**Banner Health**

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BUSN600: Artificial Intelligence Practices in Business

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**Banner Health**

For this project the company that was chosen is Banner Health. Banner has multiple locations across Arizona and is a leader in medical practices and innovative solutions. Banner Health in Phoenix began utilizing Viz.ai to help specifically in the pulmonary lab setting. This use of Ai has the ability to reach additional problem areas noted in the healthcare industry. This paper will focus on business issues not only involving the lack of available Ai in the hospital network but also 3 main issues identified.

Banner encompasses over 30 acute care hospitals, is one of the largest secular non-profit healthcare systems in the country. Banner healthcare also operates an academic medical division which has two facilities one managing the MD pathway as the other is a partner in the leading cancer research field. (Banner, 2023)

**Major Issues for Using AI/Robotics in a Business**

Identify three major issues for the use of AI and robots in a business.

Banner Health has been experiencing difficulties with the Electronic Health Records systems (EHR) across its hospitals. The replacement of human labor with an Ai based system would dramatically impact the entire workforce in the hospital system.

**Issue 1:** Is the time and documentation constraint on physicians to constantly update the EHR systems and ensure accurate documentation is provided post exam. (Science Soft, 2023)

**Issue 2:** Is the interoperability between systems and databases and the different chains utilized throughout multiple locations across the state. (Science Soft, 2023)

**Issue 3:** Data entry and accuracy issues when using the EHR systems. (Science Soft, 2023)

**Comparison of AI Uses in a Business**

Are these three issues common across other businesses or industry today?

**Issue 1:** The issue of documentation and time constraints not only affects the physician’s side, but this applies generally to all healthcare. From inpatient facilities to clinics, to remote hospitals. (Green, 2023)

**Issue 2:** Interoperability between systems is something that has been identified as a problem throughout the healthcare industry. As states can vary on laws for both taxes, healthcare, level of care, and billing. This makes it a very difficult situation for all parties involved. (Green, 2023)

**Issue 3:** Data entry and manual input of raw data into systems has seen the human error rate as relevant as ever. As laws continue to change not only at the state and local levels but federally, billing and data entry servers are plague by unintentional errors that cause significant issues both financially and customer service wise. (Diaz-Garelli et al., 2021)

What are the similarities and the differences?

**Issue 1:** Time constraints plague any industry; documentation is extremely critical in the healthcare industry and as such requires more bandwidth by physicians and medical professionals to ensure the utmost quality is provided. However, the same legal ramifications that would impact a physician are not likely to impact a warehouse worker that inputs the incorrect address and ships a package to the wrong home or business. (Green, 2023)

**Issue 2:** Most organizations use similar operating systems, SaaS, SQL, QuickBooks, etc. This allows for a more uniform approach to dealing with say B2B sales. This is not the case in healthcare as each state operates within different rules and regulations and healthcare and taxation are big contributors to the diversification of practice. (Admin, 2022)

**Issue 3:** Data entry errors are common not only in healthcare but in any industry. This is something that can be identified in any organization or industry that requires manual input of data into a system or more often multiple systems. (Admin, 2022)

Will these three issues corrupt business applications? Why?

**Issue 1:** A common issue when utilizing Artificial Intelligence is the ability for it to become corrupt and biased. In the notion of a physician documenting patient visits this is less likely to be plausible as the physician is a professional of the highest ethical standards and as such would be assumed to provide unbiased information of patient encounters. (Wadsten, 2019)

**Issue 2:** Interoperability could perhaps see some bias in that not all insurance companies operate within the same systems, rules, and policies. Politics is something that has the ability to creep its way into the creation of an Ai system. (Wadsten, 2019)

**Issue 3:** Data entry and errors are likely to have no negative bias implied regardless of scenario. In fact, the more likely outcome is simply reduced human input errors and a more streamlined time saving approach. (Diaz-Garelli et al., 2021)

**Business Proposal for AI Applications at Banner**

What are three business proposals/options to consider for the identified company. Include the type of AI or robot system for each business issue?

**Business Proposal 1:** Regarding addressing Issue 1, where as the Physician and healthcare provider is often bogged down with endless amounts of paperwork post operation, or patient visit. We see a need for Artificial Intelligence to step in and alleviate some of that wasted bandwidth that could be otherwise interacting and treating more patients. The Ai that would be a perfect fit for this is the limited memory system. Whereas the customer can input massive amounts of data into the memory and allow voice recognition if you will debrief the Ai system post patient care and cut down on processing time. This technique could be used extensively in any hospital, particularly Banner health where a lack of physicians has caused numerous downstream issues. Imagine the Doctor gets through seeing a patient, as they leave the room, they speak into their limited memory Ai system while moving towards the next patient’s room and can debrief the entire visit and provide suggestions. All of which being done in a fraction of the time, and with greater input accuracy. (Forbes, 2019)

**Business Proposal 2:** Banner Health could heavily utilize an Ai machine learning and algorithm processing system. This would allow for a more interconnected data base system, rather than relying on constant research and accounts. This Ai would be designed to incorporate the systems used throughout the country, having an understanding of what goes where and why. The deep learning capabilities would enable the interoperability to be a single point of entry for the healthcare workforce. (Forbes, 2019)

**Business Proposal 3:** Banner could utilize Artificial Narrow Intelligence (ANI) to enable its data entry. This would intern allow for near perfect processing of information and would again reduce the need of additional work streams that often cause additional confusion and result in increased errors when processing data. (Forbes, 2019)

**Benefits and Concerns with Proposal**

How can the success of this recommendation be measured.

**Benefits:** When looking at the positive sides of bringing Artificial Intelligence onboard into Banner Health systems one key phrase comes to mind, KPI. Key Performance Indicators (KPI’s) are heavily utilized in the project management world, in every industry, including healthcare.

**Benefit 1:** We bring in Ai to help Banner Health for instance improve patient vascular conditions. Banner University Phoenix just implemented a new Ai teaming up with Viz.Ai for their first ever KPI review. What was done was using image-based Ai, the pulmonary embolism platform can conduct a computerized tomography (CT) scan and instantly begin providing feedback and identification of serious health concerns. Utilizing immense loads of historical data on hand preloaded the Viz.Ai can allow medical providers a near instant identification of problems allowing them to act proactively. ("Banner health and Viz.ai partner to bring artificial intelligence to vascular care," n.d.)

**Benefit 2:** Medical staff could create patient records by use of a unique Ai feature known as Natural Language Processing (NLP). This could streamline downtime of healthcare providers reducing wait times, improving overall company health and providing the best treatment of patients. ("Artificial intelligence for EHR: Use cases, costs, challenges," n.d.)

**Benefit 3:** Data entry remains an issue across every sector. The healthcare industry is estimated to be valued at over $10T in 2022. Something critical to the flow of Banner Health is the medical coding specialists that must translate medical records into the short code used in the EHR and billing systems. (Admin, 2022) This is a prime location for a limited memory Ai system to come in and begin to streamline the process, reduce errors, and overall reduce additional downstream workloads and customer service issues. (Forbes, 2019)

**Concerns:** Concerns for the integration of Ai into the Banner Healthcare system remain on par with every other industry. However, one unique thing about the healthcare industry is that they are exposed to nearly every member in the country. This includes personal information and with that comes security risks.

**Concern 1:** Banner Healthcare’s ability to provide a secure Ai system that is capable of preventing data loss. Cyber threats are just as capable of corrupting Ai systems especially if limited deep learning is initiated and proper security procedures are implemented.

**Concern 2:** The ethical issues concerning Ai is preventing the bias’s from entering the generation and creation of the machines utilized in the growth of the Ai system.

**Recommendations for Further Research**

Recommendations for further research on the topic

**Recommendation 1:** The use of Machine learning and ANI can provide some outstanding opportunities not only in the current patient care of Banner Hospital, but this could be applied hospital wide.

**Recommendation 2:** Banner Health could incorporate low level AI into their outsourced patient services such as human resources, customer services, security and even referral programs. Allowing for further understanding of the big picture and allowing the learning Ai to begin to identify key performance indicators that can then be built into the future Machine learning and Ai based practices integrated into Banner.

**Recommendation 3:** Allow for more cyber security specialists to become involved in the development and implementation of new EHR and Ai based systems entering the healthcare industry.

**Conclusion**

From this research it has been shown that Banner Health is already beginning to take the leap into the Artificial Intelligence realm. Healthcare industries are one of the top businesses in the world, and Banner health sits as a top operation and leading institution. Banner health has begun using low amounts of Ai technology to help with diagnostics in pulmonary issues. This is an excellent start and will serve them well to continue growing the specialties they let Ai into.

A concern that was addressed by both Harvard Medicine and the Massachusetts Institute of Technology (MIT), was the ability for what are termed adversarial attacks. (Wadsten, 2019)

This is due to the ability of using small amounts of data such as a retinal scan, that utilizes pixels to exam key areas to identify problems. While this is great in the sense that this technology could allow patients in rural and less developed parts of the world receive care without a physician, it also shows the threats. Perhaps a few pixels are removed from an image thus an underlying condition would go untreated. Or the reverse, maybe as part of an attach the pixels are added to a portion that result in unnecessary surgery, financial and physical burdens, etc. These are concerns with introducing Ai into the healthcare systems.

But it can hardly be a reason to turn away, for cyber terrorism has continued to be a threat not only to the healthcare industry but to the private sector as a whole. The critical infrastructure network in the United States faces unrelenting cyber threats daily from both peer and near peer adversaries. (CSIS, 2023)

Ai intelligence is capable of resolving the three issues discussed; Reducing wasted time documenting in the EHR systems, creating an improved interoperability between insurance and medical billing services and their networks, and reducing data entry constraints and improving process flows while reducing defects. Overall, the pro’s outweigh the cons in this instance and with the ever advancing machine and deep learning, the Banner health could be at the forefront of unlocking exponential potential in the healthcare industry across every specialty.

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