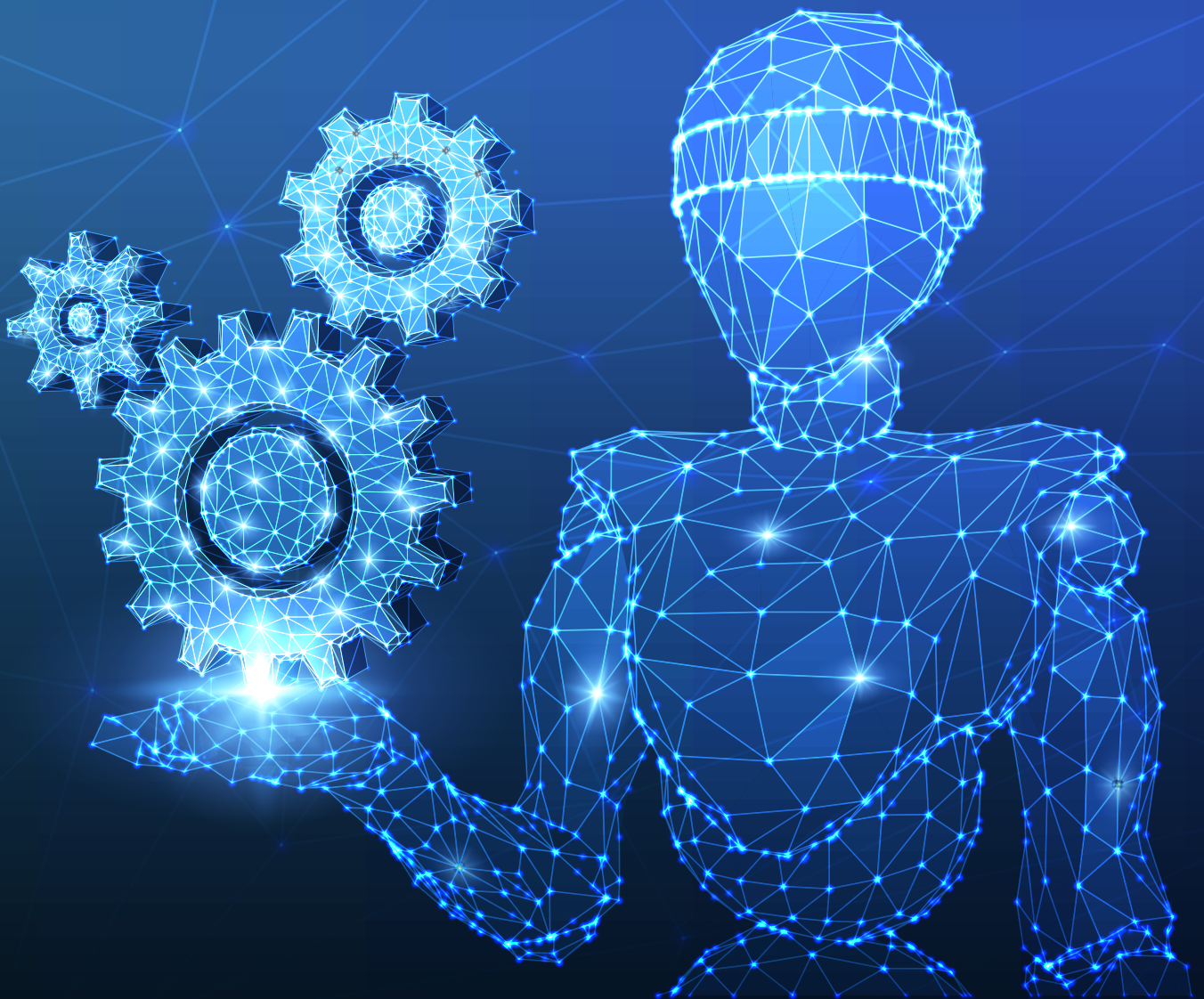


BRISTLECONE zinnov

# HYPER INTELLIGENT AUTOMATION: THE NEXT FRONTIER FOR RPA

SEPTEMBER 2020



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# **INTRODUCTION: HYPER INTELLIGENT AUTOMATION - THE NEW NORMAL**



Today, the term “Robotic Process Automation” or simply “Automation” is firmly imprinted on the minds of most CXOs when it comes to defining future strategies for their businesses. This elevated importance is a result of the evolution of the technology over the last two decades. It has evolved from a simple platform that can automate certain pre-defined repetitive processes to its current avatar – Hyper Intelligent Automation or HIA. HIA is a technology born from the confluence of AI and RPA, evolving from a conventional automation tool to a strategic enterprise game changer.

Traditional RPA and HIA are not two completely different approaches, but RPA is one of the building blocks of HIA. Traditional RPA enables an organization to automate a few processes that run on structured data. For example, a company might just deploy RPA to automate a single process within its invoice processing. Hyper Intelligent Automation on the other hand, builds on this capability and extends the reach of traditional RPA beyond a few isolated processes. HIA helps a company discover any and all use cases within the value chain that have the potential for automation, through process mining or task mining. It then prepares the process for automation by converting unstructured/ semi-structured data into structured data using Intelligent Document Processing (IDP). Further, it prepares the business function for the imminent transformation through intelligent business process management (iBPM). The use cases are now primed for automation.

HIA supports multiple forms of automation such as Process Automation, IT Automation, and Workflow Automation. Process Automation involves the automation of business processes using both attended and unattended bots. IT Automation involves the automation of IT workloads and Workflow Automation involves the automation of multiple processes across the value chain.

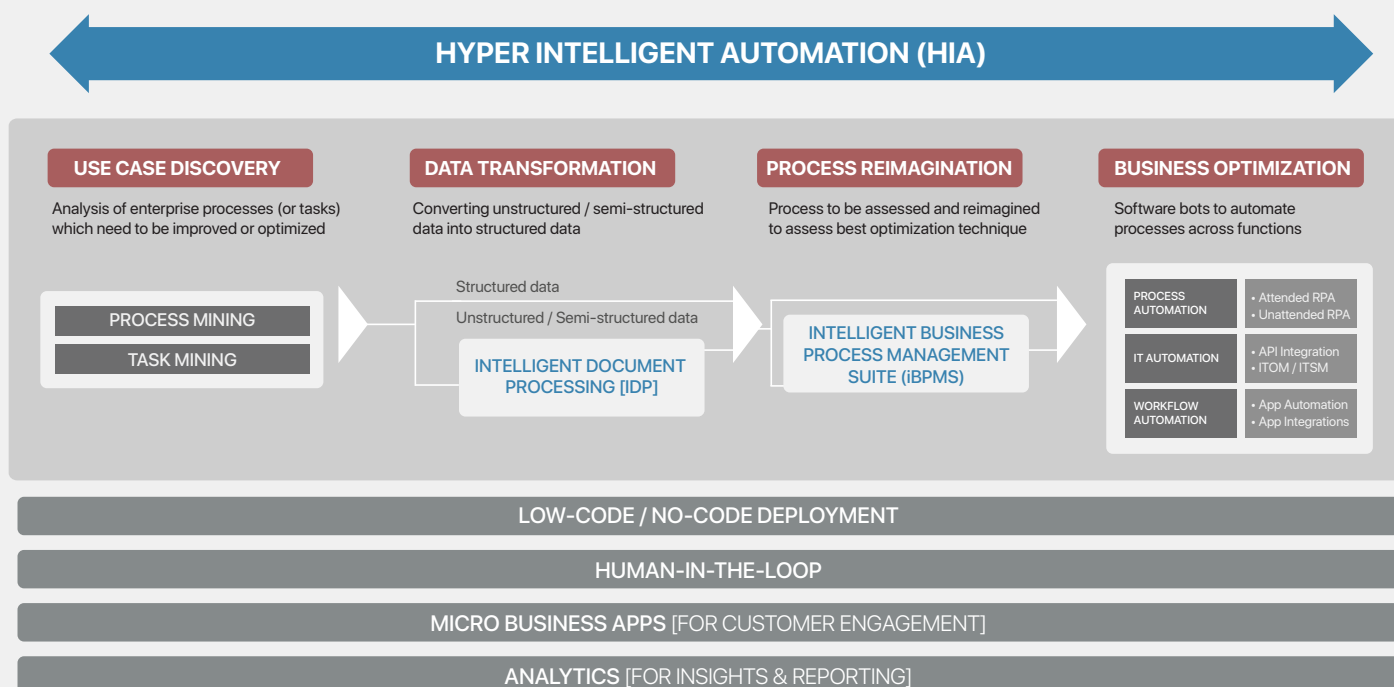


Figure 1: Hyper Intelligent Automation – the new face of Automation

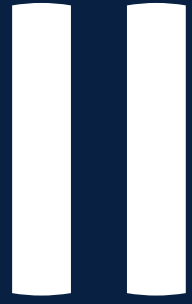
To leverage HIA and reap the many benefits it offers, enterprises are investing in the technology and experimenting with various use cases. The current estimated enterprise HIA spend is USD 4.7B, which is growing at a CAGR of 55%. While, COVID-19 has been the most recent factor driving this high growth rate, HIA was in demand in the pre-COVID era too. In fact, companies across industries have started adopting the "Automation First" model (i.e. any process that can be automated should be automated).

There are various benefits that HIA offers compared to traditional automation. HIA bots are less liable to breakdown in the face of inconsistencies caused due to changes in any business process. The Human-in-the-Loop feedback runs across the entire process in order to take care of this specific issue. Furthermore, HIA allows companies to scale up their automation deployments much quicker through HIA's use-case discovery capability.

HIA has enabled the automation of complex processes with continuous reduction in the need for manual intervention and oversight. For example, Bristlecone worked with a leading Electronic Data Interchange (EDI) integration platform vendor to streamline the customer onboarding process. The automation involved checking for correctness of the EDI file and processing of invoices. In case there were any errors during the invoice processing, the bot learned from the previous errors and proposed suitable resolutions.

We believe that HIA will continue to grow in the post-COVID world as well, where we will see many more companies adopting the aforementioned "Automation First" model as part of their overall digital and business operations strategy. This enhanced focus will also ensure that HIA will continue to advance. In the subsequent sections, we will look at how HIA has evolved and will continue to evolve, while exploring the impact that HIA has had across industries (both before and during COVID-19). We will also be looking at the challenges faced by companies while adopting HIA. Finally, we will define a playbook that companies can leverage, to ensure a smooth HIA implementation process.

# REINVENTING HIA



HIA has been built on a robust infrastructure comprised of multiple technologies. The previous section enumerated a few key technologies – IDP, iBPM, etc., that form the building blocks of the HIA model. But this model has been evolving and will continue to evolve, to cater to the needs of the market. Platform companies, enterprises, and service providers are continuously striving to add more capabilities across the existing HIA model, which will intensify during the current COVID-19 crisis and spill over into the post crisis period as well. In other words, automation will continue to evolve along with the evolution of digital technology. In this section, we will look at a few trends that have come into prominence within the HIA spectrum and are proving to be the drivers for the continued advancement of HIA.

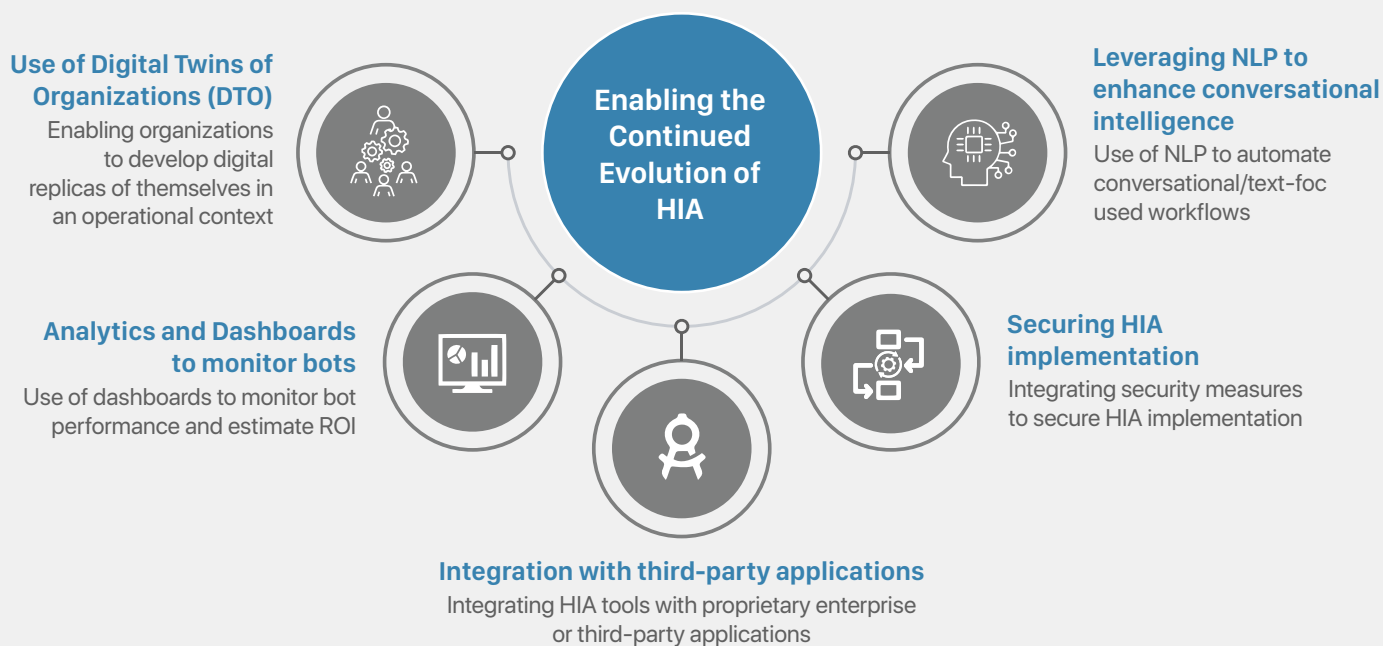


Figure 2: Reinventing HIA

### Use of Digital Twins of Organizations (DTO)

One of the key features of HIA is process mining or process discovery. Digital Twins of an Organization (DTO) is an extension of this feature, which enables organizations to develop digital replicas of themselves in an operational context. Every asset and operation that falls within the purview of an organization (processes, technology, architecture, infrastructure, customer interactions, business capabilities, strategies, roles, responsibilities, products, services, distribution channels) can be connected and visualized with DTO. This helps Business Unit (BU) heads as well as other stakeholders to study the current state and assess the impact of change in a controlled environment.

For instance, a European mid-market insurance company used DTO to gain insights into customer behavior and the intersection with their own internal operations. They used these insights to identify areas that can be automated or changed, thereby enabling the company to become “HIA Ready.”



### **Analytics and Dashboards to monitor bots**

BU heads who have implemented HIA are always plagued by concerns around Return on Investment (ROI) and the impact of HIA implementation. Companies are now using dashboards to monitor the performance of their bots in real-time across parameters such as validation time, accuracy, number of documents processed, etc. in order to control and manage the bots in real time for maximum benefit.

### **Integration with third-party applications**

While automating entire workflows, HIA tools are expected to seamlessly integrate with proprietary enterprise systems as well as any third-party applications that are being used. Leading ISVs as well as HIA platform companies are building connectors, allowing for easy integration. A leading fintech vendor has developed connectors, enabling integration between its Record-to-Report product and HIA platforms of companies such as UiPath, Blue Prism, and Automation Anywhere.

Bristlecone has used various tools and solutions to connect different IT and Operations Technology (OT) applications effectively and enable end-to-end automation. In one of the use cases, it worked on extracting data from IOT sensors and processing it using machine learning. This involved detecting anomalies for time complexity and threshold data. The resultant solution was able to connect to the SAP system already deployed at the company, using Business API (BAPI) and raise a service ticket.

### **Leveraging NLP to enhance Conversational Intelligence**

Multiple facets of Artificial Intelligence are being used to enhance HIA. NLP (Natural Language Processing) is one such feature that is being leveraged to enhance conversational intelligence. Popular use cases include invoice processing, insurance claim handling, contract analysis, etc. Utilita, a UK-based energy company, used NLP with HIA to sort through customer support requests and list them in order of priority.

Bristlecone is also working with a customer to use NLP for micro learning on a small screen device. The technician using these devices can create a service request by simple voice commands that get connected to ERP systems like SAP and Oracle NetSuite. Based on the previous knowledge, the system generates the service request by learning from the usage over time.

### **Securing HIA implementation**

Implementing HIA in any organization requires providing the bots with access to sensitive data – account numbers, invoices, customer details, etc. The slightest error while training a bot could lead to the exposure of such sensitive data. For this reason, vendors are now integrating their platforms with security measures to enforce fine-grained role-based access control (RBAC) at scale.

With an increased focus on digitalization and automation, organizations will look towards HIA platform companies and service providers to develop HIA solutions capable of automating a greater portion of their workflows. The need of the hour is to streamline operations and achieve business resilience. In the next section, we will look at how multiple industries are adopting HIA both in the pre-COVID era as well as during COVID.



**HIA  
ADOPTION  
ACROSS  
VERTICALS**



HIA has extended the scope of automation beyond just tackling mainframe challenges in organizations. The rise of process mining, IDP, and iBPM has ensured that HIA has penetrated and disrupted multiple industries, and is now owning certain sections of the overall industry value chain. This penetration is not limited to the vertical value chain alone, because companies are adopting HIA for horizontal processes as well, such as Finance and Accounting, Human Resources, etc. The rate of adoption is being further accelerated by the COVID-19 pandemic. Enterprises, vendors, and Service Providers are discovering new HIA use cases in order to combat the impact of the pandemic.

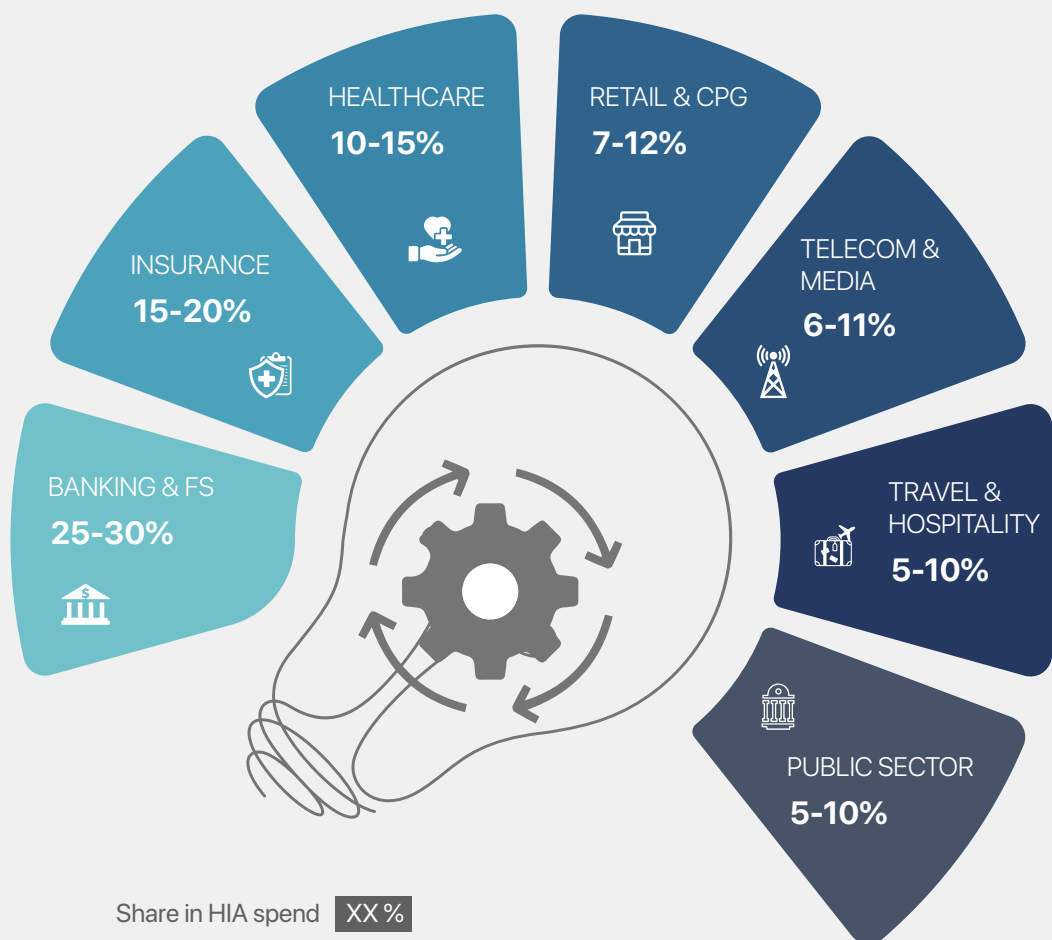


Figure 3: Share of HIA Spend across Industry Verticals

### Banking & Financial Services

The Banking and Financial Services (BFS) industry is one of the leading adopters of HIA.

#### Established use cases

While RPA has long been used in this industry, HIA provides additional benefits in terms of cost and process efficiencies. RPA was used to automate individual processes such as verifying signatures and specific documents, however HIA is able to streamline entire workflow of critical processes such as regulatory and risk management, customer service, payment processing, etc. Wells Fargo is a case in point, where HIA was used to automate multiple processes within treasury management, transaction processing and other functions within the bank.

## Emerging use cases

There are new emerging complex use cases as well, including managing portfolio of investments for which companies such as Vanguard Group has launched a bot to work alongside human advisors. The bot creates and executes the investment plan with the human advisor acting as a supervisor for the whole process.

## COVID-19 specific use cases

The BFS industry is among the many industries that have borne the brunt of the COVID-19 pandemic. Companies have turned towards HIA as part of their efforts in combating the impact of COVID-19. A case in point is a Canadian bank, which has been tasked with handling the Canadian government's COVID-19 Economic Response Plan that includes additional support for Small and Medium Enterprises (SMEs). The bank used HIA to automate the processing of these loans and managed to significantly reduce turnaround times.

Bristlecone has worked effectively with a leading financial customer to automate the KYC (Know Your Customer) process. This involved processing documents using AI-enabled bots to extract various customer details. Further steps in the process included document classification and extraction of specific data using AI-based technologies. Post processing involved ML-driven techniques to improve the extraction results.

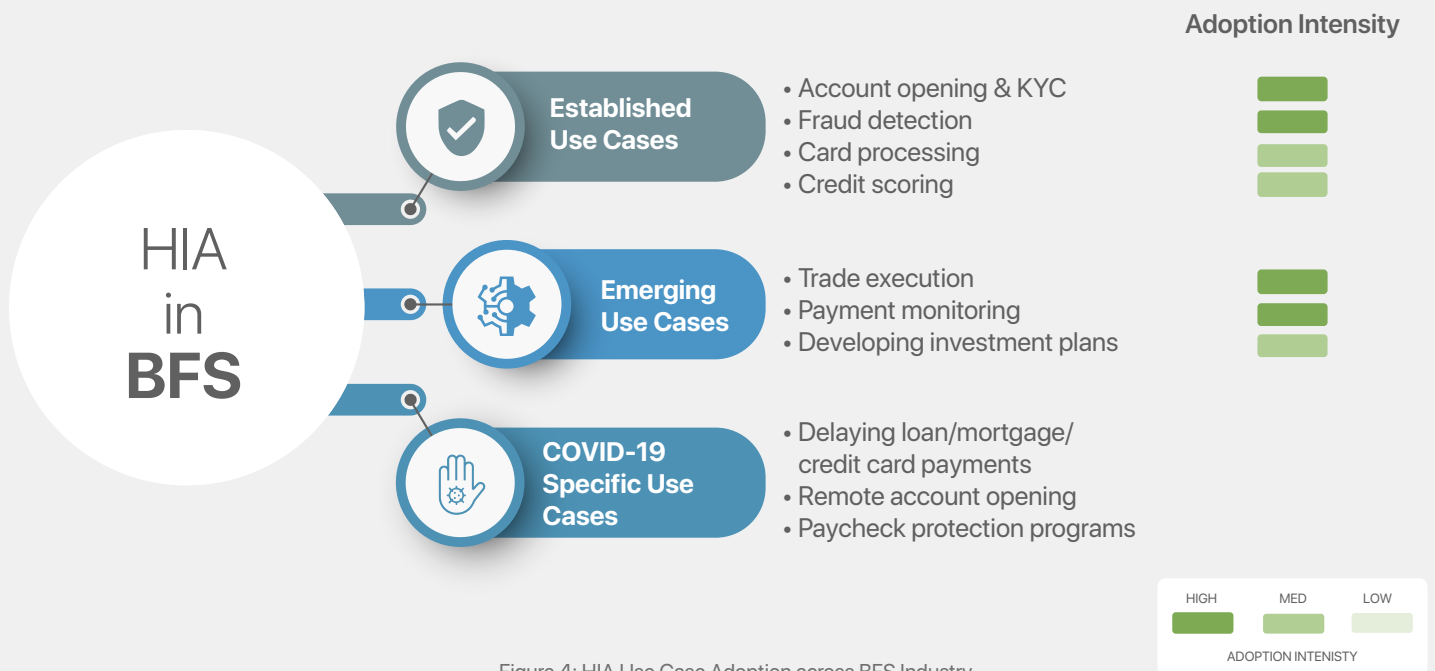


Figure 4: HIA Use Case Adoption across BFS Industry

## Insurance

Along with BFS, the Insurance industry is another leading adopter of HIA. Like BFS, key areas of usage include regulatory and risk management, customer service, etc.

### Established use cases

HIA is also being used in other vertical-specific functions such as claims processing, underwriting management, etc. AIG is a case in point, which has automated 12 processes within its customer service workflow, thereby enabling its customer service representatives to focus more on revenue generating activities such as upselling and cross-selling.

### Emerging use cases

Insurance companies are also finding new areas of application for HIA, including screening sanctions, estimating damages, etc. For example, a leading insurer deployed HIA to automate more than 80% of its annual sanction screenings.

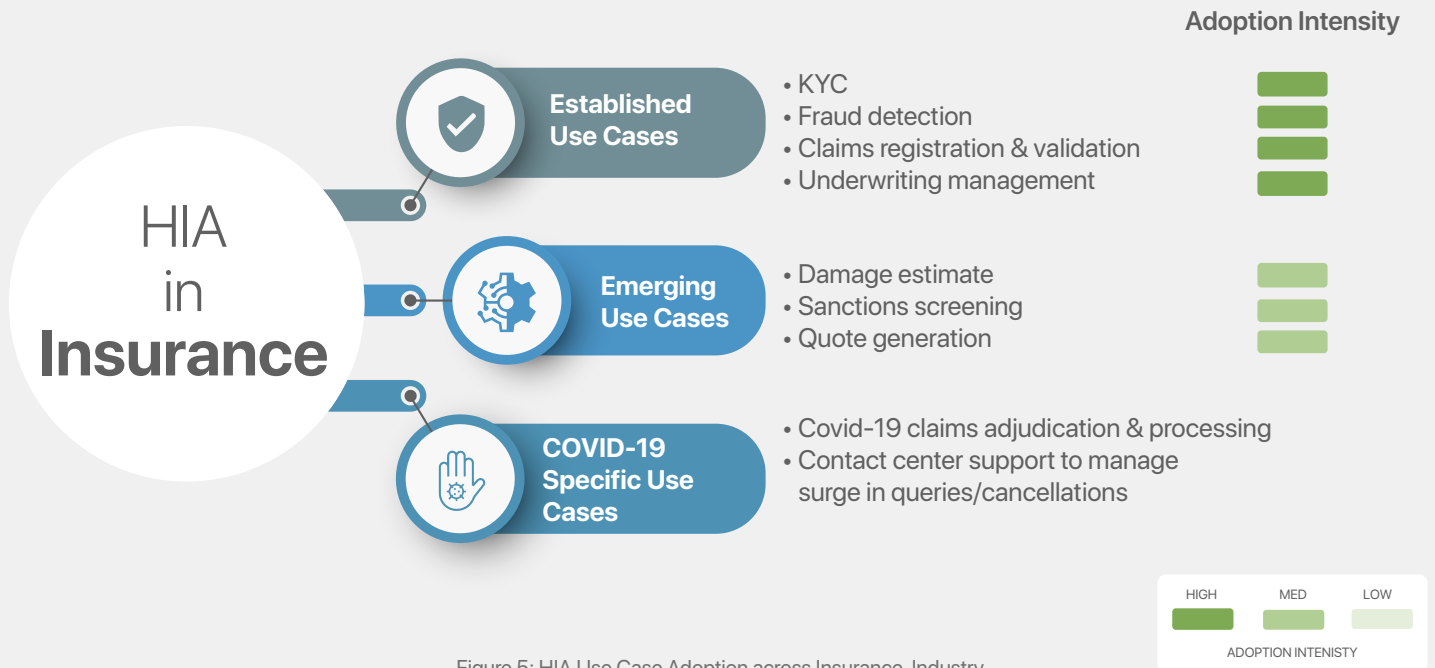


Figure 5: HIA Use Case Adoption across Insurance Industry

### COVID-19 specific use cases

COVID-19 has had a significant impact on the Insurance industry. Companies are witnessing a rise in the number of claims, along with a delay in renewals due to lack of funds. HIA is playing its part in helping insurance providers negate the impact of the pandemic. A key area of application has been in helping companies deal with the surge in claim requests. For example, an insurance provider developed 5 bots to handle First Notice of Loss (FNOL) tasks, generate letters, and automate responses in order to deal with the burgeoning number of claims requests.

### Healthcare

Healthcare has been relatively slower in adopting HIA compared to BFS and Insurance industries. But healthcare companies too have been implementing HIA across multiple workflows, accelerated by COVID-19.

### Established use cases

Hospitals have started adopting HIA in vertical-specific areas such as patient record management, patient onboarding, etc. Additionally, HIA is also being adopted by pharmaceutical companies in areas such as pharmacovigilance, query processing, etc. A major life sciences and pharmaceutical company automated the entire workflow of processing Individual Case Safety Reports (ICSR) streamlining its overall pharmacovigilance operations.

## Emerging use cases

There are a few new healthcare use cases that are emerging as well such as clinical coding. The New York-Presbyterian Hospital uses the ICD-10 coding structure for patient indications, which has almost 72,000 distinct codes. The correct codes are important not only for billing and insurance claims, but also for understanding the care that a patient has received. To assist in correct coding, the hospital created a set of bots to scan through charts, look at diagnoses, and analyze related data. These bots also conduct secondary reviews of human codes and increased the overall coding accuracy by 20-30%.

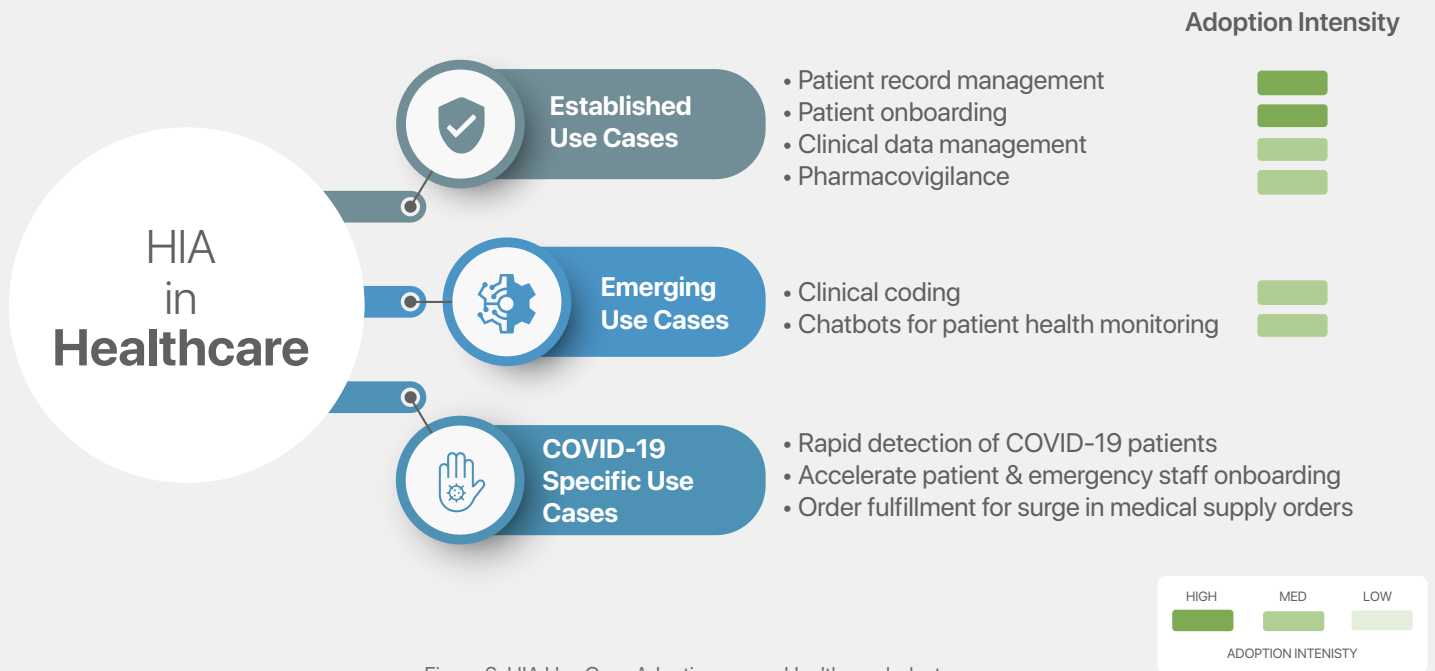


Figure 6: HIA Use Case Adoption across Healthcare Industry

## COVID-19 specific use cases

The healthcare industry has borne the brunt of being at the frontline because of COVID-19. Unlike other industries, the healthcare industry is not fighting for business continuity; instead, it is witnessing a surge in demand with the number of patients across the world skyrocketing each day. To deal with this exponential surge, companies are looking at HIA to ease the burden on their human workers and automate portions of various functions and processes across the value chains.

For example, the National University Health System (NUHS) in Singapore automated the creation of patient records and thereafter the interface of test results to the national depository. HIA was also used for automating the process of submission of claims to the Singapore Ministry of Health. With multiple automation instances deployed, NUHS was able to optimize its resources to focus on supporting frontline COVID-19 activities.

COVID-19 has accelerated the need for enterprises to automate processes and reduce human dependency. This adoption rate will continue to grow, and we will see companies from newer industries adopting HIA. However, implementing HIA in an organization is far from being a straightforward process. In the next section, we will be examining the challenges faced by companies while initiating and scaling their HIA programs.

**CHALLENGES  
FACED IN  
THE HIA  
JOURNEY**

**IV**



HIA has become a key part of industry value chains for companies across different industries. In order to deploy HIA successfully for business processes, companies need to carefully plan and execute on the HIA roadmap. However, multiple companies face challenges in HIA implementation and future scaling.



### Managing ROI expectations

Inability to quantify ROI in terms of monetary outcomes, leading to unrealistic expectations



### Presence of organizational silos

Organizational silos prevent the flow of data within the company



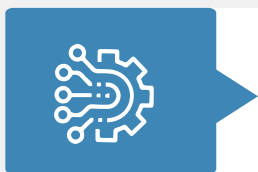
### Inability to automate end-to-end use cases

Inability to automate end-to-end use cases that are spread across multiple functions and geographies



### Long deployment cycles

Deployment cycles lasting more than a year (or much higher than initial estimate)



### Shortage of HIA-proficient talent in-house

Shortage of in-house HIA talent with deep understanding of the organization and industry

Figure 7: HIA Adoption Challenges

## Managing ROI expectations

One of the most pressing challenges with HIA adoption and implementation is to define and explain the ROI to relevant stakeholders and decision makers. Most stakeholders choose to equate ROI to cutting costs while overlooking the other benefits provided by HIA. The reason for this short-sightedness is because most HIA benefits are more qualitative in nature, e.g., better customer service, increasing employee productivity and satisfaction, greater accuracy, etc., whereas ROI is considered more of a quantitative concept (cost savings realized, revenue generated, etc.). It is difficult to assign a quantitative value to a number of benefits offered by HIA, and hence it is difficult to explain the ROI to stakeholders. A recent survey among leading executives from 50+ enterprises advocating HIA adoption revealed their struggles in trying to communicate with boards of directors and business units (BUs), the need for adequate investment, support resources, etc., for a successful HIA implementation.



## Presence of organizational silos

An HIA deployment is an extensive process impacting multiple BUs and organizational functions. Hence, one of the prerequisites for a successful HIA deployment is that stakeholders across related BUs/ functional units are involved in the planning and decision-making phase, and are cognizant of the requirements and implications of the implementation of the software. A lack of understanding between different units leads to the formation of organizational silos, inhibiting the flow of data across the organization. This becomes a deterrent to HIA implementation, making it difficult to map workflows. Fortune 500 companies reportedly lose more than USD 30 Billion per year by failing to share knowledge across teams due to the presence of organizational silos.

## Inability to automate end-to-end use cases

This is an extension of the aforementioned challenges. Certain processes or workflows may be spread across different geographies, functions, stakeholders, and BUs. It is difficult for an organization to map such extensive processes. Hence, companies are only able to automate certain parts of the entire process rather than the entire process, end-to-end. For example, a leading Indian hospital was attempting to automate its entire claims processing workflow, but faced challenges along the way. One of the challenges was having to deal with 28 different insurance providers who were sending their settlements in multiple formats like PDF, scanned images, emails, etc., making it difficult for the hospital to map the entire process accurately.

## Long deployment cycles

In most cases, implementing HIA requires nothing short of an organizational overhaul. There are multiple steps involved – onboarding bots, training, conformance, etc., all of which take a considerable amount of time. Lack of coordination between business and IT teams can further add to the implementation time. Multiple companies have had deployments which went up to 3 years, whereas companies should ideally be seeing some ROI for automation implementation within 6-9 months of deployment.

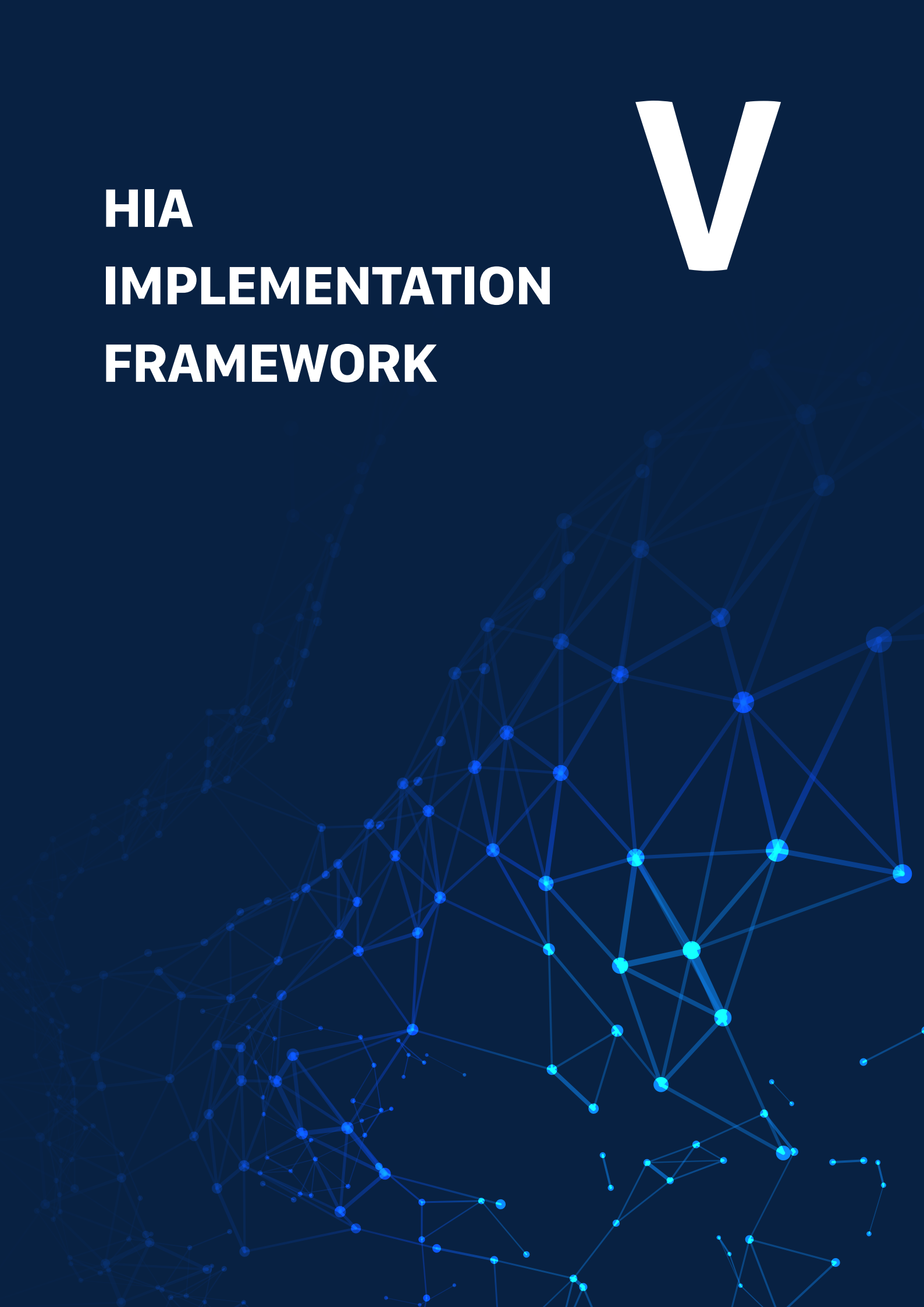
## Shortage of HIA-proficient talent in-house

Implementing HIA in an organization requires people who not only have the technical skills and expertise but also an understanding of the business and the organization. While the world may have more than 500K individuals with HIA skills, hiring new talent is not the solution as new recruits will not have the necessary knowhow of the company for implementing the solution. Organizations have a shortage of in-house talent which can only be developed through initiatives such as upskilling programs and strategic partnerships with services companies. The top 5 global banks (by revenue) have a combined engineering workforce of more than 8000 employees in their Global Centers of Excellence (GCoEs), but HIA skilled employees account for less than 5% of it.

An organization might face multiple challenges while implementing or scaling HIA. But there is no dispute about the benefits that are accrued from a successful, well-planned HIA implementation. In the next section, we will look at the steps that an organization must undertake to successfully implement HIA.

**HIA  
IMPLEMENTATION  
FRAMEWORK**

**V**



HIA implementation must be a well-thought out process involving all BU heads and other relevant stakeholders. Broadly speaking, the entire process of HIA implementation can be divided into three stages – Preparing the organization, Executing on the deployment plan, and Scaling the HIA initiative.

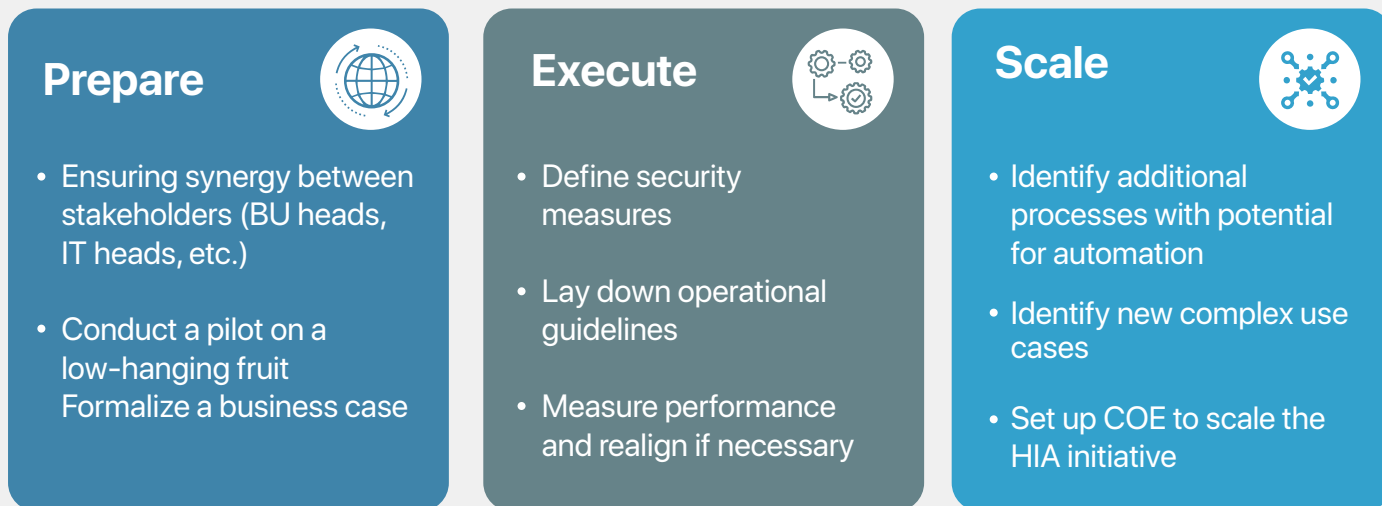


Figure 8: HIA Implementation Framework

## Prepare

The first and the most important step in the HIA Implementation Framework is ensuring that the organization is ready to implement HIA. It is essential that all relevant stakeholders (BU heads, IT, Finance, HR leaders) are in perfect sync during this process. This step alone solves multiple challenges outlined previously, namely organizational silos, mapping extensive workflows, and long development cycles.

In order to address organizational silos, Bristlecone has been engaging with cross-functional teams to identify the problem statements and corresponding automation use cases. Stitching solutions based on inputs from the cross-functional teams including HR, Finance, IT, etc., have helped in demonstrating real value to senior management.

Partners can be brought in to help the organization in identifying the business case(s) to be automated and the BUs that will be impacted due to the implementation. Partners can also support in setting up pilots that will aid in defining goals and KPIs, which would help in estimating the ROI.

Bristlecone has been using specific parameters to measure the ROI, depending on the process being automated. Customer satisfaction score before and after implementation has been used in cases that impact customer experience. In other cases, time saved compared to previously manual processes may be captured to illustrate the effectiveness of the HIA implementation.

Preparation also involves selecting the right RPA tool for the next stage of execution. Multiple factors like ease of use, technical features, cost, scalability, support, etc., need to be considered when selecting the RPA tool.

## Execute

Once the implementation is underway, it is important to monitor the performance of the bots. Data is collected and analyzed to ascertain whether the predefined KPIs are being met. If required, process reengineering may be needed to ensure that the predefined KPIs are being adhered to.

Another key point is the importance of security. As highlighted earlier, security is a chief concern for enterprises while implementing HIA. Hence, defining the security and governance framework, and deploying measures such as access control for bots, comprise an important step while implementing HIA.

## Scale

A key component of HIA deployment is the use of cognitive technology to discover new complex use cases with automation potential, and scale the overall implementation process. This is the next step in the implementation process and helps an organization in harnessing the true potential of HIA. Further, to scale the HIA initiative in the organization across multiple business units and locations, companies can set up a COE (Center of Excellence) that can take the ownership of the initiative. These COEs can be built in-house or by leveraging the support of partners.

Bristlecone has set up an RPA COE to help customers realize HIA's benefits by implementing and scaling various automation use cases. The COE offers support across consulting, execution, and scaling as part of its charter. In the process, Bristlecone has also automated several in-house processes leading to streamlining of workflows and higher efficiencies.

We are now living in an age of automation, with organizations leveraging digital technologies to reduce human intervention as much as possible. For an organization to evolve and optimize its processes, HIA adoption is a must. The adoption rates for HIA across various industries will grow exponentially in the coming years, and organizations that had earlier adopted RPA for a few isolated processes will now look to scale their automation efforts and transform complete workflows with HIA.

COVID-19 is also proving to be an accelerant for HIA adoption among enterprises, with multiple new use cases having emerged during the pandemic. However, it is critical to understand that implementing HIA is not a straightforward task and requires organizations to take a structured approach. Organizations that are starting their HIA journey need to account for the change in organizational culture, involvement of and collaboration across multiple stakeholders, requisite training for employees, and much more. There are various challenges involved throughout the process, but with a framework-driven approach, an enterprise will be able to successfully implement HIA and secure their future in the post-COVID world.

## ABOUT BRISTLECONE

Bristlecone, founded in 1998, is headquartered in California, with presence in multiple geographies globally. Bristlecone helps business maximize the strategic value of their software investments leveraging software engineering & enterprise supply chain software services. They specialize in the following areas:

- Product Engineering & Development
- Robotic Process Integration and Automation
- Smart Integration, Data Science and Analytics
- Cloud and Managed Services
- Digital Supply Chain
- Digital Sourcing & Procurement

For more information, contact [info@bcone.com](mailto:info@bcone.com)

## ABOUT ZINNOV

Founded in 2002, Zinnov is a global management and strategy consulting firm, with presence in Santa Clara, Houston, Bangalore, Gurgaon, and Paris. With a team of experienced consultants, subject matter experts, and research professionals Zinnov assists Software companies, Global System Integrators, Enterprises, and Private Equity firms in developing actionable insights that help them create value – across dimensions of both revenue and optimization. Over the past 18 years, Zinnov has successfully consulted with over 250+ Fortune 500 companies by:

- Structuring and implementing Digital Transformation levers enabled by technologies like AI/ML, Cloud, IOT, and RPA
- Advising global PE firms in asset shortlisting and target evaluation, commercial due diligence, and value creation
- Helping global companies outline and drive their open innovation programs, design and operate accelerator programs, and enable collaboration with start-ups across specific use cases and predefined outcomes
- Enabling global companies to develop and optimize a global engineering footprint through center setups, and technology and functional accelerators to achieve higher R&D efficiencies, innovation, and productivity
- Growing revenue for companies' products and services in newer markets through account intelligence, market entry, and market expansion advisory.

Zinnov serves clients from across multiple industry verticals in the US, Europe, Japan, and India.

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