Digitizing Legacy Systems with Secure Generative AI

Co-created by **Emerj Artificial Intelligence** and **Charli AI**

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INTRODUCTION

In 2023, consumers expect the same functionality from their financial institutions (FIs) as they do from personal technology. Enterprise financial leaders are finding that providing consumers with such fluid experiences means either digitizing their legacy systems and properly cultivating data from across the enterprise, or risk losing their customer base to competitors who will.

As predicted by studies from the tail end of the pandemic, digitalization is driving the centralization of decision-making in the banking sector. Part of why these institutions are tightening their grip is the number of customers slipping through their fingers. According to the National Community Reinvestment Coalition, 9% of all banking branch locations were closed between 2017 to 2021.

That means understanding that data is not just ones and zeroes but the body of paper record-keeping documents they have been carrying throughout the institution's history. Or in the words of the aforecited Yale Law and Economics Yearly Review for 2020, *"Digital operational models means [sic] activating the possibility of adapting and optimizing processes by making use of data that can be inferred from intelligent analyses and with limited margins of error."*

Data is also an obstacle in meeting these goals, especially as banks and FIs increasingly find themselves overwhelmed in a digital landscape where every customer and employee activity is tracked.

As technology sea-changes shift rapidly, legacy banks in particular are reluctant to experiment with new ways of operating that could potentially undermine their data security. In a survey for The Economist last year, 62% of banking executives said that the risk of AI adoption projects involving personal data outweighs the benefits to the customer journey.

AI capabilities have an essential role in not just sorting out the mess but allowing that organizational data transcends the push and pull of technological advances. In the words of Kevin Collins, CEO of Charli AI, true AI for financial services must enable full, trusted and secure accessibility of data for an enterprise *"from the cradle to the grave."*

That also means recognizing while AI technologies can competently provide institutions with these benefits when properly executed, they are not all-powerful.

Kevin Collins
CEO & Founder at Charli AI

Speaking before the executive audience attending a recent webinar produced in partnership with Emerj, Kevin explains this means leaders must understand what AI is truly capable of and what enterprise practices best ensure successful adoption – especially in financial services.

The purpose of this white paper is to explain to financial services leaders:

- What AI technologies are best suited to help financial service firms find ROI in leveraging information across their entire organizations.
- The level of transparency needed from solutions for end users, both in training and regular practice.
- The level of integration necessary to ensure compliance and security by automatically "orchestrating" inputs and outputs between learning models.

First, we will explain why the nature of business problems with legacy tech stacks make financial services enterprises so susceptible to hyperbolic marketing from AI vendors.

THE SHOEBOX PROBLEM AND "ALL-POWERFUL" AI SOLUTIONS

Across the financial services sector – including tax, audit, equity, compensation, insurance, and commercial real estate – firms are overwhelmed by the sheer volume of information coming from the onset of mass digitization. Sometimes this is referred to as the 'democratization' of data.

Legacy tech stacks that were already facing problems keeping up with modern technology from decades of efficiency-oriented directives now stand to fall insurmountably behind in the process.

The problem of overwhelming data and tech stacks is one referred to by much of the industry as "the shoebox problem," or legacy firms treating their tech stacks as a place to "shove" data for the sake of short-term decision making – like a stack of receipts in a shoebox.

Unfortunately, Kevin tells the webinar audience, the relentless march of technological advance only makes the problem worse:

> *"If you think about an enterprise organization that goes to their accounting firm in order to do all of their tax filings throughout the year, it is a massive amount of due diligence that our customers have to go through to onboard this new client.*
>
> *It's the digital shoebox that is now exacerbated by the fact that their content is all over the place: it's in email inboxes – it is within 1000 different applications that we use throughout the day. And that could be as simple as our mobile apps. We're all using different note-taking capabilities, we're all using different email systems, we're all using different video conferencing and tracking information differently. Whether it's PDFs, Word documents, Excel spreadsheets, or enterprise databases it is now all over the place."*
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> **Kevin Collins**
> CEO & Founder at Charli AI

True to the name, the worst cases of the shoebox problem descend from an 'out of sight, out of mind' mentality in leadership decision-making that cannot realize the value of data beyond immediate monetary and labor costs of frequently substandard storage.

In terms of security and compliance concerns – such approaches couldn't be more risky, even if many legacy financial institutions find themselves caught between competing digitization and security goals.

The shoebox problem exacerbates as the wheels of technological change turn and systems not only continue to suffer from overload, but suddenly they're also outdated. Like dominoes, problems then flow down to the rest of the organization that usually include:

- Difficulty retaining institutional knowledge and skilled employees trained in older processes.
- Time-to-market for new products from older financial institutions can't keep pace with newer startups.
- Turnaround time with financial services customers eats into margins for legacy institutions, opening doors for competitors.
- Increased insecurity of company and consumer data and increased compliance risk.

Adding to these challenges is an AI vendor landscape riding a crescent of hyperbolic media attention that cannot properly contextualize the exacting capabilities of these technologies, often depicting them as "all-powerful."

No matter how powerful a solution is, AI capabilities are significantly diminished when deployed in silos. Consequently, typically proficient solutions underdeliver – sometimes unjustifiably leading to certain technologies being branded as "hype."

The reality of artificial intelligence is that as powerful as they are, no solution is all-encompassing. Unleashing their true potential often depends on the organization.

Machine learning models available today demonstrate significant value to companies, but only if they're willing to spend the time to train and properly implement them in their systems. What is often under-explained by IT and vendor sales teams is that these models are designed to work in specific functions, use cases, and data sets. Many solutions available in the market are based on bespoke models that can only solve one problem at a time.

These models are also often attached to system back ends and are meant to measure their analytical output. Replicating the process across an enterprise requires an army of highly skilled professionals working around the clock in every part of the business.

Even still, many of these AI capabilities deployed in isolation are capable of being deployed across an organization's entire tech stack:

> *"We have discovered that it's not as simple as going in and just pulling off the shelf machine learning algorithms or pre-trained models and implementing them in order to get the value that they're looking for within the business and more," Kevin tells the webinar audience. "If you look at our customers that have attempted to take these off-the-shelf capabilities or to implement AI within their systems, they're finding it extremely difficult to do it across all of their functions."*
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> **Kevin Collins**
> CEO & Founder at Charli AI

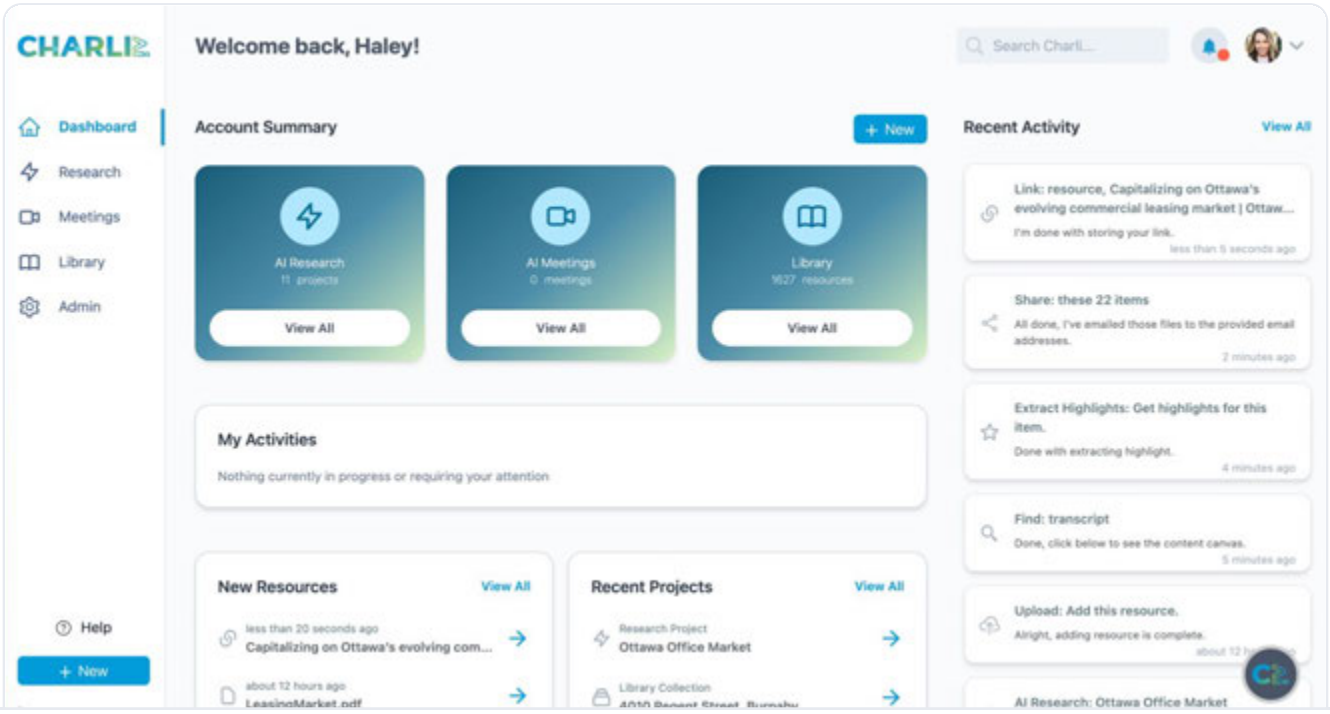
TRUE, GENERATIVE, EXPLAINABLE AI FOR FINANCIAL SERVICES THAT ELEVATES HUMAN JUDGMENT

To counter the hype from overpromised AI technologies, business leaders must have realistic and attainable criteria for AI vendors and projects in the financial services space.

Principally, AI makes a strategic approach to IT and data science teams an imperative – not merely a means to an end for data access. Businesses want to demonstrate immediate ROI in any project, but adopting AI is not quite as simple. Finding ROI is among the most significant challenges, especially as the daunting task of 'cleaning' unstructured data continues to plague machine learning and big data spaces.

To achieve ROI, "true" AI applications in financial services should have features and focus in the following three areas.

1. Engages with the Workforce (human in the loop)



- A program and interface that can serve the functionality of a 'chief of staff' that deals with the repetitive tasks or 'grunt work' of financial services.
- Contains a framework to help new teams and members process, train, and test newly introduced AI capabilities across the entire organization.

2. Seamlessly Integrates across the Organization:

- Designed to work with enterprise systems and easily integrate through an intelligent integration layer that requires zero code.
- Autonomously targets intelligence that organizations need when automating end-to-end processes within their business.

3. Features Decision Intelligence and a Network of Models:

- Are enhanced with advanced natural language processing to understand business interaction, context, and content.
- Can automatically orchestrate inputs and outputs between them.
- Are not bespoke but are customizable, and optimized enough by the enterprise to use training in previous tasks to improve performance in new tasks, such as compliance and data security.

These models must coordinate, orchestrate, and protect data between essential functions of a financial services enterprise, such as:

- Equity research and management.
- Commercial banking.
- Capital markets.
- Compensation management.
- Tax mobility and accountability.
- Compliance and audit.

Each requires different AI capabilities and data inputs to sufficiently develop an automation program – an effort that financial institutions are finding increasingly difficult to build in-house or procure from vendors in the marketplace in a way that consolidates all of these functions.

However, using broad AI and adjacent capabilities in document and unstructured data processing (machine learning, optical character recognition, RPA) only solves the data extraction problem.

> *"It's great that you might be able to extract value out of documents and spreadsheets. You might be able to go in and understand contracts and pull the values out. But you then have to do something with it."*
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> **Kevin Collins**
> CEO & Founder at Charli AI

Solving that problem of intelligent orchestration – or allowing tech stacks and the data therein to transcend format, medium, and the frustrations of technological obsolescence – requires creating new and evergreen structures for the data in those legacy systems to reside and be easily accessed.

> *"We believe that generative AI is filling that hole, it's now taking the information that can be extracted, and it's making use of it by putting it into the backend systems that need it."*
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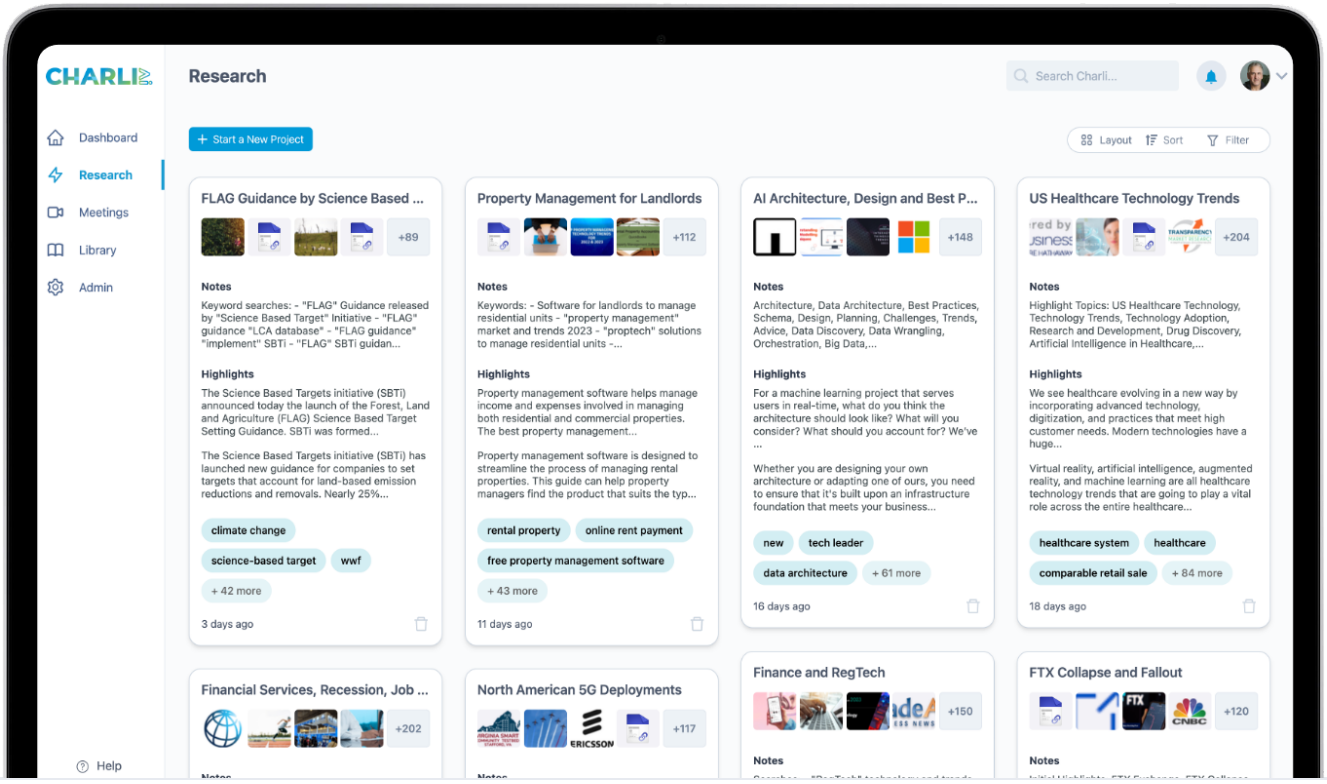
> **Kevin Collins**
> CEO & Founder at Charli AI

Kevin then cites a use case at Charli AI featuring a customer that sought to transfer four years' worth of contracts and spreadsheet farms into a backend system.



The major challenge in the project was that Charli AI needed to generate reports, not only for human consumption, but that could also help circumvent data from their legacy systems into formats that an organization can use from "cradle to grave."

In the process, Charli developed an autonomous generative AI solution that received inputs from APIs and spreadsheet farms and turned them into final outputs tailored for human and machine handling.

While processing those inputs was highly automated, the final product underscores an important lesson in "true" AI in financial services. Not only is generative AI essential to updating aging tech stacks, but to achieve genuine ROI in elevating human judgment, that technology must also be transparent.

'Explainable AI' as a discipline is only just emerging within technology spaces, but there are two most basic requirements of any system that would advertise itself as such:

- An interface that is easily understood and utilized by an individual with no training in code.
- Automatically sources and explains information critical to customer personal data and financial compliance.
- Placing human judgment at every step of a workflow that verifies processes have been followed effectively to infuse trust within a system for future users.

Kevin emphasizes the latter point regarding where human judgment is most valued in financial services workflows sufficiently enhanced by AI. Returning to the use case, he notes that human-verified review is the most efficient way for models to learn how to iron out their errors and omissions. In turn, both processes become inextricably linked:

> *"And in those cases, we have AI autocorrect capability based on intelligence that has been built up on the corrections that humans have made in the past. But that has allowed the AI to engage the human to say 'I see some errors here, I see some gaps.'*
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> *It's presented to them very clearly, and then we capture the edits of the changes – that becomes an important feedback loop. So now we have continuous learning, and those feedback loops have done two things: One, they've taught the AI to increase its accuracy and move things through, and it's also engaged the workforce in order to establish trust."*
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ABOUT CHARLI AI INC.

Charli AI (Charli) is the premier provider of True AI and AI-powered decision intelligence for the enterprise. It specializes in offering innovative AI applications that are secure, regulatory compliant and scalable for Financial Services. Charli provides organizations with AI solutions to get more done, in less time, securely, than ever before, providing a competitive advantage in today's digital world by reducing content chaos and manual effort, allowing workforces to focus on contributing their expertise. Charli AI is a tech powerhouse backed by an expert team of Ph.D. scientists, engineers, and content management experts who are pushing the boundaries of innovation in the AI-driven intelligent content management and generation space. Today, Charli AI can integrate with over 600 applications giving it broad appeal across industry sectors.

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ABOUT EMERJ AI RESEARCH

Emerj Artificial Intelligence Research is a market research and advisory company focused exclusively on the business impact of AI.

Companies that thrive in AI disruption run on more than just ideas. They leverage data and research on the AI applications delivering return in their industry today and the AI capabilities that unlock true competitive advantage into the future - and that's the focus of Emerj's research services.

Leaders in finance, government, and global industries trust Emerj to cut through the artificial intelligence hype, leverage proven best-practices, and make data-backed decisions about mission-critical priorities.

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