

Innovations in healthcare technologies: Opportunities for health insurers

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Several industries, notably telecommunications, retail and logistics, have been major beneficiaries of technological advancements over the past few years. Innovations in healthcare technologies have recently caught pace, which is evident by the increasing attention of the venture capital industry.

There have been investments in digital health of over USD 14 billion¹ in the year 2018 alone. Health insurers can harness these technologies directly or indirectly in many ways that may result in increasing efficiency in operations, decreasing healthcare costs and improving customer satisfaction.

Most innovative solutions use the existing power of internet, mobile phones, 3D printing, artificial intelligence (AI), machine learning and traditional information technology to create answers to industry-wide challenges. In this paper, we discuss innovative solutions that can be harnessed directly by health insurers in different parts of the world.

For the purpose of this paper we have classified healthcare technologies into the following three categories:

1. Integrated systems for insurance operations.
2. Innovative uses of analytic technologies that leverage existing databases.
3. Innovative product designs that leverage technology.

Technology 1: Integrated systems for insurance operations

Traditional decentralised systems have always been prone to inefficiencies in terms of higher cost, longer processing time, more manual intervention, and lack of flexibility. In a decentralised system, the underwriting team might rely on a different process and software than the sales team; this can lead to additional overhead required to ensure effective communication between the two business units.

An integrated system for insurance operations delivers a single solution across all business units, thereby enabling smooth and synchronised process flow across the entire business. This would cover business processes for underwriting, claims, finances, accounting and reinsurance in addition to other integral components of the business. Technology designed to address many cross-functional needs for an insurance company is an example of an insurtech solution.

FIGURE 1: INTEGRATED SYSTEM FOR INSURANCE OPERATIONS



There are various advantages of developing an integrated system where one software solution is used across the company. These advantages include easy access to consolidated information, complete tracking of all operations and timely management information for decision making. This enables insurance companies to develop automated processes efficiently, reduce processing time and establish better third-party integrations. Cross-functional synergies in integrated systems directly impact financials because the insurtech solution is designed to optimise insurance operations.

There are, however, certain challenges associated with using an integrated system. For example, the risk of breaches of sensitive patient data (personal health information) has led to the requirement that insurers employ integrated cybersecurity systems to protect data and software. Another challenge is that it sometimes limits access to best-in-class solutions that are specialised in particular modules or functions.

¹ Mukherjee, S. (23 June 2019). Digital health companies hit a new VC funding record in 2018. Fortune. Retrieved 7 February 2020 from <https://fortune.com/2019/06/23/digital-health-companies-investment/>.

There are various examples of integrated systems, or insurtech solutions, which not only integrate the insurer's internal system but also integrate other stakeholder systems.

DATA EXCHANGE ACROSS HEALTHCARE STAKEHOLDERS

In addition to the insurtech solutions described above that form a single system for coordinating activities within an insurer, data exchanges can streamline how insurance companies interact with other healthcare entities such as providers and government agencies. A data exchange can facilitate how insurers share data with hospitals, pharmacies, public health centers and the rest of the healthcare community as a whole. Data exchanges can build in advanced data security as well as automation capabilities, including human workflow and business rules engines.

INTEGRATING ACROSS SYSTEMS INCLUDING CUSTOMERS

While a data exchange can facilitate more streamlined communication between an insurer and health system providers, other insurtech solutions can go further by also facilitating direct interaction with customers. Some companies offer solutions which integrate functions of health insurance such as sales and claims servicing into an app. It is possible under this approach to integrate the apps that insurers use to communicate with customers and healthcare providers for common services, thereby streamlining the communication between stakeholders.

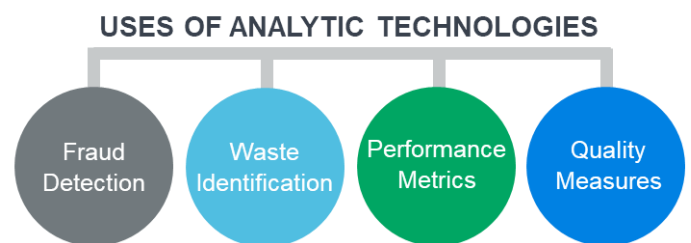
Technology 2: Innovative uses of analytic technologies

Health insurers worldwide have started to leverage available data innovatively for a wider range of purposes, including sales, underwriting, claims and fraud detection. The databases used by insurers can be their own or can be supplemented by external data provided by a third party.

One example of data analytics on the sales side is the use of social and financial data to calculate the lifetime value of a customer. While the revenue generated from two new customers could be the same in year 1, there may be opportunities for upselling and cross-selling which make some customers more valuable to an insurer over time. Analysis of customer lifetime value based on socioeconomic data can help influence insurers' approaches to marketing, communication, cross-selling, discounts and customer retention strategies. A key element of the innovation is in the way technologies can pull this information from relevant sources in real-time and put it into the hands of insurers' online systems or staff, for example providing real-time information to selling agents at the point of sale. An example of this is the individual credit rating that can be obtained in real-time in India to understand a person's credit score. This could be linked to discounts for a high score or loadings for a low score based on the insurer's strategy for cross-selling.

There are several other examples that relate to analytics about an insurance plan's performance and population health. These could include analysing a plan's chronic versus acute members; assessing compliance of providers with evidence-based measures; benchmark plan performance, analysis of the quality of data itself and metrics such as performance trends about utilisation and costs. Such analytics are not possible without the appropriate use of database technology. These technologies, when coupled with artificial intelligence, can possibly provide near-accurate predictions for a plan's metrics in the coming years. Several insurers² are harnessing these technologies for a clear picture of their healthcare spending and getting more value out of each dollar spent.

FIGURE 2: ANALYTICS THAT USE DATABASES



Fraud detection is another area where insurers have harnessed the power of advanced data analytics. Fraud is an ongoing concern for insurers worldwide. While traditional usage of technology can identify fraud from utilisation data and introduce fraud detection rules in the claims systems, insurers can now identify fraud using artificial intelligence techniques, where any irregular patterns from particular providers or people in geographic areas is discovered on a real-time basis. It is even possible to identify fraudulent activity by analysing mouse movement data for online insurance claims forms.

Identification of likely wasteful services is another area where innovation is taking place. Potential wasteful services in various specialties are identified on a voluntary basis by groups of physicians. The technology identifies these services in a plan's database and calculates potential waste that could have been avoided. The technology could quantify tests, procedures, prescriptions and other healthcare services that are unnecessary based on the clinical context, and then analyse the cost savings potential of reducing unnecessary services, report on and improve quality and patient safety and support value-based initiatives by identifying services to be disincentivised to facilitate coverage of high-value care.

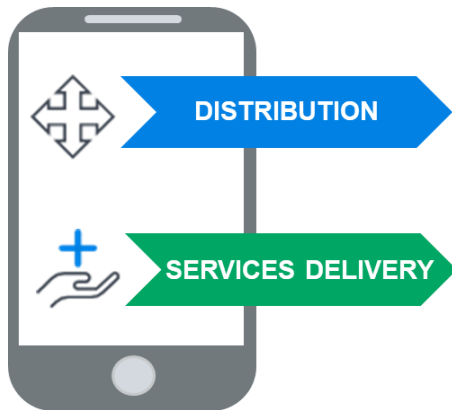
This directly impacts people's health as well as a plan's profitability. This is a perfect example of using analytics in an innovative way to simultaneously improve the quality of care and the performance of insurance plans.

² Chilmark Research (13 November 2019). Integrated clinical and claims data: The recipe for healthcare payer analytics success finally becoming a reality according to latest Chilmark report. News release. Retrieved 7 February 2020 from <https://www.prnewswire.com/news-releases/integrated-clinical-and-claims-data-the-recipe-for-healthcare-payer-analytics-success-finally-becoming-a-reality-according-to-latest-chilmark-report-300956864.html>.

Technology 3: Innovative product designs that leverage technology

Innovation in the global healthcare market is not just restricted to the technology itself, but expands into developing new health insurance products and new ways of distributing insurance products by leveraging technology, mainly mobile phones.

FIGURE 3: PRODUCT DESIGNS THAT LEVERAGE TECHNOLOGY



Product innovation in emerging markets can take many forms, from variations of a traditional insurance benefit to developing service offerings that could not be offered before the introduction of the technology.

For example, a South African National Department of Health initiative aims to support maternal health through the use of cell phone-based technologies integrated into maternal and child health services. The technology uses phone messages to build an emotional connection with mothers, encouraging and empowering them to take active roles in their healthcare. The service provides advice on the importance of attending antenatal visits, how to prepare for a healthy and safe labor, and the best ways to take care of their newborns. The technological innovation of offering maternal and child health services that leverage the existence of a cell phone network aims to increase the availability of care to women in remote or impoverished areas. While this example is not directly from the world of health insurance, it is easy to see how similar interactions could enable insurers to design products and benefits that promote positive health choices for customers, leading to improved customer outcomes and potentially reducing ongoing claims costs.

Another innovative insurance development facilitated by technology is the distribution of smaller-ticket health insurance in India. For example, for consumers worried about catching a vector-borne condition such as dengue, inpatient hospitalisation cover can be bought for a price of less than \$10 for a year. Similarly, consumers can purchase fitness insurance cover for less than \$6 for a year that covers injuries resulting from running, cycling or working out in the gym. The logic of product design is simple; that one size doesn't fit all.

Healthcare insurers have created a new market in which the scope of the offerings is incredibly narrow and covers a small fraction of what traditional health insurance policies offer.

Because we are in a digital age and insurance is a financial product, the concept of this highly specific and low-cost insurance is called 'byte-sized insurance.' Byte-sized insurance manages overhead costs by employing a platform that enables an easy buy and also performs claims servicing. The players are leveraging digital technology to manage new business and claims processes with limited manual support.

The challenges with such products are the requirements for the sale and claims processes to be highly efficient in order to reduce the risk of fraud and ensure low administrative costs. In addition, the nature of byte-sized insurance can lead to an increased risk of anti-selection, which can create additional challenges in the product pricing and benefit design process.

However, by offering an innovative insurance solution that appeals to a previously uninsured population and delivering that product in an innovative way, these byte-sized insurers are disrupting the traditional commercial market and adding value to consumers in new ways.

Product innovation in the healthcare market will continue to develop as the needs of stakeholders and the technological capabilities expand.

Conclusion

Technological innovations in healthcare can disrupt the traditional structures and operations of health insurers by taking advantage of opportunities to improve quality and access to care while changing the cost structure. The scale and applicability of these technologies means there are solutions for any insurer, whether small and localised or multinational. There is significant opportunity in emerging markets, and even developed markets, to innovate and optimise the healthcare system. Health insurers are already facing situations in which they need to decide how to adapt to the new market and incorporate different technologies; the strategy of the different stakeholders in the market will depend on many factors, including the innovation and needs in their individual markets.

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