BUSINESS VALUE IMPACT OF AI-POWERED SERVICE OPERATIONS (AISERVICEOPS)

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ABSTRACT

Artificial Intelligence (AI) has been significant technology of the 21st century. This technology is changing every aspect of modern enterprise technology tooling, from strategies to selecting and implementing to adopting digital AI transformation. The rapid development of Artificial Intelligence has prompted many changes in the field of Information Technology (IT) Service Operations. IT Service Operations are driven by AI, i.e., AIServiceOps. AI has empowered new vitality and addressed many challenges in IT Service Operations. However, there is a literature gap on the Business Value Impact of Artificial intelligence (AI) Powered IT Service Operations. It can help IT build optimized business resilience by creating value in complex and ever-changing environments as product organizations move faster than IT can handle. So, this research paper examines how AIServiceOps creates business value and sustainability, basically how AIServiceOps makes the IT staff liberation from a low-level, repetitive workout and traditional IT practices for a continuously optimized process. One of the research objectives is to compare Traditional IT Service Operations with AIServiceOPs. This paper provides the basis for how enterprises can evaluate AIServiceOps and consider it a digital transformation tool.

KEYWORDS

AI-Powered Service Operations (AIServiceOps), Business Value Assessment, IT Service Management, IT Operations Management, and Digital Transformation.

1. INTRODUCTION

Digital transformation (accelerated due to COVID-19) impacts many changes across multiple industries. Part of this revolution is increasing IT spending on managing and maintaining IT Services to provide uninterrupted access to services from anywhere. Many organizations accelerated the adoption of digital technologies to build, deploy, monitor, remediate and manage IT Services; even mom-and-pop shop companies, e.g., Pet Clinics, have started websites (hosting services on the internet) to facilitate their customers' services. Such changes are known as “digital transformation” [23]. Another standard definition of digital transformation is as follows: a process that aims to improve an entity by triggering significant changes to its properties through a combination of information, computing, communication, and connectivity technologies [12][26][21].Many studies have shown that digital transformation increases businesses' ability to absorb effectively, adjust to situations and capitalize on surprises (e.g., COVID-19) that potentially threaten their existence. Digital technology will be, tomorrow, an increasingly crucial aspect of business resilience, with every company having to rely on data analytics, digital tools, and automation [7][21]. Manage and operate services—is the foundation of digital transformation—organizations have implemented IT solutions to build, deploy, monitor, remediate, serve and manage Services. So, to do that, customers need to purchase ITSM (IT Service Management) and ITOM (IT Operations Management) solutions to resolve incoming incidents or issues with their Services timely. With that being said, the emergence of new

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technologies AI, ML, Blockchain, IoT, and many others, have influenced IT to automate, monitor, remediate, operate and manage IT Services. Artificial Intelligence is a simulation of human intelligence and automation capabilities in machines and software programs to think like humans and mimic human behavior. Artificial intelligence (AI) is changing a strategy setting off a wave of AI and automation in every digital transformation in all industry sectors. Artificial intelligence (AI) has been touted as a means for organizations to cut costs and enhance their quality of services, coordination, productivity, and practice efficiencies [4][14]. With the advancement of processing speed and communication bandwidth growth, hardware and storage cost has gone down; AI Transformation has become necessary for organizations to adapt in the new area as they have to stay ahead of the competition and risk managing disruption. There is a clear need for a deeper exploration of AI's impact on organizational activities, boundaries, and goals, including the mechanisms and processes involved in harnessing its power in digital transformation [2][13].

The future of IT Service Operations depends on the advancement of new technologies and intelligent machines. IT teams have to fight an uphill battle managing the massive amounts of data generated by modern IT systems. They are expected to handle more incidents than ever with shorter service-level agreements (SLAs) [16]. Technological advances open new possibilities and challenges for IT Service Operations. AIServiceOps combines Service Management and Operations Management to avoid IT silos. AIServiceOps platforms combine incident and event management into one platform utilizing advanced analytics technologies (AI/ML) to enhance IT Service Operations functions (operations and service desk) with proactive insights and recommendations. With the potential to target automation, potentially self-healing – applications, detecting anomalies, predicting outages, root cause analysis, and provide IT Agents with the capability to see across IT silos. AIOps (AI Operations) and AITSM (AI IT Service Management) have been typical industry terms and mainly focused on individual sections of AI narratives for operations and service management; slowly, platforms are moving towards unified records to avoid IT silos and drive end-to-end automation.

Business Value Impact (BVI) is the justification of an organization's investment in digital transformation. BVI mainly covers the justification with ROI (return on investment) and an in-depth explanation of investment benefits. Business Value Impact not just covers value creation; it covers preservation. AIServiceOps has effectively built value creation for an organization and has been an effective tool for building value as IT services have responded to ever-changing environments and have been able to deliver value with a focus on software delivery, agility, and experience. Consequently, BVI should be regarded as a strategic resource; enterprises are required not only to view business value as a cost to cope with short-term shocks but to promote the shaping of value-added activity in the long term. AIServiceOps is next-generation ITServiceOps that will not make organizations focus on short-term or daily operations but consider the long-term in creating an intelligent and automated digitized workplace and consider the AIServiceOps business sustainability. So, the research in this article aims to compare Traditional IT Service Ops and AIServiceOps benefits and treat AIServiceOps as a catalyst for digital transformation to increase business value. Various research tools will be applied to verify the objective above. This includes creative thinking techniques and semi-structured interviews with expert practitioners and organizations implementing or has adopted AIServiceOps solutions.

2. THEORETICAL BACKGROUND

2.1. Role of Digital Transformation in Creating Business Value

Organizations are vulnerable to many external factors that may impact their business, e.g., COVID-19 has influenced how organizations run their businesses as many companies started focusing on e-commerce than regular retail stores. External factors like these can make the organization's work unproductive both in terms of value creation and value preservation. Hence assessing the business value of digital transformation is very important. Assessment of business value and resilience allows organizations to withstand any impact from external or internal factors or events. Moreover, resilience can be formed consciously, i.e., it can be strengthened or weakened. Such actions change the level of resilience gradually [1][21]. Concurrently, “resilience” is a contextual term and needs to specify what it is in a given context it refers to. This requires answering questions such as “whose?” and “of what's?” resilience we mean; “what?” is the current and, perhaps also, the desired level of resilience; and “against what” type of event is this resilience supposed to be working, or against “what?" event do we want to be resilient [10][21]. “Organization Resilience” is the ability of an organization to create value and preserve the value even when encountering by surprises, this perception of organizational resilience is in line with the dynamic capability theory [21][25], which has been explored very intensely in recent years and explains how companies respond to rapid changes in technology and markets [21][24]. Organizations should start or have started considering digital transformation as a way to enable organizational resilience and create business value; digital transformation is an effective method for enterprises to avoid risks and facilitates the enterprise's ability to comprehend and adapt to changing environmental contexts [21][27].

On the other hand, business value helps organizations understand digital transformation's benefits, costs, and risks. Every organization should evaluate the potential financial impact of digital transformation on their organization. Organizations should perceive digital transformation as creating more value and preserving it. At times it should avoid risks – for example, IT Support teams used to be unaware of service issues, and now with IT tools like service operations management, IT teams can detect anomalies and correct issues 15-20 minutes before it occurs. Organizations need to ask below questions to assess the business value of digital transformation:

- How will digital transformation improve IT and employee productivity?
- What is the impact ofreducing high-priority incidents from digital transformation and, in turn, impacts customer experience?
- What are the impact of digital transformation on project performance and accelerated returns?
- What are the reduced and avoided costs of digital transformation? E.g., payback period?

2.2. IT Service Operation is Driven by Digital Transformation and Artificial Intelligence

Digitization means fundamental changes in how business operations and enterprises' business models are implemented and introduced, thanks to digital technologies and data that are both digitized and natively digital [20][21]. Digital transformation (accelerated due to COVID-19 – an external environment disruptor) impacts many changes across multiple industries. Part of this revolution is increasing IT spending on managing and maintaining IT Services to provide uninterrupted access to services from anywhere, e.g., before covid, employees used to sit in offices (inside the company's infrastructure) to access services, and now IT has to extend VPN(a virtual private network) so that employees can access those IT services.

Furthermore, a business model is a conceptual tool that contains a set of elements and relations that enables the business logic of a given company to be expressed; it includes a description of the value offered by a company to a group or groups of buyers, a description of the enterprise's architecture and a list of its network of partners who co-create, offer, and deliver this value and relational capital, ensuring continuous revenues conducive to profitability [18][21]. Business Value Impact will show how organizations continue to have both quantifiable and flexible value. Quantifiable Value is a value that can be quantified, and Flexible value cannot be quantified but are significant benefits to organizations, e.g., improved productivity, reduced priority incidents, project performance, and avoided costs are examples of quantifiable value and scale without increasing headcount, single platform for many business applications are examples of the flexible value.

Technological changes currently taking place in the market encourage companies to experiment with how new IT solutions will affect their business models, and—based on research conducted among nearly 340 European enterprises, it can very clearly be seen that such an impact exists [3][21]. So from the perspective of technological change, AIServiceOps(AI-Powered Service Operations) is a next-generation ITServiceOps (IT Service and Operations Management) that will not make organizations focus on short-term or daily operations but consider long-term in creating an intelligent and automated digitized workplace and consider the AIServiceOps in creating business value, resilience and sustainability. So, the research in this article aims to compare Traditional IT Service Ops and AIServiceOps benefits, treat AIServiceOps as an instrument for digital transformation, and study its impact on business value and resilience. Various research tools will be applied to verify the objective above.

2.3. AIServiceOps in the Context of Business Value Impact

According to IDC, 95% of organizations report they are implementing a digital-first strategy to support new digital revenue streams. By 2027, the average enterprise will see 41% of its revenue come from digital products and services [17]. Even if organizations were already on a digital-first journey before the pandemic, you know the unnecessary friction and increased costs that come from having hundreds of disparate technology tools across different teams when services and operations teams, tools, and data are siloed – IT services teams are not able to meet the increase in the number of requests from employees resulting in poor experiences and the IT operations teams are not able to predict and prevent service outages resulting in lost productivity and revenue. Both IT Services and operations feel pain from the siloed organization. Also, the key challenge with siloed solutions is lack of agility, difficulty in maintenance, and significant room for improvement in terms of automating processes For Example:

On IT Services:

- Employees are frustrated with IT supportand poor employee experiences due to the burden of routine, repetitive requests to IT staff.
- Unmet decentralized tech needs: Tech teams forming in the business with little to no consistency in managing tech vendors and systems.
- Poor IT productivity: Disparate data and lack of insight into service delivery hinder service and cost improvement.

On IT Operations:

- Significant delays in resolving high-priority incidents: To diagnose and resolve high-priority incidents/ service outages, Ops needs historical, real-time change and incident data.
- Spotty service availability: Erratic service availability, project reliability, and manual escalation process.

IT silos slow innovation, high cost of services, and a slower rate of innovation' from DevOps and IT teams operating in silos as teams will be busy fixing incidents with disparate data and insights. And in reality, both of these teams also feel the other's pain. Achieving digital-first business growth starts by bringing your technology services and operations together, by bringing them together:

- Expand technology services while reducing costs
- deliver extraordinary employee experience, customer experience, and resiliency and drive technology best practices and optimized processes.

The first step is to modernize service and operations on a single platform to help expand and improve the services. Modernize - Stand up the foundation to:

- Gain visibility of services and their dependencies
- Integrate the service experiences with Incident and Event Management
- Integrate the data from across the enterprise

The second step is automating service and operations using AI to empower self-service and predict and prevent incidents before they impact users or your business. AIServiceOps enables: Automate services to:

- Provide employees self-service – identify automation to build playbooks to reduce MTTR (mean time to repair)
- Virtual Agent and AI Search for helping employees to self-help and system to self-heal with auto remediations
- Predictive Intelligence on major incidents with effective AI/ML technology to correlate the historical and create benchmarks

Incident prevention for systems and applications:

- Predict and prevent issues
- Pinpoint root cause using AI/ML
- Reduce noise
- Correlate alerts
- Run automation playbooks

Furthermore, enterprises that have roots in traditional industries can improve the quality of their customer experience, change the company's revenue structure, and transform their distribution channels by introducing digitization into their business models [21][22]. AIServicOps is one of the keyways for the digital transformation of organizations, and its impacts can be viewed by IT/DevOps and its customers, creating a seamless value chain for Organizations.

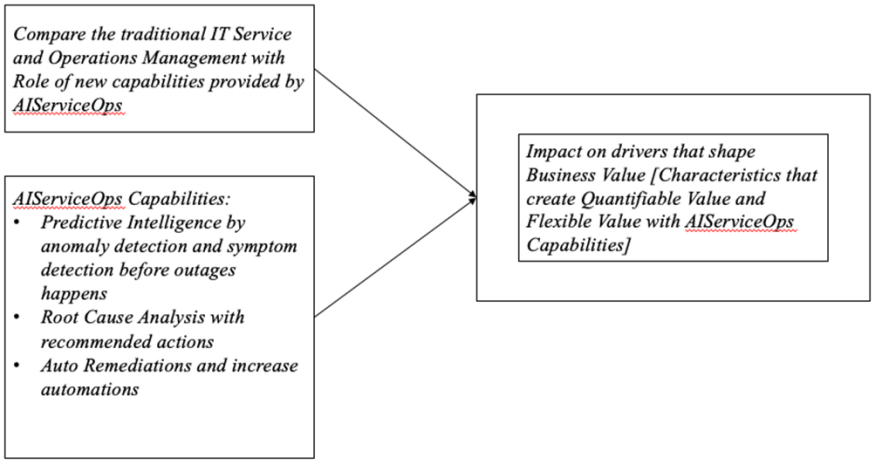

Figure 1: AIServiceOps capabilities influence on Business Value

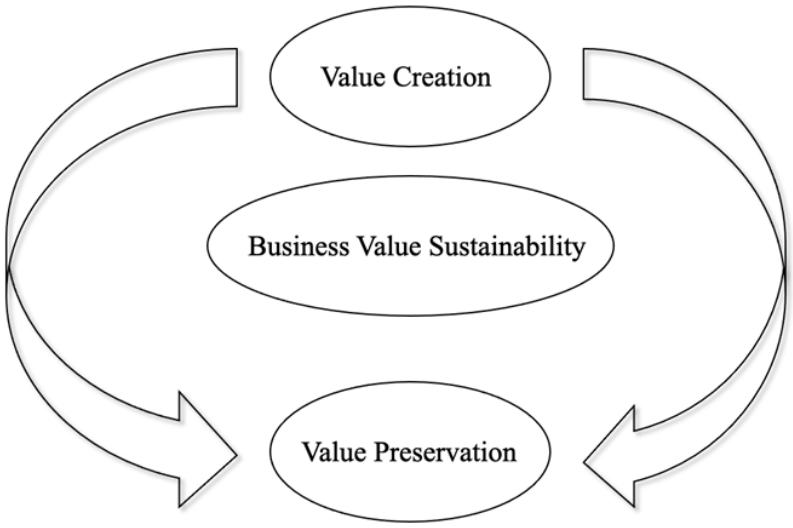

Figure 2: Cycle of Business Value Sustainability

Sustainability is a driver of business value, and value has to be created and preserved for long-term organizational goals.

2.4. Conceptual Model

A conceptual model is a framework initially used in research to outline the possible courses of action or present an idea or thought [6]. When a conceptual model is developed logically, it will rigor the research process. A model is a representational illustration and a heuristic device visually portraying concepts and theory [6]. Models provide a common understanding to the viewers about the knowledge by showing various elements of a system and their interrelationship [8], defining a conceptual model as a diagram of proposed causal linkages among a set of concepts. They highlight that a conceptual model provides a visual picture representing concepts through boxes and processes delineated by arrows. Thus, a model developed using the standard conventions can clearly define the causal, sequential, and logical argument that creates a clear and shared understanding by the habit of mind. So below is the conceptual model that illustrates how the theory of Business Value Impact of AI-Powered Service Operations. The model is

described with various factors of AIServiceOps capabilities impacting the aspects of Business Value.

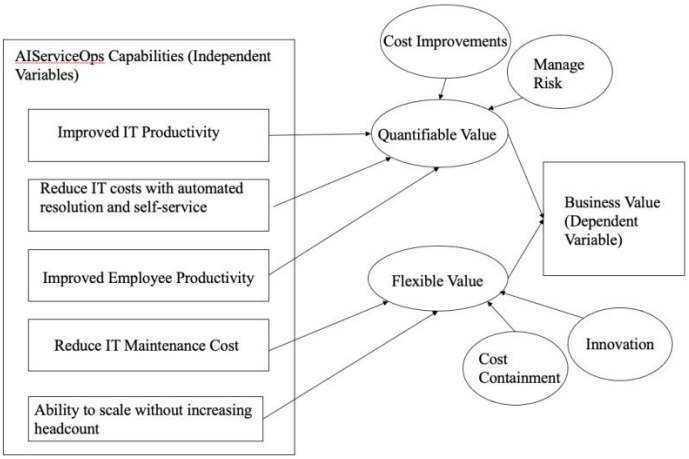

Figure 3: Business Value framework for adopting AIServiceOps

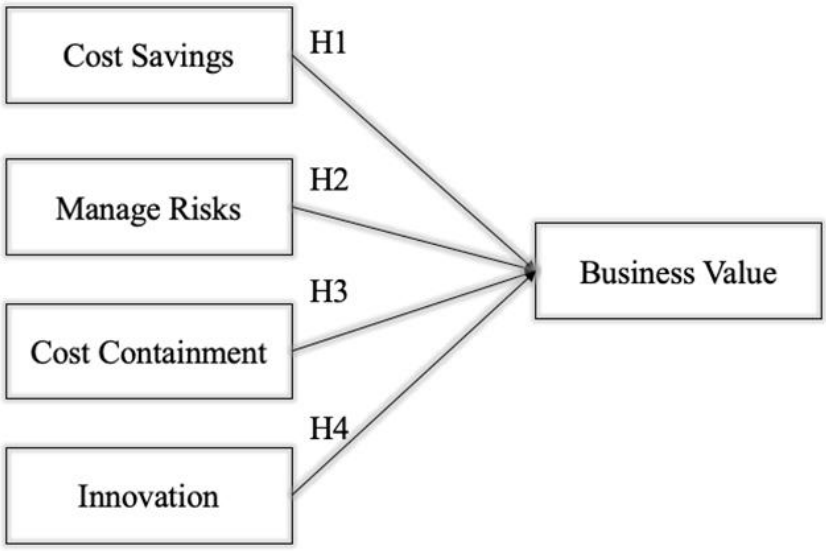

Figure 4: Conceptual Model for Business Value impact of AIServiceOps

There is one dependent variable – Business Value as the outcome measures and benefits for actual adoption AIServiceOps Capabilities with meditation variables – Value Creation and Value Preservation and moderating variables supporting it are – Manage Risk, Cost Containment, Innovativeness and Cost Improvements.

Below are the hypotheses that we need to prove with this research:

- H1: With the adoption of AIServiceOps, cost containment significantly influences the creation of business value
- H2: With the adoption of AIServiceOps, cost improvement significantly influences the creation of business value

- H3: With the adoption of AIServiceOps, innovativeness significantly influences the creation of business value
- H4: With the adoption of AIServiceOps, managing risk significantly influences the creation of business value

3. QUANTITATIVE RESEARCH METHODOLOGY

This research will adopt a quantitative research methodology, focusing on analyzing how AIServiceOps has impacted factors that, in turn, impact business value.

3.1. Data Collection

The research will be regarded as the state of AIServiceOps usage in enterprises and its impact on business value. The study will be comprised of questionnaires to participants and a few interviews. The survey questionnaire was asked to 70 organizations mainly as a paper form in workshops as it reduced the cost of study and gave the right contextual quality and complete answers.

3.2. Questionnaire Description

This research is intended to explore and examine the AIServiceOps factors that influence Business Value. All aspects and questions have been created from existing literature related to the topic and expertise in the field. Some questions determine the overall thinking and outcome of AIServiceOps. Not all questions in the research are related to factors influencing business value, as these are related to scope, preconditions, and implementation associated with AIServiceOps. Some are focused on disruptors that can impact Organizational stability. Survey questionnaires using the Likert Scale of 5 points, designed by Rensis Likert; this is a prevalent rating scale for measuring ordinal data in social science research. This scale includes Likert items that are worded statements to which respondents can indicate their extent of agreement or disagreement on a five or seven-point scale ranging from “strongly disagree” to “strongly agree” 5-point scale will be “1= Strongly disagree,” “2 = Rather disagree,” “3 = Hard to say,” “4 = Rather agree,” and “5 = Strongly Agree”. Survey questions that relate to factors:-

Cost Containment [Value Preservation]

- AIServiceOps has reduced effort on IT maintenance.
- AIServiceOps has avoided development costs and avoided legacy costs.
- AIServiceOps has improved IT Organizations' ability to scale without increasing headcount.

Cost Improvement [Value Creation and Value Preservation]

- AIServiceOps investment improves digital outcomes more than traditional IT Service Operations Management
- Cost per incident/ticket has decreased with adopting AIServiceOps and has “bend the cost curve” for Organizations.
- Agent utilization has improved with the adoption of AIServiceOps.

Innovativeness [Value Preservation]

- AIServiceOps has made your centralized IT team more productive by focusing on critical tasks and incidents, liberated IT staff from low-level, repetitive work, and played a vital role in your organization's digital transformation.
- AIServiceOps has helped you to find automation opportunities and prioritize to potentially deflect and lower the mean time to resolve (MTTR).
- There is a clear gap in value provided by AIServiceOps compared to traditional IT Service Operations Management.

Manage Risk [Value Creation]

- AIServiceOps has improved identifying anomalies 10-15 minutes before the actual incidents or outage of service occur.
- AIServiceOps has improved the quality of managing services, and it provides organizations with end-to-end visibility, focuses on incidents that matter, and fixes them more quickly.
- AIServiceOps has reduced incident volumes and repair time by providing tools and the proper context for the investigation.

Business Value Sustainability [Value Creation and Value Preservation]

- Implementing AIServiceOps has an impact on the value creation for your organization.
- Implementing AIServiceOps has an impact on the value preservations for your organization.

Other interview questions

- What conditions before implementing the AIServiceOps?
- How has AIServiceOps changed your traditional IT practices regarding risk, cost, customer satisfaction, and innovations?
- What are the critical KPIs to measure the success of AIServiceOps?
- What is the current scope of AIServiceOps?
- What are the key disruptors that have impacted IT lately, and what was the strategy to overcome that?
- What would be the impact of AIServiceOps on the business value and resilience of the enterprise?

4. CONTRIBUTION TO PRACTICE

Using AIServiceOps in organizations solves some of the current issues, such as investigating root-cause-analysis (RCA) of incidents and preventing outages of services and visibility into the entire organization's infrastructure estate. It also provides many automation opportunities and innovativeness for IT teams to automate and create value for organizations. Adopting AIServiceOps helps bring efficiencies in IT service and operations management by avoiding IT silos and increasing customer satisfaction. AIServiceOps usage helps transform IT service and operations management by managing risk, increasing customer satisfaction and cost improvements, increasing cost containment, increasing innovativeness, and improving overall organizational resilience.

5. LIMITATIONS AND SCOPE OF FUTURE RESEARCH

Due to lack of time, this study did not expand its scope of impact of AIServiceOps on a specific industry; this research focused on general IT-specific functions related to service and operations management. Also, the existing analysis did not account for disruptors that would impact business value. Understanding the characteristics of each organization's external and internal disruptors is necessary. Furthermore, this research did not focus on the impact of AIServiceOps on value optimization in the value creation and preservation process to maximize the effect of AIServiceOps on business value. The focus of this research paper was to establish the positive impact of AIServiceOps on business value via quantitative research methodology.

6. CONCLUSION

Organizations need to consider AIServicOps solutions as it impacts customer satisfaction, managing the risk of outages and cost savings via deflecting incidents and liberating IT from mundane, repetitive tasks with automated remediations. AIServiceOps enables IT to take on a more customer-centric approach in event and ticket management to improve IT productivity, customer satisfaction, and business well-being. Also, AIServiceOps lets IT teams reduce MTTR across all phases of the incident management process.

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