CASE: SM-356
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CAN FINTECH FIX HEALTH CARE PAYMENT PROCESSING?

INTRODUCTION

Doris Petropoulos was a rising star in the payments industry. After five short years, she was promoted to lead corporate development and strategy at a Bay Area-based private fintech company. Their valuation had recently soared to $15 billion and, looking for their next big growth opportunity, senior leadership allocated a large cash budget to her team. Petropoulos led initiatives spanning the company's larger growth strategy to M&A investment activity and was on the lookout for the next opportunity—only to be surprised where she would find it.

On a recent visit to her primary care doctor, the front office staff asked Petropoulos for her proof of insurance and a method for co-payment. She pulled out her health insurance card and credit card. She tapped her microchip-embedded credit card on the reader and her co-pay was processed instantly. Meanwhile, the front office staff took her insurance card and scanned it, front and back separately, and had to type information from the card into their computer system. She realized that this was the start of a long, arduous process of determining plan enrollment, eligibility, benefits, and, ultimately, her bill. She began to wonder what went on behind the scenes. Why was her credit card transaction instantaneous, while the health insurance payment process had only just started? She went back to her office to discover a startling discrepancy in the speed and cost of transactions between U.S. health care and financial systems, despite some of the very same technologies being relevant to both sectors. Had she just stumbled upon the next big market opportunity for her company?

BACKGROUND

Health care had become one of the largest sectors in the U.S. economy, approaching 20 percent of GDP. Simply administering the health care system represented a significant share of this

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ecosystem. Studies estimated that administration costs alone accounted for as much as 31 percent of total health care spending.[1] This high administrative burden had motivated research to better understand why these costs were so high. The research findings suggested that the cost of managing and processing health care payments—commonly referred to as billing and insurance-related expenses—was a leading contributor towards administrative costs. These costs represented 62 percent of total administration cost—a staggering sum.[2] From a provider perspective, researchers calculated that it cost $20.49 for a primary care physician to submit a bill.[1] The magnitude of cost was unique to the U.S. health care system. For comparison, billing activities for primary care services in the United States cost four times those in Canada.[3]

A recent McKinsey & Company study examining administrative costs showed that of the $950 billion spent on health care administration in 2019, financial transactions made up 21 percent of the cost.[4] The study suggested that within-firm, between-firm, and seismic market-level changes to administrative processes could save $265 billion annually, or $1,300 for each U.S. adult.[4] A similar study on waste within the U.S. health care system estimated the costs of billing and coding waste at $248 billion annually, and $60 to $80 billion in fraud annually in the Medicare program.[5]

Delving deeper, it was clear that a number of structural factors contributed to these high costs. The market for health care services in the United States was a complex ecosystem that included public and private payers, and a variety of different health plan designs.[6] To understand the contractual landscape between health plans and providers, researchers described the complexity across three domains: architectural complexity, contractual complexity, and compliance costs.[7]

Architectural complexity costs stemmed from administering a large number of unique contracts between payers and providers. In the U.S. market, there was no standard contract. Each private health plan had to negotiate a contract with each provider within their network, while each public program might have a different administrative mechanism (the core programs of Medicare and Medicaid, or their private contractors under Medicare Advantage and Medicaid managed care). UnitedHealthcare's website, for example, reported a provider network with 6,500 hospitals and care facilities, and 1.3 million physicians and health care providers.[8] For physicians, the issues

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[1] Tseng P, Kaplan RS, Richman BD, Shah MA, Schulman KA, "Administrative Costs Associated With Physician Billing and Insurance-Related Activities at an Academic Health Care System," *JAMA*, 2018;319(7):691–697.
[2] Kahn JG, Kronick R, Kreger M, Gans DN, "The cost of health insurance administration in California: estimates for insurers, physicians, and hospitals." Health Aff (Millwood) 2005;24(6):1629-1639.
[3] Morra D, Nicholson S, Levinson W, Gans DN, Hammons T, Casalino LP, "US physician practices versus Canadians: spending nearly four times as much money interacting with payers," Health Aff (Millwood) 2011;30(8):1443-1450.
[4] Sahni, Nikhil R., et al, "Administrative Simplification: How to Save a Quarter-Trillion Dollars in US Healthcare," McKinsey & Company, October 20, 2021, www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/administrative-simplification-how-to-save-a-quarter-trillion-dollars-in-us-healthcare (June 1, 2022).
[5] Shrank, William H. et al., "Waste in the US Health Care System: Estimated Costs and Potential for Savings," *JAMA* vol. 322, 15 (2019): 1501-1509. doi:10.1001/jama.2019.13978.
[6] Burns R., *The U.S. Healthcare Ecosystem: Payers, Providers, Producers* 1st Edition (New York, N.Y. : McGraw-Hill Education LLC, 2021).
[7] Scheinker, David et al., "Reducing administrative costs in US health care: Assessing single payer and its alternatives," Health services research vol. 56,4 (2021): 615-625. doi:10.1111/1475-6773.13649.
[8] "Find UnitedHealthcare doctors and providers," UnitedHealthcare, October 29, 2020, www.uhc.com/find-a-doctor#:~:text=With%20UnitedHealthcare%20health%20insurance%20plans,hospitals%20and%20care%20facilitie

were often just as challenging. For example, providers in Florida zip code 33497 could contract with as many as 47 different Medicare Advantage plans.[7]

Contractual complexity costs resulted from fulfilling individual contract requirements, which necessitated recording detailed patient information, the clinical services provided, and plan-specific payment justifications.[7] The provider manuals medical offices relied on to comply with contracts were typically lengthy and numerous. The updates alone to Medicare's 2019 payment rules ran over 1,000 pages.[7] Individual insurers, meanwhile, published multiple provider manuals simultaneously: Blue Shield of California published eight provider manuals supporting their contracts, with the 2022 Independent Physician Provider Manual running 384 pages long, with updates published in January and July.[9]

A third and final bucket consisted of compliance costs. These included fulfilling legal, regulatory, or negotiated billing requirements.[7] For example, one analysis estimated that hospitals incurred $216 in costs for every $1,000 in savings to the Medicare program arising from Medicare audits.[10]

The primary financial function of health insurance companies was to manage health benefits for subscribers (insured individuals were often called "members," "subscribers," or "covered lives"). Health insurance was a contract between a health plan and a subscriber detailing the benefits provided by the health plan (the covered benefits). When a subscriber visited a provider, the first step in providing health benefits was to ensure that the subscriber was currently enrolled in the plan—a step referred to as identification and eligibility. At the point of service, there might be a requirement for a payment before the service was provided, as determined by the plan (a fixed co-payment per visit). The provider would then provide a clinical service. After the visit, the provider and medical facilities issued claims documenting the specific services and charges to health insurance companies, representing invoices for the care delivered.[11] Claims included codes (known as ICD-10 codes) specifying the medical diagnosis of the patient,[12] and clinical services—physicians billed their patients using Current Procedural Terminology (CPT) codes.[13] Hospitals might assign a Medical Severity Diagnosis Related Group code (MS-DRG) as well to the service.[14] Providers could submit bills for professional services (physician or advanced

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s%20nationwide.&text=Sign%20in%20to%20your%20member,provider%20that%27s%20right%20for%20you. (June 6, 2022).

[9] "Provider Manuals," Blue Cross Blue Shield, www.blueshieldca.com/bsca/bsc/wcm/connect/provider/Provider_Content_EN/Guidelines_resources/manuals (June 3, 2022).

[10] Shi, Maggie, "The Costs and Benefits of Monitoring Providers: Evidence from Medicare Audits," Columbia University, November 14, 2021, mshi311.github.io/website/JMP_website.pdf (June 2, 2022).

[11] "Better claims processing, better health care experience," Hi Oscar blog, October 1, 2021, www.hioscar.com/blog/better-claims-processing-better-health-care-experience (June 1, 2022).

[12] "International Classification of Diseases, " Tenth Revision, Clinical Modification (ICD-10-CM), U.S. Centers for Disease Control, April 6, 2022, www.cdc.gov/nchs/icd/icd-10-cm.htm (June 6, 2022).

[13] "AMA releases 2022 CPT code set." *AMA*, 7 Sept. 2021, www.ama-assn.org/press-center/press-releases/ama-releases-2022-cpt-code-set (June 6, 2022).

[14] "MS-DRG Classifications and Software," Centers for Medicare & Medicaid Services, May 24, 2022, www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/MS-DRG-Classifications-and-Software (June 6, 2022).

practice provider services), technical services (equipment use, office rent; also called facility fees), or a global bill including both professional and technical services. Billing codes offered a description of the health care services provided.

For certain high-value services, this process might require *prior authorization*, in which case insurers had to approve a service before it was delivered to the patient.

From the insurance company side, their claims processing work began at *claims submission*. Payers—typically, an insurance company, or a government-sponsored plan like Medicare or Medicaid—received claims either directly from the provider or via a third-party clearing house such as Change Healthcare. Insurers processed and adjudicated claims in order to determine the amount of money owed based on the service, and to whom (the provider or the facility). Once in-house, insurers would run an *initial data review* to scan the claim for duplications, typos, inaccuracies, or illegible content.[11] Next, the verification processes would begin. Patient *identity* and eligibility were checked to confirm that they were currently a member of the health plan (and that their premiums were up to date).[11]

Payers would then run a *network verification* to ensure that the provider was in-network.[11] Depending on the type of plan, there might be different schedules of benefits for services provided by providers who were "in-network" or "out-of-network." An in-network provider was a provider with a contract with the plan; contracts might include a fee schedule or a method of determining the payment such as payment of a percent of "charges" (the list price established by the provider for the service). Providers were considered "out-of-network" when they did not have a contract with the health plan; patients might be responsible for charges (or the list price for services set solely by the provider) from out-of-network providers, although the 2020 No Surprises Act offered some protection from unanticipated medical bills.[15]

Repricing of the claim services was the next step. This allowed payers to apply rates determined in unique provider contracts to the specific services billed. *Benefits adjudication* then allowed insurers to determine what services were covered based on the subscriber's plan and benefits (for example, high-deductible health plans were required to pay for the full cost of a set of preventive health services, even if the patient's annual deductible had not yet been met).[11,16]

Towards the end of the process, insurers would check for *medical necessity* (reviewing claims for necessity and safety), scan for *fraud*, and run a *risk management* function.[11] The risk management function allowed insurers to verify accuracy, audit processes and avoid costly noncompliance fees (as insurers were required to keep up with evolving legislation like the Affordable Care Act, HIPAA, Model Audit rule, and mandates from the Centers for Medicare & Medicaid Services.[17] Finally, after all claims processing steps were complete, insurers issued *payments* to providers and an *Explanation of Benefits (EOB)* to enrollees, including the insurer's

[15] Richman B, Hall M, Schulman K., "The No Surprises Act and Informed Financial Consent," *New England Journal of Medicine*, October 2021;385(15):1348-1351.
[16] "Preventive health services," HealthCare.gov, www.healthcare.gov/coverage/preventive-care-benefits/ (June 6, 2022).
[17] "Blue Cross Blue Shield Affiliates Adopt an Integrated Approach to Intensify Overall Compliance, Risk and Audit Management," Metricstream, www.metricstream.com/casestudies/compliance-risk-audit-BCBS.htm (June 2, 2022).

calculation of the patient's share of any co-insurance payments based on the final bill[11] (see Exhibit 1).

PAYMENT JOURNEY

The underlying processes and applicable technologies overlapped between financial and health care payment processing. Several market features also correlated. Health care and finance were two sectors with large regulatory burdens. This made regulatory compliance an essential feature in both spaces. Both markets also faced stringent requirements for security and privacy. Like bank account information, health information was deeply personal and highly protected. Both systems had to function to garner and protect consumers' trust in security and privacy. Lastly, participation in the financial system and the health care system was largely non-voluntary. Both markets represented essential needs for U.S. consumers, and therefore, mass participation.

Despite the parallels in market features and consumer demand, the health care payment processing paradigm had evolved much more slowly than developments in the traditional finance ecosystem. Vast areas for innovation and efficiency gain remained uncaptured. Transaction processing speed alone encapsulated this discrepancy. While Visa was capable of processing 1,700 credit card transactions per second,[18] individual health care claims could take days or months to yield an explanation of benefits—including time-consuming re-work processes (see Exhibit 2).

The 2009 HITECH Act was intended to reduce administrative costs in health care by paying for a transition to digital health information technology. At the time, President Barack Obama suggested, "Better technology can also cut costs for providers by reducing paperwork and duplicative tests."[19] However, the Act required adoption of existing technology based on the existing payment models for health care services. In the end, digital technology maintained a version of the existing payment processes in health care. The payment system was not reconfigured to take advantage of the power of digital transactions. In other words, the HITECH Act merely implemented digital versions of the traditional paper or analog billing processes, but did not create a true digital payment system for the health sector. Thus, there was little evidence that these hoped-for savings ever materialized from the adoption of electronic health records.[1]

Several examples helped illuminate the underlying analog nature of these processes, and the resulting innovation opportunities for digital transformation.

When the provider requested a health insurance card at a visit, the card was entirely paper. The provider often scanned an image of the card, or purchased an OCR reader to gather information to identify the subscriber (member name, plan name, group number). The U.S. federal

[18] Gillai, Barchi and Haim Mendelson, "Creating Value with Blockchain: A Value Chain Management Perspective," *Stanford Graduate School of Business*, Nov. 2020, www.gsb.stanford.edu/faculty-research/publications/creating-value-blockchain-value-chain-management-perspective. Accessed 2 June 2022.

[19] "Presidential Proclamation--National Health Information Technology Week," The White House, September 12, 2011, https://obamawhitehouse.archives.gov/the-press-office/2011/09/12/presidential-proclamation-national-health-information-technology-week (June 6, 2022).

government tried to require a standard health plan identification system by a rule developed in 2012, but never enforced the requirement and eventually rescinded the rule in 2019.[20]

In the claims submission step, approximately 95 percent of claims were submitted to payers electronically.[21] However, the vast majority of attachments (certificates of medical necessity, discharge summaries, clinical notes) were still sent on paper via mail or fax (or the electronic version of paper—PDF attachments). Paper documents represented as much as 70 percent of attachments.[21] This led to costly labor efforts on the part of health plans to process these submissions. For example, one health plan reported spending 792 hours per week processing attachments, requiring the effort of 20 full-time employees.[21]

Prior authorization posed another major challenge for providers and health plans. Prior authorization was intended to be a means to reduce the provision of inappropriate clinical services, including unnecessary services provided as a result of physician-induced demand. In other words, it served as a means of prospective utilization review. It was based on the concept of the Hawthorne effect—the concept that behavior changes when someone knew they were being watched. This concept of prior authorization generally serving an observational role was supported by the high approval rate of prior authorization requests. For example, one survey reported a denial rate of only 5 percent for a sample of 5,000 prior authorization requests.[22]

However, the requirements for prior authorization of services or medications were set by individual health plans for different sets of products or services, and there was no standard set of information requested by plans in order to approve a service. Phone or fax were the predominant methods of contacting health plans for authorization, requiring an average of 16 minutes per transaction.[21]

Over 85 percent of providers were concerned about the significant effort required for the prior authorization process, and the burden on providers was only increasing.[21] A 2021 AMA survey found that physicians completed an average of 41 prior authorization requests each week, with their offices spending 13 hours on the processes (40 percent of respondents had hired staff specifically to complete prior authorization requirements for the practice). Unfortunately, physicians reported that delays related to prior authorization processes led to adverse events for patients, including hospitalizations.[23] Simply moving this process to an electronic format would almost halve the transaction time, and lower the cost for payers from $3.50 to a few cents per authorization.[21]

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[20] "HPID," Centers for Medicare & Medicaid Services, May 12, 2022, www.cms.gov/Regulations-and-Guidance/Administrative-Simplification/Unique-Identifier/HPID (June 6, 2022).
[21] Turi, Tom. "Industry Voices – 3 ways payers can reduce administrative costs," Fierce Healthcare, January 9. 2020, www.fiercehealthcare.com/payer/industry-voices-3-ways-payers-can-reduce-administrative-costs (June 1, 2022).
[22] Palakurthy, Syam, "If a prior authorization request gets approved, can it still harm patient care?" SamaCare, www.samacare.com/resources/approvals-before-dos#:~:text=It%20tells%20a%20bleak%20story,the%20response%20took%20too%20long (June 6, 2022).
[23] "2021 AMA prior authorization (PA) physician survey," American Medical Association, www.ama-assn.org/system/files/prior-authorization-survey.pdf (June 6, 2022).

COMMERCIAL LANDSCAPE

Incumbents

The U.S. health care system was expected to approach $4.5 trillion in expenditures in 2022, with $439 billion in out-of-pocket payments, and $3.4 trillion in health insurance payments. Private health insurers financed $1.5 trillion in health care spending, while Medicare would spend $997 billion and Medicaid $725 billion.[24]

The U.S. health care system had over 900 payers that interfaced with thousands of provider groups and hospitals.[4] U.S. payers generally fell into one of three categories: commercial insurers, Blue Cross Blue Shield licensees, and public insurers. Commercial insurers included for-profit Fortune 100 companies like UnitedHealthcare, Cigna, Aetna Inc., and Humana Inc. Blue Cross and Blue Shield organizations were 34 independent companies that operated under license from the Blue Cross Blue Shield Association, an insurance scheme dating to 1929.[25] They spanned for-profit and non-profit entities, including Anthem and state-level plans. Government plans like Medicare and Medicaid represented the major public insurance programs, but each also contracted with private health plans (through Medicare Advantage and Managed Medicaid), and Medicare used private health plans, the Medicare Administrative Contractors (MACs), to administer the fee-for-service program.[26] Most U.S. states contracted with private health plans for administration of their Medicaid programs (the Medicaid Management Information Systems).[27]

In theory, insurers were incentivized to reduce their transaction cost burdens to drive profitability. By some estimates, insurers spent as much as 17.8 percent of revenue on administration costs.[21] The Affordable Care Act required plans to spend 85 percent of premiums on health care services for group plans and 80 percent of premiums on health care services for individual health plans (the so-called medical loss ratio).[28] For a sample health plan P&L, see Exhibit 3.

Disruptors

The financial transactions ecosystem was equally as broad as the health care ecosystem, touching the majority of Americans every day. Financial companies processed roughly 40 billion credit

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[24] "National Health Expenditure Data," Centers for Medicare & Medicaid Services, December 1, 2021, www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData (June 1, 2022).
[25] "BCBS Companies and Licensees," Blue Cross Blue Shield, www.bcbs.com/bcbs-companies-and-licensees (June 1, 2022).
[26] "What's a MAC," Centers for Medicare & Medicaid Services, January 12, 2022, www.cms.gov/Medicare/Medicare-Contracting/Medicare-Administrative-Contractors/What-is-a-MAC (June 1, 2022).
[27] "Administration," Medicaid and CHIP Payment and Access Commission, www.macpac.gov/medicaid-101/administration/ (June 1, 2022).
[28] "Medical Loss Ratio," Centers for Medicare & Medicaid Services, www.cms.gov/CCIIO/Programs-and-Initiatives/Health-Insurance-Market-Reforms/Medical-Loss-Ratio#:~:text=The%20Affordable%20Care%20Act%20requires%20insurance%20companies%20to%20spend%20at,on%20health%20insurance%20rate%20increases (June 1, 2022).

card transactions in the United States each year. This translated to over 100 million transactions per day.[29]

Like the modern health care system, the financial technology ecosystem shared a century-long history, with Western Union issuing a charge card to customers in 1921.[30] Commercial credit card providers emerged with the entry of Diner's Club in 1950.[30] Fundamentally, a credit card was a revolving credit agreement for consumers, who could make purchases on credit up to a predetermined credit limit, and would then receive a monthly or more frequent bill for the collected charges. Transactions did not incur interest if the cardholder made a full payment by the payment due date. Debit cards also dated to the mid-1960s.[31] Debit cards did not provide a credit agreement. Rather, they allowed consumers direct electronic access to their bank accounts.

Personal payment technology has evolved over time. The credit card originally was an analog device with an imprinted account number that could be recorded by merchants. The technology evolved with magnetic strips on the credit card to record and transmit this information digitally. The EMV—an acronym for Eurocard, Mastercard, and Visa—chip enhanced payment security by establishing a unique digital key for each transaction.[32] In addition to chip technology, personal payments have been modernized by the global introduction of mobile payments. This form of payment was introduced in Kenya in 2007, in India in 2010, by Google in 2011, and by Apple in 2014.[33,34,35,36] In 2022, the technology evolved to a tap-to-pay process, allowing merchants to accept payments without payment terminals or other hardware.[37]

Credit card issuers, card networks, and payment processors were all part of the financial transactions ecosystem. Card issuers were banks that provided credit cards to consumers (like JP Morgan Chase or Bank of America, for instance). Card networks were companies like Visa or Mastercard that connected the ecosystem. Payment processors executed the credit or debit

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[29] Sandberg, Erica, "The Average Number of Credit Card Transactions Per Day & Year," CardRates.com, November 9, 2020, www.cardrates.com/advice/number-of-credit-card-transactions-per-day-year/#:~:text=If%20you%20divide%20that%20figure,in%20the%20U.S.%20every%20day (June 1, 2022).
[30] Rampton, John, "The evolution of the mobile payment," *TechCrunch*, June 17, 2016, techcrunch.com/2016/06/17/the-evolution-of-the-mobile-payment/ (June 1, 2022).
[31] Collins, Jennifer, "A short history of the debit card," *Marketplace*, August 18, 2011, www.marketplace.org/2011/08/18/short-history-debit-card/ (June 1, 2022).
[32] Bowman, Cynthia, "What are EMV chips and do they make credit cards more secure?" *Cnet*, February 9, 2022, www.cnet.com/personal-finance/credit-cards/what-are-credit-card-chips-and-are-they-more-secure/ (June 1, 2022).
[33] Kagan, Julia, "M-Pesa," *Investopedia*, October 31, 2020, www.investopedia.com/terms/m/mpesa.asp#:~:text=M%2DPesa%20was%20introduced%20in,launched%20M%2DPesa%20in%202007 (June 1, 2022).
[34] "IMPS," Central Bank of India, www.centralbankofindia.co.in/en/imps (June 1, 2022).
[35] "Google Pay (Android Pay)," TechTarget, www.techtarget.com/whatis/definition/Google-Pay (June 1, 2022).
[36] "Apple Announces Apple Pay," Apple press release, September 9. 2014, www.apple.com/newsroom/2014/09/09Apple-Announces-Apple-Pay/ (June 1, 2022).
[37] "Apple empowers businesses to accept contactless payments through Tap to Pay on iPhone," Apple press release, February 8, 2022, www.apple.com/newsroom/2022/02/apple-unveils-contactless-payments-via-tap-to-pay-on-iphone/ (June 1, 2022).

transactions for purchases, and charged based on the transaction size (percentage fee) plus a flat fee.[38]

Fraud monitoring methods were also growing more sophisticated with the adoption of AI and deep learning technology. The benefits were wide-ranging and ultimately accrued to consumers through greater efficiency and less disruption. Specifically, these technologies could increase card approval rates, lessen card declines, and allow for improved adjustment of credit limits.[39] One example illuminated the magnitude of impact: in 2019, Visa prevented $25 billion in fraud using AI models to monitor over 500 transaction features in real time.[39] The list of innovations to improve the customer experience while maintaining high levels of trust continued to grow. This included continued use of features like chip technology (which diminished counterfeit payment fraud by 76 percent in a three-year timeframe), convenience and efficiency features like the mobile wallet and contactless payments, and authentication features like biometric verification.[32,40]

STRATEGIC OPTIONS

At the end of her review, Petropoulos was excited about the opportunities she identified. Envisioning a migration from the digitized analog business model to a pure digital model would bring enormous savings to consumers. Moreover, at 3 to 5 percent transaction costs, the digital platform would generate $45 billion to $75 billion in annual revenues from commercial health insurance alone. She could imagine a purely digital version of each of the steps in the insurance payment model she planned to develop. Paper insurance identification cards would be replaced with digital Know Your Customer processes (KYC). Automating claims processing would use knowledge-based rule systems, which could be tailored to the specific health plan's standards,[21] or maybe even self-executing transactions building on blockchain concepts. Utilization review could move from a purely analog process (prior authorization and utilization management) to a more modern digital profiling approach to detect aberrant practice patterns using the digital claims records. And fraud detection could move from manual chart reviews to automated machine learning-based tools to detect and prevent fraud in real time. And this was only the beginning of the opportunity.

Several characteristics of the health care payments ecosystem made this opportunity stand out to Petropoulos. First, the massive size and scope of the market checked her team's Total Addressable Market (TAM) requirement. After digesting the competitive landscape, the slow-moving nature of the incumbent health care players gave her confidence in the ability of a new entrant to tackle this problem. Fortune 100 health care payers had significant transaction volumes and market power, but had not yet proven an ability to innovate and self-disrupt. She remembered studying the economic principles of Joseph Schumpeter, who stated, "As a rule, the

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[38] "Credit Card Processing Fees and Rates Explained," Square, September 11. 2017, squareup.com/us/en/townsquare/credit-card-processing-fees-and-rates (June 1, 2022).
[39] Dar, Neha et al., "Technology-led shifts and opportunities in card-based payments," McKinsey & Company, April 14, 2021, www.mckinsey.com/industries/financial-services/our-insights/banking-matters/technology-led-shifts-and-opportunities-in-card-based-payments (June 1, 2022).
[40] "Digital Payment Industry in 2022: Payment methods, trends, and tech processing payments electronically," *Insider Intelligence*, March 29, 2022, https://www.insiderintelligence.com/insights/digital-payment-services/ (June 1, 2022).

new does not grow out of the old but appears alongside it and eliminates it competitively."[41] To date, the legacy business models of health insurers had prevented the migration to a digital transaction model.

By carefully mapping the services offered by health insurers, she became convinced that the same technologies that fintech players were already using would translate directly into the health care space. Plus, they could develop a novel business model that would be optimized for the digital nature of the business with no legacy costs. She saw the potential of technology to produce a meaningful reduction in payment processing time and administrative costs. In sum, she saw a unique opportunity to rein in ballooning health care costs using a market-based strategy.

Some might propose a revamp of the entire U.S. health care system, requiring changes in laws and regulations, but Petropoulos suggested that transformation was possible within the bounds of the current system. Technology improvements—or, more specifically, simply adopting pre-existing technologies—should be the focal point for change. Other industries provided examples for what might be possible. Similar to health care, fintech was highly regulated and widely used (with significant volume and capacity requirements). However, the fintech sector was further ahead on the tech adoption curve and demonstrated 7x to 10x more cost efficiency in payment processing compared to health care. [2,36] Studies have also showed the potential of technology and process improvements. When compared to shifting the entire U.S. health system to a single payer system, David Scheinker and co-authors concluded that reforms like technology improvements could lower administration costs as much or more than a system-wide redesign.[7] Making these changes would produce a meaningful impact for U.S. consumers. In 2021, the average household premium was over $22,000.[42] If the 21 percent spent on financial transaction costs could be reduced, meaningful savings accrued: shifting this rate down 5 percentage points produced savings over $1,000 per household—and, if reduced by 15 percentage points, the savings might triple to over $3,000.[4,40] (See Exhibit 4.)

While Petropoulos had conviction about pursuing this opportunity, her path forward was less obvious. There were many strategic approaches to this space. On one hand, she could follow the path of a traditional strategic M&A group and acquire an emerging start-up that was tackling health care payments. Secondly, she wondered if she would be better served to apply her company's own technology directly, and incubate and spin out a newco. Finally, given the weight and presence of dominant health care payers, she also considered partnering with a legacy incumbent to create the solutions together. Which path would yield the financial and social impact she desired? The investment committee would convene the following week, and she had to be ready with her recommendation.

[41] Joseph A. Schumpeter, *The Theory of Economic Development* (1911). Translated into English and published by Harvard Economic Studies (1934).
[42] "2021 Employer Health Benefits Survey" KFF, November 10, 2021, www.kff.org/health-costs/report/2021-employer-health-benefits-survey/ (June 6, 2022).

DISCUSSION QUESTIONS

1. With the goal of disrupting rather than transitioning the legacy health care payments ecosystem, how would you suggest entering the market? What pathway would create the most predictable sales model? What pathway (acquire, incubate, or partner) would generate the greatest risk-adjusted return?

2. Legacy firms outside of health care have a history of failing after launching new health care-related ventures. What strategy best mitigates the risk of failure for a new entrant, like a private fintech?

3. How would incumbents (health plans and providers) respond to a novel entry? Could Petropoulos successfully align with either group?

4. What role could the government play in this market? Would they be a friend of fintechs or of legacy carriers? How would you consider the government role in your strategy development?

5. How should Petropoulos consider the social impacts, in addition to the financial opportunities, of tackling excess health care administration costs? What frameworks could she use in this analysis?

Exhibit 1
Health Care Claims Processing Steps

1	Prior authorization	Providers contact health plans for pre-approval, if required
2	Claims submission	Payer receive claims from provider or clearinghouse. Attachments mainly sent via mail or fax
3	Initial data review	Claims processed for data entry error (duplications, typos, illegible content)
4	Identity verification	Verify identity and eligibility: is patient an active plan member?
5	Network verification	Verify provider is in the payer's network
6	Repricing	Apply provider-specific, negotiated rates to the services billed
7	Benefits adjudication	Determine which services are covered based on individual benefits
8	Medical necessity review	Review claims against guidelines for necessity, safety & practice
9	Fraud detection	Assess risk of insurance fraud based on claim profile
10	Risk management	Ensure payment accuracy and regulatory compliance
11	Payment and EOB	Payer issues payment to provider and EOB to enrollee

Source: Compiled by case study authors

Exhibit 2
Sample Explanation of Benefits

Blue Shield of California
PO Box 272560
Chico, CA 95927-2560

SW

blue of california
Blue Shield of California
An Independent Member of the Blue Shield Association

This is NOT a Bill
Retain for your records along with any provider bills.

Name Redacted

This Explanation of Benefits (EOB) is to notify you that we have processed your claim. It clarifies your payment responsibility or reimbursement.

Your claim information is also available in the My Health Plan section of **www.blueshieldca.com**. If you have any questions about this document, please call one of our claims representatives at

CLAIM SUMMARY AT A GLANCE

Patient Name:		Subscriber ID: Claim Number:
Patient responsibility: (Amount you paid or owe to provider.)	**$0.00**	**Your claim was received 02/21/22 and processed in 65 day(s).**
Blue Shield responsibility:	$1,942.85	**We paid**
Network savings: (Amount saved by using a network provider.)	**$2,035.15**	**Deductible Status:** This claim is not subject to deductible.
Amount billed by Provider:	$3,978.00	

021418 3/5

DETAIL **Provider:** STANFORD HEALTH CARE
Preferred Provider Yes

Service Date	Type of Service and Procedure Number	Amount Billed (Provider billed for services)	Amount Allowed (Used to calculate benefits)	Blue Shield Responsibility	Patient Responsibility: Non Covered	Patient Responsibility: Deductible (You pay provider before we begin payments)	Patient Responsibility: Copayment/ Coinsurance	Notes
02/15/22	Laboratory 0301	995.00	485.96	485.96	0.00	0.00	0.00	
02/15/22	Hospital Misc 0301	564.00	275.46	275.46	0.00	0.00	0.00	
02/15/22	Laboratory 0301	198.00	96.70	96.70	0.00	0.00	0.00	
02/15/22	Hospital Misc 0301	540.00	263.74	263.74	0.00	0.00	0.00	
02/15/22	Laboratory 0301	499.00	243.71	243.71	0.00	0.00	0.00	
02/15/22	Hospital Misc 0302	399.00	194.87	194.87	0.00	0.00	0.00	
02/15/22	Laboratory 0305	404.00	197.31	197.31	0.00	0.00	0.00	
02/15/22	Hospital Misc 0307	379.00	185.10	185.10	0.00	0.00	0.00	
	Claim Totals:	**3,978.00**		**1,942.85**	**0.00**	**0.00**	**0.00**	
			Previous Payment	**919.17**				
			Adjusted Payment	**1,023.68**				

Source: Shared by case authors. Note: Processing this claim took 65 days. For comparison, Visa reports processing 1,700 credit card transactions per second.

Exhibit 3
Sample P&L Statements: Health care vs Fintech

Health care - Private insurance

UnitedHealth Group (NYSE: UNH)

Income Statement	
For the Fiscal Period Ending	**12 months Dec-31-2021**
Currency	***USD***
Premiums and Annuity Rev.	226,233
Total Interest And Dividend Income	2,324
Non-Insurance Activities Revenue	34,437
Other Revenue	24,603
Total Revenue	**287,597**
Policy Benefits	186,911
Depreciation & Amort.	3,103
Selling General & Admin Exp., Total	42,579
Non-Insurance Activities Exp.	31,034
Total Operating Exp.	**263,627**
EBIT	**23,970**
EBIT Margin %	*8.3%*
Interest Expense, Total	1,660
Income Tax Expense	4,578
Minority Int. in Earnings	447
Net Income	**17,285**
Net Income Margin %	*6.0%*

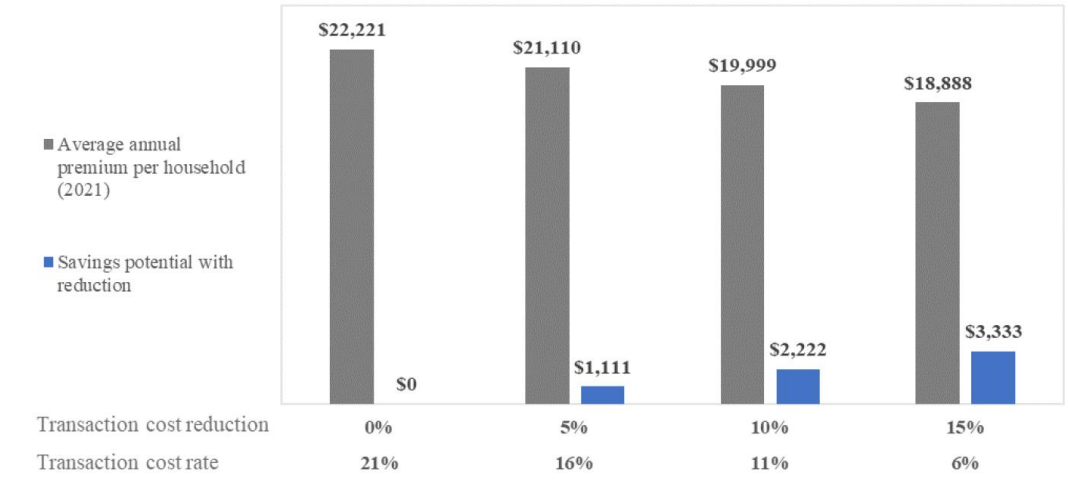
Fintech - Payment services

PayPal Holdings (NasdaqGS: PYPL)

Income Statement	
For the Fiscal Period Ending	**12 months Dec-31-2021**
Currency	***USD***
Total Revenue	**25,371**
Cost Of Goods Sold	13,450
Gross Profit	**11,921**
Gross Margin	*47.0%*
Selling General & Admin Exp.	4,559
R & D Exp.	3,038
Other Operating Expense/(Income)	9
Total Operating Exp.	**7,606**
EBIT	**4,315**
EBIT Margin	*17.0%*
Net Interest Exp.	(175)
Currency Exchange Gains (Loss)	144
Other Non-Operating Inc. (Exp)	(83)
Restructuring Charges	(27)
Gain (Loss) On Sale Of Invest.	(49)
Asset Writedown	(26)
Income Tax	70
Net Income	**4,169**
Net Income Margin	*16.4%*

Source: Compiled by case study authors from publicly available data.

Exhibit 4
Savings from Reduced Administration Burden



Source: Compiled by case study authors, using data from KFF and McKinsey & Company.