UST SmartOps

Revolutionizing patient experience and care through digitization and Intelligent Automation

REPORT

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Table of contents

Transforming healthcare through Intelligent Automation

Healthcare providers are stymied by organizational challenges affecting their functional effectiveness. A common domain challenge they face is the digitization of case records and their effective utilization. Healthcare organizations are facing increased pressure to speed up the adoption of new technologies such as Conversational AI and Intelligent Automation.

Almost all hospitals globally, especially in the U.S. and Europe, have moved to digital patient records making Intelligent Automation in Electronic Health Records (EHR) a necessity. There is also a rising demand for accurate and short-timed action using EHR to overcome the fatal consequences that arise due to accidents and mortal crimes. Effective processing and maintenance of EHR is a necessity advised by the Regulatory Authorities that addresses healthcare data sequestration and security. EHR automation workflows leveraging AI can effectively check compliance against the available regulations such as HITECH, HIPAA (USA), and PIPEDA (Canada) by enforcing needed protocols during data processing.

This paper details the possibilities of using Intelligent Automation (IA) in Healthcare using Electronic Health Records (EHR) to automate routine healthcare processes efficiently and thereby offer better quality patient care services.

A common domain challenge that bothers healthcare providers is digitization of case records and their effective utilization

Improved adherence to compliances

Reduce medical errors

Better patient experience

Decision support for doctors and nurses

Businesses are becoming more data-driven – healthcare is no different

Medical records include unstructured patient notes, medication information, medical orders and discharge summaries. Along with this, enormous medical imaging data like cardiology, oncology, pathology, and radiology images are included with healthcare operations data.

Current healthcare information systems are packaged systems obtained from different vendors to assist specific operational purposes and get organized without integration and interoperability, leading to poor data generation and siloed storage. Attempts were made to mine data using traditional data warehouse methods. But this was challenging since they don't group and measure to match the requirements of varying formats of structured, semi-structured, and unstructured data.

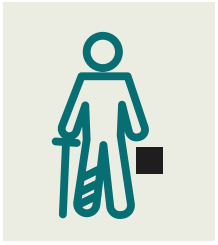
Many factors lead to the need for health data analytics and matured business intelligence. Most healthcare organizations need more skilled analytical resources, technical amalgamation across several platforms, classification of reality for vital information units, and data governance, which are critical for operating data platforms. Agreement on priorities, and delayed decision making processes make innovation nearly impossible.

EHR - data quality, data governance, and effective utilization is a challenge

Clinical staff spends most of their time doing strenuous data entry routines before conducting clinical analysis. EHR issues in healthcare are taking a toll on doctors, patients, and executive staff - also called the ominous 'doctor collapse.' The need for Electronic Medical Records (EMR) is clear. They have made life easier for doctors and patients by catering to their specialized requirements.

Managing paper-grounded health records and lines can be complex and grueling because most run on legacy systems. EMR is an effective step in streamlining the inflow of healthcare data enabling doctors to concentrate more on perfecting patient care. Though replacing paperwork was the key objective behind embracing EMR/EHR, the results have expanded beyond just time and money. Healthcare should adopt emerging technologies like AI to ensure the proper management of EHR data and its effective utilization.

Shifting to a completely digital mode in the healthcare sector will address several issues currently faced by patients and providers



Automating patient registration, appointment scheduling and initial condition assessment is the first step in improving the overall patient experience.

One of the main objectives of implementing AI is to save time to get more patient throughput. AI frees them up to focus on other duties.

AI can generate insights from genetic information, biomarkers, and other physiological data to predict how a patient will respond to different treatment options.

EHR

Faster registration

Automated insurance eligibility checks

Historic treatment data from Labs

Treatment plan

Personalized medicines

Better patient satisfaction

Intelligent Automation – with Artificial Intelligence (AI)

Conversational AI and Intelligent Automation can make EHR easy, flexible, intelligent and significantly reduce the time for EHR processing. Documents are expansive in Electronic Health Records (EHR). Extracting relevant information from unshaped data and recycling it further is a cumbersome task for healthcare agents. Maintaining numerous patient reports and adding applicable information to patients' movables and other documents makes the EHR process time-consuming and inflexible. The solution for all of the above lies in Intelligent Automation. Smart use of Intelligent Automation with machine learning and AI algorithms enables healthcare professionals to automate repetitious and time-consuming tasks.

Intelligent Automation, also known as cognitive automation or hyper-automation, is the collective use of automation technologies utilizing AI. AI methods like Machine learning (ML), Natural language processing (NLP), Optical character recognition (OCR) and Computer vision (CV) enable end-to-end process automation through intelligent bots with decision-making capabilities. In this whitepaper, we'll explore several intelligent automation use cases using EHR data in the healthcare industry.

Gartner says 50% of U.S. healthcare providers will invest in RPA in the next three years

Intelligent Automation using EHR – Use case 1

Intelligent Automation leveraging AI can significantly refine patient experience and elevate quality of treatment.

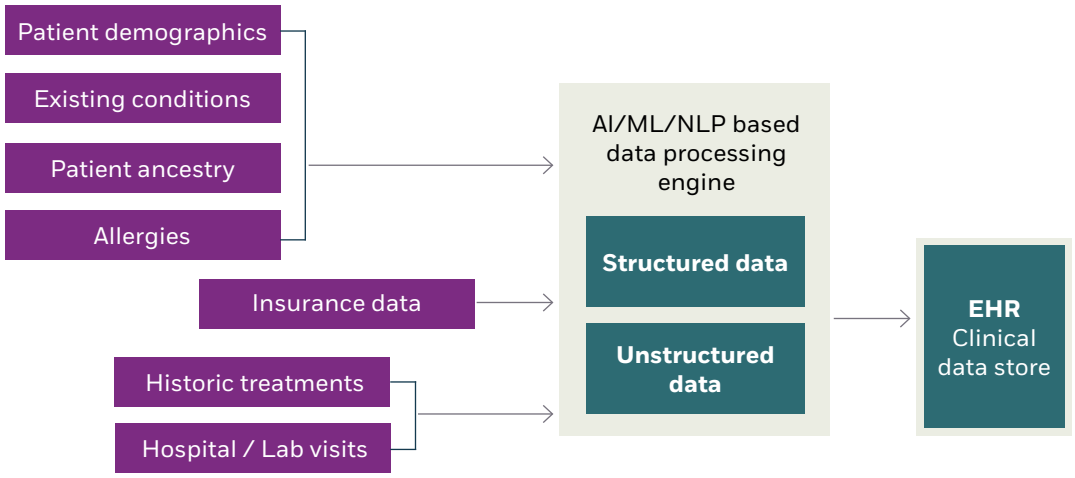
AUTOMATED EHR DATA ENTRY

Advances in medical imaging technologies, clinical diagnostics, and wireworks have led to a massive surge in healthcare data. The large volume of patient data is no longer a by-product of patient commerce. It is a critical asset that enables timely processing and sound clinical decision-making. Still, medical centers with EHR/ EMRs at the center of large, intertwined healthcare delivery systems are floundering because they need to be more flexible and intuitive.

Intelligent Automation workflows can help hospitals automate the process of extracting and scrutinizing data from various types of records like patient demographics, insurance data, history of treatment, patient ancestry, allergies etc., and processing the unshaped data into formatted EHR data.

The part of enforcing AI/ ML is directly hitting and extracting information from the health documents in PDF, Image, and XML formats, presumably in terabytes of data. Using ML/NLP, it is suitable to dive into mining and surveying big data of structured and unstructured forms using distributed computing to upgrade data surroundings, experimenting with different tools to convert images to formatted EHR data and applying ML/NLP to lead accurate information from it.

Automated methods of EHR data entry help to avoid human errors compared to manual data entry. Cleaned data also helps to identify new connections between assumed unconnected datasets.



Intelligent Automation using EHR – Use case 2

Intelligent Automation leveraging AI can significantly refine patient experience and elevate quality of treatment.

IMPROVED PATIENT EXPERIENCE

Intelligent Automation simplifies and automates patient registration, appointment scheduling, and check-in procedures. Digitalized patient registration, frictionless appointment scheduling, and assessing initial conditions are initial steps in improvising overall patient experience, as their key outcomes are tied to the end-to-end experience.

Quicker registration: Quick and easy registration of patients and making appointments as per their convenience results in a complete paperless mode of interaction and fulfill all regulatory norms with help of Conversational AI and Intelligent Automation in registration.

Proper guidance: A front end powered by digital upgrades like AI chatbots will guide patients to connect with the correct doctors or departments for their respective health issues. It also reduces the gap for a medical practitioner to understand the existing medical conditions and medications taken by a patient by accessing the patient data, which contains the medical records history in all forms.

Higher patient retention: By installing conversational kiosks with EHR, the process of data collection can be improved. It also welcomes individuals to a hassle-free environment, providing quicker access to doctor consultations and requirements. Increasing patient engagement helps retain existing patients and attract new ones.

Apart from these advantages, automation and AI in patient assistance can:

- Improve interaction & coordination between provider & patient. Fuel telemedicine with automation and digitization, making it more accessible. When combined with strategies like self-scheduling, they contribute to operational savings.
- Helps in generating insights for the providers to address the socioeconomic factors that influence health outcomes.

Patient engagement powered with Intelligent Automation can not only replace the old-school pen & paper registration approach approach but also pave the way for hassle-free guidance and a higher satisfaction.

Intelligent Automation using EHR – Use case 3

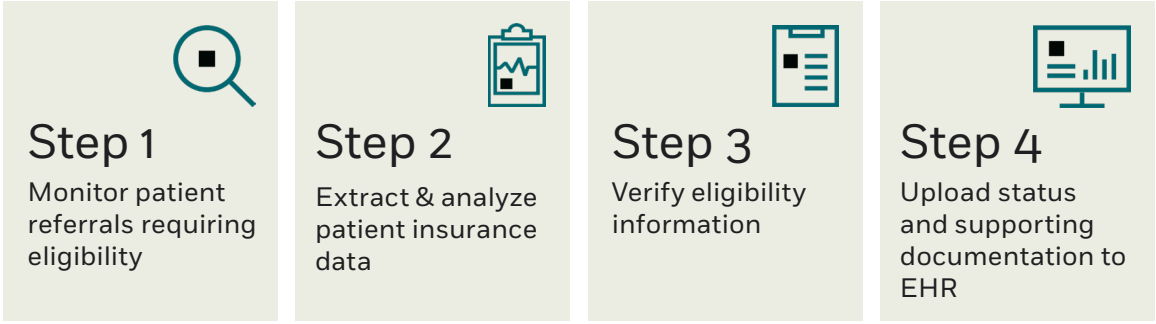
Intelligent Automation leveraging AI can significantly refine patient experience and elevate quality of treatment.

AUTOMATED INSURANCE ELIGIBILITY CHECKS

A major issue usually seen after the treatment process is the mistakes in patient eligibility for insurance claims. A proactive way to minimize operational overheads and financial bottlenecks is effectively identifying patient coverage before treating him/her.

Preliminary verification of insurance eligibility is a multi-step task at any healthcare organization requiring access to many record systems to verify the information of a single patient. Manual verification will take several hours, days or even weeks and seriously delay the time to implement effective treatment.

Intelligent Automation helps to check patients' eligibility for insurance, simplifies the patient intake process, and removes time-consuming verification of new registrations. It eliminates the need to manually examine through diverse record systems for adequate care and treatment at the earliest and proper compensation on time. Automated scanning of patient insurance data and its extraction and analysis to confirm eligibility is continuously updated to the EHR.



Benefits

- Timely treatment with zero compromises on the quality of care is ensured by reducing the time between referral and the first visit
- Improved employee satisfaction through removal of repetitive data entry tasks, and manual verification of patients, allowing them to focus better on business-critical tasks
- Ensures accuracy of insurance information when onboarding new patient referrals and thus allowing no room for claim-related errors

Intelligent Automation using EHR – Use case 4

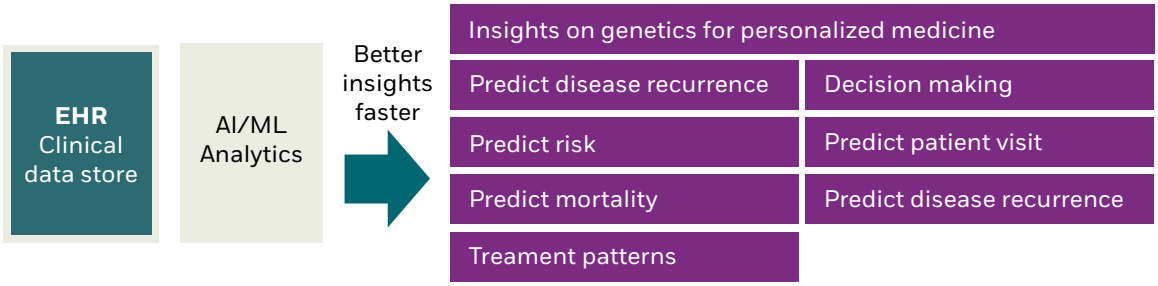
Intelligent Automation leveraging AI can significantly refine patient experience and elevate quality of treatment.

DATA INSIGHTS AND DECISION SUPPORT

Decisions on treatment protocols and policies are usually generic. But with AI introduced into the systems, more machine learning solutions that enable personalized care and learnings from new and real-time data are emerging. During emergencies, the EHRs act as life-saviors by providing the complete medical history of the patient as they are stored electronically and enable healthcare providers to access patient data from any location. They improve and enhance communication, not just amongst the doctors but also between doctors and patients, leading to the development of personalized treatment plans.

AI makes medical equipment smarter, imaging results faster, and examinations more precise. With imaging data growing exponentially in radiology, there is a rising need for higher diagnostic accuracy. Megapixels of data are packed in X-rays, CT scans, MRIs, and testing modalities. In the imaging world, AI tools are improving automatic detection and diagnosis of potentially fatal conditions by altering the workflow. Automating the detection of abnormalities in imaging tests like chest X-rays lead to faster decision-making with fewer diagnostic errors, especially in cardiovascular diseases. AI helps to identify the thickening of muscle structures, like the left ventricular wall, and monitor changes in blood flow through the heart and associated arteries. Left atrial enlargements from chest X-rays are identified using AI, which could rule out other cardiac or pulmonary problems and help providers target appropriate treatments for patients. In the absence of radiologists, an AI algorithm could assess X-rays and other images for evidence of opacities that indicate pneumonia and hence alert providers to diagnose and provide quick treatment.

Medical imaging is used in routine and preventive screenings for breast cancer. AI -based automated or semi-automated approaches improve cancer outcomes and decrease morbidity.



Intelligent Automation using EHR – Use case 5

Intelligent Automation leveraging AI can significantly refine patient experience and elevate quality of treatment.

AUTOMATED REGULATORY COMPLIANCE MONITORING

Healthcare organizations must comply with various regulatory requirements of regulatory bodies. These regulations are growing in volume and complexity and are prone to continuous change. Maintaining regulatory compliance has become a growing concern for healthcare organizations regardless of their size and type.

Industry needs Intelligent Automation solutions to combat increasing challenges and maintain best regulatory practices. Automated Governance & Risk Monitoring System for Healthcare Regulatory Compliance saves time and cost at every stage of the compliance process enabling the organization to focus on more strategic areas.

Automated EHR Data Audits

The AI/ML analysis can predict the compliance score from various data extracted from the EHR and alerts if there is a need for a change in the process.

Intelligent Automation Solutions monitor the biggest challenges and shrugs them off without even breaking a sweat. Automated compliance software solves these issues, simplifies the process, automatically collects evidence, mitigates error, tailors control, and provides real-time updates on where the organization should make changes, implement better practices, or where there is a potential risk. It continuously tracks and monitors compliance processes and aligns them with the legal requirements and standards, streamlines the processes, and helps organizations reach consistent compliance up to 90% faster.

Through data compliance automation, healthcare professionals can refocus on time spent on manual processes that are more susceptible to error, redirect it towards their other responsibilities, and ensure a consistent patient prioritizing culture, despite their day-to-day responsibilities.

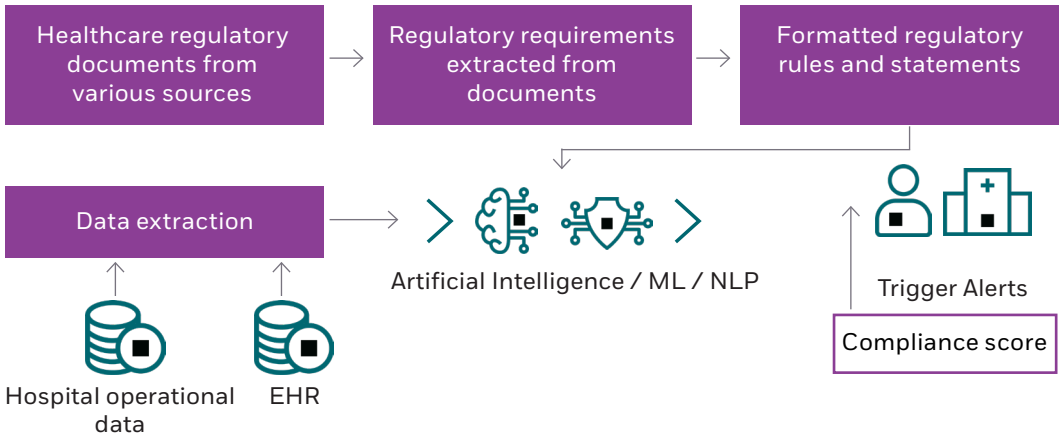
Intelligent Automation using EHR – Use case 5 (contd.)

Intelligent Automation leveraging AI can significantly refine patient experience and elevate quality of treatment.

AUTOMATED REGULATORY COMPLIANCE MONITORING

Benefits

- Reducing violations and penalties: Organizations reduce risk of human error using automated compliance, ensuring proper controls & policies are correctly implemented. While breaches may still arise, providing compliance & following correct breach notification significantly reduces and invalidates any penalties.
- Simultaneous compliance: Automation helps healthcare organizations ensure compliance through real-time reporting and analytics and alert immediately on any non-compliance. Automation ensures that any minor breach can be interceded immediately & take necessary precautions before a major violation.
- Efficient self-audits: Organizations have to do HIPAA self-assessments to determine whether they are abiding by the norms of HIPAA by testing all of the organizational policies. Regulatory conducts official investigations when there is a breach, and ultimately healthcare centers have to keep the data ready for the audit process. Intelligent Automation can help the organizations in a bigger way to automate this process.
- Deficient persistence: Due persistence process includes annual risk assessments, continuous review of external and internal business arrangements, and any conflicts of interest in the system. The organization's ability to accurately review, analyze and adapt them determines its persistence.
- Futile security controls: A list of security controls has to be met per HIPAA's Security Rule. Many organizations may still be unsuccessful in effectively implementing and managing the correct security controls.



Closing thoughts

This whitepaper narrates the need for digitizing health data and its effective utilization by Intelligent Automation and Artificial Intelligence. Various use cases of healthcare data automations and the approaches for implementing them are discussed.

Digital Health Data can change the healthcare industry's landscape. The benefits of Intelligent Automation on EHR and its integration with Conversational AI is immense. By streamlining and optimizing EHR processes, automation offers high efficiency and better clinical decision support.

Intelligent Automation enables healthcare professionals to spend their valuable time prioritizing their patients and making better clinical decisions instead of extracting data from an array of documents. Additionally, Intelligent Automation offers omnichannel and instant support to patients in query resolution with minimal human intervention.

With EHRs automation, you get better control over your data and can migrate it easily. Hence it is high time to leap forward in embracing this digital transformation in the healthcare sector to meet patient requirements and maintain a competitive edge in the market.

UST SmartOps is an AI-powered Intelligent Automation platform that holistically learns and reimagines your business processes while intelligently digitizing and compressing manual workflows.

More:
https://www.ust.com/smartops

Together, we build for boundless impact

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