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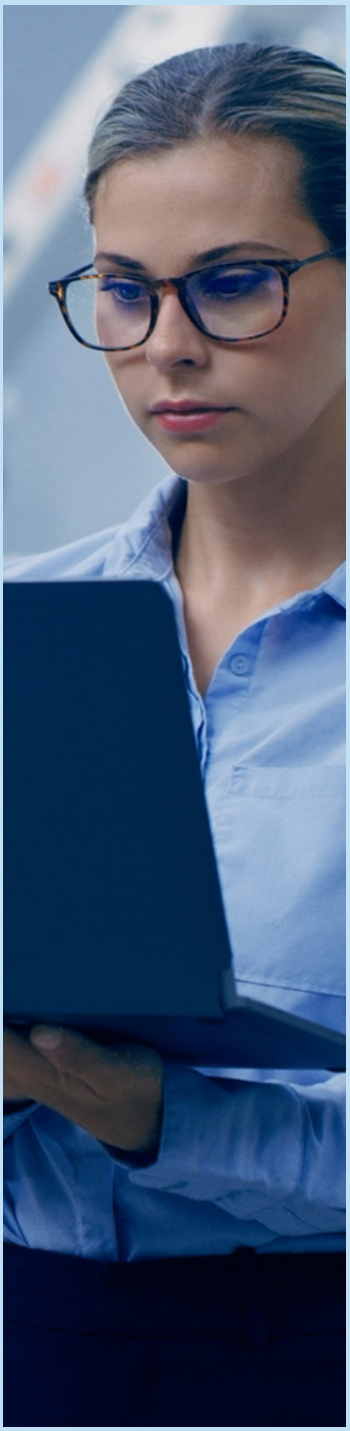

LEVERAGING AI/ML AND ROBOTIC PROCESS AUTOMATION IN PROVIDER ROSTER PROCESSING

Abstract

The healthcare industry relies on providers for the well-being of its members. Therefore, provider data management is critical to health plans and overall provider and member experiences. However, owing to the dynamic nature of provider data, coupled with its often-sub-par quality, maintaining accurate data can be a challenge. Artificial intelligence (AI), machine learning (ML), and robotic process automation (RPA) can offer some solutions to these challenges. Infosys' XtractEdge platform is an AI/ML-based document digitization solution that automates, orchestrates, and streamlines end-to-end processes related to provider roster processing. This paper explores the significance of provider data, the need for automating its related manual processes, and the benefits that Infosys' XtractEdge platform can provide.

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Introduction

The concept of a 'provider' is a fundamental entity within the healthcare system. The effective management of provider data, ensuring accuracy at all times is crucial to the competitiveness of health plans, maintaining a leading edge in the market, and enhancing the overall member experience. However, maintaining accurate provider information at all times is a complex task as provider information keeps changing frequently and the quality of provider data with insurers is sub-optimal. Researchers at the University of Colorado School of Medicine used AI to analyze health plan provider directories covering over 40% of the physicians in the United States. Their findings revealed inconsistencies in the listings for 81% of doctors across five major insurers.

Figure 1 provides insights into the quality of provider data in the United States[1&2].

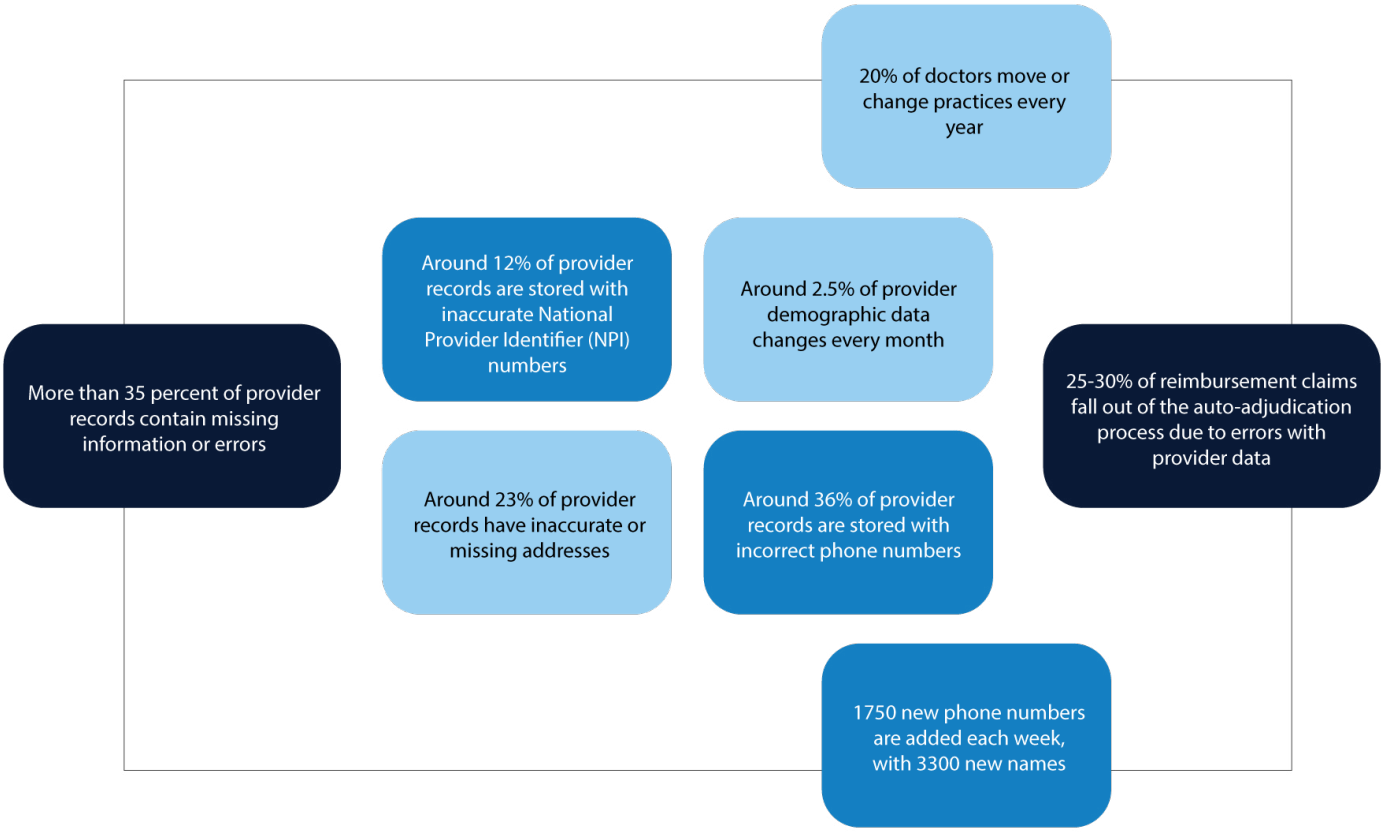

Fig 1. Quality of provider data across the US recorded between 2014 and 2020 [1&2]

Provider data has a significant impact on members, providers, and health plans. In the US, health plans expend more than $2.8 billion annually[3] in efforts to maintain accurate provider information. And yet, the quality of provider data often falls short of expectations.

The No Surprises Act (NSA) took effect in January 2022 with the primary objective of safeguarding members from surprise or unexpected billing, particularly in the case of being overcharged for seeking care from an out-of-network provider, despite the provider listed as in-network in the health plan provider directory.

Why are Rosters Processed Manually?

Once health plans and providers finalize the contract, they agree on the frequency (daily, weekly, fortnightly, monthly, or event-based) with which providers will submit their data to the health plan in the form of rosters. Health plans process these rosters to add or update the provider data received. However, roster processing remains a manual procedure – characterized by inefficiency and redundancy – that is prone to errors. Below, we provide some insights into the reasons behind roster processing remaining a manual procedure despite the availability of cutting-edge technology:

- **Large provider network:** Health plans aim to contract multiple providers to create an expansive and comprehensive provider network. The objective is to enhance the health plan's brand value and attract more members, helping increase revenues. However, providers frequently move in and out of the network, making it cost-prohibitive to automate roster processing using traditional automation methods.

- **Multiple roster formats:** Providers have various formats for creating and sending rosters to health plans, such as Excel worksheets, comma separated values (CSV), portable document format (PDF), and Word documents. A single provider may use multiple formats, adding complexity to roster processing automation efforts.
- **Unstructured roster format:** Each provider has a unique roster format and sends specific data attributes to health plans. These attributes can vary significantly between providers, with more than 100 data attributes. Not all providers send all attributes, making roster processing challenging to standardize and automate.
- **Lack of standardization from providers:** Providers often work with multiple health plans, each having their own roster data formatting standards. Meeting the formatting requirements of every health plan would increase the administrative overheads and take away time from patient care.
- **High development and maintenance cost:** As mentioned earlier, providers frequently move in and out of networks. In such situations, automating roster processing using traditional methods would require software modifications every time a new provider is onboarded or an existing provider leaves the network. These changes, along with other downstream processes, introduce administrative overheads that could become difficult to manage, prompting health plans to opt for manual roster processing.

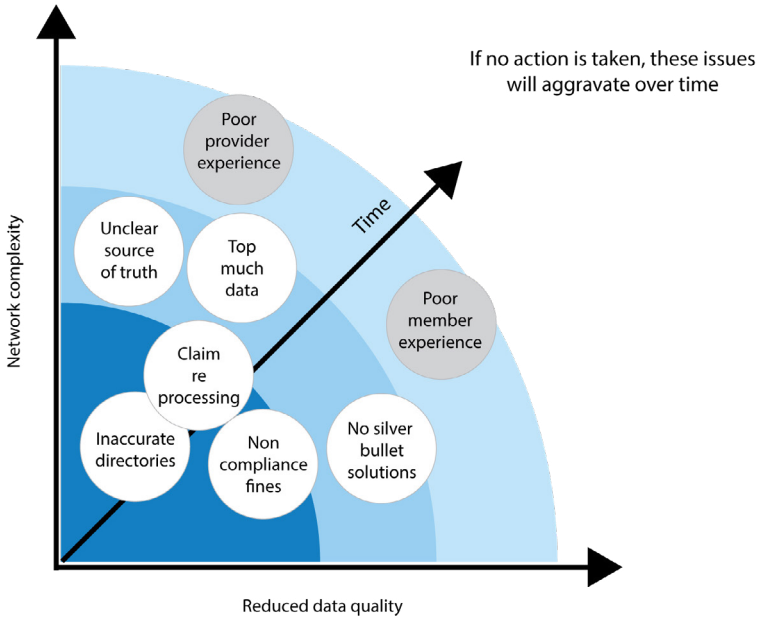

Fig 2. Significance of automating provider roster processing operations

What are the Drivers for Automation?

Rising labor costs pose significant concerns for both provider organizations and health plans. A 2022 report from Kaufmann Hall revealed a 37%[4] increase in hospital labor expenses, while researchers have projected that non-clinical labor costs will reach $90 billion by 2027[5]. Figure 2 depicts the significance of automating the provider roster processing operations.

- **Compliance with NSA:** The NSA that went into effect in January 2022 was passed to protect members from receiving unexpected medical bills. Most of these bills originate from a member receiving care from a provider the member believes is an in-network provider, who is not actually an in-network provider and is not covered by the member's insurance. This happens due to inaccuracies of the provider data maintained by the payers.
- **Improved provider data quality:** Provider data is used by members for scheduling physician appointments through provider directories. It also interfaces with other downstream systems and applications such as claims, payments, products, accounts payable, general ledger, regulatory filings, medical management, provider portals, and customer service teams. As provider data is used enterprise-wide across multiple critical applications, maintaining high-quality data is imperative. Considering the overheads, automating this process can efficiently synchronize all applications.
- **Improved member experience and retention:** Inaccurate provider directories result in members dealing with higher out-of-pocket costs, delayed care, or issues dealing with access to care issues This significantly impacts member experience and can lead to member attrition.

- **Enhanced provider experience:** Incorrect manual roster processing leads to delays in the revenue cycle and claims reimbursement. 80-90% claims are auto-adjudicated and they get pended due to inaccurate provider information, requiring manual intervention. This also impacts the overall auto-adjudication rate.

- **Improved operational efficiency:** Payers allocate substantial resources to manual provider roster processing due to the high volume of updates and rosters processed. In some cases, complex roster processing demands eight to 16 hours of intense manual effort. Additionally, rework is often necessary due to manual errors, further impacting operational efficiency. Automating roster processing can help improve operational efficiency and enhance the experience of the provider operations team.

- **Increased revenue:** Health plans can boost their revenue by effectively managing provider data through various levers:

  » A positive member experience to enhance member retention and reduce costs associated with retaining members

  » A positive provider experience to reduce provider attrition, saving expenses on recruiting providers to maintain network adequacy

  » Reduced compliance issues and regulatory penalties to improve the bottom-line growth of the health plan

  » Reduced manual work related to roster processing to improve operational efficiency, leading to optimal staffing of provider operations personnel. Increased automation also handles workload fluctuations without an actual increase in operations staff, thus improving resource management predictability

- **Enhanced brand value of health plan:** Sub-par member or provider experiences and increased regulatory fines can generate negative publicity for the health plan in the market. This can influence members' or providers' choice of health plan.

How can AI/ML and RPA Help with Automation of Provider Roster Processing?

AI, ML, and advanced generative AI (GenAI) techniques as well as RPA offer powerful solutions to address the challenges currently associated with roster processing. These technologies also improve the overall process metrics, thereby improving member experience and satisfaction.

Infosys' XtractEdge platform is an AI/ML-based document digitization platform designed to automate, orchestrate, and streamline end-to-end processes related to provider roster processing. It covers everything from downloading the provider roster from the source system to sending success, failure, or incomplete information emails to the source system. This industry-leading platform offers next-generation capabilities that effectively address the challenges faced by provider operations teams during roster processing. These challenges include:

- Handling multiple file formats with varying column order and names
- Consolidating roster files, as well as classifying and transforming data sets
- Achieving straight-through processing automation for every format
- Reducing update turnaround time
- Minimizing human errors during audits and reviews of processed rosters

The platform uses a two-step approach to automate provider roster update processing as outlined below:

- Irrespective of the file format, the platform uses ML-based text analytics techniques for automated data extraction, classification, and transformation
- It uses configurable business rule-based validation and customizable verification methods to transform data into downstream consumable formats, thereby increasing coverage of cases that can be processed seamlessly

Figure 3 illustrates the integrated process and overall workflow to automate provider roster processing.

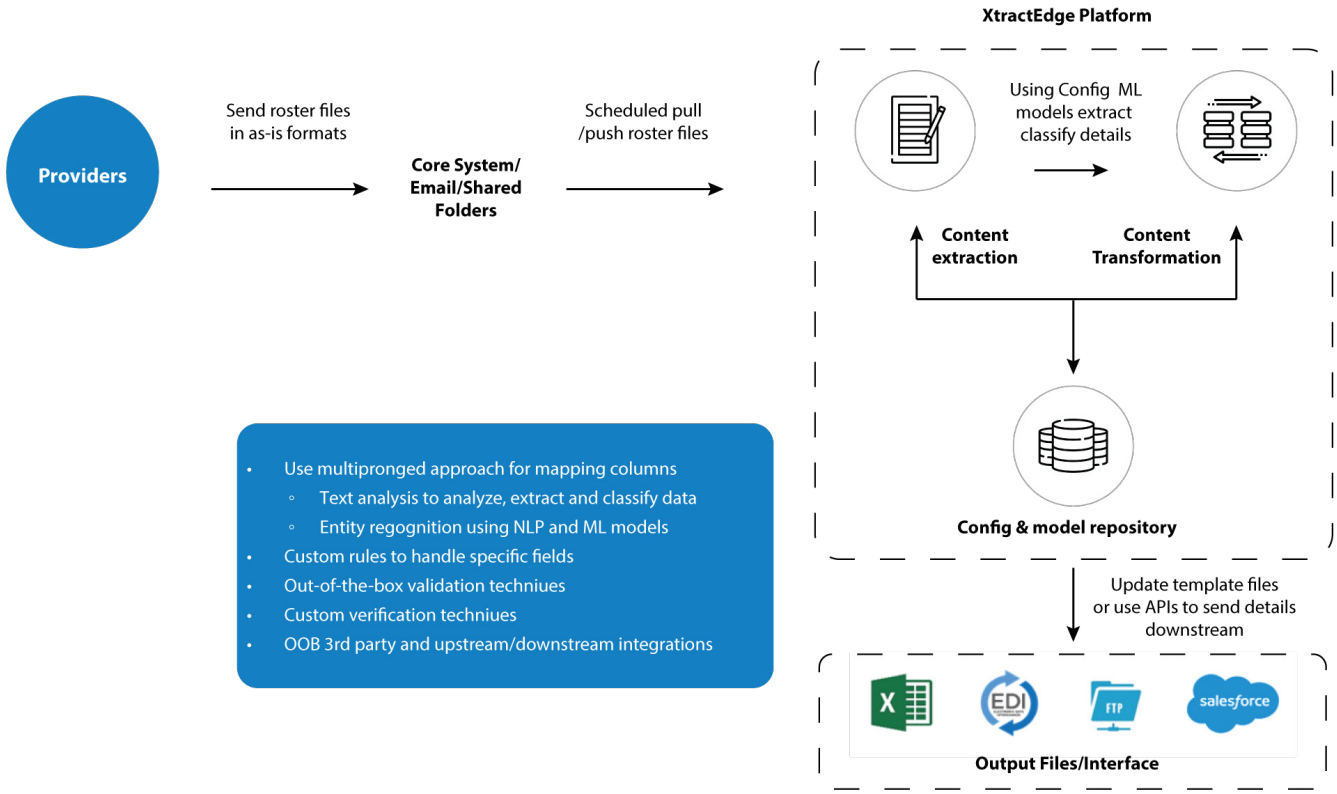

Fig 3. Process and workflow to automate provider roster processing

Benefits of the XtractEdge Platform

Infosys' XtractEdge platform offers the following benefits:

- Significant flexibility for roster processing as it is roster-format-agnostic
- Straight-through-processing for over 50% of the cases as part of an integrated end-to-end solution within the client ecosystem
- Enhanced decision-making and actionizing through a single-pane view during the audit and quality control cycles, thus improving the experience of operations teams
- Data standardization as part of the audit and review processes
- Process standardization for unstructured file formats across various intake mechanisms without disrupting the existing ecosystem
- End-to-end audit trail and compliance information for each processed case or record
- Enhanced and automated data completeness checks and validations at every stage for faster audit
- Automation of repetitive manual processes such as data formatting, entry, and validation
- Overall process efficiency improvement and reduced turnaround time by more than 50% for each roster
- Real-time analytics for providers on the health of each roster reconciliation case processed
- Proactive automated communication and alerts, improving process visibility for business users and executives
- Robust data quality checks to improve the Provider Data Quality Index (PDQI)

Conclusion

Accurate provider data is critical to the healthcare industry as it impacts members, providers, and health plans in almost equal measure. Adopting AI, ML, and RPA holds the promise of ironing out the challenges involved in effective provider data management. Infosys XtractEdge offers provider data management transformation through flexibility, efficiency, and data standardization. The solution meets the demands of the NSA, while also elevating provider and member experiences. It helps automate tedious manual processes, improves data quality, and enhances overall operational efficiency. This platform can help build an optimized healthcare system, with the ability to increase revenue and improve brand value.

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Authors

Introduction of Madhur Naidu:

Madhur Naidu has been with Infosys for 20+ years and has played various key roles in building, evangelizing and incubation of various automation and AI platforms and products since last 7+ years spreading across geographies and various clientele in different industries. In his latest avatar, he is an acting Product Solution Consultant for EdgeVerve's document digitization platform XtractEdge helping various Insurance and Healthcare clients in United States traverse through a digitization journey on different challenges they face while onboarding different business processes on their digital roadmap.

Introduction of Rahul Kulkarni:

Rahul is a Seasoned healthcare IT professional with a zest to simplify healthcare journeys by understanding the pain points faced by the users and reimagining those journeys to drive continuous improvements in Cost, Quality and Experience of care delivery. He is IDF (Interaction Design Foundation), SAFe, CSM, AHIP Fundamentals of Healthcare – Part A & B & AHIP – HIPAA certified and has experience in User Experience Design & Design Thinking. He is a Blockchain enthusiast and has conceptualized the use case of leveraging Blockchain for effective Provider Data Management.

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