



EXECUTIVE INSIGHTS

Healing Bytes: A Prescription for Commercializing Healthcare Data in Asia and the Middle East

This article is an extension of the Executive Insights Volume XXV, Issue 101 | December 4, 2023; "[Tapping Into New Potential: Realising the Value of Data in the Healthcare Sector.](#)"

The commercialization of healthcare data represents a rapidly growing market opportunity in Asia and the Middle East

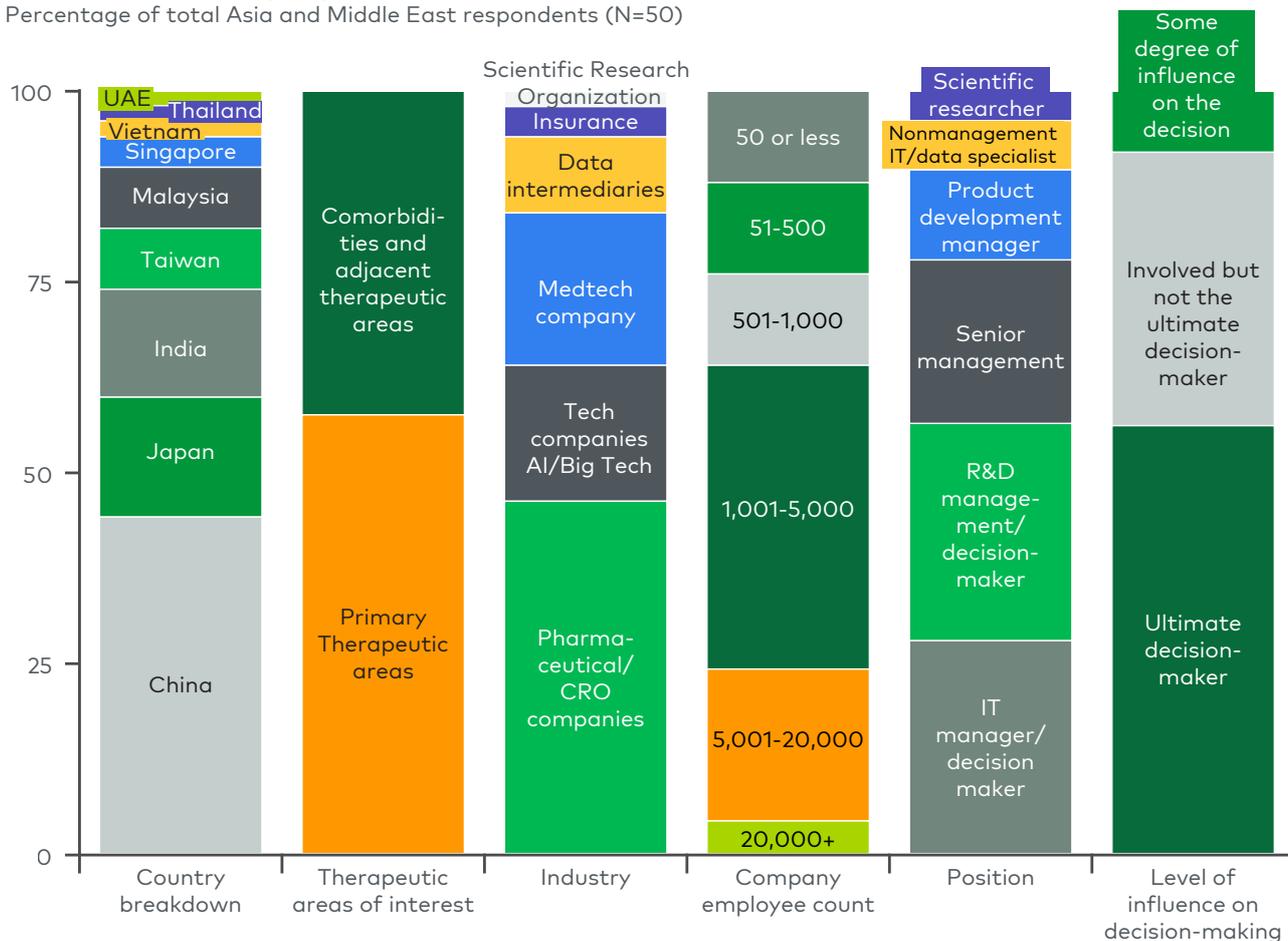
Healthcare providers can tap into an opportunity estimated at nearly €2bn globally, with individual patient data to be worth between €50 and €1,000 or more depending on therapeutic focus and type of data. This is driven by the proliferation of institution-recorded medical data, including new modalities, the widespread adoption of clinical medical records in hospitals worldwide, and externally recorded data from digital personal devices. Specifically, Asia and the Middle East are significantly underrepresented in medical research and development (e.g., these geographies account for less than 15% of the global clinical trial population despite representing c. 60% of worldwide population), positioning data from these regions as scarce and therefore highly valuable.

L.E.K. Consulting recently conducted a global survey among 200 executives — decision-makers or people who are influential to the purchasing of healthcare data in organizations ranging in size from below 50 to over 20,000 employees. The survey included respondents from Europe, the Americas and Asia, representing executives from pharma, medtech, tech (including AI startups and established software companies) and health insurance, as well as data intermediaries. In this article we focus mainly on Asia and Middle East respondents to get a more accurate representation of the trends and dynamics in these regions (see Figure 1).

Figure 1
Overview of L.E.K. survey respondents in Asia and Middle East

Overview of DaaS survey respondents

Percentage of total Asia and Middle East respondents (N=50)



Note: DaaS=data as a service; UAE=United Arab Emirates; CRO=contract research organization
Source: L.E.K. research and analysis

Data recording and commercialization

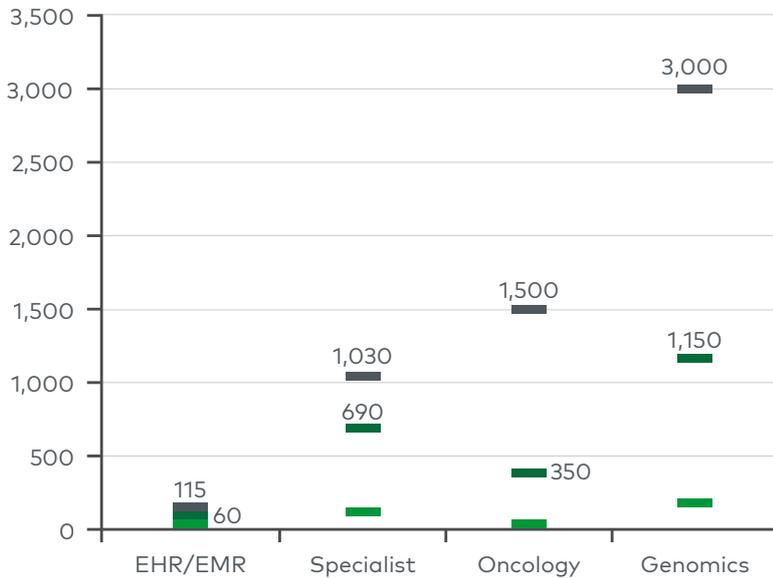
Data recording can notably improve patient outcomes by facilitating the development of upgraded and novel drugs, medical technology devices, wearables, and clinical services. Some datasets can even contribute to enhancing operational productivity and improve the efficiency of healthcare providers.

Furthermore, healthcare data introduces new revenue streams for both the entities sharing the data and those utilizing it. Organizations sharing data, such as healthcare service providers, can levy fees for access to their datasets and related services. Our research indicates a significant variation in the potential pricing of patient records, ranging from approximately €50 for a simple episode medical record to about €3,000 for a complex clinical dataset with detailed genomics information. The value also depends on many other factors, such as the current use case and immediate need of the purchasing organization;

the ability to link the data between outpatient, inpatient and diagnostic settings; and (ideally) the patient outcomes . Acquiring such data offers advantages like accelerated validation for new drugs and reduced timescales for clinical trials (see Figure 2) .

Figure 2
New opportunities for data originators and intermediaries

Indicative value of clinical data (2022) EUR



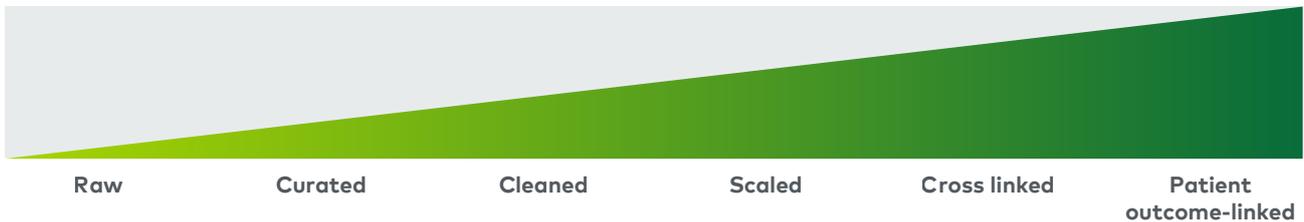
The value of the data is related to the curation and level of cross-linking

Episodic data, including EHR and EMRs, is generally the lowest-cost data source due to a lower level of curation and less cross-linking with other patient records

Oncology and genomics datasets can charge fees in excess of €1k per patient for detailed patient records with cross-linked and outcome-linked data

In a recent survey, we noted that around 25% of global pharma companies were spending more than US\$50m each per year to acquire healthcare data

Illustrative value of data by properties of dataset



Note: EHR=electronic health record; EMR=electronic medical record; Mean prices were calculated from both public company valuations over number of patient records available as well as merger and acquisition deals over patient records available, giving an indicative value of patient data across different sectors; May 2023 average GBP/EUR exchange rate of 1.146 used for conversion

Source: Mergermarket; Harmony IT; RBC Capital Markets; company websites; L.E.K. primary and secondary research and analysis

Size of the opportunity

The healthcare industry is generating vast amounts of data, by some estimates accounting for approximately 30% of the world’s data volume. Growth in healthcare data has been significant in recent years, and this trend is expected to continue.

Between 2020 and 2025, the total amount of global healthcare data is projected to increase from just over 2,000 to over 10,000 exabytes. This represents an annual growth rate of 36%¹, faster than for data from other industries such as manufacturing, financial services, and media and entertainment.

Our research estimated the total addressable market for outpatient care data to be nearly €2bn annually, with an expected EBITDA margin much higher than that of routine clinical operations as the data is already captured.

Scarcity of Asia and Middle East population data

Despite Asia and the Middle East collectively representing approximately 60% of the world's population, these regions are notably underrepresented in medical research and development, including clinical trials and product R&D. This gap creates a demand for data from these population subsets and offers Asian and Middle Eastern healthcare providers an opportunity to tap into additional revenue growth.

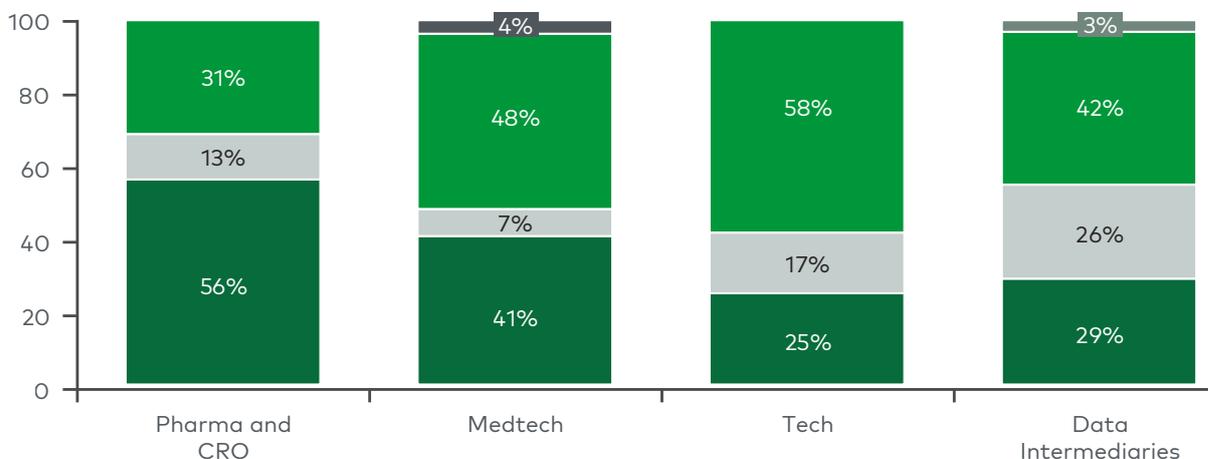
In the case of clinical trials, in a 2020 analysis, the U.S. Food and Drug Administration (FDA) highlighted the significant disparities across the global participants of clinical trials, as the vast majority (76%) were ethnically white and only 11% were Asian.² Similarly, various academic papers³ have emphasized the substantial marginalization or near absence of the Middle Eastern population in clinical trials.

Our survey showed that patient data from Asia-Pacific individuals was the most in demand across the board except for in the pharma industry, as the region's pharma market size is still considerably smaller than legacy regions such as North America and Europe. Nonetheless, Asia and the Middle East are set to become the regions with the highest growth, and therefore interest from the pharma industry is expected to continue increasing (see Figure 3).

Figure 3
Respondent interest in healthcare data by geography

Respondent interest in the geographic coverage of patient data

Percentage of responses (N=58)*



Geographic interest indexed to country of company location

Europe	2.0x	0.6x	1.0x	0.5x
North America	0.7x	0.5x	0.6x	0.8x
Asia	0.6x	2.4x	1.2x	5.3x
MEA	Not representative sample size			
Latin America				

Index shows that APAC interest is 5.3x the share that APAC has among data intermediary respondents for this question

*Survey questions: Which profile best describes the company you currently work for?; In which continent is your company office located? ; Please specify which region you are interested in to obtain patient data

Note: MEA=Middle-East and Africa

Source: L.E.K. DaaS survey (February 2023); L.E.K. research, interviews and analysis

Overarching growth drivers

The rapid expansion of data in the healthcare domain can be attributed to several key factors. One major contributor is the proliferation of institution-recorded medical data, fueled by factors such as the widespread adoption of clinical medical records in hospitals, advancements in imaging technologies like video capture and digital pathology, and an increase in the collection of information in -omics data (genomics, transcriptomics, metagenomics, proteomics, metabolomics, inflamomics, lipidomics, glycomics, etc.). Simultaneously, externally recorded data, gathered through digital personal devices such as smartphones, wearables and home monitoring technologies, has also played a significant role.

Asia is increasingly becoming a significant player in the development of future digital health. This is driven by its large populations, its prevalent mobile technology and a growing trend in adopting wearable devices. The shift toward data-driven, consumer-focused

healthcare is expected to bring about changes in traditional institutional models. For example, Asian and Middle Eastern countries are increasingly adopting hospital electronic medical records (EMR) and shared regional electronic health records (EHR) — e.g., Malaffi in the Abu Dhabi Emirate, National Electronic Health Record (NEHR) in Singapore and Satusihat in Indonesia — enhancing interoperability, facilitating telemedicine and remote care, and ultimately enabling data mining for the clinical study of disease patterns, health trends and treatment outcomes. Nevertheless, differences exist in terms of the degree of implementation.

In China, the adoption of EMRs increased from c. 19% to c. 86% between 2007 and 2018.⁴ Singapore's EMRs have already deployed to both public and private healthcare institutions since the early 2000s. Countries with low digitalization levels historically, such as Malaysia or Indonesia, also have now joined the EMR journey; Malaysia's Ministry of Health launched a pilot program in 2021 aimed at standardizing EMRs across public-sector facilities, although the rollout may not be completed until 2026.

Pharma and medtech are the customer segments with most interest due to high applicability and market maturity

Key customer segments and use cases

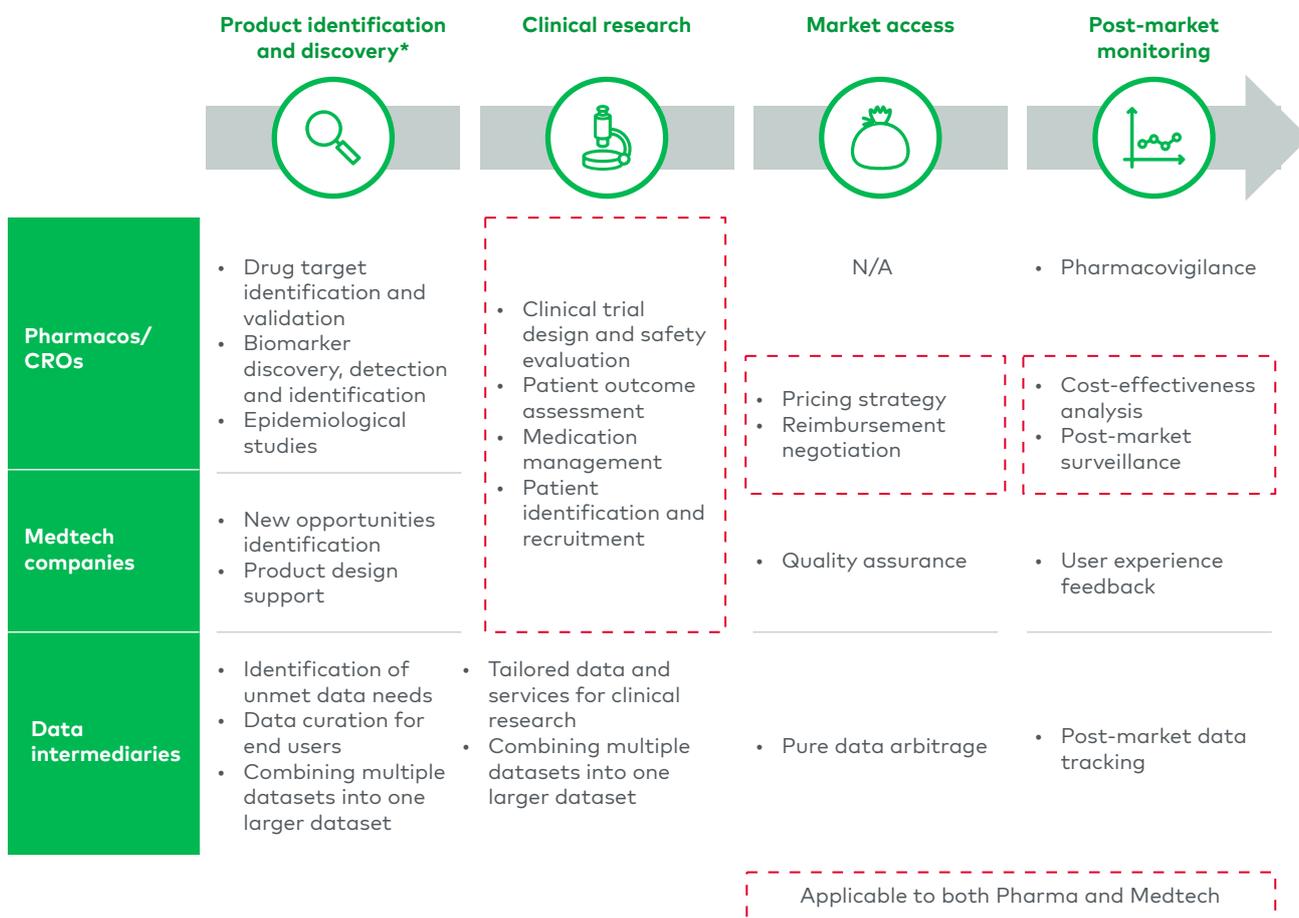
Typical third-party consumers of data and associated services include pharmaceutical companies and contract research organizations (CROs), medical technology firms, technology companies, data intermediaries, and insurance companies (see Figure 4) .

- 1. Pharma and CROs:** Healthcare data is valuable at various stages. In the preclinical phase, it helps with identifying unmet needs and potential participants for clinical trials (e.g., drug target identification, biomarker detection). In clinical development, it plays a key role in designing effective trials (e.g., patient identification). In market access, the data informs pricing strategies and influences drug prescribing behaviors.
- 2. Medtech:** Data aids in identifying potential patient pools for new products and gaining insights into user experience or product design. AI-assisted diagnostic tools such as Medtronic's GI Genius require volumes of video-recorded data from colonoscopies. Continuous evolution of these tools (e.g., as later mentioned in terms of genetic/ethnic coverage) means that the appetite for data doesn't stop with product launch. Data commercialization could be in multiple formats, including partnership discounts, new technology placements and marketing .

- 3. Big Tech:** Data helps with identifying unmet needs for advanced technology products, leveraging AI to improve existing datasets, train AIs, or develop new consumer medtech and integrated healthcare-tech offerings. For example, Apple is aiming to release a software update for its AirPods Pro headphones that will enable the devices to run clinical grade hearing tests as well as turn them into a hearing aid with FDA (and other global health authorities') approval. During the same announcement, Apple also introduced a sleep apnea detection algorithm for the Apple Watch based on clinical trials and data from c. 1,500 patients.⁵
- 4. Data intermediaries:** Healthcare data is used by data intermediaries for tasks such as creating and selling enhanced datasets through anonymizing, clearing, curating and aggregating data. They also engage in data arbitrage or reselling by purchasing data and identifying entities willing to acquire datasets at a higher price. There are several data intermediaries already operating in Asia and the Middle East, such as THB in India (integrated healthcare data-technology and data analytics platform delivering data to healthcare enterprises), DHC Tech in China (medical big data platform integrating medical data for clinical, research and management applications), Jonda Health in Singapore (software providing a safe patient data health platform and data transformation engine) and Sweetch in Israel (an AI-powered health data platform focused on patient adherence and directed to pharma, medtech and payers).

Figure 4
Potential use cases of data for target customer groups

Overview of clinical data use cases across product lifecycles



*Refers to either pharmaceutical drugs, or medical devices
 Note: CRO=contact research organization
 Source: L.E.K. interviews, research and analysis

Key challenges with data use

Though healthcare data applications are varied, data requirements are often consistent across customers and use cases. End users cite three key challenges for data usage (see Figure 5) :

- 1. Data privacy and security:** 56% of pharma/CRO respondents reported that ensuring data privacy and security was highly challenging. Ensuring that the data originator acquired the data in a compliant way and that it has been anonymized according to the right norms and regulations is paramount.
- 2. Insufficient data quality and completeness:** The key concern is when datasets have clear gaps and/or lack sufficient detail, reducing their usefulness.
- 3. Lack of extensiveness:** Data users are often interested in longitudinal tracking opportunities such as linking outpatient and inpatient visits as well as imaging centers and laboratory results for a more holistic patient view.

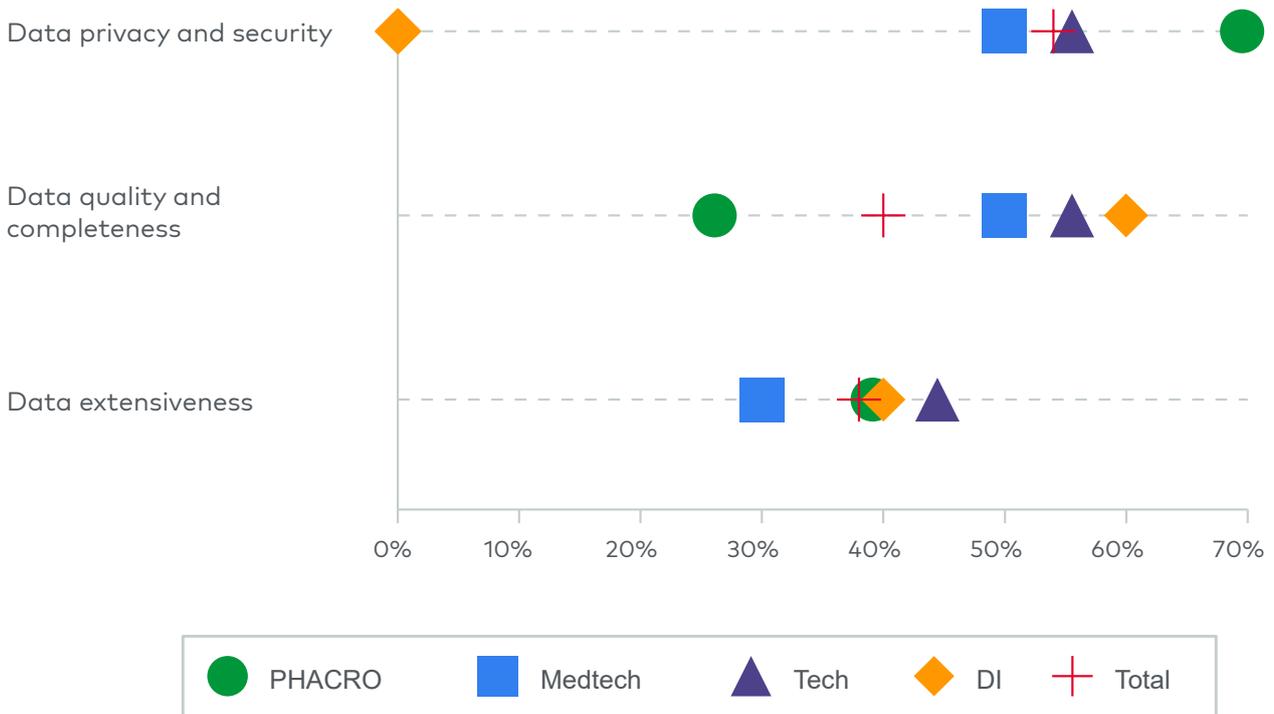
Providers looking to offer data-related services need to focus on mitigating these common challenges.

Figure 5

Top three key challenges with patient data vendor in use in Asia and Middle East

Asia and Middle East respondents' top three challenges

Percentage of respondents choosing 6 and 7 where 1 – no challenge and 7 – highly challenging (N=50)*



*Survey question: What are some of the key challenges with the patient data you currently use? Please categorize them on a scale (1 – no challenge to 7 – highly challenging)
 Note: DI=data intermediaries
 Source: L.E.K. DaaS survey (February 2023); L.E.K. research, interviews and analysis

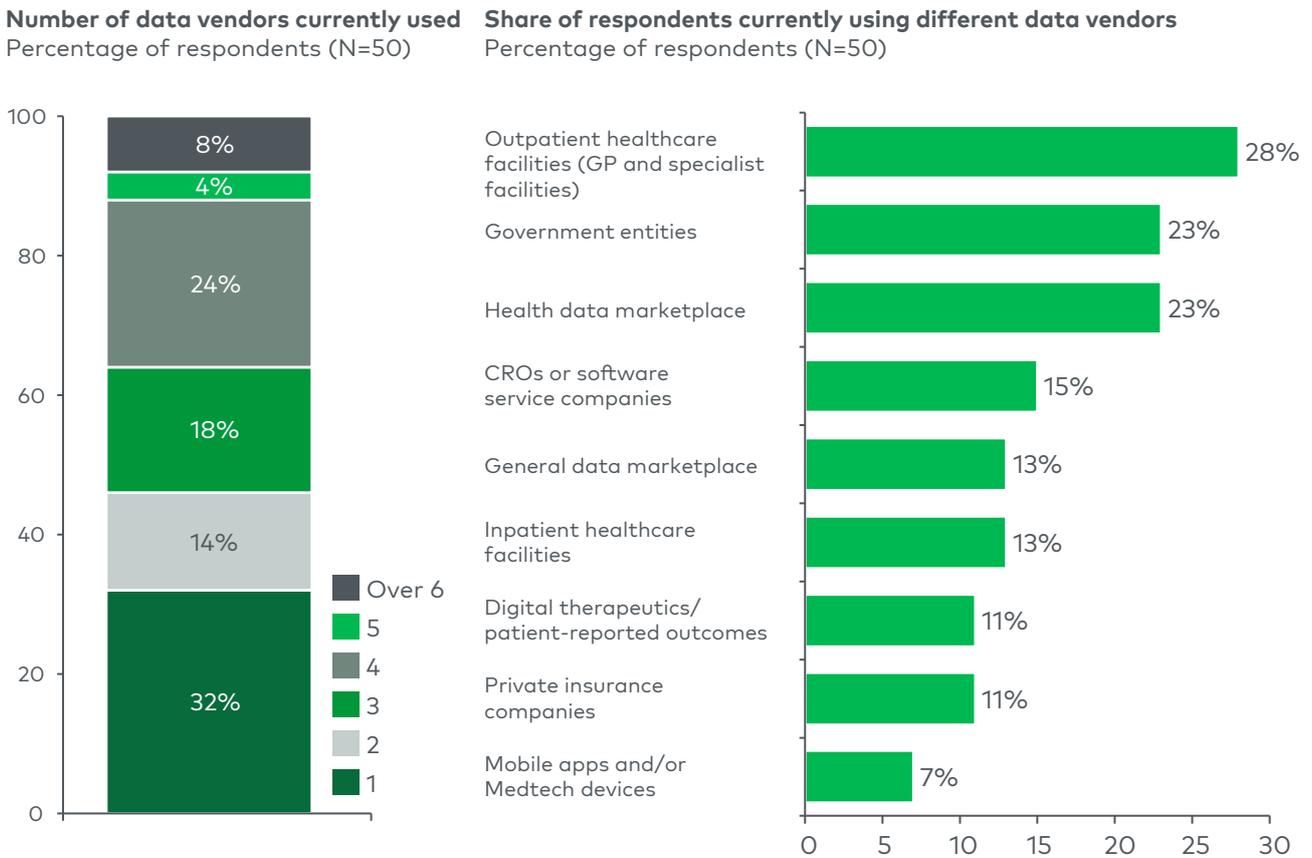
Healthcare data is captured in different forms depending on its source and anonymization level

Target customers in Asia purchase data from various healthcare providers or data intermediaries, with outpatient providers being the most prevalent ones. Data can be shared in various forms depending on the level of patient anonymity. Data altered to protect patient identity is the most common practice, whereas non-anonymous data is only frequently used for cases with complex diseases whereby the patient gives consent, incentivized by potential better treatment outcomes.

Source of healthcare data

Our survey feedback shows that customers typically acquire data from a wide range of vendors (see Figure 6), with an average of two to three data vendors per use case. Outpatient healthcare facilities are the most frequently cited data providers (47%), with health data marketplaces (36%) and private insurance companies (31%) also used by many respondents, highlighting the recognized commercial potential of datasets owned by these entities.

Figure 6
Number of data vendors and sources of clinical data by use case



Note: GP=general practitioner; CRO=contract research organization
Source: L.E.K. research and analysis

Governments in the region have already put in place measures to facilitate data aggregation while ensuring patients' anonymity. For example, South Korea enables access to personal health data via My HealthWay, a national platform that consolidates health records from more than 850 healthcare facilities. In the UAE , the Abu Dhabi Investment office partnered with Innovacer, a health cloud company that aggregates and normalizes healthcare data to create a unified patient record.

Data regulations

It is important to understand the regulations governing how healthcare data can be shared with third parties. Following are common options when applied an individual's data can then be used:

- 1. With patient consent.** Data can be shared without the need for anonymization, leaving all patient data intact. Consent can often be gained from patients with complex diseases where sharing information might lead to better future treatment outcomes. However, consent for legacy healthcare data can be more difficult to obtain. In our survey, c. 25%-35% of data was used with patient consent.
- 2. Anonymized.** Data can be altered to make it impossible to trace back to any individual patient. This process reduces data value in certain use cases since there is information missing in the dataset, but it is often still valid enough for certain types of research. In our survey, c. 50%-75% of data was anonymized. This data typically also requires patient consent for processing and anonymization.
- 3. Through federated or swarm access.** This approach allows data to be used without being transferred to the third party. Data does not leave the healthcare providers' premises (or their cloud environment, where applicable). The research algorithm or the analytics are deployed on the premises and "learn" from the data there. When the algorithm/analytics are extracted, they have been trained on the full data available from the healthcare provider, but the results cannot be traced back to any individual patient. In our survey, c. 5%-15% of data was already being accessed via federated/swarm technologies.
- 4. As synthetic data.** This is artificially generated information designed to replicate the characteristics of real-world data. It is created using algorithms that learn the patterns, correlations and statistical properties of original datasets. Synthetic data maintains the statistical integrity of the original data without holding any personal information.
- 5. From deceased patients.** Many privacy regulations are more lenient for clinical data of deceased patients, and depending on how comprehensive the dataset is, this information can often be as valuable as data from living patients (depending on the use case).

Our survey results show varying levels of data anonymization to accommodate regulatory constraints and customer requirements. Data obtained with patient consent still retains higher utility, as it can be reused multiple times and analyzed in different ways by the acquiring party.

We believe there is likely to be a shift toward federated and swarm access given the higher perceived privacy safeguards and data security. We expect this transition to be slow, however, since it requires significant investment in technology and in human capital, and because there is high variance in the development of data regulation policies in Asia and the Middle East. For example:

- In Singapore, the Personal Data Protection Act (2012) comprises various requirements governing the collection, use, disclosure and care of personal data. The conducting of regular checks is obligatory, to ensure personal data is accessed only by authorized individuals.
- Malaysia's Personal Data Protection Act was passed in 2010 to preserve individuals' data security. The government is currently working on amending the provisions on data breaches, which have been a concern in the past (e.g., there is no requirement to notify authorities regarding data breaches).
- Despite comprehensive cybersecurity laws, Indonesia lacked a personal data protection regulation until October 2022, when the Personal Data Protection Law was enacted. A Data Protection Authority is being formed to supervise the implementation of the law.
- China's Personal Information Protection Law (2021) mandates strict controls on the cross-border transfer of healthcare and patient data. Transfers abroad require security assessments or government approval, with data localization required for large-scale data handlers and strict penalties for noncompliance.
- The UAE issued in 2019 the Health Data Law, which regulates the use of information technology and communications (ITC) in the healthcare sector and applies to all entities operating in the country, including healthcare providers, insurers, healthcare IT companies and others engaged in services or activities that involve handling of electronic health data.

A data-as-a-service offering can be built through different routes to market depending on regional market dynamics and healthcare providers' capabilities

Ultimate success is highly dependent on the route-to-market strategy. Providers have several options for this, including the direct-to-end-user approach, the data intermediary approach or a mixed approach.

Depending on the route to market selected, the practicalities vary:

1. The direct-to-end-user approach typically achieves a higher price per record but requires significant investment in building a sizable in-house data and sales team
2. The data intermediary approach typically renders a lower price per patient record but requires a much smaller dataset and sales team and can usually be launched much faster

Selecting the optimal approach requires a detailed assessment of the expected pricing power, share capture and opportunity for value-added services in the region of interest, as well as the required investment to build the necessary capabilities. Asia and the Middle East are heterogeneous regions that require deep knowledge and study of national systems to successfully navigate regulatory and market landscape. Regardless of the approach taken, providers must develop or hire in-house data expertise, build or commission a data technology platform, and set up specialist teams for business development and commercialization of the dataset.

Call to action: By selecting the appropriate route to market and maintaining compliance, healthcare providers can position themselves to benefit from medical data

The implication for healthcare providers is clear: launching a data-led offering has the potential to be a profitable new business area. For impact investors in the healthcare sector, these offerings can also lead to faster new drug, medtech and/or AI development and to better patient outcomes in the medium to long term.

However, there are crucial issues to consider:

- **The dataset itself must be fit for the purpose.** The best possible scenario involves a dataset that is compliant with privacy and security regulations; complete (ideally, longitudinal) and highly detailed; and standardized to a format that is transferable across data originators and geographies, and with broad geographic coverage.
- **The appropriate route-to-market strategy must be carefully selected through analysis of implementation costs and commercialization profiles.** Implementation costs are driven not only by the business development team but also by the need to develop a suitable data architecture, select a technology platform/provider, and manage day-to-day business operations.
- **Compliance must be carefully managed, especially around anonymization and consent.** For example, Australia's largest provider of medical imaging services recently found themselves in the news for an investigation alleging that the company had "used private medical data to train artificial intelligence (AI) without patient consent".⁶

With knowledge and care, healthcare providers can position themselves to launch a successful new business with data-led offerings that can grow in value as new patient data is continually added to the existing base.

Adjacent companies such as healthcare IT organizations providing EMRs, practice management systems, or imaging software vendors and pathology companies have opportunities too. They should begin developing their strategies and consider investing in and developing corresponding data platforms, so their clients are also enabled to launch these new data-driven business models and/or can better leverage data and benchmarks to enhance their own operations.

Endnotes

¹RBC Capital Markets.

²Improving diversity in medical research, Ashwarya Sharma and Latha Palaniappan (2021).

³"What Do You MENA? The Arab World and its opportunities for clinical research," Hadi Danawi, Ph.D. (2023). Arab Countries and Oncology Clinical Trials: A Bibliometric Analysis, Humaid O. Al-Shamsi, Ibrahim Abu-Gheida, et al. (2023); Inclusion & Diversity in Clinical Trials, Oyiza Momoh, Susan W. Burriss, Anya Harry, Kay Warner (2020).

⁴Adoption of Electronic Health Records (EHRs) in China During the Past 10 Years: Consecutive Survey Data Analysis and Comparison of Sino-American Challenges and Experiences, Jun Liang, Ying Li, et al. (2021).

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⁶<https://ia.acs.org.au/article/2024/patient-data-used-to-train-aussie-startup-s-ai.html>

About the Authors



Arnaud Bauer, Partner, Singapore & Dubai | A.Bauer@lek.com

Arnaud Bauer is a member of the of Healthcare Services and Healthcare M&A team at L.E.K. Consulting. Arnaud's experience in the healthcare provider space spans the entire care continuum, including with government agencies for healthcare investment planning and promotion across the Middle East and APAC regions.



Klaus Boehncke, Partner, Munich | K.Boehncke@lek.com

Klaus Boehncke is Digital Health Lead in L.E.K.'s Munich office. With more than 25 years of experience across Europe and Asia-Pacific, Klaus is a recognized expert in disciplines including digital, technology and business strategy, as well as program management support. He has worked across a variety of areas, including strategy consulting, private equity, venture capital and turnaround management, advising leading private sector clients, government ministries and related public sector bodies.



Guillaume Duparc, Partner, Wroclaw | G.Duparc@lek.com

Guillaume is a member of the healthcare team. He advises corporate and private equity clients on strategy development, market entry, business planning, organisation and performance, digital transformation, and M&A. Guillaume has developed significant international expertise in healthcare across the care continuum, medtech and digital health.

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