International Journal of Emerging Trends in Computer Science and Information Technology
ISSN: 3050-9246 | https://doi.org/10.63282/3050-9246.IJETCSIT-V4I1P111
Eureka Vision Publication | Volume 4, Issue 1, 95-103, 2023

Original Article

Cognizant Healthcare BPaaS: Modernizing Administrative Processes in the Evolving Healthcare Landscape

Mr. Vijaya Bhaskara Reddy Mekala
Associate Director, TriZetto, USA.

Abstract - Healthcare management is changing regarding expanding needs for services offered, compliance issues and requirements, and proper business operations. More and more hospitals and allied medical facilities are implementing efficient information systems in managing organizations to increase patient-oriented care. Thus, Cognizant's Healthcare BPaaS is a refreshing new concept by replacing obsolete, time-consuming, and paper-heavy processes. In more detail, this paper needs to examine how Cognizant, together with Healthcare BPaaS, is handling issues related to multiple administrative processes, minimizing the cost of operations, issues of compliance, and patient satisfaction. In this paper, authors analyse system architecture workflow and use real-life examples of how using BPaaS revolutionises health care administration. Some of these include claims management, member enrollment, and provision of provider data as well as revenue cycle optimization. A stepped approach to implementing the BPaaS solution is presented concerning technological enablers like RPA, AI, and ML. Based on the identified case studies, it was established that there was an enhancement in parameters such as claim adjudication interval, first-attempt resolution rates, and a reduction in administrative expenses. The discussion also considers such issues as data privacy issues, system integration issues, and issues to do with change management. Lastly, the conclusion emphasizes the need to point to BPaaS as a suitable business model for healthcare organizations in the digital age.

Keywords - Healthcare BPaaS, Cloud Computing, Claims Processing, Robotic Process Automation (RPA).

1. Introduction

1.1. The Rise of Digital Transformation

Digital transformation has become the new transition across industries, affecting conventional business structures and enhancing growth. This transition is especially evident within the healthcare system as it performs a change in direction towards the promotion of increased use of information technology solutions within the delivery of healthcare services and patient care to meet the customer demands of an IT society. [1-4] The ambulatory concept, such as cloud computing, data and analysis, artificial intelligence, and automation, is not only a desire to conform with expectations but also an imperative due to skyrocketing costs, regulations, and increasing consumer demand for a different type of care.

Several factors have led to the necessity of digital transformation in healthcare. First of all, it is necessary to enhance health care services. The global human population is continuously growing and getting older; therefore, health care has to be efficient, flexible, and able to respond to increasing populations. Informatization means telemedicine, m-Health, and EHR applications help solve communication problems, provide better access to patient information, and implement remote practice that enhances the quality and accessibility of the services.Furthermore, AI and ML help improve the system's diagnostics and predictive capabilities to provide a favourable result for patients. Another factor is increased expectations of the healthcare organizations to decrease costs but increase or even maintain the quality of care.

Digitalization helps to outsource time-consuming official work, be effective in the supply chain, and manage resources.Furthermore, it is worth noticing that these technologies can minimize the human factor and the costs related to the usage of the healthcare staff. In a general sense, the adoption of digital models in the delivery of healthcare services can be attributed to a shift in the healthcare paradigm where service delivery has been made comprehensive and patient-centred through technology. It symbolizes the start of an age with technology at the core of addressing contemporary healthcare delivery issues.

1.2. Emergence of Business Process-as-a-Service (BPaaS)

1.2.1. Introduction to BPaaS:

BPaaS, also known as business process outsourcing on the cloud means a model in which organizational, industrial or corporate functionally can use cloud-based services of other organizations for certain business processes. Compared to other types of outsourcing, BPaaS provides businesses with easy and instant access to adaptive services for different processes without the need for large investments in equipment. BPaaS results in cost optimization because it means that instead of companies trying to perfect processes they consider insignificant, they leave them with a trusted service provider. Establishing

a model based on cloud computing technology has emerged as a fad within the industries because it helps cut costs, increases the accuracy of the process and shortens the time to market.

1.2.2. BPaaS in Healthcare:

In terms of healthcare, BPAAS is making administrative and operational changes in billing, claims, patient registration, and regulation, among others. The precariousness of Healthcare providers comprises a myriad of documents, manual data entries, and the challenge of processing and managing claims. BPaaS resolves these issues by resorting to intelligent automation, increasing the precision of the process, and lowering the probability of an error being made by a human. The main advantage of BPaaS is echelon, which means that the capacity can be easily extended or reduced to suit the organizations needs depending on the usage, for instance, the densities during flu seasons or special ravages across the society. Thus, BPaaS delivers not only operations efficiencies but brings enhancement in the quality of care to the healthcare organizations.

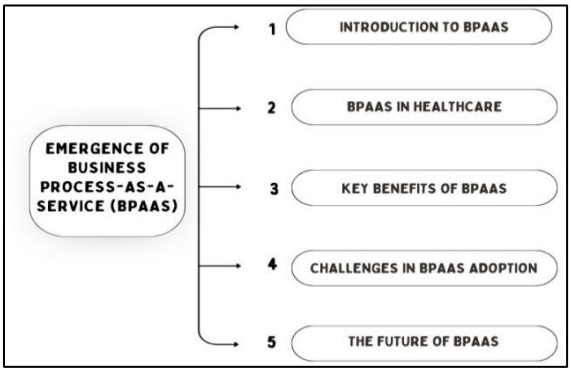

Figure 1. Emergence of Business Process-as-a-Service (BPaaS)

1.2.3. Key Benefits of BPaaS:

Another advantage of BPaaS is the decreased operation expenses. Overall, BPaaS manages to eliminate those processes better handled by personnel and minimize human errors. Moreover, BPaaS makes services dynamically expandable and can support a wide range of consumer requests in the shortest time possible with minimal spending on hardware or software. BPaaS is also efficient in compliance as it can manage and automate such activities to meet the law and ensure no violations, thereby avoiding instances that lead to fines. Thirdly, through the concept, the organizations get to access and adopt the frequent updates and innovations made by the BPaaS providers without in-house resources for development.

1.2.4. Challenges in BPaaS Adoption:

Though there are many benefits associated with BPaaS, it is not free from certain limitations as follows. One of the biggest problems is the security of data involved in the business where their violation can lead to severe consequences or loss. Patient data, for instance, in the healthcare sector is very sensitive and must be protected at all times. It remains important to guarantee that BPaaS adhere to some industry regulation type like HIPAA for the healthcare segment and that the data is safe and secure, stored and in transit. The second issue is also related to BPaaS and refers to the fit of this model into the environment of established enterprises. Some firms use old structures that may not be compatible with the new developments in BPaaS solutions. Therefore, may need to employ extra modifications that may slow down the adoption process. Lastly, change management is also an important consideration in Deloitte about BPaaS. The employees must learn new systems, and acceptance and understanding of the new platform must be learned to adapt to it systematically.

1.2.5. The Future of BPaaS:

That's the case with BPaaS because the future is bright, especially given the growing interest in digital transformation and clouds. The advances in artificial intelligence, machine learning and automation, which had been introduced in BPaaS platforms, are likely to help improve their efficiency and inclusiveness, thus extending this type of automation to even more complex processes. This researcher believes that BPaaS will have an even more pervasively strategic role in the future in aspects of every company that are more central, front office rather than back office in nature. The continuous expansion of the hybrid cloud environment in companies' IT infrastructures and the introduction of innovations such as blockchain will contribute to the future development of cloud computing, particularly in sectors most sensitive to questions of openness and safety, like healthcare and finance.

1.3. Modernizing Administrative Processes in the Evolving Healthcare Landscape

The healthcare industry is experiencing overwhelming shifts in its delivery system to reduce cost and reach better healthcare quality, as well as due to increased regulatory demands. Among them, one can mention the optimization of administrative activities, which are usually excessive, extensive, threadbare, and rigid. Among them, billing and claims processing, patient enrollment, and compliance management have been largely paper-based, labour-intensive and prone to errors. Nevertheless, given that today's healthcare organizations are either incapable or unwilling to provide anything more

than the bare minimum of services to patients, there is a need for innovative ways of handling these processes and improving the system's overall productivity. There is great significance in using automation and the Business Process-as-a-Service (BPaaS) concerning the traditional administrative processes and practices. One of the benefits that every healthcare organization health can derive from automating processes is the reduction of task overload in the workforce. AD echoed by Dayton; it is pertinent to state that using information technology advancements such as Robotic Process Automation (RPA), Artificial Intelligence (AI), and cloud-based platforms will enhance claims' adjudication, billing cycles, and compliance reporting. Reducing the time to process such complex data saves working hours and resources. Also, these digital solutions are scalable to meet changes in patient influx or rules and regulations, which helps healthcare providers create a more efficient and progressive organization business model. Besides operating efficiency, it also has a positive impact on the patient side of the organization; this is through administrative process enhancement. Evaluating the times taken to process a particular claim or the records of a certain patient enables healthcare providers; therefore, deliver efficient care. Also, the data used by advanced technologies can allow healthcare institutions to optimize the use of resources, enhance decisions, and determine growth and development prospects. Ultimately, the changes in the administration bring benefits to creating a healthy climate for medical advancements and improving the overall aim of providing better patient care and individual attention.

2. Literature Survey

2.1. Administrative Burden

Thus, the administrative costs in healthcare have been known for a long time to add to operational costs and reduce efficiency. Studious show that the cost of administrative activity amounts to more than one-third of the total healthcare expenditures; this is dedicated to paperwork, compliance with rules and regulations, as well as claims handling. [5-8] Such processes demand significant human interaction that, in turn, leads to time consumption, mistakes, and scrap production. Cutting operational costs, especially administrative overhead, is thus deemed to enhance the healthcare organization's financial returns while delivering quality patient services. In this regard, there is a growing focus on automating such paper-based processes in the latter subsector as the sector shifts towards digital adaptation.

2.2. BPaaS Applications in Other Industries

BPaaS has received increased adoption in the banking and telecommunication sectors, where it has been applied to elevating and, enhancing back-end processes. BPaaS solutions have helped in loan processing, customer acquisition, compliance, and telecommunications, billing, customer support, and networks in banking. These industries have shown that BPaaS is not only a cost saver but also enables a more flexible, elastic and higher-quality environment. It is to these sectors it is most instructive to look for what strategies might be replicated in the healthcare sector, and one can learn that it is, in fact, feasible to make huge gains in operational performance against these key drivers by focusing on much of what ails it – including burden and complexity.

2.3. Cognizant's Role in Healthcare Technology

The company can be singled out as one of the key players in the healthcare technology market, especially for its BPaaS offerings. A key focus on domain knowledge, analytical tools, and cloud computing makes it easy for the company to offer solutions for the healthcare industry. Cognizant healthcare BPaaS services encompass IMS processing, member services, and provider information processing. Through the use of automation, artificial intelligence, and the use of security in cloud systems, Cognizant is in a position to help several healthcare clients operate efficiently and at a lower cost while meeting the law. It also has the background and vision for healthcare technology development, making it a suitable partner for organizations that need to improve and update their administrative departments.

3. Methodology

3.1. System Architecture

Cognizant Healthcare BPaaS comprise various layers of architecture to enhance scalability and security and manage operational impacts. [9-12] They all have individual functions to help design the end-to-end solution in the health facility.

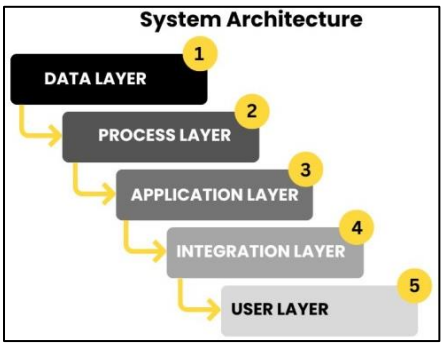

Figure 2. System Architecture

- **Data Layer:** The Data Layer is the layer to store and controls the access of the patients' health information that should remain protected. HIPAA and other healthcare guidelines are fully complied with in a manner that protects data from unauthorized access with the data being complete, up-to-date, and secure. Several measures, such as complex secure data encryption, frequent data backup, and secure user access control mechanisms, prevent any unauthorized data leakage or data breach.
- **Process Layer:** It is another layer that comprises standardized, definable, and reusable business processes for the main healthcare activities like claims and member enrollments or billing, among others. This layer also assures that relevant processes are defined, agreeable to a certain extent to be completed manually and can be easily adjusted to accommodate the numerous healthcare payers and providers. It also means that there is possible to quickly react to changes in regulation or adapt to specific client's needs and demands.
- **Application Layer:** The Application layer will contain the business application and intelligence system for the business rules engine and AI/ML. These tools automate decision-making processes, enhance fraud detection, optimize claims adjudication, and personalize patient engagement strategies. Machine learning models get enhanced gradually in their working operations to achieve higher effectiveness.
- **Integration Layer:** Integration Layer gives the gateway connectivity for EHRs, payers, provider networks and third-party platforms using APIs. This layer also guarantees the smooth and unhindered flow of data from one system to another which is vital for the real-time information sharing that is paramount in modern care delivery.
- **User Layer:** The User Layer offers easy-to-use yet powerful interfaces that can be accessed via the web and mobile apps. These interfaces are geared and developed so that they are useful to both the healthcare administrators and the patients; as such, some of the services to be provided include claims status monitoring, enrollment information and billing inquiries, and telemedicine. By aligning itself more with customers it is also possible to realise high levels of usage, satisfaction and thus usage rates of the system.

3.2. Workflow Modernization Framework

Embraces a logical and systematic way towards how healthcare operations are to be transformed by Cognizant using BPaaS. Each of them stays mindful of the general process, showing that modernization is well-thought, optimised for efficiency, and strategically aligned with the business's goals.

3.2.1. Discovery:

Effective workflow modernisation comprises an important phase known as the Discovery phase. It entails a logical evaluation of the operations carried out in an organization. Using stakeholder interviews, process mining, or document analysis, organizations obtain a clear picture of the current processes, also known as the 'as-is' process map. This exercise reveals the redundancies, waste, and constraints or rigid processes that humans compound rather than alleviate. It is very important to identify critical issues and areas of inefficiency during this stage of modernization to address key concerns.Furthermore, during the Discovery phase, the parties are brought on the same page with the aid of an evaluation of the current landscape and an identification of why process optimization is critical. This data also becomes useful for future-state design regarding the improvements made after the post-modernization evaluation. In the last instance, Discovery makes sure that where Modernization is done, this is done using available evidence to enhance business performance and not just to automate areas of ineptitude.

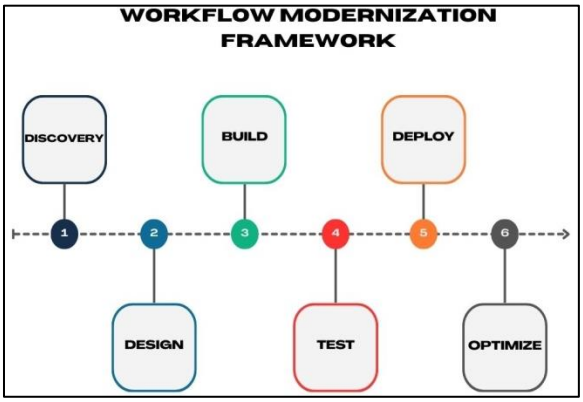

Figure 3. Workflow Modernization Framework

3.2.2. Design:

The Design stage involves operationalizing insights made in the Discovery phase with a view of the future outcome. Here, the organisation depicts its envisioned optimal-to-be structure that entails simplification, process automation, and scalability. Tight process maps, interfaces, and potential areas of automation are determined, making reference to operational objectives [13-16] as well as to the requirements of compliance with legal requirements. Consideration is also given to the usage

experience, making the walk-through of new workflows inviting, easy to follow and conducive to putting the employees' best efforts forward. During this phase, the technical teams, the business side and compliance are involved, and it is critical to maintain a balance between innovation and implementation. The idea is not to simply attempt to automate various processes but to reinvent them and achieve the greatest efficiency using Cognizant BPaaS. The Design phase creates a clear vision of what the desired future state is to be. Like the build and deployment phases, the Design phase provides clear direction and a guard against scope creep and having to redo work.

3.2.3. Build:

During the Build phase, the outcomes from the RACI matrix are implemented to turn the future-state processes into reality through operating the BPaaS platform. This covers creating complex business rules, defining work processes, incorporating advanced AI/ML models into automating processes, and connectivity to other systems using APIs. Additional compliance with safeguard and protection mechanisms like HIPAA or GDPR is also addressed during this stage. In Build, there is a particular emphasis on leveraging what the OOTB platform means, avoiding a higher degree of customization. The lack of extensive customisation also means the system is still easily maintainable, scalable and upgradable as future platform upgrades are to be issued. Indeed, agile development approaches are used in which changes can be made in cycles and tested in each iteration. The Build also entails a close working relationship among the IT, business process owners and vendors to construct the system's future-state design. In general, the Build phase brings the actual implementation of theoretical concepts into an operational state that enables subsequent testing.

3.2.4. Test:

As has been well understood, the Test phase holds great significance in guaranteeing the intended results upon the BPaaS platform. In general, User Acceptance Testing (UAT) is carried out to ensure that all the workflows, automation rules of the particular program, integration of the system with other systems, and interfaces to be used by the user are functioning as per the stakeholders' expectations. The tests involve real-life circumstances and data utilisation likely experienced in actual operations. During this phase, problems, mistakes, inefficiencies regarding the interactions between workflows and processes, usability issues or suboptimal product performance are to be detected and corrected before the product is deployed. For the last refinements, the final touches are made based on user feedback for the laydown of the final practicality of the system. Besides functional tests, performance, security and integration testing are carried out to ensure that the platform can scale up and follow regulatory requirements. The aim is also to reduce occurrences of malfunctions that can happen after the go-live period by testing and strengthening the confidence of the users. In this respect, the Test phase serves another important purpose in ensuring the quality control of the modernization process.

3.2.5. Deploy:

Implementation is that aspect of management where planning, designing, and building come into existence. In this phase, the working processes are released into the active production area, where they are currently operating. In order to avoid disruptions, there is a standard procedure of deployment that is undertaken which at times is done gradually to minimize the risks. This entails performing the last checks on the system, preparing contingencies in case of complications and ensuring that the user support is easily accessible. The end-user training measures are accompanied by detailed operating instructions and a help desk to ensure fast implementation. Some functional change management concepts that are particularly helpful to help overcome barriers to user adoption include stakeholder communication strategy, information technology user adoption, hands-on training, and information technology adoption plans. Further, performance monitoring mechanisms are switched on to provide visibility of the status of the newly created workflows. The end of a successful Deploy phase means better functioning of IT operations and the creation of preconditions for their further enhancement.

3.2.6. Optimize:

The end of the Embrace phase only means that the modernisation process has begun, which is exactly what the Optimize phase offers. However, there is active monitoring of the organisational performance and the system's use and status by the analytical and reporting functionalities in its post-deployment. These include the processing times, error rates and customer satisfaction index to have new focus areas. There is feedback where the users can give improvements, change ideas, and make known distinct new problems. In this case, flexible and powerful analytics/BI solutions are used for such purposes as to predict bottlenecks. These constant system audits and performance evaluations help to further ensure that the risk for the platform, as well as the changes taking place within the regulatory framework, the dynamics in technologies and the business environments, are well dealt with. Therefore, the BPaaS overall processes can be constantly enhanced by following the lean processes towards the nature in line with the long term health care institution operation and strategic vision. It is, therefore, the case that optimization transforms the modernization of the agenda of the workflow into a competitive advantage.

3.3. Key Technologies Used

Therefore, Cognizant's Healthcare BPaaS platform uses advanced technologies [17-20], making healthcare operations more efficient, scalable and innovative.

3.3.1. Robotic Process Automation (RPA):

RPA is used to automate processes that can be defined as repetitive and routine, for example, claims processing validation, data entry, and eligibility checking. Thus, by automating these activities with the help of robots, one can minimize the errors derived from manual work, increase the data processing rate, and work with greater efficiency by directing people's efforts to more critical jobs. Another advantage of RPA in healthcare organizations is that it helps to increase accuracy and compliance with all the regulations in handling administrative tasks.

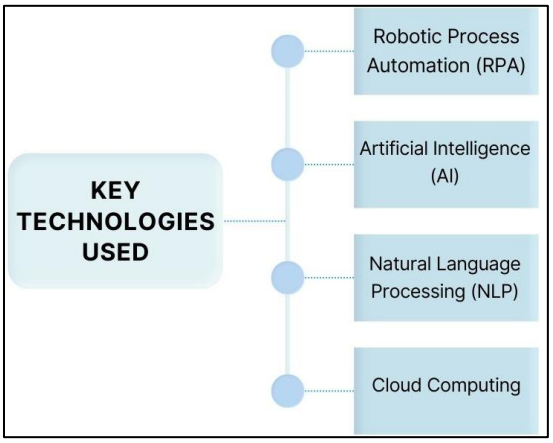

Figure 4. Key Technologies Used

3.3.2. Artificial Intelligence (AI):

Through artificial intelligence, it can be seen that fraud detection, analytics predictability and operational decisions can be boosted. By using machine learning, risks can be detected from huge data in the healthcare industry, future denied claims can be predicted, and preventive measures can be suggested. Artificial intelligence reduces risks and enhances healthcare's capacity to provide efficient and effective care to patient populations.

3.3.3. Natural Language Processing (NLP):

NLP is used to extract relevant data from large unstructured text documents, including clinical notes, discharge summaries and lab reports, among others. NLP helps expand the patient record, improve data analysis, and acquire more precise information to make the right decision. This technology provides the logical middle link between specific systems and the generally complex narrative attributed to caregiving.

3.3.4. Cloud Computing:

Cloud Computing supports the BPaaS platform in terms of scalability, reliability and cost. Healthcare organizations can easily adapt by adding or expanding infrastructure to match their operations without putting a lot of capital into hardware infrastructure. Other advantages that are associated with "cloud' platforms include security, recovery from calamities, and accessibility to other regions, which makes the delivery of healthcare services a reliable and responsive solution.

4. Results and Discussion

4.1. Case Study: Claims Management Modernization

The middleware was acquired by a top US health insurance service provider to enhance its claims management process through the BPaaS platform with the help of Cognizant. Some of the improvement objectives of the initiative included error-free claim adjudication, streamlining of manual-based claims assessments, and low claim rates of overheads. The performance of Amalgamated Bank shows recovery after implementing the system as the result of comparing the pre and post-implementation key performance indicators.

Table 1: Case Study: Claims Management Modernization

Metric	Before BPaaS	After BPaaS	Improvement
Claims Adjudication Time	100%	27%	73%
First-Pass Resolution Rate	65%	92%	27%
Administrative Costs	100%	60%	40%

4.1.1. Claims Adjudication Time:

Before the introduction of BPaaS, the normal average claim time was determined to be 100% or fifteen days. As a result of the modernization, this hour was brought down to 27% of the baseline, which is equal to the average. Due to this 73% increase in the processing rate, the insurer could tender claims faster, which helped improve client satisfaction and claims throughput.

4.1.2. First-Pass Resolution Rate:

Some benefits of adopting BPaaS include an improved first-pass resolution rate from 65% to 92%, which is the ability to process claims without returning them to the provider for further processing. Garnering 27% more this year means that many inaccuracies deriving from human decisions, poor organization of schedules, and time-consuming tasks have been eliminated by the system, such as an automated decision-making factor and an automated scheduling factor. The enhancement of first-pass clean claims acceptance rates, lowered incidence of returned or rejected claims, shortened cycle time, and overall enhanced cash flow of both the providers and members are some positive effects of first-pass that supported these findings.

4.1.3. Administrative Costs:

Before BPaaS, administrative costs were set at 100%, while the costs after utilising BPaaS amounted to 60%, with percentage differences of 40%. These savings were mainly in the form of-webpack reduction of manual processes, automation of procedures, and proper management of resources. Reducing the general and administrative overhead was not only good for the insurer's financial health but also enabled the support of further member services and better technology development.

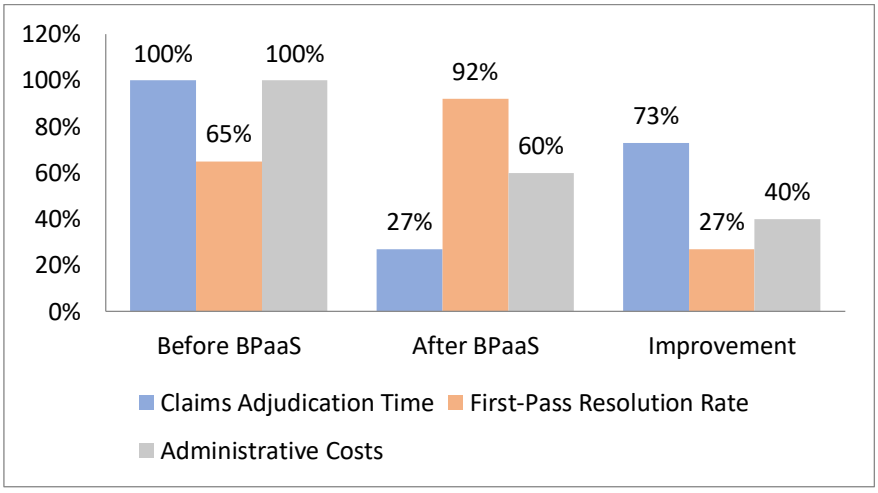

Figure 5. Graph representing Case Study: Claims Management Modernization

4.2. Discussion on Challenges

However, when undertaking the modernization process, certain challenges arise during implementation of BPaaS. These areas were feasible to solve early to strike the best balance between the new system and its sustenance in the long run.

4.2.1. Data Security:

One of the most important and difficult questions in healthcare tech advancement is security. Since healthcare organizations deal with large volumes of highly confidential data for individual patients, HIPAA compliance is still crucial. The BPaaS platform should be able to meet HIPAA standards concerning the protection and handling of PHI, which has to be protected at the time of storage and during transit. Also, yearly security reports and annual reviews imply that privacy measures are being checked regularly regarding set standards. The result of any form of negligence or breach can be severe penalties in terms of the law and loss of reputation, making data security an important aspect of implementing the plan.

4.2.2. Integration Complexity:

This is so because there is usually a challenge in integrating the BPaaS platform with other existing healthcare systems. Several healthcare industries still use old structures and applications that can be used to introduce particular challenges in integrating the advanced functionalities of BPaaS from external systems. This is because API adaptors and middleware are usually needed to integrate different systems and make data exchange seamless. Integrating two or more applications or systems can be costly and time-consuming because it may involve not only information technology skills but also project management skills. Nevertheless, this is a challenge that can and must be overcome in order to unlock the full potential of the BPaaS platform.

4.2.3. Change Management:

The success of any technological transformation hinges on effective change management. Employees have to change their work processes, programs, and tools as they include BPaaS, and such change creates resistance. It is crucial for staff members who use such systems to be trained on the new system to avoid cases of waste of resources as they try to figure out how the system works. Moreover, one should maintain active communication during work to solve some arising issues and explain the next steps for important deliverables. It is also imperative to ensure that change management addresses how the various groups affected in the organization would adjust to the platform, increasing the rate at which individuals accept the platform. It has,

therefore, become apparent that major organisational changes may be hampered if appropriate change management is not implemented, even where the change involves technological implementations of superior systems.

5. Conclusion

Cognizant Healthcare BPaaS is a solution that can be classified as a revolutionary tool, because it leverages all the benefits of automated processes, cloud solutions, and intelligent workloads to reform the field of healthcare administration. However, in the modern world with updated possibilities and constant changes in the healthcare sphere, the organisational aspect plays a significant role in the whole process. Outdated paperwork-related tasks, which have been common in healthcare facilities for years, always prove unproductive, time-consuming, and costly. Cognizant's BPaaS helps to overcome these challenges due to the effectiveness of the administrative processes and increasing the organization's flexibility and adaptability in healthcare. The primary focus of BPaaS is the degree of automation it brings into the business, including claims, enrollments, and billing. It eliminates the need to physically input data and verify the data fed into the program using automation, thereby eliminating human error and enhancing the rate at which such data can be processed. Whereas it formerly used to take several days to do some tasks, you can now do them in a few hours only. This automation has a very positive impact on the operational effectiveness of organizations by liberating their resources that, in turn, can be used on higher value activities such as enhancing the quality of patients' treatment and clinical choices. However, there is stronger healthcare process automation by integrating Artificial Intelligence and Machine Learning by performing analytics and decision-making in real time.

One of the major benefits that Cognizant Health Systems' product offers is the ability to scale the business. Today, healthcare organizations are obliged to address the issues of Big Data management and, at the same time to provide high-quality service. BPaaS makes it easier for organizations to flexibly meet the changing demand regarding patient loads or the need to meet certain standards without acquiring additional physical infrastructure. This cloud-native approach allows medical organizations to grow in synchronization with the market trends since the platform is already prepared for scaling up as the demand rises. Furthermore, in cloud computing, it is easy and effective to have real-time data and services to enhance patient satisfaction in the delivery of care services. This is one of the critical advantages of the BPaaS or business process as a service model, which is not well explained by the others – the main value of such a model is the redirection of valuable resources. With a focus on using technology to control administration, the health care organizations save time, which can be reallocated to utilising manpower to positively impact the patients. For instance, clinical personnel can devote their time to rendering services to patients, and at the same time, administrative personnel can undertake actions that optimize organizational performance. The change in the hierarchy system also helps cut costs on administration intermediaries, which enables organizations to reconsider re-investing in new technologies & other efficient healthcare devices & systems. In conclusion, the advantages lead to a more efficient, patient-centred type of healthcare that will efficiently respond to the emerging needs of providers and patients.

Thus, the claims management modernisation case study shows the practical advantages of BPaaS in healthcare management. As seen in the case of the US-headquartered health insurer, BPaaS resulted in improved first-pass claims resolution, quick turnaround time in claims processing and a major cut down on operating overheads. These outcomes show how automation and smart processing can enhance several angles of performance and positively impact the overall development of healthcare systems and patients. To improve the quality of care delivery to meet patients' needs and remain financially sustainable, most organizations have found ways to increase efficiency in care delivery. Nevertheless, as is seen, BPaaS has its advantages; it is also important to note that some issues still need to be discussed and solved to make the best use of BPaaS. Data security and compliance with standards such as HIPAA are important issues that must be addressed regularly. There is a need to develop a secure environment in healthcare organizations. The patient record data may contain high-risk information that must be protected throughout the system integration process. Connection with existing systems, which are still widely used in various healthcare organisations, can also pose multiple obstacles and should be implemented after proper analysis and, usually, with the help of specialized adapters or middleware. Finally, change management is critical in facilitating the implementation of the BPaaS platform to improve business performance. In order to ensure that users not only simply accept but also embrace the software developed, there is a need for the organization to embark on intensive training and communication.

As for the further perspectives, the prospects of the healthcare administration are even more encouraging, particularly if novelty like bpaaS will be further explored and integrated with such innovation as blockchain. Since the core benefit of blockchain technology is the difficult-to-alter and highly transparent nature of databases, blockchain can also increase transparency and security in healthcare processes. For example, blockchain structure might be used to maintain secure and encrypted patient information records, or it can be applied in claims processing to enhance trust. However, when combined with other technologies like IoT devices and telemedicine platforms, BPaaS models could offer even more integrated solutions to assist in real-time care delivery and patient engagement. Overall, Cognizant Healthcare BPaaS is an innovative solution to transform healthcare organisations' admin, control costs and enhance the quality of service. With the help of automation, scalability, and related technologies, BPaaS brings a priceless value proposition for healthcare providers, focusing on better clinical outcomes and better patient experience. In the future development of healthcare, when the concept of BPaaS is further

deepened and developed, it will be important to find new opportunities to combine it with new, rapidly developing technologies.

References

[1] Wachter, R. M. (2012). The Digital Doctor, Hope, Hype and Harm at the Dawn of Medicine's Computer Age. Internal Medicine, 2012, 13.

[2] Gzik, T. (2020). Business process as a service—a systematic literature review. Towards Industry 4.0—Current challenges in information systems, 163-181.

[3] Sinsky, C., Colligan, L., Li, L., Prgomet, M., Reynolds, S., Goeders, L., ... & Blike, G. (2016). Allocation of physician time in ambulatory practice: a time and motion study in 4 specialities. Annals of Internal Medicine, 165(11), 753-760.

[4] Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., & Ghalsasi, A. (2011). Cloud computing—The business perspective. Decision support systems, 51(1), 176-189.

[5] Evolved BPaaS boosts business ops, Cognizant, online. https://www.cognizant.com/us/en/case-studies/next-gen-healthcare-bpaas-solution

[6] Armbrust, M., Fox, A., Griffith, R., Joseph, A. D., Katz, R., Konwinski, A., ... & Zaharia, M. (2010). A view of cloud computing. Communications of the ACM, 53(4), 50-58.

[7] Woitsch, R., & Utz, W. (2015). Business Process as a Service (BPaaS) Model-Based Business and IT Cloud Alignment as a Cloud Offering. In Open and Big Data Management and Innovation: 14th IFIP WG 6.11 Conference on e-Business, e-Services, and e-Society, I3E 2015, Delft, The Netherlands, October 13-15, 2015, Proceedings 14 (pp. 435-440). Springer International Publishing.

[8] Domaschka, J., Griesinger, F., Seybold, D., & Wesner, S. (2017, April). A cloud-driven view on business process as a service. In International Conference on Cloud Computing and Services Science (Vol. 2, pp. 767-774). SCITEPRESS.

[9] Xu, L., & Vrieze, P. D. (2018). Supporting collaborative business processes: a BPaaS approach. International Journal of Simulation and Process Modelling, 13(1), 57-72.

[10] Bentounsi, M. E. M. (2015). Business process as a service-BPaaS: securing data and services (Doctoral dissertation, Université Sorbonne Paris Cité).

[11] Amlung, J., Huth, H., Cullen, T., & Sequist, T. (2020). Modernizing health information technology: lessons from healthcare delivery systems. JAMIA open, 3(3), 369-377.

[12] Castlen, J. P., Cote, D. J., Moojen, W. A., Robe, P. A., Balak, N., Brennum, J., ... & Broekman, M. L. (2017). The changing health care landscape and implications of organizational ethics on modern medical practice. World neurosurgery, 102, 420-424.

[13] Business Process as a Service (BPassS) in healthcare: the way Forward to Maximize value and improve Outcomes, https://www.cognizant.com/en_us/trizetto/documents/cognizant-everest-group-report-bpaas-platforms-in-healthcare.pdf

[14] Kamal, R. N., & Hand Surgery Quality Consortium. (2016). Quality and value in an evolving health care landscape. The Journal of Hand Surgery, 41(7), 794-799.

[15] Kuhlmann, E. (2006). Modernizing health care. Reinventing professions, the state and the public.

[16] Paschek, D. (2020). Business process management using artificial intelligence is an important requirement, success factor and business need for Industry 5.0. Universitatea„ Politehnica" Timişoara, Şcoala Doctorală de Studii Inginereşti, Domeniul de Doctorat Inginerie și Management.

[17] Herd, P., & Moynihan, D. (2020). Administrative burdens in health policy. Journal of Health and Human Services Administration, 43(1), 3-16.

[18] Taher, Y., Haque, R., van Den Heuvel, W. J., & Finance, B. (2013). α BPaaS-A Customizable BPaaS on the Cloud. In CLOSER (pp. 290-296).

[19] Hedhli, A., & Mezni, H. (2020). A DFA-based approach for the deployment of BPaaS fragments in the cloud. Concurrency and Computation: Practice and Experience, 32(14), e5075.

[20] Dana, K. J., Andrews, C., Bekris, K., Feldman, J., Stone, M., Hemmer, P., ... & Yi, J. (2023). Socially cognizant robotics for a technology-enhanced society. arXiv preprint arXiv:2310.18303.

[21] Saha, S., & Beena, M. (2022, December). Power Cognizant Optimization Techniques for Green Cloud Systems. In 2022 OITS International Conference on Information Technology (OCIT) (pp. 507-512). IEEE.

[22] P. K. Maroju, "Conversational AI for Personalized Financial Advice in the BFSI Sector," International Journal of Innovations in Applied Sciences and Engineering, vol. 8, no.2, pp. 156–177, Nov. 2022.