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Review Article

Digital Transformation for Business Technology Operations with Artificial Intelligence (AI) Led Hyperautomation

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Abstract *- Recently, there has been a growing interest in the field of Hyperautomations, which focuses on end-to-end automation across people, processes, and technology. Hyperautomation not only focuses on small tasks or a process but rather looks at the whole end-to-end business process with the sole output of improving efficiency experiences. This research paper outlines how AI-Led Hyperautomation can be a catalyst for digital transformation within the Business Technology and IT Operations space. By combining AI with Automation, this paper aims to improve the overall efficiency of Business Technologists roles, such as IT System Administrators, as AI can take over the responsibility of mundane tasks such as IT, System, Security operations patch management, handling security incidents and resolution which could enable System Administrators and Security analyst to focus on tasks that require judgement such as designing systems, solving complex issues and developing business core architecture.*

Keywords *- Artificial Intelligence, Hyperautomations, Business technology, IT Operations, Digital transformation.*

1. Introduction

IT and business technologists have gone through a tremendous change in the last decade or so, and the phrase Digital transformation has always been referenced by more Business Teams such as Finance, HR, Sales, and Marketing, and IT and business Technologists have been the enablers for these amazing transformations.

Shouldn't the idea of Digital Transformation be applicable to Operations teams such as IT and security? Since these teams empower other teams to transform and become a better version of themselves and automate mundane business processes, they already have all the necessary understanding of what it takes to automate a business process. This scholarly article examines the operational tasks that roles such as System Analyst, Security Analyst, and IT Helpdesk analysts perform on a day-to-day basis and how Artificial Intelligence can be a catalyst to identify these mundane tasks and their overall dependency on each other and automating these tasks end-to-end using Hyperautomations.

These operational tasks create a tool sprawl and in order to effectively manage the overall IT Infrastructure, ranging from IT Service Management Systems, Event alerting and monitoring systems, Mobile Device Management (MDM) systems, Knowledge base systems to create runbooks and playbooks alongside other Infrastructure monitoring tools.

Now we are in this era of GenerativeAI which is slowly emerging as the most popular technology in 2023 alongside the whole concept of Hyperautomations. This article will offer a detailed review of how Generative AI, along with Hyperautomations, can transform the legacy and not a-much-explored area of Business Technology and Security Operations and how it can lead to an overall improvement in experiences for these Operational time in terms of reducing system context switching, using process and data map to identify processes that can be automated and allowing them to meet their SLA's (Service Level Agreements) and Overall Service Uptime Objective. Furthermore, this article can also be viewed as a recommendation for organizations looking to embark upon their digital transformation journey with a special focus on the Operations team and not just limited to IT, Security, and System Analysts.

2. Literature Review

The role of a System Administrators, System Analyst, IT helpdesk and Client Platform Engineer has been a mix of Operational tasks such as rebooting a server, patching endpoint devices such as Laptops, Mobile devices, printers, etc., and keeping track of infrastructure telemetry and making sense of it which falls under the Keeping the Lights On (KTLO) alongside working on new scripts, projects, and initiatives.

IT and System Operations Analyst spend, on average, anywhere from 70 to 75% on just keeping the lights or, in other words, just running the business [5][6]. These were running the business process is slowing down other innovative technology adoption initiatives such as Cloud-native application development, helping product teams to migrate to modern architectures and potentially slowing down other core digital transformation initiatives [7].

Business Technologists and Security Analyst are dealing with more and more complex IT Infrastructure involving technologies such as microservices cloud infrastructure leading to Siloed data and processes [7] along with many of the Keep-The-Lights-On Processes and tasks that, in practice tend to slow down these sysadmins and analyst but they are lucky to be in an era of Automation, AI, and Integrations, WorkBots and this modern technology can be a great enabler for them in multiple ways.

Hyperautomations combined with Artificial Intelligence (AI) becomes invaluable within the space of IT Helpdesk, Business Technology Operations, System Administrator and Client Platform Engineering and takes care of the complete Task operations loop.

2.1. Hyperautomations

Hyperautomation is the newest wave of digital transformation, which focuses on end-to-end automation across people, processes and technology across an organization, department, and team, combining systems and applications. It can be a combination of AI, Robotic Process Automation, and Integration automation powered by *LCNC (Low Code No Code)* Tools.

2.1.1. AI-Led Hyperautomation

AI technology such as Workbots, Co-Pilots, and Generative Artificial Intelligence summarization combined with Hyperautomation to automate end-to-end business processes to improve overall efficiency and provide seamless experiences.

2.1.2. Business Technology Operations

Business Technologists such as System Administrators, Client Platform Engineers, IT Helpdesk Analysts and Business System Analyst spend more than 40% of their time on operations tasks such as closing a service management ticket, patching a laptop, updating a network firewall firmware, provisioning a laptop, etc.

2.1.3. Automation within the Business Technology Operations field

Traditional task-based automation does exist within the Business Technology Operations domain for Employee Onboarding, Offboarding, Asset Management, and Provisioning Software-as-a-Service (SaaS) Access. However, these automation operated as soiled singular task-based and there is a lot of duplication of time and effort.

2.1.4. AI in Business Technology Operations

Artificial Intelligence (AI) Technology usage within Business Technology is more focused on providing the User Interface such as Workbots, which make it easier for employees to raise requests, receive alerts from various IT and Security Systems and provide self-deflection with the idea of providing a seamless experience but the current usage is limited as the orchestration engine doesn't directly interact with Artificial Intelligence (AI) Engine.

3. Operating Business Technology in New Ways

Before automating each and every Business Technology task one component by component basis, it so is important to understand how these tasks grouped into components interact with each other. A task within Business Technology for a System Administrator would involve setting up a laptop with all the right security controls and policies, making sure the laptop is able to connect to the office Wi-Fi without the need for the employee to enter credentials manually, etc.

The above tasks could be automated on a singular task-by-task basis. However, the real power of Automating these processes could create an impact if these different manuals and semi-automated processes are looked at from the lens of discovery, vetted and automated end to end using different orchestration techniques such as Automation, Artificial Intelligence, Machine Learning and Low Code / No Code Tools and rather than focusing on singular task outcome it should be end to end efficiency and experience delivery focused.

4. Results and Discussion

This section aims to describe the application of AI-led Hyperautomation [3] within the Business Technology Operations field and how it can lead to providing seamless experiences and transforming this space digitally.

The Review articles aim to identify the manual processes of Business Technology operations with the use of Artificial Intelligence (AI) to be the recommendation and user interface layer and identify end-to-end business process automation using Hyperautomation [4]. to reduce the Mean-Time-To-Resolve a service request and meet Experience Level Agreements (XLA) for Employees and Customers. In building Hyperautomation, Artificial Intelligence is used to perform the end-to-end process mining [8] discovery, which looks at how these different Business Technology processes operate between people and systems and uses the data telemetry to identify various graphical relationships between these different components and developing Hyperautomation integrated with Artificial intelligence to reduce the time spent on manual tasks and processes.

Business Technology Vertical	Functions	(%) Percent Manual	No. of Employees	% Manual Jobs Time Spent / Employee	Cost of Operations ($)
IT Helpdesk	Password Reset	31-40	n	y / n	(y) (n x ($ cost / hr)
Client Platform Engineering	Patching Laptops	21-30	n+10	y / (n+10)	(y) (n+10) x ($ cost /hr)
System Analyst	Onboarding and Offboarding	41-50	n-5	y / (n-5)	(y)(n(x) ($ cost /hr)
IT Operations Analyst	SaaS App Provisioning	21-30	n-8	y / (n-8)	(y) (n x ($ cost / hr)
IT Security Operations	Endpoint compliance	41-50	n+2	y / (n+2)	(y)(n) x($ cost / hr)

Fig. 1 Cost of operations identification

The objective of using Artificial Intelligence (AI) to perform process mining [9] was to determine which processes are currently the most time-consuming and impact other upstream and downstream processes and people.

4.1. Results

The results based on the above analysis focus on how to understand the impact of automation on Business Technology Operations using the Percentage of Manual Process calculation alongside the cost and the number of employees [10] who spend time with these activities. As they think about how these different manual processes, if automated on a single task-by-task basis, could miss out on automation priority, which does the identification of Process N, Process N+ and above and how these interconnected processes if not automated completely, could only achieve singular transformation gain rather than interconnected process loop gain.

Considering the example of Calculating the Cost of Operations for the Helpdesk and overall service desk for Password Reset Functions. Let's assume 30% is the manual effort needed to do a simple password reset for a company of the size of 1000 employees and assume the average cost per helpdesk employee is $50 / hr.

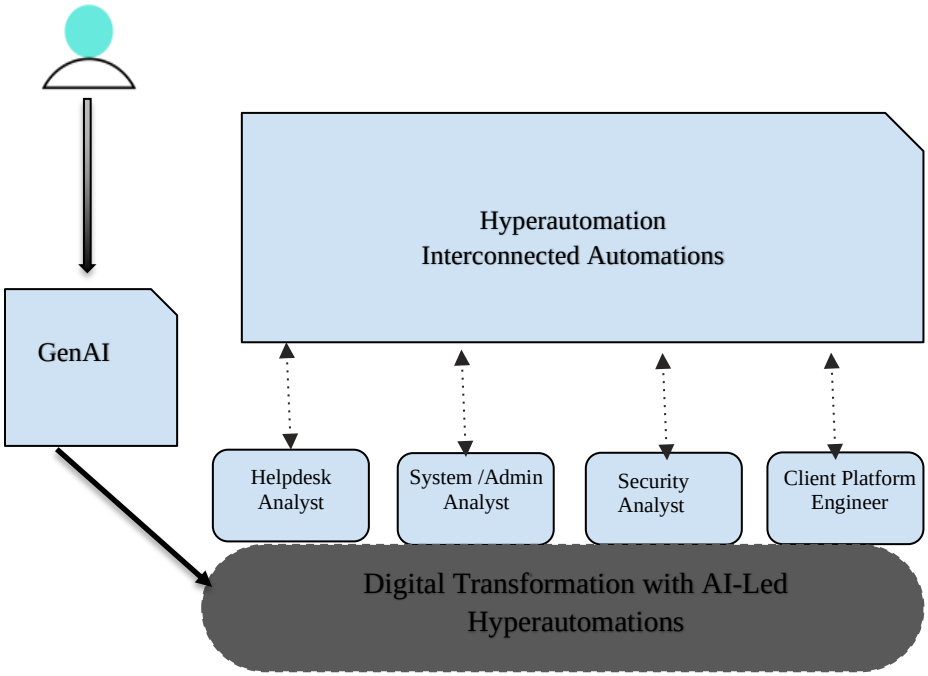

Fig. 2 Interconnected hyperautomations for operations team

Total Cost of Operations for this end-to-end password reset process is:

= ((30/100) X (1000 X 50))

= 15,000 is the total cost of operations for a company with 1000 employees where one task is 30% manual; considering the same example, if the manual task percent is reduced by half = ((15/100) X (1000 X 50)) the cost of the operations also goes down by half and also the downstream effect on underlying employee and customer productivity because of a manual process and also if consider the dependency of this task and not allowing other processes to kick-off is something to consider too while looking at these interconnected processes.

From a Business Technology perspective and more specifically for a System Administration, AI-led hyper-automation enhances the efficiency and effectiveness of System Admin operations. It tackles time-consuming tasks that humans might struggle with by analyzing datasets and identifying patterns; considering the above example, if all the processes were interconnected and AI could analyze that the request is for a simple password reset and understanding the Intent and triggering the correct hyperautomation would take care of the complete loop enabling Sysadmins to detect problems in advance and respond promptly and also increasing the overall productivity.

With some assumption from a Business Technology Security standpoint, AI-led hyperautomation(s) [3] plays a role in enhancing security measures and maintaining compliance within organizations. Real-time security threat detection is possible through AI technology while also automating compliance-related activities, like system audits, report generation, and IT Ops and infrastructure management, helping organizations to enforce a safe and secure technology posture while focusing on more critical security and infrastructure challenges in an era where the number of security incidents and overall vector is growing at lightning speed.

5. Conclusion

This article aimed to analyze the Business Technology Operations vertical and how an Artificial Intelligence (AI) led hyperautomation mindset can solve the problems of a task-based automation approach. Based on the process mining approach of identifying key processes, how are these processes within the IT Helpdesk, System Administration, Business Analyst space, etc., using Artificial Intelligence (AI) to identify how these various processes operate in terms of People, technology and data and their dependencies.

Artificial Intelligence (AI) can enable the System Admins and Business Technologists to be the Recommendation layer of analyzed data, patterns, and end-to-end connected automation through the concept of Hyperautomation [4]. It can help Business Technology teams continue to improve their Employee and Customer Experiences and be able to reduce manual task waste, and meet Service Level and Experience Level agreements.

In future work, the Business Technology Hyperautomations combined with Generative-AI can also be expanded to automate other Security and Sales Operations, Revenue Operations tasks and still have humans in the loop to make decisions on complex matters. Traditional AI will continue to identify the overall cost per operation using process mining techniques. GenerativeAI will use the learnings to reduce the overall context switching and cost per operation, help with the overall reduction of resolution times, and provide delightful experiences.

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