medical enterprises, and insurance companies, whether through capital M&A or vertical integration, to enter and stake out a piece of the market. As a core component of health information technology systems, EMRs continue to be the focus of attention for future development and investment.

Information technology innovation, and health service reform

Technology continues to innovate at great speeds with enormous potential to change the Chinese healthcare landscape. Research indicates that China currently has over 500 million Smartphone users, and data shows 94% of online users use mobile devices, clearly enjoying the benefits of high portability and accessibility. In the future, as reliance on on-demand real-time access to information becomes the norm, EMR developers will continue to expand their solutions to meet the needs of both patients and providers, and systems and data will continue to shift towards the cloud platform. HIMSS Analytics predicts that by 2020, 80% of all healthcare information will be flowing through the cloud.

Supporting policies help usher healthcare into the digital age

2010:
In September, the <EMR Pilot Approach> document was released, which outlined the 1-year pilot program hospitals across various region would carry out; the results would help determine which EMR systems are best suited for China.

2011:
In January, the <EMR System Function Standard> was published, which provided guidance on standardizing EMR management and the functionalities EMR systems should have; in March, this was followed up with a n<EMR Hospital Information Platform Construction Guide (Ver. 1)>, which supported hospital informatization development by working with public hospitals to promote EMR and hospital management.

2014:
In June, the release of <EMR Basic Data Set> and <EMR Information Platform Technical Standards> provide further guidance on the standards and future development direction of regional health information systems.
1. The Core EMR

The electronic medical system serves as a source and repository for medical data in the delivery of care and treatment to patients, and supports the clinical workflow and activities of staff in the hospital or provider office. Various components include clinical documentation systems, examination systems, and order entry systems.

**Trends:**
- System Capability Evaluation: A critical assessment of system functionality, standards, and scope will provide organizations insights into their core capabilities, and identify future opportunities for optimization and efficiency (for example, System Maturity Models such as HIMSS Analytics EMR Adoption Model).
- Voice Recognition: The incorporation of intelligent voice recognition technology in the EMR has many applications, such as operating reports, departmental notes, and clinical documentation. Overcoming challenges in recognition speed, accuracy, and interpretation of specialized medical terminology and notations are 3 key areas of development for continued growth in the use of unstructured data.
- Patient Outcomes: New standards for benchmarking system functionality, performance, and effectiveness of the use of EMR systems will be measured by the quality of care delivered and patient outcomes.

2. The Smart EMR

Cognitive capabilities will transform the EMR into a smart knowledge database that supports consultations, examinations, symptoms coverage, diagnosis, decision support, treatment, and other clinical activities to improve the quality of medical services. Examples include clinical decision support systems (CDSS), rational drug use, and antibiotics management database.

**Trends:**
- Machine Learning: By using algorithms that iterate based on data analyzed, machine learning has the potential to make faster and more accurate diagnostics, insights, and predictions from EMR data.
- Natural Language Processing: NLP transforms free text into standardized and structured data to assist in clinical decision support.

3. The Interconnected EMR

The open exchange and sharing of information between EMRs, including referrals, consultations, and reports, will greatly increase the range of health service and care coordination for patients. While the accurate and complete collection of data is important, the value of the EMR can be fully realized when the information is shared and exchanged.

**Trends:**
- Cloud Technology: Cloud technology supports real-time on-demand access to patient data, increasing the accessibility and continuity of health care services. It enhances the interaction and exchange of clinical information while remaining cost-effective and scalable.
- Mobile Technology: Mobile technology allows for real-time collection, monitoring, and integration of health data to EMRs. A mobile platform also greatly extends the range at which medical services can be provided.

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**Upgrading China’s EMR industry within an environment of challenges and opportunities**

**Fig 3: Five kinds of EMR products**
4. An Integrated Health System

Healthcare is not bound within the four walls of one healthcare institution. Throughout an individual’s lifetime, encounters ranging from routine physical exams, to hospitalizations, data from different sources will consolidated into a patient-centric electronic health record. A centralized source of abstracted information will be both useful and purposeful across many applications, including potential commercial value.

Trends:
- **Big Data**: As the amount of health and medical data and information continues to increase and accumulate, requirements for dealing with storage capacity, processing times, data management, and data analysis will continue to grow. The proper use of analytics and application of big data will aid in the prevention, diagnosis, treatment of disease, and have a significant impact on the healthcare industry.

5. Health Service Platform

At the center of the next step in the EMR evolution is a new healthcare service-focused platform that will act as a collaborative exchange for a wide variety of players, including the financial sector, insurance companies, public health, communities, and genomics. Benefitting from this system and its services will not only be traditional healthcare service providers such as the government and hospitals, but also individual consumers, other providers, payers, pharmaceutical companies, and many more.

Fig 4: How can health service platform benefit different stakeholders?

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Conclusion
- A new EMR ecosystem is on the horizon, and it will not only reshape the healthcare landscape, but also expands its borders.
- The business model will change from one based on a singular product, to an entire ecosystem supported by a platform of healthcare services.
We are highly recognised in healthcare, pharmaceuticals and life sciences industries globally

2016 🏆
MarketScape leader, IDC
Worldwide Life Science R&D Strategic Consulting Services
Vanguard leader, ALM (formerly Kennedy)
Digital Healthcare Consulting: Payers, Providers, and New Market Entrants

2015 🏆
MarketScape leader, IDC
Life Science Manufacturing and Supply Chain Strategic Consulting
Life Science Sales and Marketing Strategic Consulting
Vanguard leader, ALM
Consulting to Public and Private Healthcare: Cybersecurity
Vanguard leader, Kennedy
Consulting to Healthcare Payers & Providers: Digital Information for Alternative Care Models (ACM)
Consulting to Healthcare Payers and Providers: Alternative Care Models (ACM)
Life Sciences Supply Chain, Operations and Talent
Life Sciences Supply Chain Technology Enabled and Digital Initiatives
Consulting to Private Healthcare Payers & Providers: Customer Engagement
Healthcare JVs, Partnerships and Collaborations

2014 🏆
Vanguard leader, Kennedy
Life Sciences: Key Technology Initiatives
#1, KLAS
Financial ERP Implementation Services Category Leader