



Top 10 Technology Trends in Health Insurance: 2018

What You Need to Know





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Introduction

Health insurance stands apart from other Insurance sectors (i.e., Life & Pensions and Property & Casualty) due to its unique model and number of stakeholders. Its challenges are sector specific: a fragmented ecosystem, margin pressures, regulatory uncertainty, and disjointed data access for stakeholders. However digital tools and data analytics appear to be addressing some of these long-time challenges.

One of the most prominent health insurance trends is a greater streamlining and integration of the healthcare ecosystem. There are a range of InsurTech firms emerging who are creating solutions for digitized processes, data aggregation, and network integration and thus, reducing the frictions in the system. APIs are also playing a useful role in better integration of the healthcare ecosystem by facilitating seamless data flow between providers and payers. Additionally, API-based solutions are assisting firms with more efficient regulatory compliance.



New technologies, such as RPA, AI, the blockchain, and advanced analytics are acting as levers that can potentially enhance both the top-line as well as the bottom-line for health insurers. While automation can enable improved cost and operational efficiencies for health insurers, blockchain has the potential to transform health insurance operating models to become more secure, transparent and seamless. Predictive and behavioral analytics can help health insurers with risk mitigation, fraud detection, and anticipating future customer needs. The industry's gradual shift from a fee-for-service model to value-based payment model will also open up new opportunities for healthcare data analytics.

There is also a greater need than ever before for health insurers to become customer-centric as the trend of providers offering their own health plans continues to challenge insurers. Health insurers can address this competitive threat by leveraging new channels of customer engagement such as social media and connected devices like wearables. Finally, with the increasing digitization of the health insurance sector, the cloud is gradually becoming a key infrastructure component.

Top 10 Technology Trends in Health Insurance : Business Impact Summary

Health Insurance Trends	Revenue Growth	Cost Optimization	Enhancing Customer Engagement	Risk Reduction	Improving Pricing Accuracy	Reducing Claims Leakage
Provider Competition Spurs Insurers’ Focus on Customer Convenience	Medium	Low	High	Low	Low	Low
Social Media Becomes a Customer-engagement Channel	Medium	Low	High	Low	Medium	Low
Wearable Tech Enriches Customer Engagement	Low	Medium	High	High	High	Medium
RPA and AI for Operational Efficiency and Enhanced Customer Experience	Medium	High	High	Medium	High	High
Blockchain Shows Potential for Application in Health Insurance	Low	High	Low	Medium	Low	High
APIs Enabling Enhanced Data Management in Health Insurance	Medium	High	High	Low	Medium	Low
Predictive and Behavioral Analytics for Risk Mitigation, Fraud Detection and Anticipating Future Customer Needs	High	Medium	High	High	High	High
Value-based Payment Models Opening up New Opportunities for Analytics	Low	Medium	Low	High	Low	Medium
InsurTechs Create More Streamlined and Integrated Ecosystem	Medium	High	High	Low	Medium	Medium
Cloud Becoming a Key Infrastructure Component	Medium	High	Medium	Low	Low	Low

Trend 01: Provider Competition Spurs Insurers' Focus on Customer Convenience

Increasing number of healthcare providers are offering their own health plans, driving insurers to put greater focus on customer needs and convenience for ensuring their retention



Background

- Insurers are already under pressure to improve customer experience because of demands for retail-like insurance, better access to their data, provider information, and health plan flexibility
- Provider-offered health plans are adding to the pressure because more consumer choice means retention-minded insurers must ensure a positive experience for current and prospective customers
- The number of provider-offered health plans is rising again after a 1990s' slowdown¹



Key Drivers

- High healthcare and health insurance costs are shifting the industry focus toward value-based reimbursement models
- The changes required in providing healthcare services to successfully run a value-based care is similar to that required for a provider-sponsored health plan
- Inherent advantages of providers in terms of data and cost are enabling their extension to offer health plans



Trend Overview

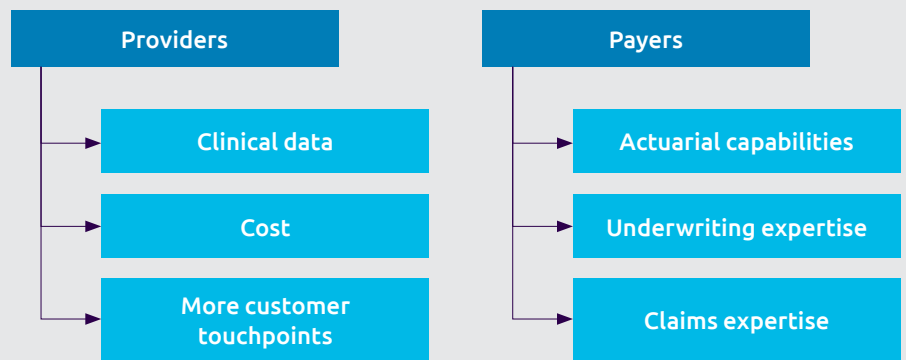
- The industry shift to outcome-based healthcare services is changing the dynamics for providers:
 - In a value-based care system, providers bear a portion of risk as they are liable to provide better care to the patients
 - Providers are aligning their services to ensure better health outcomes for the customers by adopting a patient-centric approach and employing care management, decision support, and analytical systems
 - With these systems already in place, providers can leverage their better access to clinical health data and increase their revenue and profits by underwriting the health risk and providing in-house insurance coverage
 - By providing health plans, providers can also spread their costs of healthcare IT implementations and pass on the savings to the customer, creating an advantage²

¹ "The Rise of the Provider-Sponsored Health Plan; What You Need to Know", Aetna ACS, September 13, 2016, accessed October 2017 at <http://www.aetnaacs.com/content/rise-provider-sponsored-health-plan-what-you-need-know>

² "Premier Looks at Prospects for the Provider-Sponsored Health Plan Proposition", Mark Hagland, Healthcare Informatics, October 31, 2016, accessed October 2017 at <https://www.healthcare-informatics.com/article/payment/premier-looks-prospects-provider-sponsored-health-plan-proposition>

- Insurers, on the other hand, have better actuarial, underwriting, and fraud detection capabilities and so they can keep the competition in check by becoming more customer-centric:
 - Customers have low trust in insurers³, and to retain customers and acquire new ones in the increasingly competitive environment, insurers must work on increasing consumer's trust
 - Becoming customer centric is the key to increase customers' trust and one of the ways insurers can become customer centric is by offering value-added services
 - Value-added services can help insurers attain competitive differentiation, and have a greater scope for customer retention and acquisition⁴
 - Value-added services can also increase the customer touchpoints for insurers, providing them more opportunities to connect with the customer and improve their experience with seamless services

Exhibit 1: Healthcare Providers and Payers: Comparative Advantages



Source: Capgemini Financial Services Analysis, 2017



Implications

- Importance of customer centricity for insurers would increase as competition in the industry intensifies due to increasing number of provider-plans and InsurTech firms
- Insurers can explore value-added services to increase their customer touchpoints and data access to be on par with providers on these aspects
- Customers would be in a win-win situation due to a plethora of options and better prices

³ Annual Trust Index, Revivehealth, September 2017, accessed October 2017

⁴ Insurance Reinvented: Value-Added Services, Capgemini, April 17, 2017, accessed October 2017

Trend 02: Social Media Becomes a Customer-engagement Channel

Having an effective social media strategy is becoming an important priority for health insurers for enhancing customer engagement and building brand loyalty



Background

- Social media websites are slowly becoming one-stop platforms for customers' everyday transactions, and on an average, customers spend around 2 hours on it each day⁵
- Consumers also place much trust in expert views and peer reviews and often use social media for accessing the same
- Social media websites have thus become a useful channel for insurers as well to connect with the customers



Key Drivers

- As competition increases from new sources such as InsurTech firms as well as providers, it is becoming important for health insurers to explore innovative avenues of customer engagement
- Insurers can use the easily accessible and interactive interface of social media for quick resolution of customer queries



Trend Overview

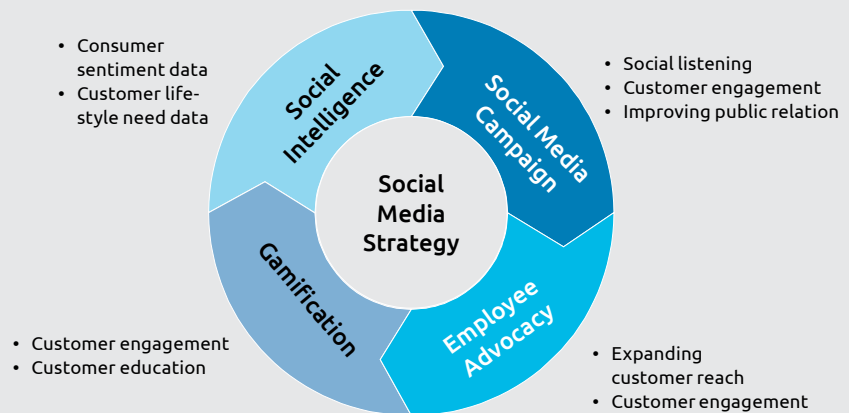
- Insurers are leveraging social media in various ways for connecting and engaging with the consumers:
 - Health insurers are using their social media handles for activities including responding to customer queries, resolving their issues, and promoting user-generated content
 - Insurers can considerably drive engagements and gain customer trust by building an active follower base on social media
 - Insurers are also creating social media campaigns for social listening and improving public relations
 - Online community-building can drive member engagement by giving a common platform for patients with similar issues to connect and discuss
 - For example, Humana pursues an employee advocacy program on social media to expand its consumer reach and drive greater engagements⁶, and a social media scorecard shows that among the top health insurers in the United States, Humana's followers are the most engaged⁷

5 "How Much Time Do People Spend on Social Media?", Evan Asano, Social Media Today, January 4, 2017, accessed October 2017 at <http://www.socialmediatoday.com/marketing/how-much-time-do-people-spend-social-media-infographic>

6 "Humana Taps Socially Savvy Employees as Brand Advocates", Carla Johnson, Type A Communications, September 13, 2016, accessed October 2017 at <http://typeacommunications.com/humana-employee-social-media-brand-advocates/>

7 "Social Media Scorecard: Spotlight on the Healthcare Industry", Erin, Talkwalker, August 31, 2017, accessed October 2017 at <https://www.talkwalker.com/blog/social-media-scorecard-spotlight-on-the-healthcare-industry>

Exhibit 2: Use of Social Media by Health Insurers



Source: Capgemini Financial Services Analysis, 2017

- Humana also has several online communities for its members, where they can connect with experts, other members, and access resources⁸
- The “#CignaRunTogether” campaign by Cigna during the 2015 Disneyland Half Marathon garnered best social media campaign in the eighth-annual Shorty Awards and successfully generated unique individual engagements⁹
- Insurers can also tap into social media for gaining valuable insights:
 - Insurers can use life-stage/ life-style need data of customers obtained from social media for targeted product offerings
 - Insurers can identify negative sentiments among consumers quickly and initiate risk mitigation activities for reducing its impact
 - For example, Aetna bases its social media strategy on data from Shareablee, a social intelligence platform, and uses it for initiatives such as customer engagement, co-branding, and crisis management¹⁰
- Social media can also be used as a means to spread greater awareness among consumers:
 - Insurers can educate consumers using digital content like videos, blogs, or other interactive content on their social media pages
 - For example, India-based Apollo Munich Health Insurance used gamification in its ‘Kill the Killer’ campaign to educate the consumers about dengue¹¹



Implications

- Social media can be used as an interactive tool for educating customers in the research stage, thus helping to build a stronger brand loyalty among the customers
- It can be used as a more cost-efficient marketing tool and a channel for value-added engagements
- Social and behavioral data collected from social media engagements can provide insights on customer sentiments and preferences, enabling insurers to take better business decisions

8 Humana Website, accessed October 2017 at <https://www.humana.com/communities>

9 “Q&A With Cigna: The Anatomy Of An Award-Winning Social Media Campaign”, Shareablee, April 07, 2016, accessed October 2017 at <https://www.shareablee.com/blog/2016/04/07/qa-with-cigna-the-anatomy-of-an-award-winning-social-media-campaign/>

10 “Aetna’s Social Media Director Talks Social Strategy, Co-branding & More”, Shareablee, June 08, 2017, accessed October 2017 at <https://www.shareablee.com/blog/2017/06/08/aetnas-social-media-director-talks-social-strategy-co-branding-more/>

11 “Apollo Munich Health Insurance bets big on gamification”, ET Brand Equity, August 20, 2016, accessed October 2017 at <http://brandequity.economicstimes.indiatimes.com/news/marketing/apollo-munich-health-insurance-bets-big-on-gamification/53777762>

Trend 03: Wearable Tech Enriches Customer Engagement

Health insurers are increasingly leveraging wearable devices to gather real-time data for enhanced customer engagement



Background

- A wearable is an electronic device worn on the body and they can collect and transmit a variety of data about the activity of the person wearing it
- Key features of these devices include tracking a patient's physical and health-related activities as well as location

Key Drivers

- Wearable devices have gained huge popularity in the last few years, and it is expected that the wearables market will grow at a CAGR of 15.5% between 2016 and 2022 to reach US\$51.6 billion by 2022:¹²
 - Innovations in technology and acceptance by customers have led to more wearable device launches over the past couple of years
- Real-time customer data offers insurers the opportunities for a higher level of interaction and more personalized offerings
- Health insurers can share the health data from a customer's device with providers, resulting in better and faster service:
 - As the health records can be easily accessed by providers, the cost of service/operations can also be reduced – by avoiding re-tests based on the existing data
- Data from wearable devices can be analyzed and managed by nurses using tele-health instead of the patient going to the provider in person when it is not necessary to do so, which can result in cost savings and higher customer satisfaction



Trend Overview

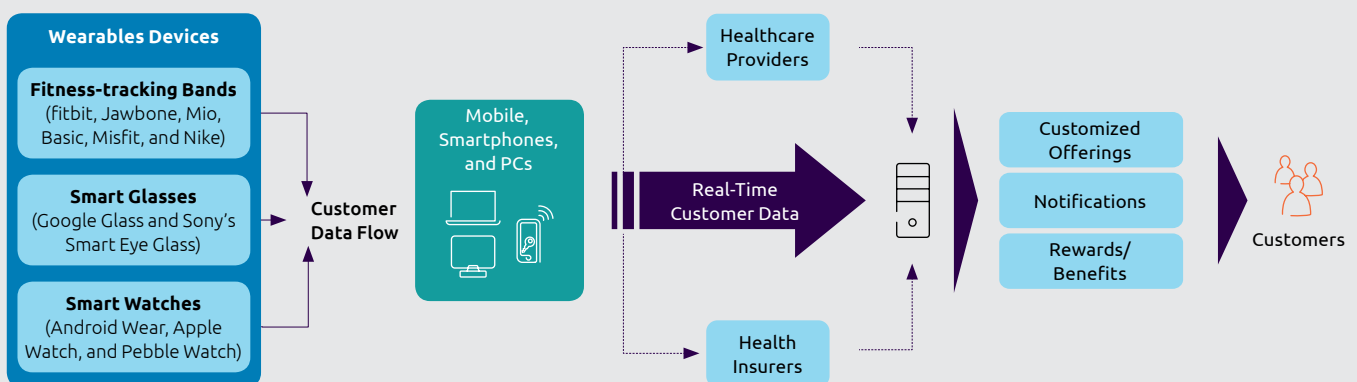
- With the rise in adoption of wearable devices and the advancements in analytical capabilities, health insurers are leveraging the significant amount of real-time data that is generated via wearable devices to gain real-time insights:
 - These insights enable health insurers in making better business decisions and to engage with customers at a more personalized level
- The real-time data generated from the wearable devices can also be processed with advanced analytics tools for insights that can be used by health insurers for more accurate underwriting, proactive risk mitigation through real-time feedback, and timely communications in policyholder servicing stage



¹² "Wearable Technology Market worth 51.60 Billion USD by 2022", Markets and Markets, January 25 2017, accessed October 2017 at <http://www.marketsandmarkets.com/PressReleases/wearable-electronics.asp>

- Many health insurance firms, such as UnitedHealthcare, Aetna, and Cigna, are engaging with their customers with the help of fitness trackers and are also offering discounts for adopting wearable devices:
 - UnitedHealthcare has partnered with Fitbit and rewards users up to \$1500 a year in healthcare credits for activities completed on their wearable devices¹³
 - Aetna is encouraging their customers in large employer plans to adopt Apple watch by offering up to \$200 discount to buy the device¹⁴
 - Cigna is offering customers discounts on policy premiums and cash incentives for meeting fitness goals, with the help of health coaching programs that include wearables¹⁵

Exhibit 3: Wearables in Healthcare



Source: Capgemini Financial Services Analysis, 2017



Implications

- To tap the data from wearables, health insurers will need to upgrade their technology and integrate it with existing systems for seamless flow of real-time data
- To reap the full benefit of real-time data generated by wearables, insurers need to invest in advanced analytics tools that can carve-out real-time insights from these data points
- Health insurers can offer accurate and personalized premiums by analyzing the data generated from wearable devices and also gain cost efficiencies through proactive risk mitigation

¹³ "UnitedHealthcare and Fitbit to pay users up to \$1,500 to use devices, Fitbit co-founder says", Elizabeth Gurdus, CNBC, January 5 2017, accessed October 2017 at <https://www.cnbc.com/2017/01/05/unitedhealthcare-and-fitbit-to-pay-users-up-to-1500-to-use-devices.html>

¹⁴ "Health insurers take steps to fold fitness trackers into business", Catherine Ho, San Francisco Chronicle, February 05, 2017, accessed October 2017 at <http://www.sfchronicle.com/business/article/Health-insurers-take-steps-to-fold-fitness-10907560.php>

¹⁵ ibid

Trend 04: RPA and AI for Operational Efficiency and Enhanced Customer Experience

Health insurers are increasingly using automation tools such as RPA and AI to enhance operational efficiency and improve customer experience



Background

- Both Robotic Process Automation (RPA) and Artificial Intelligence (AI) enable automation of tasks that involve pre-defined scenarios. While RPA can handle only structured data as inputs, AI can handle both structured and unstructured data as inputs
- These automation tools are gaining greater importance than ever in the insurance industry. In-fact, according to the *World Insurance Report (WIR) 2017*, more than 80% of the respondents indicated that either insurers are investing in them already or planning to do so in the next 1-3 years¹⁶

Key Drivers



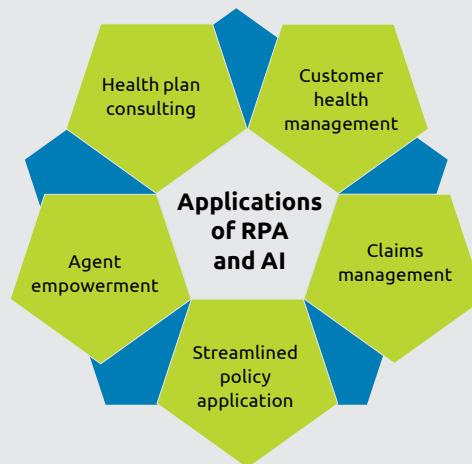
- Increasingly, margin pressures are driving health insurers to seek greater operational efficiencies
- The availability of vast digital information in multiple, disparate, and siloed systems requires automated and intelligent processing to draw deeper and more accurate insights at scale
- Automation could reduce the need for excessive human intervention and multiple hand-offs that often cause errors
- Similarly, streamlined, automated processes could prevent customer service delays and dissatisfaction

Trend Overview

- RPA is enabling health insurers to streamline their processes in various functional areas, such as policy application and claims servicing, resulting in greater operational and cost efficiencies as well as a more seamless transaction experience for the customer
- Additionally, AI and machine learning are also enabling insurers to draw deeper and more timely customer insights from diverse data sources, thereby enhancing the nature of customer services to be more proactive and relevant

¹⁶ *World Insurance Report 2017*, Capgemini, 2017 accessed at <https://www.worldinsurancereport.com/>

Exhibit 4: Applications of RPA and AI in Health Insurance



Source: Capgemini Financial Services Analysis, 2017

- Health insurers can leverage RPA and AI for the following applications:
 - **Health Plan Consulting –**
 - AI-based analytics engines can be used to interact with customers to understand their needs and provide personalized health plan recommendations based on customer inputs as well as past customer data from various sources
 - **Customer Health Management –**
 - RPA and AI can be leveraged for more effective customer health management through targeted care interventions, early risk identification and mitigation, and automated communications, to encourage customer adherence to healthy behavior
 - For example, Accolade’s Maya Intelligence Engine helps insurers target the appropriate outreach programs to not just the riskiest customers but also to healthy customers to guide the customers on further optimizing their health plan, thus ensuring their satisfaction¹⁷
 - GNS Healthcare’s AI software studies claims, medical, behavioral, and other demographic data of customers to predict individual risk and likelihood of adherence to prescriptions¹⁸
 - **Claims Management –**
 - In the claims area, RPA and AI can be used for automated claims adjudication as well as in claims processing and payout for less complex claims. Auto-adjudicated claims can lower claims handling costs by up to 75% as compared to claims requiring human intervention¹⁹
 - RPA can be used to close pending claims more efficiently. For example, a national health insurance company built seven bots to close pending claims on two different lines of business and was thus able to reduce claim team size by 45% and increase claim payment quality by 70%



17 “Can AI make your health insurance better?”, Andrew Brust, ZD Net, June 23, 2017, accessed October 2017 at <http://www.zdnet.com/article/can-ai-make-your-health-insurance-better/>

18 “How Health Plans Harness Artificial Intelligence”, Darcy Lewis, AHIP Website, November 30, 2016, accessed October 2017 at <https://www.ahip.org/how-health-plans-harness-artificial-intelligence/>

19 “Robotic Process Automation Can Drive Billion-Dollar Savings in Healthcare Claims Processing, says Alsbridge”, PR Newswire, April 19, 2016, accessed October 2017 at <http://www.prnewswire.com/news-releases/robotic-process-automation-can-drive-billion-dollar-savings-in-healthcare-claims-processing-says-alsbridge-300252272.html>

- Similarly, another national health insurer eliminated 40% of the claim adjustment activities, increased claim adjustment accuracy by 30%, and saved \$7.5 million annually by employing RPA²⁰
- **Streamlined Policy Application** –
 - With RPA and AI, the quoting, underwriting and enrollment process can be automated, thus enabling more speedy policy issuance
- **Agent Empowerment** –
 - AI can empower human agents with more profound customer insights based on aggregated data that can help them provide more personalized customer service and focus on the more strategic aspects of customer engagement
 - For example, Humana’s AI bot Cogito Dialog analyzes customer service interactions to detect any signs of customer dissatisfaction and provides customer service agents real-time feedback so that they can refine their approach to the customer²¹



Implications

- Use of RPA and AI in processes can bring about improved cost and operational efficiencies with fewer resources and greater accuracy
- As per the *World Insurance Report* 2017, more than 90.0% of executives surveyed on innovation agree that automation of key processes will have a high impact on improving cost efficiencies²²
- Automation can also enable health insurers to provide faster as well as round-the-clock customer service, thereby enhancing customer experience
- By automating the more mundane processes, health insurers can empower their human resources to engage in more strategic and value-adding tasks

²⁰ “Advancing Value-Based Models Through Collaboration”, John Walsh, Dave Bennett, February 2017, HIMSS 17

²¹ “Humana harnesses artificial intelligence for competitive edge in customer service”, Grant Ferowich, Fierce Healthcare, October 31, 2016, accessed October 2017 at <http://www.fiercehealthcare.com/payer/humana-harnesses-ai-to-build-empathy-competitive-edge>

²² *World Insurance Report* 2017, Capgemini, 2017 accessed at <https://www.worldinsurancereport.com/>

Trend 05: Blockchain Shows Potential for Application in Health Insurance

Health insurers see a strong potential in blockchain and they are increasingly exploring its use for providing secure, transparent, and seamless services



Background

- Blockchain, an append-only distributed ledger technology, allows information to be collected and stored immutably in a decentralized manner
- A blockchain-based smart contracts system can automate processes based on certain pre-defined triggers



Key Drivers

- Health industry faces frequent cyber-attacks (377 reported data breaches²³ in the U.S. during 2016) – blockchain has the potential to meet the industry's demand for security
- There is a need for a common platform for patient data storage that breaks the current silos of information held with providers and payers and promotes interoperability
- Blockchain also presents fraud prevention possibilities due to a secure and an append-only system



Trend Overview

- Health insurance firms are exploring the blockchain technology:
 - Blockchain Insurance Industry Initiative (B3i), a collaborative project of 15 insurers and reinsurers, which includes organizations having health offerings, such as Achmea, Aegon, Allianz, Generali, and Tokio Marine Holdings, is exploring the use of distributed ledger technologies in the industry across the value chain²⁴
 - Shanghai Insurance Exchange, in partnership with nine insurance companies, including insurers with health plans such as Cathay Life, AIA Group, and China Continent Property and Casualty Insurance, initiated a blockchain trial centered on the insurance business aimed at using the technology's security and traceability features²⁵
 - Another example includes a reinsurance firm, Gen Re, partnering with iXledger, a London-based technology firm, to develop solutions based on blockchain and other advanced technologies for life and health insurance²⁶

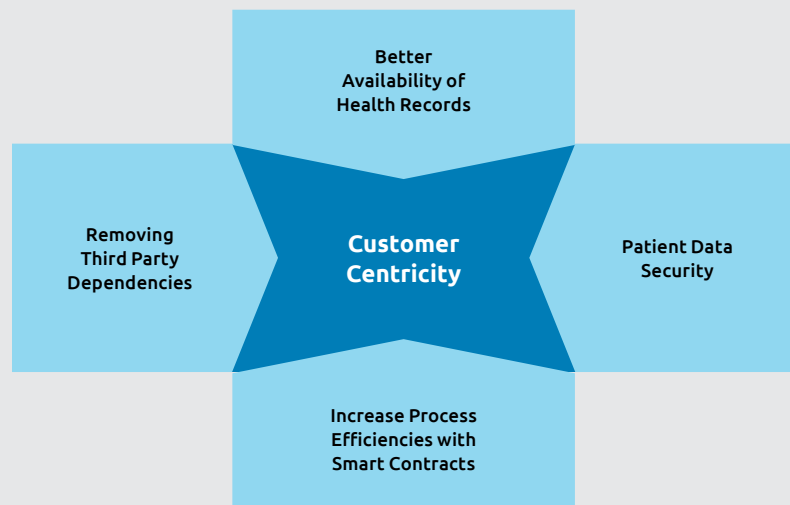
23 "Data Breaches Increase 40 Percent in 2016, Finds New Report from Identity Theft Resource Center and CyberScout", Identity Theft resource Centre, January 19, 2017, accessed October 2017 at <http://www.idtheftcenter.org/2016databreaches.html>

24 "Ten new members join Blockchain initiative B3i", Swiss Re, accessed October 2017 at http://www.swissre.com/reinsurance/ten_new_members_join_blockchain_initiative_B3i.html

25 "10 Insurance Firms Test Blockchain for Insurance in China?", Wolfie Zhao, CoinDesk, April 7, 2017, accessed October 2017 at <https://www.coindesk.com/insurance-firms-blockchain-test-insurance-china/>

26 "Gen Re partners with iXledger on blockchain for life & health insurance", Marianne Lehnis, Reinsurance News, August 29, 2017, accessed October 2017 at <https://www.reinsurancene.ws/gen-re-partners-ixledger-blockchain-life-health-insurance/>

Exhibit 5: Benefits of Blockchain Adoption in Health Insurance



Source: Capgemini Financial Services Analysis, 2017

- According to a survey by Black Book Market Research, 70% of health insurers are expecting to integrate blockchain into their systems²⁷
- Blockchain can be leveraged to create a repository of patient health data:
 - The data repository can enable secure and reliable sharing of patient health information
 - Decentralized but common storage can solve the issue of fragmented data, promote interoperability, and eliminate costs of maintaining multiple health record databases
 - Patient data is stored immutably after validation, which minimizes fraud risk
- The data in blockchain is secured using cryptography:
 - Patient data is secured and patient privacy is maintained
 - Using the private key, patients can share their data with chosen firms
- Blockchain-based smart contract systems create a rules-based environment, thereby automating processes and increasing efficiency:
 - Smart contracts have the potential to redefine the whole value chain, right from front office sales activities to policy administration and claims management
 - It can eliminate third-party dependencies, reduce transaction costs and processing times, and make the processes more customer-friendly



Implications

- Blockchain-based smart contracts can disintermediate the processes in health insurance value chain by removing intermediaries via streamlining and automation of processes
- A patient health data repository can help increase interoperability, cost-effectiveness, and customer centricity because patient data is made globally available
- Aggregated patient health data offers firms better analytical opportunities, which will help them derive better insights

27 "11 Blockchain Companies shaking up the Healthcare Provider & Payer Industries?", Black Book Market Research, October 2017, accessed October 2017 at <https://www.newswire.com/files/16/40/321b6089f1b01dfd80433bffb0df.pdf>

Trend 06: APIs Enabling Enhanced Data Management in Health Insurance

APIs are enabling enhanced data management for healthcare players by allowing more seamless information flow between diverse systems



Background

- An Application Programming Interface (API) is a set of protocols that enable two independent systems to communicate with each other
- The financial services industry is rapidly transitioning to an open API model based on the model's benefits for banks as well as third-party developers
- With its data-intensive operations, the insurance industry, similarly, has begun to identify the potential that APIs hold for enabling more efficient data management and nurturing greater innovation

Key Drivers



- The health insurance sector is witnessing a need for shared platforms to integrate the mounting volumes of data from various sources, be it for information on patients or providers
- As more patient health information goes digital, there is a need for cost-efficient means of compliance with regulations related to data management (such as HIPAA)
- In an increasingly dynamic and competitive market, it is vital for health insurers to design systems for faster experimentation and innovation

Trend Overview

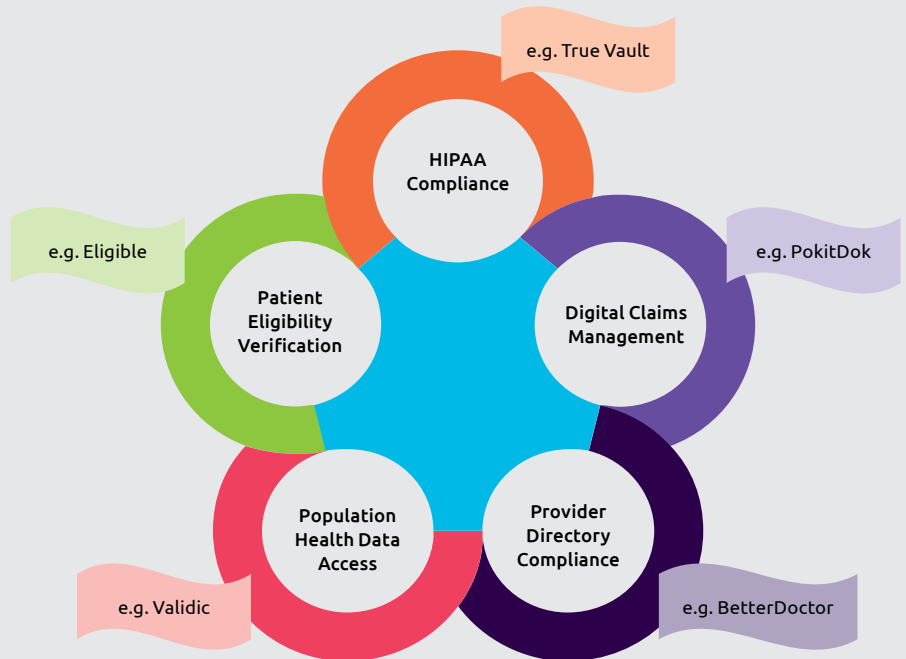


- As APIs enable the seamless flow of information between different systems, insurers can scale their access to aggregated health data and provide innovative offerings based on that data
- They can also avail of API solutions that enable more efficient regulatory compliance and enhanced database management
- Some of the applications of APIs in the health insurance sector include:
 - **Patient Eligibility Verification** –
 - Some InsurTech firms are using APIs to provide patient eligibility verification as a service by connecting to a vast pool of health insurers and aggregating information to analyze the patient's eligibility as per their plans
 - For example, Eligible provides APIs to integrate functionalities such as eligibility verification and patient billing with providers' existing systems, and thus, acts as a streamlined and integrated payment network for healthcare^{28 29}

28 "Eligible raises \$2.3 million for health insurance eligibility API", Jonah Comstock, MobiHealthNews, February 2, 2015, accessed October 2017 at <http://www.mobihealthnews.com/40171/eligible-raises-2-3-million-for-health-insurance-eligibility-api>

29 Eligible Website, accessed October 2017 at <https://eligible.com/eligibility>

Exhibit 6: Applications of APIs in Healthcare Ecosystem



Source: Capgemini Financial Services Analysis, 2017



– HIPAA Compliance –

- There are also API-based solutions emerging which help insurers remain compliant with data protection regulations, such as HIPAA, by providing secure, regulatory-compliant data storage while allowing data to be queried through the API for app development
- True Vault provides a solution for apps’ developers for mobile devices (including wearables) to ensure HIPAA compliance, wherein developers can access securely-stored data through APIs without also having to build a HIPAA-compliant stack as True Vault manages the physical and technical safeguards required by HIPAA^{30 31}
- Such solutions allow more significant innovation as app developers explore new functionalities unencumbered by compliance requirements

– Digital Claims Management –

- APIs can be used to provide a more streamlined connection between providers and payers in the claims stage by enabling the flow of timely and relevant information at different phases
- For example, PokitDok’s Claims Management Suite offers providers electronic claims validation and submission, real-time claims tracking, and claims payment information mapped with specific claims by extracting the relevant data from its payer network³²

30 “TrueVault Launches To Bring Easy HIPAA Compliance To Startups And Health Apps”, Rip Empson, TechCrunch, February 14, 2014, accessed October 2017 at <https://techcrunch.com/2014/02/14/truevault-launches-to-bring-easy-hipaa-compliance-to-startups-and-health-apps/>

31 True Vault Website, accessed October 2017 at <http://go.truevault.com/ios-sdk/>

32 PokitDok Website, accessed October 2017 at <https://pokitdok.com/business/claims-management/>

– **Provider Directory Compliance** –

- API solutions can also help payers manage their provider database more efficiently and stay up-to-date on provider information in real-time
- For example, BetterDoctor has designed an API solution to reduce the compliance effort required in this regard by both payers and providers, by acting as a single source of truth
- Its solution helps payers validate their provider data as well as obtain real-time updates on provider information so that the payers' directories are updated and compliant with regulations in a streamlined and cost-effective manner³³

– **Population Health Data Access** –

- APIs can act as a point of integration between multiple sources of health data, such as mobile apps, wearables and fitness devices, and organizations that would like to consume such data for their business strategies
- For example, Validic's API connects data from health applications, wearables and other devices to healthcare providers, payers, wellness companies, etc.
- This population health data can then be used by payers to provide value-added services such as care coordination, disease management, and incentive programs^{34 35}
- The Blue Cross and Blue Shield Association has also developed an API-based system to enable its member organizations to access quality data from third-party information providers, wherein the APIs allow systems with different data formats to communicate with each other³⁶



Implications

- It will be important for health insurers to build partnerships with API solution providers and better integrate with the healthcare ecosystem to avail of the benefits of API
- API offerings that provide advanced data management enable health insurers to benefit from a more cost-efficient means for data management and regulatory compliance
- APIs also help health insurers tap data from new sources and build innovative services more easily without legacy-system restraint
- APIs can play a critical role in supporting insurers in their transformation journey by allowing easy communication between modern and legacy systems

33 BetterDoctor Website, accessed October 2017 at <https://betterdoctor.com/health-plans/>

34 Validic Website, accessed October 2017 at <https://validic.com/>

35 API.Healthcare, accessed October 2017 at <http://healthcare.stack.network/apis/>

36 "Health Insurance Association Launches a Security and Integration Cloud Service Brokerage", Intel Case Study, accessed October 2017 at <https://www.intel.in/content/dam/www/public/us/en/documents/case-studies/enterprise-security-intel-esg-blue-cross-brokerage-study.pdf>

Trend 07: Predictive and Behavioral Analytics for Risk Mitigation, Fraud Detection and Anticipating Future Customer Needs

Health insurers are leveraging predictive and behavioral analytics for risk mitigation, fraud detection, and anticipating future customer needs



Background

- The insurance industry is built on data analytics, and insurers have been enhancing their capabilities on this front for years to drive competitive advantage
- The rise in customer data sources, computing power, and sophistication of analytics tools in recent years have boosted insurers' analytics capabilities
- Improved capability has led insurers to leverage more advanced forms of analytics, such as predictive and behavioral analytics, for more varied applications



Key Drivers

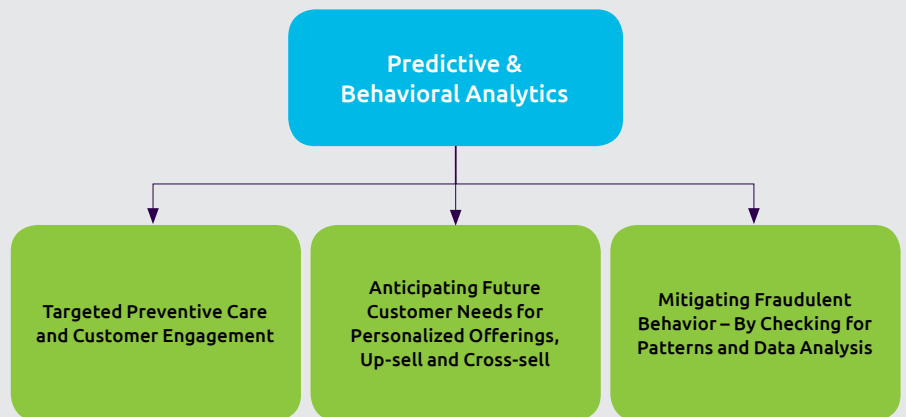
- Fraudulent claims in insurance cost the health insurance firms in billions of dollars annually, and these claims directly impact their profitability
- Advent of advanced analytical tools help insurers tap data from diverse sources to draw insights about their customers, which can be used to predict any patterns that indicate likelihood of fraud as well as to identify the future needs of customers

Trend Overview

- Predictive analytics uses advanced statistical models and technologies such as AI to predict future outcomes based on current and past data, while behavioral analytics studies digital data on customers' behavioral patterns to draw insights on customers³⁷
- In health insurance, predictive and behavioral analytics are primarily used in three areas:

³⁷ "What is Predictive Analytics?", Predictive Analytics Today, accessed October 2017 at <https://www.predictiveanalyticstoday.com/what-is-predictive-analytics/>

Exhibit 7: Health Insurers Leveraging Predictive and Behavioral Analytics



Source: Capgemini Financial Services Analysis, 2017



– Targeted Preventive Care –

- Predictive and behavioral analytics on real-time health data collected from connected devices, such as mobile phones and wearables, can be used to implement preventive care
- Health insurers can use analytics to identify health hazards or unhealthy behavior among their customers and prevent a severe health incident by sending timely patient communications or assistance
- A win-win situation is created as customers benefit from better health and health insurers benefit from better leverage on patient experience and claims
- For example, Clover Health analyzes customer data to identify gaps in care and plan timely care interventions with the help of its staff so as to enable customers to improve their health³⁸
- Analytics can also be used to identify patterns among customers with similar problems or services received and to define care-management guidelines, disease management programs, etc.

– Anticipating Future Customer Needs for Personalized Offerings –

- Insurers can use predictive and behavioral analytics to anticipate future customer needs and to develop new offerings as well as leverage cross-sell and up-sell opportunities specific to patients' lifestyle and life-stage needs
- Customer behavior analysis can be employed on myriad sources such as past communication across channels, social media, etc. to derive insights on the customers' needs and preferences
- InsurTech startup Zipari's customer management solution provides insights on real-time customer activity and uses predictive analytics to anticipate the customers' future needs
- This helps the health insurers personalize their offerings and plan their customer engagement strategy accordingly³⁹

38 "Clover Health, A Data-Driven Health Insurance Startup, Raises \$100M", Matthew Lynley, TechCrunch, September 17, 2015, accessed October 2017 at <https://techcrunch.com/2015/09/17/clover-health-a-data-driven-health-insurance-startup-raises-100m/>

39 "Health Insurance Technology Startup Zipari Lands \$7 million in Series A Funding", Bernie Monegain, Healthcare IT News, December 20, 2016, accessed October 2017 at <http://www.zipari.com/health-insurance-technology-startup-zipari-lands-7-million-in-series-a-funding/>

– **Fraud Detection and Prevention** –

- In the traditional system of fraud detection in health insurance, fraud investigation is generally performed after claims payments
- This leads to a cumbersome process of recovery and results in added costs not only for insurers but also for legitimate customers in the long run
- Also, while increasing digitization of processes drives greater customer convenience, it can also make it possible for more sophisticated forms of fraud to occur⁴⁰
- Predictive and behavioral analytics can help address this issue by detecting fraudulent patterns and highlighting more suspicious claims in a timely and systematic manner
- Analytics engines can leverage more diverse data sources, and with the help of machine learning, they can constantly ‘learn’ and refine to more accurately identify potential fraud
- Moreover, health insurers can use predictive analytics in actuarial science to prepare for industry trends, shifts in customer behavior patterns and identification of risk patterns by adjusting pricing, accordingly, for new and existing products



Implications

- Predictive analytics can help health insurers improve fraud detection and prevention without adverse impact to legitimate claims processing
- Proactive risk mitigation and product recommendations can also lead to higher customer satisfaction as customers obtain the most relevant offerings in a timely manner

40 “FIGHTING FRAUD WITH OUR 360° APPROACH”, Cigna Website, March 16, 2017, accessed October 2017 at <https://www.cignahealthbenefits.com/en/newsroom/fighting-fraud-our-360-approach>

Trend 08: Value-based Payment Models Opening up New Opportunities for Analytics

The industry shift from fee-for-service model to value-based model will open up new opportunities for analytics in healthcare and drive greater collaboration between the payers and providers



Background

- Value-based payment (VBP) strategy between payers and providers is predicated upon patient health outcomes, performance, and quality of care given by the provider
- Medicare Access and CHIP (Children's Health Insurance Program) Reauthorization Act (MACRA), 2015, lays out a framework for payments by Medicare to providers based on the value of care rather than the amount of care:
 - The Quality Payment Program in this act has accelerated the healthcare sector's move to value-based systems
- Insurers have also committed to the value-based payments strategy:
 - Insurers, such as Aetna, Humana, and Cigna, are partnering with providers on value-based care systems and alternative payment models⁴¹



Key Drivers

- Significantly increased healthcare costs, partly attributable to the fee-for-service payment models, have made the industry consider adoption alternative payment models
- MACRA shifted the healthcare system focus toward quality
- Insurers remain committed to increasing the proportion of their value-based care spending out of their total annual medical spendings



Trend Overview

- Value-based analytics on patient and healthcare data helps payers derive meaningful insights about their provider partners on the cost and quality of their service
- Analytics is key to achieving better healthcare at lower costs:
 - Insurers can better understand their value-based care partners, derive insights from the patient care data, and identify best performing providers
 - For example, health insurer Anthem recognizes the importance of data and analytics and by protecting its members from unnecessary medical visits, it achieved savings of \$1.9 billion over a year and its partner accountable care organizations saved around 3 percent per member per month⁴²

41 "Private Payers Follow CMS Lead, Adopt Value-Based Care Payment", Vera Gruessner, Health Payer Intelligence, October 17, 2016, accessed October 2017 at <https://healthpayerintelligence.com/news/private-payers-follow-cms-lead-adopt-value-based-care-payment>

42 "Anthem leverages data, technology to support value-based care", Greg Slabodkin, Health Data Management, June 08, 2017, accessed October 2017 at <https://www.healthdatamanagement.com/news/anthem-leverages-data-technology-to-support-value-based-care>

- Excellus BlueCross BlueShield and Geneia⁴³ offers a values-based case study:
 - Rochester, New York-based Excellus BlueCross BlueShield will use the analytics platform provided by Geneia to obtain value-based insights for its members
 - The insurer seeks to improve collaboration with its provider partners and ensure the sustainability of healthcare in the community
- Insurers also strive to collaborate with healthcare providers to equip them with healthcare information technology (HIT) and analytical capabilities:
 - UnitedHealthcare offers technology as well as data support to its network providers⁴⁴
 - Cigna formed a new wholly-owned subsidiary, CareAllies, to focus on providing advisory and management services, technology, and analytics to providers⁴⁵
 - Aetna is partnering with providers to form joint ventures and offers its health plan expertise, analytics, and HIT for a coordinated healthcare experience⁴⁶
- Sharing of patients' health insights along with IT and analytical support among insurers and providers is essential for the success of value-based payment models



Exhibit 8: Key Benefits of Value-based Care Analytics



Source: Capgemini Financial Services Analysis, 2017

Implications

- The partnership among insurers and providers would result in better communication and sharing of patient health information among payers and providers
- Insurers would be able to identify best performing provider partners, leading to enhanced profitability for them and better care for its customers
- A successful value-based care system, focusing on preventive healthcare services, should reduce healthcare costs for all the stakeholders and improve health outcomes for the patient

43 "Excellus BlueCross BlueShield and Geneia Partner on Value-Based Analytics", Geneia, January 4, 2017, accessed October 2017 at <https://www.geneia.com/news-events/press-releases/2017/january/excellus-bluecross-blueshield-and-geneia-partner-on-value-based-analytics>

44 "Care Providers and Value-Based Care", UnitedHealthcare, accessed October 2017 at <https://www.uhc.com/valuebasedcare/how-value-based-care-benefits-you-for-care-providers>

45 "Cigna's new service company targets value-based care", Leslie Small, Fierce Healthcare, June 09, 2016, accessed October 2017 at <http://www.fiercehealthcare.com/payer/cigna-s-new-service-company-aims-to-help-providers-move-to-value-based-care>

46 "Joint ventures improve member care, reduce costs", Aetna, October 2, 2017, accessed October 2017 at <https://news.aetna.com/2017/06/joint-ventures-improve-member-care-reduce-costs/>

Trend 09: InsurTechs Create More Streamlined and Integrated Ecosystem

There is a rise in the number of InsurTech firms who are creating a more streamlined, integrated, and digitized healthcare ecosystem



Background

- Over the last few years of InsurTech, it has been observed that the health insurance sector has been particularly active and witnessed the emergence of numerous start-ups as well as a significant allocation of investments
- InsurTech firms in this domain range from app providers for specific parts of the value chain to complete carriers that provide health plans
- Lately, many emerging InsurTechs are directed towards better integration of the overall healthcare ecosystem as this remains one of the greatest challenges of this sector



Key Drivers

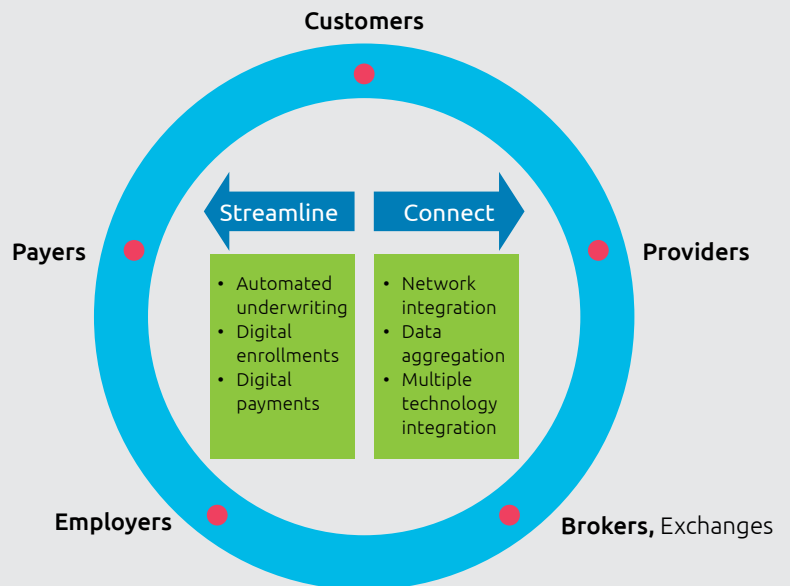
- The fragmented nature of the healthcare ecosystem, with non-integrated and siloed communication flow between stakeholders opens the door to InsurTechs poised to offer new solutions
- The advent of mobile apps, IoT, and advanced analytics are enabling applications that connect various data sources and streamline processes



Trend Overview

- Within the healthcare space, emergent InsurTech firms using digital tools and advanced analytics are focused on creating a more streamlined and integrated ecosystem
- These InsurTechs are providing digital platforms that connect various stakeholders such as brokers, carriers, providers, and exchanges to provide easy healthcare access and digital benefits management for customers
- They are enabling more streamlined processes for customers with the help of digitization by providing digital payments, automated underwriting, and digital enrollments
- They are also enabling greater integration of the ecosystem by aggregating data from various sources for easy access while aiding carriers to better integrate with their partners as well as their incumbent technologies

Exhibit 9: Streamlined and Connected Healthcare Ecosystem



Source: Capgemini Financial Services Analysis, 2017



- Examples of InsurTech firms in this area include:
 - **League** -
 - Toronto-based startup League provides a mobile app where employees can easily access their benefits information, healthcare providers, and avail of digital payments option through the League digital wallet⁴⁷
 - Through the League digital platform, consumers can subscribe for a range of care and wellness benefits⁴⁸
 - **Picwell** -
 - Picwell collaborates with diverse stakeholders such as brokers, employers, payers, retail pharmacies, and exchanges to provide the most optimum plan recommendations for individuals based on predictive analytics on more than 900,000 variables that play a role in health insurance plan selection^{49 50}
 - **Bayzat** -
 - Bayzat provides a mobile app to help customers compare health insurance plans from leading insurers in the UAE and also access benefits and provider networks with a highly visual and easy-to-understand interface
 - Bayzat’s mobile app provides advanced search functionality on medical symptoms and an intuitive map for the provider network to help connect customers with the right providers

47 League Website, accessed October 2017 at <https://blog.league.com/league-health-insurance-products/>

48 “LEAGUE takes small business health benefits digital with \$25M Series A”, John Mannes, TechCrunch, June 14, 2016, accessed October 2017 at <https://techcrunch.com/2016/06/14/league-takes-small-business-health-benefits-digital-with-25m-series-a/>

49 “Picwell Closes \$7M Series A Round”, VC News Daily, 13 January, 2016, accessed October 2017 at <http://www.vcnewsdaily.com/picwell/venture-capital-funding/khtqddkmlp>

50 “Picwell raises \$3M as interest in health insurance decision support picks up steam”, Stephanie Baum, MedCity News, December 29, 2015, accessed October 2017 at <https://medcitynews.com/2015/12/health-insurance-decision-support/>

- The app helps customers get the right treatment in a timely manner and also lowers healthcare costs by preventing unnecessary or inaccurate consultations^{51 52}
- **Limelight Health** -
 - Limelight Health provides a platform to speed up the process of quote generation, underwriting, and enrollment with the help of automation, thus reducing the required time from many weeks to a few minutes⁵³
 - Its solutions also help carriers integrate with their partners and other incumbent technologies^{54 55}



Implications

- Health insurers have the opportunity to build partnerships with other stakeholders, such as providers and pharma companies, and better integrate the healthcare ecosystem to provide innovative offerings
- Health insurers can benefit from improved cost efficiencies and more streamlined processes
- The importance of differentiation and comprehensive product design will rise for health insurers as advanced comparison platforms filter out the most suitable product for a particular customer based on their individual profile
- The new technology tools can also redefine customer engagement as they enable seamless, real-time, and direct communication

51 Bayzat Website, accessed October 2017 at <https://www.bayzat.com/health-insurance/family/>

52 “What is Bayzat Benefits?”, accessed October 2017 at <https://www.youtube.com/watch?v=3y7Ifu-UEZw>

53 “Limelight Health Raises \$7 Million to Expand Employee Benefits Quote-To-Enrollment Platform”, Business Insider, August 1, 2017, accessed October 2017 at <http://markets.businessinsider.com/news/stocks/Limelight-Health-Raises-7-Million-to-Expand-Employee-Benefits-Quote-To-Enrollment-Platform-1002222585>

54 “Limelight Health raises \$3M for mobile insurance quoting offering”, Aditi Pai, MobiHealthNews, July 20, 2015, accessed October 2017 at <http://www.mobihealthnews.com/45471/limelight-health-raises-3m-for-mobile-insurance-quoting-offering>

55 Limelight Health Website, accessed October 2017 at <https://www.limelighthealth.com/solutions/insurance-carriers/>

Trend 10: Cloud Becoming a Key Infrastructure Component

With increasing use of digital information and mobile apps in health insurance, cloud is gradually becoming a key infrastructure component



Background

- The insurance industry has been adopting cloud technology, but for the most part, adoption has been for specific use cases or as an addition to core infrastructure
- With recent health sector developments, however, it is becoming essential for health insurers to make the cloud a more central part of their strategy



Key Drivers

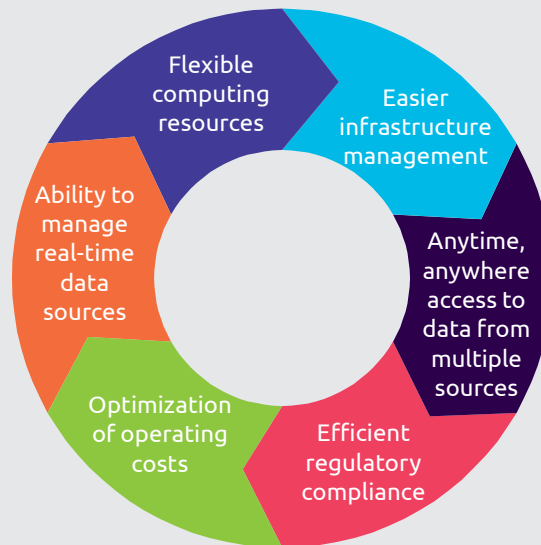
- There is a rise in the volume of Electronic Health Records (EHRs), driven by regulations such as the HITECH Act
- The proliferation of mobile apps and on-demand services, as well as the rise of telemedicine and m-health, require sources for data storage that can be accessed anytime and from anywhere
- There is a rising need to tap into real-time data as the use and importance of connected devices grow



Trend Overview

- More and more, the health insurance market is highly digital with a surge in electronic health data, mobile apps and connected devices such as wearables, and changing business models that rely on new technologies
- Therefore, the cloud is becoming a vital infrastructure component due to its ability to support new technologies
- Cloud technology offers other benefits:
 - Provides flexible computing resources to meet the dynamic resource and computing requirements
 - Optimizes operating costs by converting fixed costs to variable costs and sourcing resources on demand
 - Makes infrastructure management easier as maintenance and upgrades will be managed by the service provider
 - Anytime, anywhere access to data from multiple sources, which enables smooth mobile-app functionality
 - Efficient regulatory compliance as cloud service providers develop expertise in HIPAA compliant storage
 - Ability to capture and store data from real-time data sources due to flexibility in scale

Exhibit 10: Benefits of Cloud for Health Insurers



Source: Capgemini Financial Services Analysis, 2017

- Cloud can be used to support insurers in population health management, real-time care support, and speedy deployment of new apps
- Anthem's transition to the cloud for speed and modernization – and implementation by VLOCITY – offers an illustrative case study:
 - Anthem wanted to modernize its front office by streamlining its selling, quoting and enrollment processes and by conducting real-time verification on the applications to reduce defects and rework
 - VLOCITY's solution leveraged the Salesforce cloud platform to provide the above functionalities as well as to streamline the underwriting process and share real-time insights
 - The solution helped Anthem move to a zero-defect rate in applications, reduce the submission cycle time by three days, and deploy modernization in a speedy manner⁵⁶



Implications

- As the cloud provides flexible computing resources, health insurers can benefit from improved cost and operational efficiencies as they source required resources on-demand as necessary
- The cloud offers health insurers the ability to provide more dynamic and agile offerings based on real-time data and enables speedy deployment of innovation
- However, for successful cloud adoption, insurers must support an adaptive culture, appropriate skill-set, and consistent leadership backing

56 "Health Insurance Case Study - Anthem", accessed October 2017 at https://na78.salesforce.com/sfc/p/#o0000000IkM8/a/o0000000ADOg/octo80zUMhYYo_bJnPtN817rM.H70ui4HTDiegTGLt8

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5. "58% of Payers, Providers Adapt Value-Based Care Reimbursement", Vera Guessner, Health Payer Intelligence, September 27, 2016, accessed October 2017 at <https://healthpayerintelligence.com/news/58-of-payers-providers-adapt-value-based-care-reimbursement>
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