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Experts in AI & Data Utilising cloud solutions
to drive business transformation.

Generative AI in Financial services IT modernisation:

A guide for CIOs and CTOs

New artificial intelligence (AI) technologies, such as large language models (LLMs), offer a lot of promise to banking, insurance and financial services, but need to be implemented with care, and as part of a broader IT modernisation strategy.

INTRODUCTION

Generative AI is a category of artificial intelligence that can create new content based on existing data. The technology has been widely hailed as having the potential to revolutionise industry, and we are already seeing clear signs of its adoption. For example, generative AI is being used to create realistic images, generate text, and even compose music. However, in order to be deployed in financial services, a number of legal and technical considerations need to be kept at the forefront.

Chief information officers (CIOs) and chief technology officers (CTOs) today find themselves tasked with reporting to the C-suite on the opportunities and risk of the AI boom. As a leading partner to businesses, including in the financial services sector, TEKenable has produced this guide to the fast-changing AI landscape, exploring what it means for financial enterprises, particularly in light of ongoing and much-needed IT modernisation processes.

AI TODAY: GENERATIVE AI IS ALREADY PRESENT IN FINANCIAL SERVICES

Although in its early days, generative AI is expected to have a significant impact on the banking and wider financial services sector. Augmenting existing use of data, generative AI can build on large proprietary datasets to generate new data and insights as well as drive efficiencies in business operations.

However, risks need to be taken account of. Not only is financial services a closely regulated sector, wider regulation of AI in general is on its way under the auspices of the European Union's Artificial Intelligence Act (EU AI Act) and similar legislation.[1] In addition, while the financial services sector has been modernising its operational IT, it is fair to say that it is still held back by reliance on legacy systems.

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For example, a 2022 survey published by Accenture found that most banks "still rely on older mainframe technology for most core business functions, including customer records, payments, investments, risk and compliance". The need for modernisation is not lost on banks.

82%

Of those surveyed said that they planned to move more than half of these workloads to the cloud.

Aimed to move more than three-quarters.[2]

22%

Indeed, the introduction of novel technology such as generative AI is ongoing. Several major financial institutions are already on the record as working to investigate uses for generative AI:

- **JP Morgan Chase** is developing IndexGPT, a chatbot-based investment advisor, extending the capabilities of already existing 'robo advisors' [3]
- Netherlands-based **ABN Amro** is using GPT transformer technology to summarise contact centre interactions [4]
- Spain-based international bank **Banco Bilbao Vizcaya Argentaria (BBVA)** has said it is exploring generative AI and LLMs [5]
- Speaking at the Money 20/20 conference in Amsterdam, Chalapathy Neti, head of AI at messaging and transfer network **Swift,** described the progress made with generative AI as "mind-boggling" and "a transformative moment"
- **Goldman Sachs** is experimenting with using generative AI to augment internal coding and development [6]
- **Citigroup** chief executive Jane Fraser has said the bank is using generative AI to "drastically improve productivity" [7]
- **Microsoft** expects the insurance industry to use generative AI in underwriting and claims management [8]

Clearly, businesses in the financial services sector today are being presented with a real opportunity.

At TEKenable, our view is that the correct order of events is to first define a company stance on AI, to investigate potential applications with a focus on low-risk and improved operational efficiency, and finally to deploy generative AI as an integral aspect of IT modernisation.

USE CASES FOR GENERATIVE AI

AI is nothing new. In fact, for over a decade, machine learning (ML) and AI have been instrumental in financial services, enabling a number of functions such as better underwriting, improved fraud prevention and more rapid Know Your Customer (KYC) compliance.

Generative AI, however, is new. As a result, not all future use cases for it are entirely clear, and will reveal themselves over time. However, what can be said is that given financial institutions are in possession of large, proprietary datasets, and indeed have long done business on the basis of data, they are in an ideal position to benefit from the AI boom.

As noted above, **institutions including major banks are already experimenting with generative AI.** While customer-facing AI working on actual financial processes, such as Goldman Sachs' IndexGPT are interesting, the safest route to beginning an AI journey is to use it on ancillary processes. ABN Amro's use of an LLM to summarise customer interactions, for instance, is an example of a relatively low-risk application of AI that has the potential to generate value by simplifying complex processes as well producing new and useful information such as customer sentiment.

It is widely accepted that **generative AI has demonstrated an ability to both augment and automate tasks, leading to heightened operational efficiency.** In both cases, this streamlining of operations enhances overall effectiveness by accelerating processes and reducing human errors.

Given this, **key initial applications** for implementation of generative AI are in automation and efficiency, and workforce augmentation, including:

- **Augmenting human decision-making** in areas such as financing or underwriting
- **Coding and development** as part of IT modernisation
- **Extracting information from data;** including chat logs and transactions, for a variety of purposes from marketing to fraud prevention

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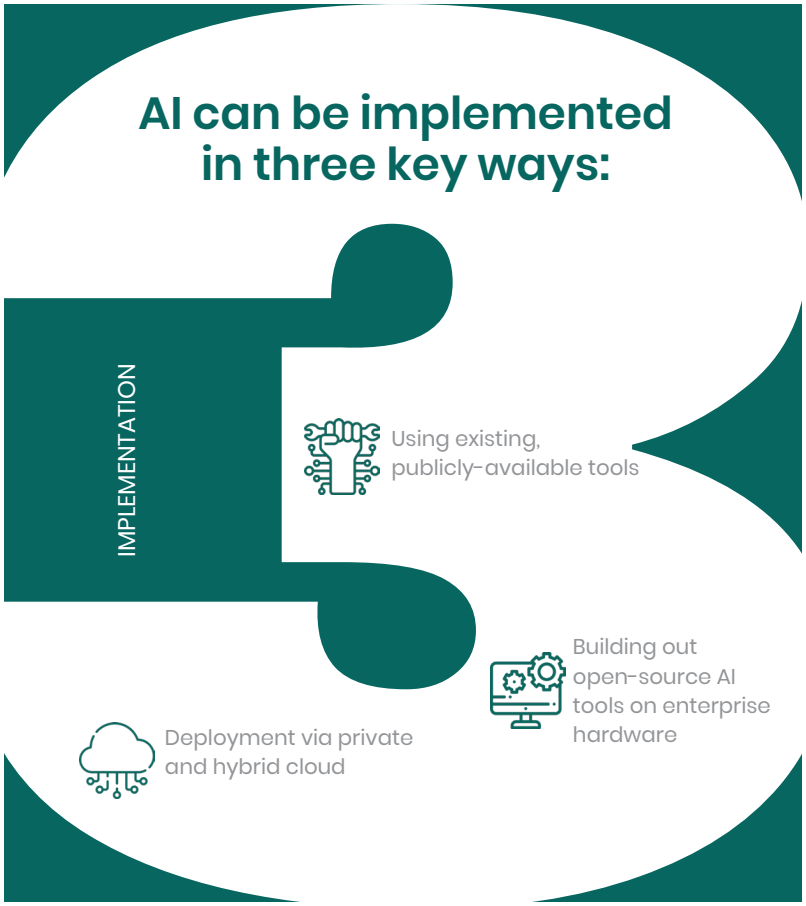
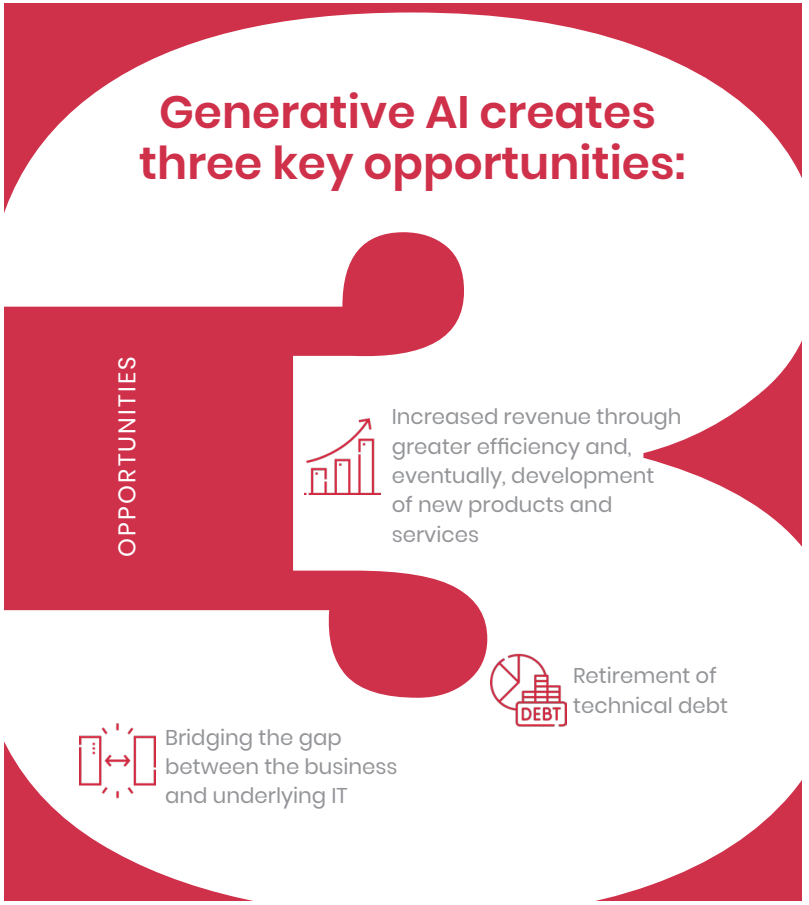
DIGITAL MODERNISATION

The key challenge facing financial institutions with generative AI is the fact that it must be integrated into existing technology stacks that are already widely considered in need of modernisation. In this context, AI can form a pillar in CIOs and CTOs making the case for upgrading enterprise technology architecture.





Naturally, use of existing, publicly-available tools is not suitable in business, and should be considered a form of "shadow IT". The risk of intellectual property (IP) and data leakage alone should result in a company-wide policy banning use of web-based tools such as ChatGPT, Bard and Bing.

DIGITAL MODERNISATION (continued)

Building out AI using open-source tools on enterprise hardware, including on-premise, is an option, but brings with it significant disadvantages. Not only is on-premise hardware expensive to purchase and maintain, it adds complexity: setting up and managing an on-premise generative AI system will require significant investment and necessitates scarce expertise. As a result, building a separate tech stack for generative AI will create more complexities than it solves. In addition, on-premise systems can be difficult to scale, especially as data and needs grow. In view of existing technology bottlenecks created by the use of legacy on-premise infrastructure in financial services, few will view adding to this infrastructure as an appealing prospect.

As a result, the natural path for generative AI is deployment via private and hybrid cloud. This allows for flexibility and scalability, as well as leveraging the expertise of the likes of Microsoft and service provision partners, by applying AI to underlying core data.

Crucially, it does this in private instances, thereby ensuring no data leakage. To generate value, AI applications must be able to work both together as well as with existing systems. Therefore, implementation of useful generative AI, which by its nature requires access to multiple applications and data sources, should form part of a broader IT modernisation strategy.

Integration and orchestration frameworks allow for the efficient and secure integration of multiple applications and data sources, which is essential for the implementation of useful generative AI. This is important because generative AI applications may need to access data from a variety of sources, such as not only transaction records from the likes of a core banking system or an actuarial system, but also customer relationship management (CRM) systems, risk-management, fraud-detection and more.

The quickest win is to apply generative AI to already-modernised applications. This will not only create business value in its own right, but, crucially, serve as a showcase of the potential of AI and, as a result, help to overcome any inertia around IT modernisation. From here, constant tracking and measuring of its impact can be used to demonstrate a clear value proposition to other business systems and/or units.

At this point, a wide reimagining of the entire enterprise technology function can be undertaken. While "if it ain't broken, don't fix it" is a fine dictum, especially given the history of failures when it comes to "big bang" migrations, financial services CIOs and CTOs will be well aware that while legacy IT may not be broken, it is a significant drag on businesses.

Both technical debt and general dislocation between IT and business operations are major problems that need to be faced. Generative AI will allow financial services businesses to more effectively exploit resources, whether by unlocking value from data or augmenting or by streamlining the application modernisation process itself.

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COMPLIANCE AND GOVERNANCE

It will come as no surprise to CIOs and CTOs in the financial services sector that regulation and compliance hamper the industry's ability to deploy and modernise IT systems. Faced not only with the potential for operational risk of migrations, but some of the tightest regulations of any industry, financial services providers have often held off on through going IT modernisation.

However, market demands today are driving increased interest in replacing legacy systems with cloud-based applications that can respond to a fast-moving environment. At the same time, regulation itself is promoting change. For example, the EU's Digital Operational Resilience Act (DORA) demands that all financial institutions (and other entities that provide essential IT services to the sector) identify and assess their IT-related risks, including cyber attacks, natural disasters, and other disruptions, as well as implement and report on appropriate measures to mitigate these risks. This includes measures such as backup and recovery plans, and incident response plans.[9]

In this context, moving forward with long-avoided IT modernisation is becoming an increasingly appealing prospect. However, other regulations may result in confusion and reluctance to progress. Indeed, aside from the aforementioned DORA, financial services is subject to a growing nexus of regulations, and this will only increase with the widespread adoption of AI.

Concern about how data is processed, including the possibility that it could lead to discrimination, led to the EU's General Data Protection Regulation (GDPR). Specific laws regulating AI are on the way, too. **Currently in its final stages, the Artificial Intelligence Act (AI Act) will become law across the EU in late 2023 or early 2024.**[10] The Act classifies AI applications according to a risk ranking, ranging from "unacceptable risk" to "minimal risk".

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COMPLIANCE AND GOVERNANCE (continued)

AI applications in financial services, at least those that work with customer data and decision-making, will be classified as “high-risk” as they have the potential to affect a person’s life. As a result, these applications will be required to guarantee transparency and accurate data, including conducting a prior “conformity assessment”.

It is important to note that even lower-risk applications, such as use of AI to interrogate customer contact data, could result in sensitive information being processed.

However, generative AI itself creates new risks, including:

- so-called “hallucinations”, where generative AI models create an incorrect response based on the highest-probability response
- accidental release of confidential, personally identifiable information (PII)
- bias derived from the data sets the models use
- uncertainty related to the uses, sources and protection of intellectual property (IP)

This is the environment in which financial institutions are now operating.

While the opportunities presented by generative AI cannot be ignored, compliance risks must be a primary consideration. Anecdotally, financial services businesses have shown signs that they are aware of the risks. For example, in August 2023 it was revealed that several major banks had banned internal use of ChatGPT.

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CONCLUSION: TAKING THE NEXT STEP WITH GENERATIVE AI

Generative AI is not a tech fad and the AI boom that it has unleashed will have an enormous impact both across society and inside individual businesses. As a result, it cannot and should not be ignored. However, the risk of ignoring a technological revolution must be measured against other risks, including both the haphazard application of the technology and the novel risks that are inherent to the technology itself.

TEKenable's view is that the financial services sector is in a position to move quickly by immediately adopting low-risk uses of generative AI.

In order for this to be done, we advise CIOs and CTOs to urge boards to do the following:

Determine the company's posture on the adoption of generative AI

Evaluate the new risk landscape and establish ongoing mitigation practices to address models, data, and policies.

Identify AI use cases that create value first through improved productivity, and deploy them advantage of existing services, with an eye to developing new business uses later

Reimagine the technology function, including by building generative AI capabilities in software development and technical debt reduction

Based on this, upgrade architecture to integrate and manage generative AI models and orchestrate how they operate with each other and existing AI and ML applications, and data sources

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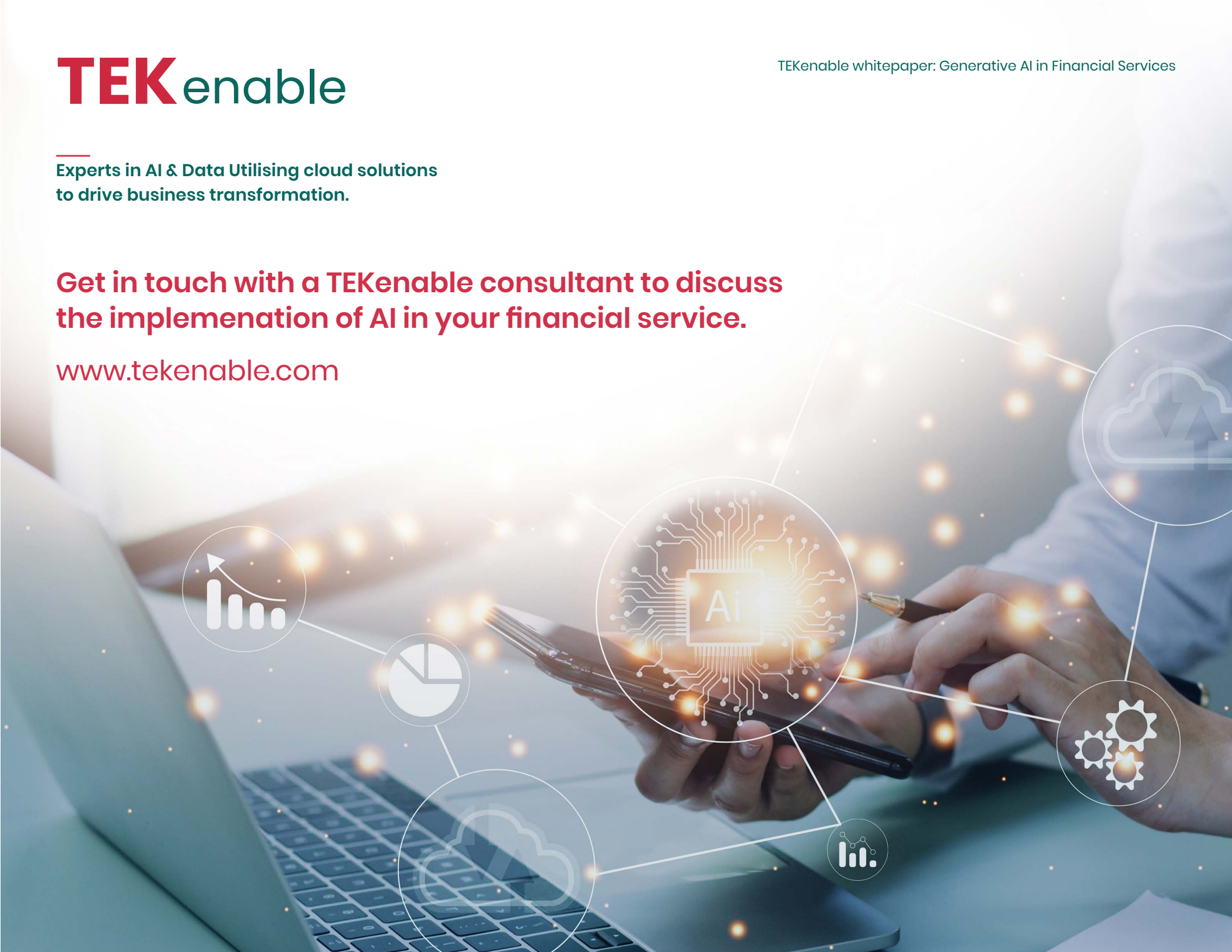

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