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How to Build the Ultimate Finance Tech Stack

In a recent virtual panel, leaders from Tipalti, YayPay, and Procurify discussed how the tech stack is shaping the digital landscape. Previously, these processes were owned by large technology companies. But now, there's a significant boom in the micro SaaS ecosystem—especially in finance. There is a new, hypercritical focus on compliance and data protection and an increased reliance on trust.

The panel of experts discussed how today's CFOs and Controllers are changing what it means to be a modern finance leader. According to them, these are the significant trends to consider when building a "best-in-class" tech stack.

Source: https://tipalti.com/how-to-build-the-ultimate-finance-tech-stack/

Digital Transformation Starts *in* Finance

Money makes the world go round—it's the heartbeat of the business. If you don't know where your money is and how it's impacting operations, you'll have issues with scalability. It's imperative to have financial data readily available to support your positioning—this will provide the agility needed to grow.

By allowing digital transformation to happen within the finance team first, critical, accurate information can be accessed across the organization. Consistent, real-time data allows the finance team to view the business through a proactive lens—leveraging the great minds and power behind the data.

Source: https://tipalti.com/how-to-build-the-ultimate-finance-tech-stack/

The Ultimate Tech Stack is not “One Size Fits All”

The “ultimate tech stack” varies depending on a business’s maturity, core strategic priorities, and the organization & business model’s complexity. Plus, there are other vital factors to consider, like global expansion, multi-subsidiary structure, or the number of international suppliers.

Today, these three finance functions deserve prioritization when building your tech stack: Accounts Payable, Accounts Receivable, and Spend Management. These are the most manual, time-consuming operations that can benefit from automation’s increased efficiency and productivity. But although these are the finance tech stack’s main components, that doesn’t mean you should stop there.

Source: https://tipalti.com/how-to-build-the-ultimate-finance-tech-stack/

Tech Stack Building Blocks

Often, when building a tech stack, companies will start with a more basic option then, over time, move to a solution that helps them scale. After you've implemented the initial technology building blocks—Accounts Payable, Accounts Receivable, Spend Management—look into other areas that can benefit from increased automation. As you grow, you might consider financial close software or expense management—there's a whole variety of options depending on where you're at in the process.

The most crucial aspect to consider when evaluating financial technology is the accessibility of the solution.

Source: https://tipalti.com/how-to-build-the-ultimate-finance-tech-stack/

Integrations are the New Black

Although building a best-in-class tech stack is not “one size fits all,” there is one critical feature that cannot be ignored: Integrations. It’s essential to collaborate with solutions that you’re currently using. For example, suppose you already have part of your finance stack established, like your ERP. In that case, you can look within their ecosystem of partners to find suitable integrations that can solve current issues. Leveraging existing partnerships can create added value—especially as you’re building your tech stack and reviewing dozens of different options.

Today’s forward-thinking finance teams are consistently looking for ways to increase efficiency, improve productivity, and enable the business for success. Challenges will arise as the organization scales and complexity grows. But by building the ultimate tech stack, you’ll create a roadmap that empowers your team to change and adapt for the future.

Source: https://tipalti.com/how-to-build-the-ultimate-finance-tech-stack/

FinTech - Finance's Fertile Ground

- Digitalization of Money, Securities and Credit
- Wide Public Acceptance of New Tech
- Legacy Customer Interface and Processing Systems
- Vast and Expanding Amounts of Customer Data
- Rapid Expansion of Computational & Analytical Power
- Reliance on Multiple Systems of Ledgers
- Infrastructure Systems' Costs and Counterparty Risks
- Economic Rents and Centralized Concentrated Risks

FinTech – The Actors

- **Big Finance**: Like ‘Fortresses’ w/ Moats, Towers & Sovereign Affiliations
  - ‘Towers’: 1) Payments, 2) Balance Sheets, 3) Data, 4) Corporate Structure
- **Big Tech DNA Loop (BIS)**: 1) Data, 2) Networks, 3) Activities
- **Start-ups**: 1) Disruptive Innovators, 2) Flexibility, 3) Asymmetric Risk Takers
- **Official Sector**: Goals: 1) Economic Growth, 2) Financial Stability, 3) Guarding against Illicit Activities, 4) Inclusion, 5) Investor & Consumer Protection

Machine Learning in Finance: Numbers are all about cold facts

While some argue that artificial intelligence and machine learning might be in their infancy, the numbers tell a different story. The *Economist Intelligence Unit's* survey of more than 400 businesses in key markets worldwide indicates that 27% of the responding companies have adopted artificial intelligence, and 46% have at least one AI pilot project underway. *Deloitte* notes that, among the respondents to its AI survey, as many as 70% of those that offer financial services are using ML for cash flow events prediction and fraud detection.

Source: https://www.avenga.com/magazine/artificial-intelligence-machine-learning-finance/

Machine Learning in Finance: Numbers are all about cold facts

Indeed, Fintechs are an excellent example of the successful implementation of AI and ML to achieve process automation, reduce operational costs, and improve decision-making. In finance, machine learning sets out to transform the way financial institutions deliver services and how their clients receive them, helping both parties manage financial operations and processes.

AI and ML for banking have also influenced the experiences of individual customers around the world. The number of physical visits to bank offices dropped dramatically in 2020, with 89% of customers preferring to use banking apps according to *Business Insider* Intelligence's Mobile Banking Competitive Edge Study. This year's self-isolation mode can partially explain the trend, but it also has resulted because of the technology adopted by banks, allowing for a smooth and intuitive transition to digital management of personal accounts.

Source: https://www.avenga.com/magazine/artificial-intelligence-machine-learning-finance/

How Does Machine Learning in Finance Work?

To understand how machine learning can be used in finance, let's first unpuzzle the basic concept of ML. Unlike programming, machine learning is not built on a set of rigid rules that dictate how a machine should behave. Instead, the strength of machine learning algorithms is the ability to learn from the data that is input into the algorithm. Naturally, the process is not that simple since it requires not just any data, but *the* data: relevant, high-quality and properly labeled. In a nutshell, the machine learning algorithm analyzes data and learns to make increasingly complex predictions. The advantages of machine learning are ideal for finance, as the industry is built on big data.

Source: https://www.avenga.com/magazine/artificial-intelligence-machine-learning-finance/

How Does Machine Learning in Finance Work?

With a proper machine learning algorithm and a dataset to match, a financial enterprise can tap into a deep pool of opportunities presented by AI and ML for the financial industry:

Automation. Paper workflows stopped being effective long ago; now, smart ML-based models that allow instant sharing and editing, as well as storage and management of information, can dramatically reduce the time and cost of dealing with documents.

Productivity. AI excels at tiresome and repetitive work taking reportedly up to 60% of employees' time. When machine learning algorithms take over the mundane work, employees can concentrate on higher-value tasks and core business goals instead.

Operational costs. Reducing the cost of human errors by outsourcing certain tasks to machines is another machine learning benefit.

Security. With appropriate adherence to protection protocols, artificial intelligence allows for enhanced security and improved compliance.

Source: https://www.avenga.com/magazine/artificial-intelligence-machine-learning-finance/

How Does Machine Learning in Finance Work?

Customer experiences. Losing a single customer might not seem like a big deal. However, if it happens regularly, due to poor communication, long wait times or inefficient problem resolution, it might jeopardize a large portion of your customer base. AI will reduce the time spent searching for information and resolving customer issues from several days to several minutes. Frictionless, 24/7 customer support shows that a business cares for its customers. AI-based virtual assistants are one example of showing you care.

Personalization. With the help of machine learning algorithms, AI can evaluate and analyze large volumes of data and, therefore, cater to the specific interests and needs of the customers. When your customer buys a house, they will need insurance. When a customer opens a business, you can offer them a new bank account. Timely knowledge of needs allows you to offer individualized products and solutions. Additionally, assessing the financial health of accounts and providing personalized insights for investment goes the extra mile for your customers and your business.

Source: https://www.avenga.com/magazine/artificial-intelligence-machine-learning-finance/

Challenges Faced by Finance Companies While Implementing AI Solutions

Sadly, the benefits of machine learning for finance come with a set of challenges for every business, big or small. Here's a short list of things to look out for:

Cost. Implementation of artificial intelligence in finance does not come cheap. From the cost of new software to the expenses of the R&D team or data science experts, businesses that start AI projects should be prepared to pay for the associated benefits.

Financial risks. Even if the business has the necessary money to invest, there is always the risk of a low ROI.

Lack of resources. While financial cost might be a significant impediment to AI adoption, the lack of necessary human and tech resources is an issue all on its own. It is not enough to have the money; it's also important to access top talent and use effective tools.

Source: https://www.avenga.com/magazine/artificial-intelligence-machine-learning-finance/

Challenges Faced by Finance Companies While Implementing AI Solutions

Skillset challenges. To maximize the benefit of the new AI solution, it is necessary to train the employees and help them learn new skills. Data analysis with the help of AI is not an intuitive task, so it can take time to transition to the new processes of working with the ML algorithms requirements.

Data protection. Information is sensitive and this is especially true in the finance industry. In order to handle data consisting of clients' account numbers and personal information (names, addresses, SSNs and so on), it is crucial to invest in protection protocols and comply with industry standards such as ISO and GDPR. And since AI needs a lot of information to learn and train, building secure while efficient datasets is a task that only experienced ML specialists can fulfill.

Source: https://www.avenga.com/magazine/artificial-intelligence-machine-learning-finance/

Natural Language Processing Applications in Finance

Natural language processing, (NLP) is one AI technique that's finding its way into a variety of verticals, but the finance industry is among the most interested in the business applications of NLP. In fact, according to our AI Opportunity Landscape research in banking, approximately 39% of the AI vendors in the banking industry offer solutions that involve NLP.

NLP might allow financial institutions to assess a credit applicant's risk, gauge sentiment on their brand across the internet, and more. This resource is merely a snapshot of the analysis that comes with our AI Opportunity Landscape service, but it covers AI vendors offering software across three applications:

- Credit Scoring for Under-banked Clientele
- Sentiment Analysis for Customer Service
- Document Search for Business Intelligence

Source: https://emerj.com/ai-sector-overviews/natural-language-processing-applications-in-finance-3-current-applications/

Credit Scoring for Under-banked Clientele

LenddoEFL

LenddoEFL is a Singapore-based company with 115 employees. The company offers a software called The LenddoScore, which they claim can help banks and financial institutions assess an individual's creditworthiness using NLP and machine learning.

LenddoEFL is focused on allowing financial firms in developing countries offer loans and credit services to growing middle-class populations in these countries. In most cases, these customers have little to no credit history, and LenddEFL claims its software helps banks understand lending risks based on customer digital footprints.

Source: https://emerj.com/ai-sector-overviews/natural-language-processing-applications-in-finance-3-current-applications/

Sentiment Analysis for Customer Service

Sigmoidal

Sigmoidal is a machine learning consultancy that claims to have helped banks and investment firms with machine learning projects.

Sigmoidal claims to have developed a trading software that uses machine learning to track patterns in how customers might spend, invest, or make financial decisions from their transaction history. The software then co-relates patterns in customer investment with market developments obtained by scouting news and social media to offer personalized investment advice to customers. Sigmoidal claims investment firms can automate the task of mining for information on market developments from news sites and social media using their software, which can perform document classification and named entity recognition.

Source: https://emerj.com/ai-sector-overviews/natural-language-processing-applications-in-finance-3-current-applications/

Document Search for Business Intelligence

Nuance Communications

Nuance Communications is a Massachusetts-based company with over 8800 employees. The company offers a software called Nuance Document Finance Solution, which they claim can help financial services companies automate and digitize their documentation processes using NLP.

Nuance Communications claims users can integrate their document finance solution into existing workflows without disrupting existing processes. The software uses natural language processing to automatically read and understand documents that involve loan or mortgage processing. Businesses can use their historical documentation records to train Nuance's NLP solution. Then, the Nuance Document Finance Solution uses NLP to comb through several thousands of these documents to extract and summarize the most relevant information from them.

Source: https://emerj.com/ai-sector-overviews/natural-language-processing-applications-in-finance-3-current-applications/

Open API & Open Banking[1]

- Open Application Program Interfaces (Open API) allow for the Developers access and an capability to Integrate Permissioned Customer Data into Third Party Applications

- Open Banking encourages or orders Open API for Non-banks to Share Permissioned Bank Customer Data

Open API & Open Banking[1]

- Arrangement Trade-offs of Advancing Competition & Development, Constraining Cyber security Dangers, and Keeping up Protection & Consumer Protections

- EU Payment System Directive (PSD2), UK Open Banking Initiative, etc.

- Alternatives: Screen Scraping, Reverse Engineering & Robotic Process Automation

Blockchain Technology & Cryptocurrencies

- Nakamoto solved the payments riddle - avoiding double spending
- Money is but a social & economic construct
- Append-only logs & multiparty consensus provides a peer-2-peer alternative
- Can address verification and networking costs
- Crypto markets are rife with scams, fraud, hacks & manipulation
- Cryptocurrencies have evolved into a speculative asset class
- Adoption rests on addressing comparative viability & value proposition
- The potential, though, to be a catalyst for change is real

Payment Processing Pain Points and How to Solve Them

In today's market, there is a high demand from consumers for electronic payment processing. ePayments offer buyers the flexibility of real-time payments and require less effort than traditional paper payment methods. In turn, most businesses want to offer electronic payment options to their customers, like credit cards, but they often run into these three main problems: disconnected systems, security, and cost.

We've broken down these top three pain points and the ways that you can alleviate them.

Source: https://www.salespad.com/blog/pain-points-of-payment-processing-and-how-to-solve-them/

Problem #1 – Disconnected Systems

Chances are you have multiple avenues for collecting payments from your customers:

- Customer service reps taking orders in the field or over the phone
- Accounting team members collecting payments on open invoices and recurring bills
- Counter sales where customers come into your place of business
- A website where customers purchase products and services online

Usually, each of these scenarios operates out of a different software application (SalesPad, accounting system, web store, etc.). Companies often end up processing credit cards in one system and then manually entering that payment data into their other systems because they lack the proper tools to connect everything together.

Solution: Integration

Instead of offering you a 'quick-fix' payment tool that forces you to change your daily process in order to accommodate it, a good payment provider should help you integrate your payment processing into your business applications. Finding a single payment processing platform that can connect to every application will create a seamless sales cycle for your customers, save you time, and reduce the risk of human error. Start by creating a list of all the different avenues where you want to accept credit cards and provide this list to your current and potential payment providers to see how they can help.

Source: https://www.salespad.com/blog/pain-points-of-payment-processing-and-how-to-solve-them/

Problem #2 – Security

Every merchant who processes credit card data must abide by the rules of the PCI Security Standards Council. The PCI Council looks into many factors revolving around the security of credit card information, including how businesses are collecting credit card numbers and where they are storing them. Achieving and maintaining PCI compliance can be difficult for merchants due to the large amount of IT resources needed to store payment data in-house and keep current with all the latest PCI regulations.

Solution – Cloud Data Entry and Storage

Moving away from locally entered and stored credit card data can significantly reduce the IT resources needed to secure the data and maintain PCI compliance. Instead, companies can use tokenization technology to store a tokenized payment record within their database and store the actual credit card data in the cloud. Just be sure that the vendor you are using for tokenization and cloud storage is PCI-DSS validated.

Source: https://www.salespad.com/blog/pain-points-of-payment-processing-and-how-to-solve-them/

Problem #3 – Cost

Every credit card processed will incur a processing fee by the associated card brand and bank, which sometimes discourages businesses from accepting large amounts of credit card transactions if the fees are too high. Unfortunately, processing fees are just part of the payment territory, but there are some things you can do to make sure you are getting the lowest possible rates.

Solution – Level 2 and 3 Data Processing

Card brands want to help large corporations and businesses monitor and track their expenses by collecting a set of line-item details during transaction processing. By passing this additional data, which they call level 2 and 3 data, the merchant can significantly lower their interchange rates on their credit card transactions.

As a merchant, you can speak with your payment provider about qualifying for level 2 and 3 data processing and how it can help lower your transaction fees.

Source: https://www.salespad.com/blog/pain-points-of-payment-processing-and-how-to-solve-them/

How PayFabric Helps Payment Processing

SalesPad is utilizing PayFabric, a cloud-based payment processing platform and storage hub, to integrate payment processing directly into the SalesPad application. PayFabric enables you to stay within SalesPad, or any of your other applications, when processing a credit card or ACH transaction. PayFabric centralizes the stored payment data from each integrated application, creating a seamless A/R process and omnichannel user experience.

PayFabric also offers flexibility for merchants with business needs to support card-present transactions via EMV hardware terminal devices. Merchants are able to view and manage all EMV transactions in real-time on PayFabric's portal.

Finally, SalesPad customers are seeing between 15% and 35% savings in their monthly credit card processing fees by switching to PayFabric services, which include Level 2 and 3 data processing.

Source: https://www.salespad.com/blog/pain-points-of-payment-processing-and-how-to-solve-them/

Coronavirus: FinTech

1. Additional Opportunities

- Serving Those Tapping Fiscal Stimulus & Loan Programs
- Consumer & SME Refinancing's & Consolidation Loans
- New uses & sources of Alternative Data

2. Additional Challenges

- Delinquencies & Defaults
- Loan Servicing
- Business Models relying on Float

References

1. 'Report on open banking and application programming interfaces' Bank of International Settlement
2. “8 top Fintech VCs discuss COVID-19 trends, signals and opportunities" TechCrunch
3. https://tipalti.com/how-to-build-the-ultimate-finance-tech-stack/
4. https://www.avenga.com/magazine/artificial-intelligence-machine-learning-finance/
5. https://emerj.com/ai-sector-overviews/natural-language-processing-applications-in-finance-3-current-applications
6. https://www.salespad.com/blog/pain-points-of-payment-processing-and-how-to-solve-them