Ai Application Framework For Systematic Onboarding In Organizations

Simarjit Singh Lamba[1], Upinder Kaur[2]

[1] Dept. of Computer Science, Akal University, Talwandi Sabho, Punjab, India.
[2] Dept. of Computer Science, Akal University, Talwandi Sabho, Punjab, India.
Email: [1]Simarjiitsingh@gmail.com, [2] upinder_cs@auts.ac.in
Orchid Id number: [1] 0009-0009-2223-6448, [2]0000-0003-4560-8370
Corresponding Author*: Simarjit Singh Lamba

The integration of AI within an organizational framework often encounters formidable challenges, primarily rooted in the initial identification of suitable use cases. Inadequate identification can result in misaligned technology solutions, leading to the squandering of resources and a lack of discernible benefits. This challenge necessitates a meticulous approach to ascertain the appropriate use cases that align with the organization's strategic goals and operational requirements.

To tackle this challenge effectively, organizations must embark on a methodical process that commences with a comprehensive comprehension of the overarching objectives. This involves an in-depth analysis of the organizational landscape, encompassing current pain points, operational inefficiencies, and potential areas for technological innovation. Subsequently, conducting comprehensive needs assessments, evaluating the quality and accessibility of available data, and determining the feasibility and suitability of AI solutions become pivotal steps. Engaging diverse stakeholders across various departments to prioritize challenges and opportunities, validating concepts through proof-of-concept projects or pilots, and securing buy-in from key decision-makers are integral component of this process.

Furthermore, a structured approach involves iterative refinement, continuous evaluation, and a relentless commitment to a data-driven strategy. Emphasizing ongoing reassessment ensures that the selected use cases remain aligned with the evolving business goals and organizational dynamics. By diligently navigating these steps, organizations can establish a foundation for the successful integration of AI, harnessing its potential to streamline operations, optimize processes, and drive measurable outcomes that align with overarching strategic imperatives.

In this paper we will define an AI application framework which works on affinity factors to help organizations select the right use cases for AI application.

KEYWORDS: Machine Learning, Artificial Intelligence, Affinity factors, Misaligned solutions, AI Ethics, Technology Transformation.

1.   Introduction

The identification of suitable AI use cases in an organization ensures strategic alignment, optimized resource utilization, risk mitigation, scalability, workforce engagement, enhanced

customer interactions, and the seamless integration of AI into organizational frameworks, fostering innovation, competitive edge.

1.1. The Influence of AI on the Business Landscape

Artificial intelligence is transforming the corporate landscape, delivering significant advancements in various aspects of business operations. One of its most profound effects is the improvement of decision-making processes. By refining data analysis and delivering quicker, more accurate insights, AI enables companies to make more strategic decisions that enhance performance and boost competitiveness. In addition, AI has revolutionized the customer service experience by deploying virtual assistants and chatbots powered by advanced language processing technologies. These innovations allow businesses to scale their support operations, offering real-time solutions while using predictive analytics to better understand customer preferences and enhance service quality.

Beyond customer engagement, AI has a substantial impact on cost efficiency. By automating routine tasks and reducing unnecessary labour, companies can lower operational costs and increase productivity. This streamlined approach frees up resources for innovation, allowing businesses to accelerate product development and enter new markets more swiftly. Moreover, AI's ability to personalize customer experiences creates new opportunities for targeted upselling and cross-selling, driving revenue growth. Lastly, by simplifying internal processes and minimizing the time spent on repetitive activities, AI contributes to greater operational efficiency, solidifying its role as a vital tool in today's business environment.

AI is reshaping risk management and compliance by enabling real-time analysis of large data sets, allowing for early detection of risks, fraud, and regulatory concerns. This proactive approach minimizes financial and reputational harm while enhancing security and regulatory adherence. Its precision makes AI vital in today's complex business landscape.

Fig 1(a) Influence of AI on the Business Landscape

Despite of the key influences AI can have on organisations, most organisations are late in their adoption. The incorporation of artificial intelligence into corporate practices introduces several significant challenges. A major issue is the absence of a unified technological framework, which results in a lack of standardized methods for implementing AI systems. This disarray fosters disagreements within the AI community about the necessary formats and interfaces for different components of artificial intelligence and machine learning. Additionally, organizations often struggle with misguided strategies that obstruct their ability to achieve stable performance over time. This challenge frequently stems from ambiguous definitions of business goals and inflated expectations regarding the capabilities of AI technologies. The rapidly changing regulatory environment adds further complexity, as the lack of definitive guidelines for governance, risk assessment, and compliance forces organizations to navigate uncertain terrain [15].

Furthermore, the unclear nature of effective AI methodologies complicates the adoption process, as there is a notable absence of established protocols that specify best practices, designs, and technology processes. Aligning AI initiatives with broader business objectives presents an additional obstacle, as organizations need clearly defined key performance indicators (KPIs) and key results indicators (KRIs) that must be subject to continuous evaluation and adjustment. As the business landscape evolves, it is essential for organizations to remain proactive in recognizing new needs and insights, showcasing their ability to adapt to uncertainty. This ever-changing environment demands a strategic approach to AI integration, empowering businesses to leverage these technologies while skillfully addressing the inherent challenges.

1.2. Selecting the Right AI Use Case

Selecting the Right AI use case is essential for the success of any organisation in transforming their technical ecosystem. Some of the benefits of selecting the right AI use cases include, Strategic Resource Management which plays a pivotal role in navigating the adoption of AI within organizations. By discerning apt AI use cases, resources including time, budget, and expertise can be judiciously allocated, avoiding wasteful spending on inconsequential or inefficient endeavours. Identifying pertinent AI applications enables organizations to strategically channel investments into technologies that align with business objectives, ultimately amplifying the return on investment [2].

Furthermore, alignment with organizational goals ensures that AI initiatives directly address specific business challenges or aspirations, thereby amplifying operational efficiencies and fostering business expansion. Precise AI applications synchronize with organizational ambitions, propelling innovation and competitive prowess in sectors where AI can offer substantial value.

Moreover, risk mitigation and adherence to regulations are critical considerations in AI adoption. Accurately identifying use cases helps curtail the risk of failed AI projects, mitigating potential adverse repercussions on operations, reputation, or fiscal standing.

Additionally, picking pertinent AI applications aids in adhering to regulatory standards and ethical considerations, thereby forestalling potential legal or ethical entanglements.

Scalability and adaptive solutions are imperative for ensuring the long-term viability of AI implementations within organizations. Optimal use case selection allows for AI solutions that can scale alongside organizational growth, accommodating shifts or expansions in business prerequisites. Moreover, identifying suitable AI use cases assures technology adaptable to dynamic market landscapes, evolving customer requisites, and technological advancements [3].

Employee engagement and augmented productivity are enhanced through the implementation of AI in pertinent spheres. By witnessing tangible benefits, employees become more engaged and committed, augmenting the acceptance and assimilation of AI-infused technologies. Additionally, well-suited use cases enable AI to automate mundane tasks, liberating human resources to focus on high-value endeavours demanding creativity and strategic acumen.

Lastly, elevated customer experience and satisfaction are significant outcomes of strategic AI deployment. AI applications, strategically placed, markedly enhance customer engagements by offering tailored experiences, predictive services, and swift issue resolution. Pragmatic AI solutions elevate products or services, amplifying customer contentment and loyalty [4].

1.3. Faltering or Excessive AI implementation

Flawed AI implementation or excessive adoption can result in resource wastage, ethical and regulatory hazards, compromised decision-making, disengaged employees, degraded customer experiences, and financial setbacks. Successful integration necessitates a balanced approach, aligning AI initiatives with business objectives, ethical considerations, and human-centric practices. When AI implementation falters or becomes excessive within organizations, a multitude of challenges and adverse outcomes emerge.

Ineffective implementation of AI initiatives can lead to significant challenges within organizations. Flawed projects often result in the misdirection of valuable resources, time, finances, and effort without achieving the desired outcomes or benefits. Inadequate planning or the misidentification of use cases frequently leads to project failures, causing frustration among stakeholders and eroding confidence in future technology investments. Furthermore, haphazard AI integration can disrupt existing workflows without enhancing efficiency, resulting in operational inefficiencies that impact productivity and continuity [3].

Ethical and regulatory concerns arise from inappropriate AI applications, posing dilemmas involving privacy, bias, and transparency. Such concerns risk reputational harm and legal entanglements for organizations. Overzealous AI implementation without proper oversight can also lead to regulatory non-compliance, inviting scrutiny and potential penalties.

Impaired decision making can result from overdependence on AI algorithms, compromising critical thinking, intuition, and balanced decision-making. Moreover, inaccurate or biased AI

models can magnify existing biases within data, perpetuating inequalities and influencing flawed decision outcomes.

Employee disengagement is another consequence of poorly executed AI implementations. Neglecting employee well-being during AI-driven automation may foster job insecurities and diminish morale. Additionally, poorly communicated or managed AI initiatives often provoke resistance among employees, hindering adoption and innovation.

Customer experience and trust can be negatively affected by excessive automation, which may dehumanize customer interactions, lower satisfaction levels, and erode loyalty. Inadequate AI security measures also pose data security risks, exposing customer data to breaches, eroding trust, and risking confidentiality.

Financial ramifications can arise from ill-conceived AI investments lacking clear strategies, resulting in wasteful spending and negligible returns. Furthermore, incorrectly implemented AI may fail to identify viable improvement areas, hindering organizational growth and competitiveness, thus representing missed opportunities for advancement [6].

2.   Methodology

Identifying optimal AI use cases within an organization demands a methodical approach that seamlessly integrates technological advancements with overarching business objectives.

A structured methodology for identifying viable AI applications begins with a comprehensive understanding of the organization's business objectives. This involves assessing both short and long-term goals to identify areas where innovation or enhancement is needed. Collaborating across departments, stakeholders engage in uncovering operational challenges, inefficiencies, or areas poised for technological advancement. Through this process, pain points are evaluated and ranked based on their impact, potential gains from AI integration, and feasibility for implementation [7].

Subsequently, a thorough evaluation of data accessibility, quality, and usability within the organization is conducted to identify opportunities for AI application. This includes pinpointing sectors where data-driven insights can revolutionize decision-making or streamline existing processes. Following this, the feasibility and suitability of AI solutions are assessed to determine their alignment with identified challenges or opportunities and the technical intricacies and infrastructural requisites for implementation [8].

Proof of concept endeavours or pilot studies are then initiated for shortlisted use cases to validate their potential impact and feasibility. Performance metrics are analyzed to ascertain effectiveness, feasibility, and return on investment for each proposed AI application. Once impactful and feasible use cases are prioritized, a detailed execution roadmap is developed, outlining resource allocation, timelines, and anticipated outcomes for seamless implementation. Continuous evaluation and enhancement are emphasized, with a commitment to iteratively refine implemented AI use cases based on feedback and drive ongoing improvements. Through this structured methodology, organizations can effectively harness the power of AI to address challenges, drive innovation, and achieve strategic objectives. This methodological framework should ensure a systematic and strategic approach to identify AI

use cases aligned with organizational aspirations, leveraging data effectively, addressing critical challenges, and delivering tangible benefits for successful integration [9].

2.1 Factors Influencing AI Suitability

In the initial stages of implementation, organizations undertake a crucial evaluation across their operational framework to discern potential AI solutions for their challenges.
Figure 2(a) serves as a comprehensive guide for organizations seeking to evaluate their alignment with AI implementation, delineating factors and indicative measures crucial in this assessment. One such factor is the assessment of error rates within organizational operations, as errors can significantly amplify both operational and regulatory risks, undermining efficiency and compliance.
Leveraging the predictive capabilities of artificial intelligence, particularly through supervised and unsupervised learning models, offers a potent solution in forecasting future error occurrences by identifying anomalies in data patterns.

Furthermore, AI algorithms play a pivotal role in automating root-cause analysis processes, drawing insights from amalgamated historical and real-time data. This automated approach strengthens error mitigation strategies by providing organizations with actionable intelligence to address underlying issues effectively.
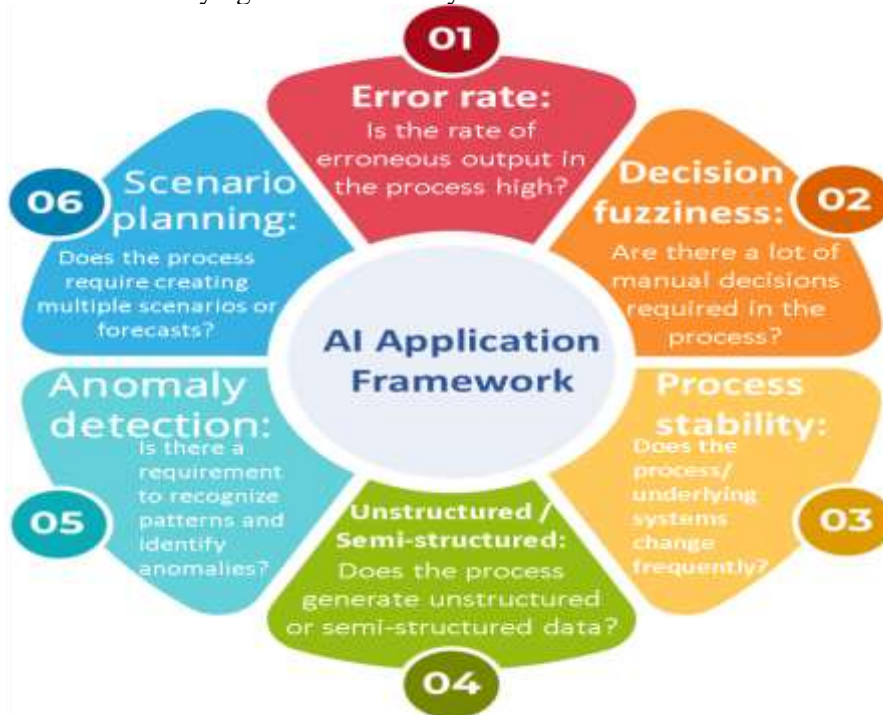

Fig 2(a) AI application framework and AI Affinity factors

By harnessing AI-powered predictions and automated root-cause analysis, organizations can proactively mitigate operational risks, enhance regulatory compliance, and foster a culture of continuous improvement [1].

In addition to error rate assessment, streamlining decision-making processes is imperative for organizational effectiveness. Excessive dependence on human intervention can hinder efficiency, thus integrating AI-driven solutions offers a promising approach. AI augments human intervention, particularly in tasks such as visual object recognition, speech recognition, basic natural language prediction, and comprehension.

By leveraging AI analysis alongside human input, organizations can effectively identify underlying patterns and insights, enabling more informed decision-making processes. This collaborative approach enhances the efficiency and accuracy of decision-making, ultimately driving organizational success in navigating complex challenges and achieving strategic objectives.
Furthermore, managing change and ensuring process stability are critical aspects addressed through AI implementation. Traditional rules-based systems often struggle to adapt to process alterations or workflow modifications. However, AI technologies offer risk forecasting capabilities that uncover pivotal risk factors associated with process changes, predicting potential failures and proactively averting risks while monitoring for emerging threats [10].
Moreover, AI algorithms excel in processing unstructured and semi-structured data, bridging data gaps and enhancing comprehensive data analysis. Additionally, AI-powered anomaly detection capabilities surpass traditional manual analysis methods, scrutinizing massive data sets across extended time frames and flagging deviations for further scrutiny.
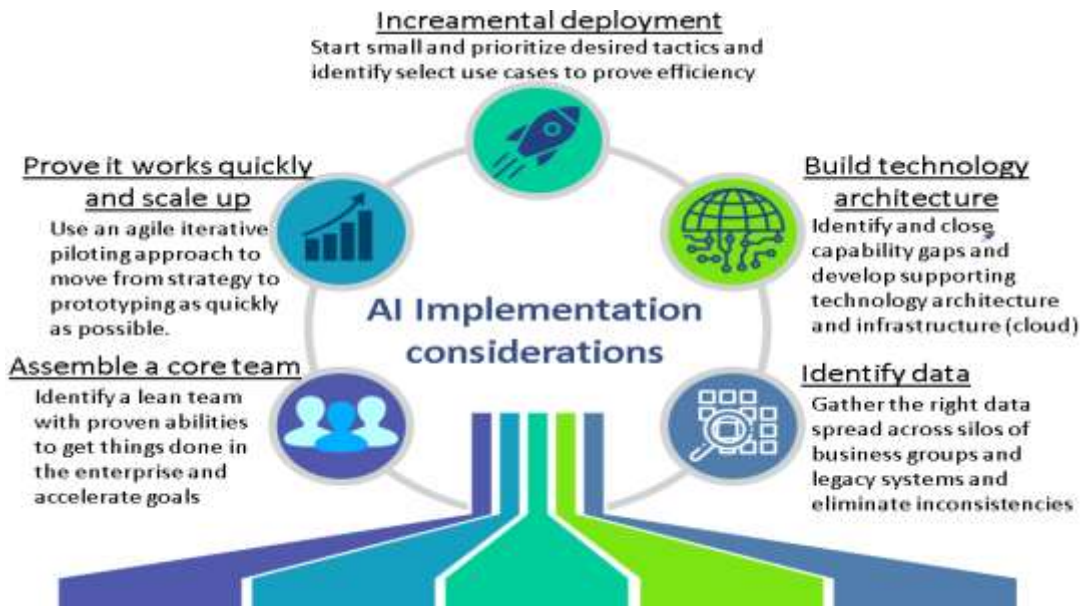
Fig 2(a) AI Implementation Considerations

Lastly, strategic scenario planning benefits from AI modeling insights, delving into both structured and unstructured data to generate nuanced and probable future scenarios aligning with organizational goals.

Strategic scenario planning stands to gain significant advantages from the insights provided by AI modeling. By leveraging both structured and unstructured data, AI can produce intricate and highly probable future scenarios that are closely aligned with the strategic objectives of the organization. This theoretical framework offers a versatile approach applicable to industries across various sectors. It facilitates the identification of relevant use cases and aids in the establishment of a targeted pipeline of problems to be addressed through the application of artificial intelligence technologies.
Ultimately, this strategic utilization of AI enables organizations to optimize decision-making processes and drive transformative initiatives tailored to their specific needs and goals [11].

Determining the best uses of artificial intelligence within an organization requires a structured method that connects technological progress with business aims. The journey starts with a thorough understanding of both immediate and long-term objectives, which allows for the identification of operational challenges through collaboration among various departments. By evaluating and ranking issues based on their importance and the practicality of AI solutions, companies can concentrate on areas where AI can deliver significant benefits.

Once potential areas for AI application are identified, companies assess the quality, availability, and usability of their data. This evaluation uncovers where data-derived insights can enhance decision-making and streamline processes. After this assessment, organizations implement pilot projects or proof-of-concept tests for the selected cases, enabling them to gauge the effectiveness and potential impact of AI technologies before larger-scale deployment.

The approach underscores the necessity for continuous evaluation and flexibility, ensuring that organizations can modify their AI strategies in response to feedback and changing circumstances. Critical aspects like tracking error rates and improving decision-making processes are essential for enhancing operational efficiency. AI can support human activities in areas such as visual and speech recognition, boosting precision and reducing dependence on manual input. Additionally, AI modeling can significantly benefit strategic planning by generating plausible future scenarios that align with organizational goals, thus fostering improved decision-making and driving significant changes.

3.   Results
To effectively introduce AI, companies must begin by analyzing their internal functions to identify specific areas where AI can tackle pressing needs. Figure 3(a) offers a methodical approach to assess readiness for AI, spotlighting key considerations, such as evaluating operational inefficiencies, that are critical in minimizing both business and regulatory

vulnerabilities. By observing problem patterns, businesses can harness AI's forecasting abilities to anticipate and avoid future challenges, ultimately improving productivity and adherence to regulations.

The predictive capabilities of AI go beyond initial detection, with automated diagnostic tools that allow firms to assess historical and current information to pinpoint underlying causes of recurring problems. This provides faster, clearer insights, helping to directly address root causes of operational inefficiencies. By minimizing error frequencies and enhancing rule compliance, AI becomes indispensable in building a forward-thinking approach to risk handling, ultimately reinforcing the organization's stability and adaptability.

AI's influence also revolutionizes how companies make decisions, reducing dependency on manual processes and making workflows more efficient. Working in conjunction with human input, AI strengthens decisions by assisting with image interpretation, understanding spoken language, and interpreting text. This collaboration not only accelerates processes but also refines the quality of decisions, helping the organization move toward its goals with greater confidence and alignment.

Moreover, AI's adaptability in handling changes within organizational processes provides essential support for consistent operations and foreseeing potential risks. While conventional systems often find it challenging to adjust to new workflows, AI can proactively anticipate issues related to changes. With its power to analyze large, unstructured data sets, AI also delivers scenario-based insights, giving firms a realistic outlook on future possibilities. This strategic AI approach helps businesses anticipate obstacles, meet their long-term goals, and secure a competitive position across different industries.
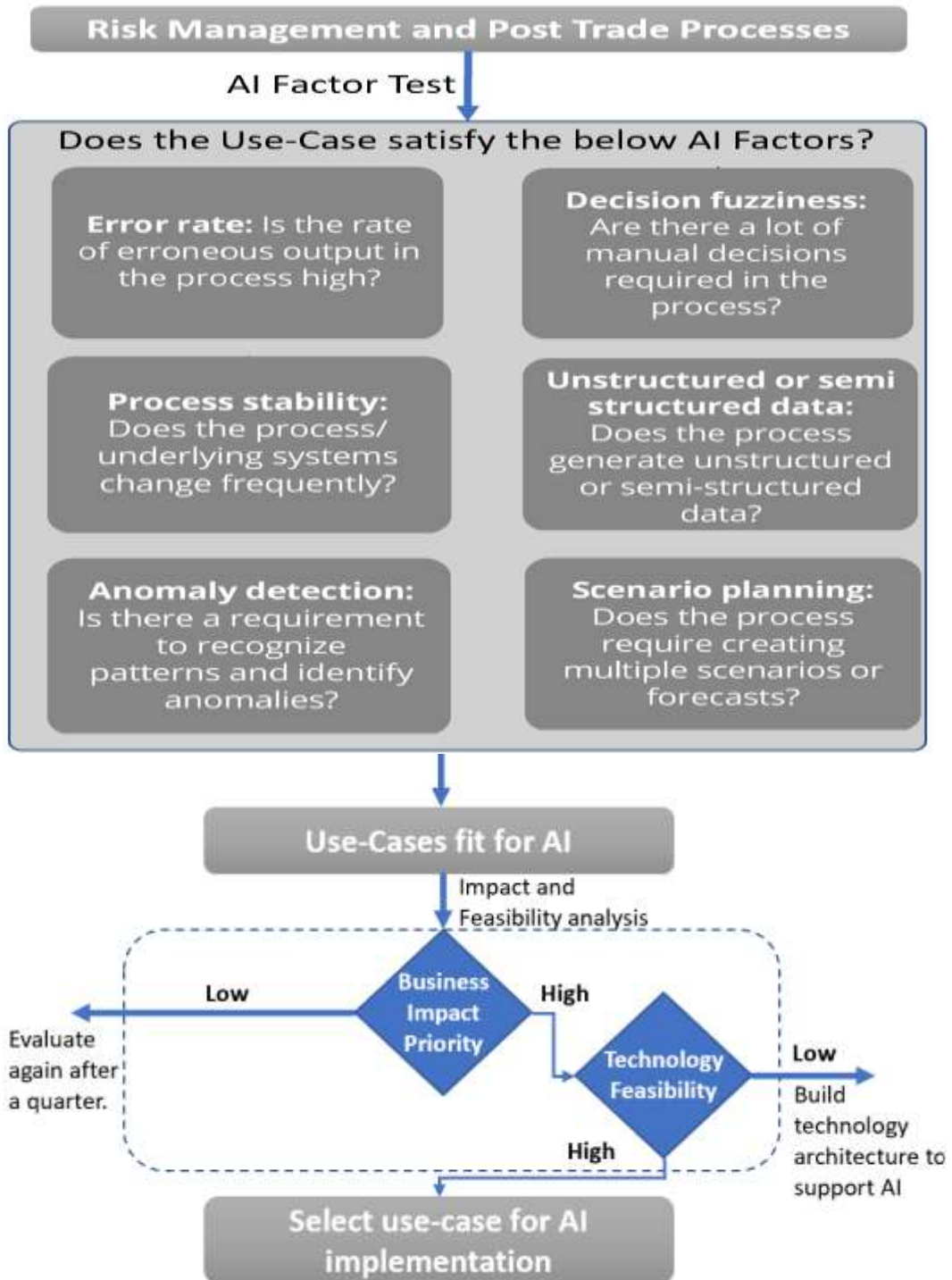
Figure 3(a) Methodical approach to AI adoption

Table 3(a) Elements for selecting AI solutions in after-trade situations

Elements	Explanation	Evidence	Use case
Frequency of inaccuracies	Frequent process inaccuracies threaten both operational efficiency and regulatory adherence. AI leverages supervised and unsupervised techniques to anticipate potential issues by detecting anomalies. It automates root cause investigation, drawing on historical and live data to enhance accuracy and trustworthiness.	• Occurrences of policy violations during the previous year. • Deviations in consistency for reconciliation activities. • Number of help-related requests. • Typical rate of flawed outcomes.	Irregularities in trading actions. Incomplete transaction processing. Errors in distribution.
Perceptual vagueness	A rise in the need for human engagement in selecting options results in elevated inefficiencies in operations. Human contributions facilitate the identification of visuals and sounds, along with fundamental language predictions and interpretations. Machine analysis uncovers trends and establishes protocols to resolve unclear choices, especially as the challenges of selecting options become more complex.	Total personnel participating in the task. Volume of individual confirmations. Aggregate of interruptions necessitating manual modifications.	Transgression of trading regulations

Workflow stability	Changes in operations put pressure on standard systems. AI forecasts and alleviates issues linked to adjustments by detecting risk components and tracking possible hazards. It offers significant advantages for unstable practices that undergo frequent alterations.	How often workflows or systems are modified. Launch of novel asset categories.	Validation of assets with associates for recently launched classifications in non-exchange transactions.
Incompletely arranged information	Smart algorithms adeptly process data that is either chaotic or somewhat arranged, exceeding the capabilities of standard statistical approaches. They form relationships between well-ordered and chaotic information, with the performance of AI advancing as the significance, lucidity, and correctness of the unstructured or semi-structured data improve.	Total of different data origins. Amount of irregular documents generated. Intake of responses or issues.	Client concerns communicated through different platforms.
Irregularity recognition	Recognizing deviations necessitates reviewing information over lengthy timeframes or within substantial datasets. Traditionally, this has been the responsibility of analysts or risk managers conducting manual examinations. Intelligent algorithms are particularly proficient at evaluating vast quantities of data over extended periods, revealing trends, patterns, and inconsistencies.	Frequent modifications of standing settlement guidelines in relation to recorded update rates. Noticeable discrepancies in standing orders against existing market values.	Prompt identification of deviations in current orders. Outdated or erroneous standing settlement guidelines.

	Consequently, AI enhances efficiency in tasks reliant on human detection of anomalies.		
Emergency readiness	Anticipating multiple situations requires assessing various organized and disorganized components, establishing links, and predicting beneficial outcomes for the entity. Intelligent models analyze large datasets, revealing relationships and connections among different variables, generating likely and unlikely scenarios. AI facilitates extensive forecasting, bolstering scenario analysis initiatives.	Assignment of security and necessary reductions. Changes in market dynamics and peak funding levels.	Optimizing the use of security. Regulating available funds.

For successful AI integration, organizations must effectively recognize their obstacles, specify possible advantages, select appropriate data, cultivate necessary competencies, and address operational challenges. Given constraints in resources and budgets, strategic planning is vital for promoting the deployment and adoption of AI solutions. Figure 3(a) highlights the essential elements that organizations should consider for a smooth AI integration process. Initiating pilot programs that concentrate on specific use cases is an essential phase before broader implementation, as it enhances organizational trust and reduces initial resistance to change.

This step-by-step approach is crucial for building confidence and securing support throughout the organization.

After identifying high-impact business scenarios that demonstrate strong technological feasibility, organizations can move forward with implementation. Despite the notable rise in AI adoption among businesses, many encounter challenges when it comes to executing and deploying this technology, often finding the process overwhelming [12].

For effective artificial intelligence implementation, businesses should begin by analyzing their internal systems to identify particular areas where AI can resolve significant challenges. A structured method for evaluating readiness for AI, highlighted in Figure 3(a), underscores the necessity of pinpointing operational inefficiencies that can help lessen both business and compliance risks. By detecting patterns in current issues, organizations can utilize AI's forecasting abilities to anticipate and mitigate future obstacles, thereby boosting productivity and adhering to regulatory standards. Moreover, AI's automated diagnostic capabilities allow firms to examine both historical and present data, leading to faster and clearer identification of root causes for ongoing problems, ultimately reducing errors and enhancing compliance.

AI not only revolutionizes decision-making by minimizing dependency on manual processes but also optimizes workflows. Through collaboration with human input, AI improves the accuracy of decisions, especially in tasks such as visual and speech recognition. This synergy not only speeds up operations but also aligns the organization's efforts with its strategic goals. Furthermore, AI's adaptability in managing changes within workflows fosters operational stability and foresees potential risks. In contrast to conventional systems that may struggle with procedural updates, AI can proactively spot and resolve issues associated with changes, providing valuable insights from vast unstructured data sets. This strategic use of AI assists organizations in overcoming challenges, meeting long-term objectives, and securing a competitive advantage in diverse industries.

To achieve successful AI integration, organizations need to recognize challenges, articulate potential advantages, choose pertinent data, cultivate essential skills, and tackle operational hurdles. Given the constraints in resources, meticulous planning is crucial for promoting the rollout and acceptance of AI solutions. Figure 3(a) identifies fundamental elements necessary for a seamless integration process, including the initiation of pilot projects that focus on specific use cases to foster trust and diminish resistance to change. This incremental strategy is crucial for building confidence and securing support throughout the organization. Once impactful business scenarios that demonstrate technological viability are recognized, organizations can advance with implementation. Nevertheless, many still encounter challenges in executing and deploying AI solutions, often perceiving the process as overwhelming despite the growing trend of AI adoption across various sectors.

4. Conclusion

For successful AI implementation, organizations must precisely outline challenges, delineate advantages, select pertinent data, cultivate necessary expertise, and surmount operational barriers. Given limited resources and financial constraints, strategic planning is essential to

propel the deployment and integration of AI. Figure 3(b) details the considerations to be taken by organisations for AI implementation.

Establishing pilot initiatives centered on specific use cases precedes enterprise-wide implementation, fostering organizational trust and addressing initial reluctance toward change. This phased approach is pivotal in instilling confidence and securing buy-in throughout the organization.

In embarking on the path towards implementation, organizations are urged to undertake a thorough assessment of their post-trade protocols to ascertain the potential applicability of artificial intelligence solutions in resolving inherent challenges. Various factors delineate processes conducive to AI analysis as opposed to conventional programmatic methods. Herein, we delineate pivotal factors and indicative metrics to assist entities in gauging the suitability of their operations for AI integration. It is imperative for each organization to customize these factors by establishing additional metrics and benchmarks, thereby facilitating the identification of pertinent use cases [12].
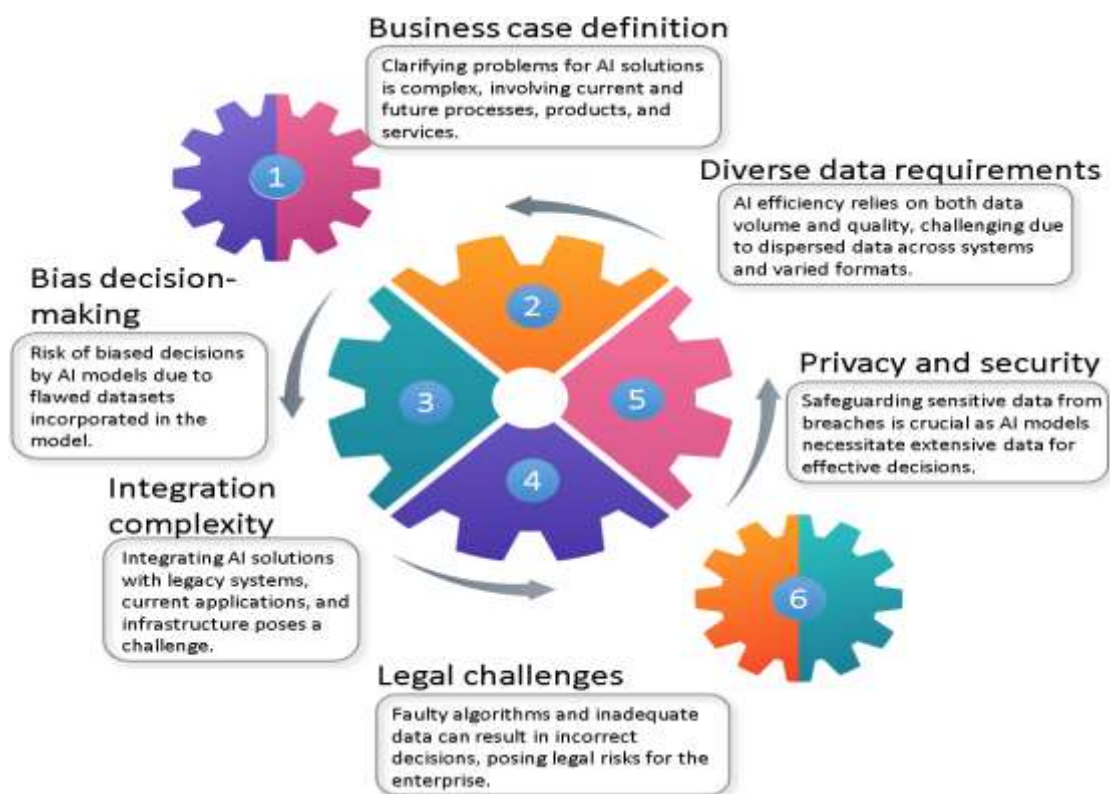

Business case definition
Clarifying problems for AI solutions is complex, involving current and future processes, products, and services.

Diverse data requirements
AI efficiency relies on both data volume and quality, challenging due to dispersed data across systems and varied formats.

Bias decision-making
Risk of biased decisions by AI models due to flawed datasets incorporated in the model.

Privacy and security
Safeguarding sensitive data from breaches is crucial as AI models necessitate extensive data for effective decisions.

Integration complexity
Integrating AI solutions with legacy systems, current applications, and infrastructure poses a challenge.

Legal challenges
Faulty algorithms and inadequate data can result in incorrect decisions, posing legal risks for the enterprise.

Fig 4(a) Considerations for production implementation

Upon pinpointing high-impact business use cases with strong technological feasibility, organizations move towards implementation. Despite the notable acceleration in enterprise AI

adoption, many entities encounter challenges in executing and deploying this technology, often finding it an intimidating process.

Organisations should consider the AI implementation considerations detailed in Figure 3(b) for accelerating the AI implementation.

To effectively harness the power of artificial intelligence, companies must first pinpoint areas where its application can generate substantial value and determine how it fits with their technological capabilities. This is particularly challenging in fields like settlement operations, which are characterized by intricate processes, vast volumes of data, and a constantly shifting regulatory landscape. Figure 4(a) shows a thoughtful and targeted approach is essential for overcoming these complexities and leveraging AI to streamline workflows and improve overall effectiveness [13].

The path to integrating AI is fraught with numerous challenges, including articulating a clear business rationale and ensuring that data used for AI initiatives is both comprehensive and reliable. Organizations must also prioritize data protection and privacy, safeguarding against breaches while maintaining the quality of information.

Another critical concern is the risk of bias in AI-driven decisions, which could distort outcomes if not properly managed. The incorporation of AI into existing frameworks, especially those involving older technologies, further complicates the process and demands careful planning and execution.

Moreover, legal and regulatory considerations add another layer of complexity, as organizations must ensure that AI systems adhere to evolving standards and avoid potential liabilities associated with data inaccuracies or algorithmic errors. Successfully navigating these challenges requires a comprehensive strategy that encompasses technical, ethical, and regulatory dimensions. By addressing these factors proactively, companies can maximize the advantages of AI while minimizing risks, positioning themselves to fully capitalize on the opportunities presented by this transformative technology [14].
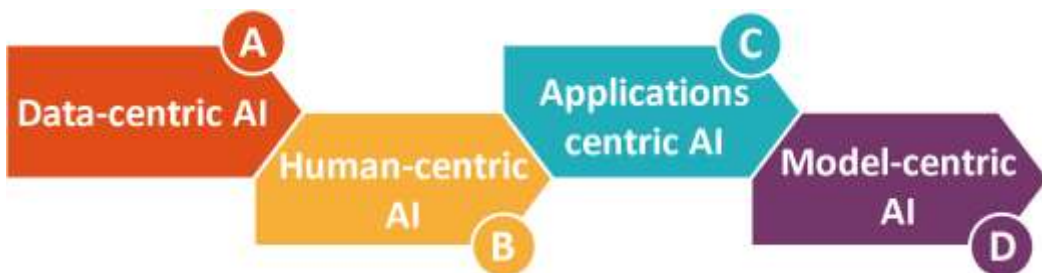

Fig 4(b) AI adoption maturity model

The adoption of artificial intelligence is poised for substantial growth across multiple significant areas. One of the key developments is the increasing use of synthetic data, which effectively alleviates financial and temporal constraints related to machine learning development, thus bolstering initiatives focused on data utilization. As organizations become more aware of the importance of ethical considerations in technology, the incorporation of digital ethics into the governance of AI-related trust, risk, and security will be vital for

advancing applications centered around human needs. This shift towards ethical frameworks will not only enhance public trust but also promote responsible use of AI technologies [16].

In addition to these trends, the emergence of more compelling business cases is anticipated, particularly with decision intelligence and edge AI likely to see widespread acceptance in the next two to five years, leading to substantial transformative impacts. Furthermore, the convergence of various AI techniques, known as composite AI, is expected to gain traction within a similar timeframe. This approach promises to deliver significant advantages by enabling organizations to adopt innovative strategies and practices across diverse industries, ultimately driving meaningful changes in industry dynamics and fostering a more competitive landscape. As these advancements unfold, businesses will need to remain agile and responsive to the evolving demands and opportunities presented by artificial [17].

5. References

[1] U. Lichtenthaler, Extremes of acceptance: employee attitudes toward artificial intelligence, Journal of Business Strategy, 2020, [41(5), 39-45].

[2] B. Mytnyk, O. Tkachyk, N. Shakhovska, S. Fedushko, & Y. Syerov, Application of artificial intelligence for fraudulent banking operations recognition, Big Data and Cognitive Computing, 2023, [7(2), 93].

[3] A. S. Villar & N. Khan, Robotic process automation in banking industry: a case study on Deutsche Bank, Journal of Banking and Financial Technology, 2021, [5(1), 71-86].

[4] A. Tserkovny, Some Considerations about Fuzzy Logic Based Decision Making by Autonomous Intelligent Actor, Journal of Software Engineering and Applications, 2022, [15(2), 19-58].

[5] P. Mikalef, K. Conboy, J. E. Lundström, & A. Popovič, Thinking responsibly about responsible AI and 'the dark side' of AI, European Journal of Information Systems, 2022, [31(3), 257-268].

[6] I. Lee & Y. J. Shin, Machine learning for enterprises: Applications, algorithm selection, and challenges, Business Horizons, 2020, [63(2), 157-170].

[7] Y. Yang, Y. Zhuang, & Y. Pan, Multiple knowledge representation for big data artificial intelligence: framework, applications, and case studies, Frontiers of Information Technology & Electronic Engineering, 2021, [22(12), 1551-1558].

[8] E. H. Manser Payne, J. Peltier, & V. A. Barger, Enhancing the value co-creation process: artificial intelligence and mobile banking service platforms, Journal of Research in Interactive Marketing, 2021, [15(1), 68-85].

[9] G. P. Shipley & D. H. Williams, Critical AI Theory: The Ontological Problem, Open Journal of Social Sciences, 2023, [11(12), 618-635].

[10] S. O. Babatunde, O. A. Odejide, T. E. Edunjobi, & D. O. Ogundipe, The role of AI in marketing personalization: A theoretical exploration of consumer engagement strategies, International Journal of Management & Entrepreneurship Research, 2024, [6(3), 936-949].

[11] J. Truby, R. Brown, & A. Dahdal, Banking on AI: mandating a proactive approach to AI regulation in the financial sector, Law and Financial Markets Review, 2020, [14(2), 110-120].

[12] M. Ala'raj & M. F. Abbod, Classifiers consensus system approach for credit scoring, Knowledge-Based Systems, 2016, [104, 89-105].

[13] E. Mogaji & N. P. Nguyen, Managers' understanding of artificial intelligence in relation to marketing financial services: insights from a cross-country study, International Journal of Bank Marketing, 2022, [40(6), 1272-1298].

[14] J. Rosenbaum, J. Pearl, & J. R. Perella, Investment Banking Valuation, Leveraged Buyouts, and Mergers & Acquisitions, John Wiley & Sons, 2023, [p. 236].

[15] M. S. Caron, The transformative effect of AI on the banking industry, Banking & Finance Law Review, 2019, [34(2), 169-214].

[16] M. Rahman, T. H. Ming, T. A. Baigh, & M. Sarker, Adoption of artificial intelligence in banking services: an empirical analysis, International Journal of Emerging Markets, 2023, [18(10), 4270-4300].

[17] H. Vijayakumar, The Impact of AI-Innovations and Private AI-Investment on US Economic Growth: An Empirical Analysis, Reviews of Contemporary Business Analytics, 2021, [4(1), 14-32].