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IMPROVING CUSTOMER OUTREACH, PROFITABILITY & RISK MANAGEMENT WITH ADVANCED BANKING ANALYTICS SOLUTIONS

PEGASUS KNOWLEDGE SOLUTIONS

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Recognized By:
Banking CIO Outlook TOP 10 **ARTIFICIAL INTELLIGENCE** SOLUTION PROVIDERS - 2018

About the author

As a founding principal of Pegasus, for over 20+ years, Supreet Singh has long been an IT visionary and AI evangelist. Combining his educational accomplishments, a master's degree in Electrical Engineering from IIT Chicago, and a bachelor's degree in Electronics Engineering from Thapar University, with his IT and professional services experience, Supreet has led the AI investment at PKSI for 10 years, with a vision of bringing AI solutions to the masses. With a decade of experience, PKSI has a competitive advantage in the marketplace. Most providers are pushing tools or people, whereas PKSI is satisfying requirements with an end-to-end, turnkey AI solution specifically tuned to Banking business challenges. Leveraging state of the art algorithms and tools, the company delivers world-class Banking solutions, built on open source or strategic partner platforms, that transform Banking organizations. Organizations need to leverage people, process and tools to deliver sustainable results. PKSI has been facing AI challenges for years and its customers benefit from easily consuming sophisticated technology through modern, user-friendly solutions at competitive prices, supported by a 24x7x365 environment.

Table of Contents

Introduction

While the ever-expanding regulatory requirements and evolving customer preferences shake up the traditional business models of banks and other financial firms, ensuring an increasing trend of revenue and profitability in an ultra-competitive business environment, while keeping up with the latest technologies is what characterizes the current financial industry. Competitive advantage has become increasingly dependent on rapidly sorting and processing large volumes of complex datasets to gain deep insights that can help the financial firms protect themselves against fraud, optimize operational processes, and better serve their customers.

As organizations focus on more strategic planning, the need for faster analytical insights is becoming an acute necessity. To address such a need, artificial intelligence (AI) techniques like machine learning are permeating nearly every industry. Deep learning, the fastest-growing field in machine learning, leverages many-layered deep neural networks (DNNs) to learn levels of representation and abstraction that make sense of data. Effectively combining both structured and unstructured data to derive new insights through real-time data models, can help organizations to achieve a competitive differentiation.

Though AI emerged for the first time in the 1960s, it resurged only a few years ago with its current sophistication of algorithms, computing power, availability of data and respective infrastructure tremendous potential of increasing profitability to meet the needs of accelerated business competition and the regulatory compliance requirements.

Common uses of Banking Analytics

AI can positively impact nearly everything that banks do daily. While banks traditionally take a long-term economic view, an investment in the appropriate technology can have immediate benefits. To eliminate inefficiency of business processes, increase revenue and profit generation, banks are continually upgrading their AI and ML techniques, according to their size of businesses and financial capacities. AI is transforming everything from risk management and cyber security to customer interactions and overall volume of business of banks. By integrating both internal and external data sources, advanced analytics provides solutions to exploit data for authentic business insights and vastly improved decision making. Rich real-time data-numbers and also text, voice, and images-now exist for literally every action that customers make, every product that banks sell and every process that banks use to deliver those products.

Banks should be ready to adapt to new use cases, trends and technologies as they arise to survive in an increasingly competitive environment. The impact of AI in financial services can be transformational. Listed below are some of the prominent areas of banking operations for which AI solutions have been built, tested and hardened.

1. **Increasing customer growth:** Banks often find it difficult to decide whether to put more resources into capturing new customers or focus on providing better service to existing customers. Analytics can make such decision making much easier by:

    ❖ Monitoring the existing customer base for data that triggers behavioral alerts
    ❖ Identifying customers at risk of leaving or already talking with competitors
    ❖ Rescuing at-risk relationships by proactively offering attractive rates to retain clients while still preserving profitability

As the bank becomes more digitized, managers and executives are better able to meet customer expectations regarding their finances. With AI solutions deployed and managed, banks can more easily cluster or segment customer behavior to better serve and sell to "like" groups. Further, banks can tailor the products and services that they offer based on their individual profiles to deliver a superior, contextually relevant end-to-end experience that anticipates customer need based on signals of intent.

Customers who feel appreciated on an individual level, irrespective of the size of the bank, remain loyal to the institution and recommend it to their friends. Not only will customers increase the amount of business conducted at that bank, but they will recommend the bank to their friends and family and start discussing the bank even on social media. Using machine learning to leverage data to understand and predict when someone is experiencing a significant life event and help bank marketers to reach out to them more effectively during those moments can only increase a customer's loyalty.

2. **Increasing revenue:** Customers are no longer always interested in human contact when it comes to their banking preferences and patterns. Depending on their business hours versus the bank's business hours, a customer could go for months without ever interacting with a member of your team. An effective banking omni-channel experience allows customers to conduct their business on their terms. What may start out as a simple mobile phone search for products could turn into completing a credit application on a laptop later that evening with an expected response time of that day. Banking analytics allows banks to offer these varied pathways while still maintaining minimal risk for the bank and its customers.

3. **Increasing profitability**: In addition to improving customer experiences for customers, digitization can considerably decrease the price of lending at each step. That makes SME customers more lucrative for lenders, and generates possibilities for traditional institutions to service a greater number of SMEs. Since purchasing costs in SME lending can be challenging for small businesses to overcome, sometimes they do not go to banks. If digitization can help banks decrease costs, it could help more small businesses get funded.

Some examples of how banks are using analytics
- **Midwest commercial bank** – uses facial recognition analytics to provide superior customer service for their branch customers.
- **International Bank** – uses predictive analytics to identify customers likely to leave the bank.
- **Large Commercial Bank** – uses analytics to analyze demand curves, deposit flows within households and interest rates, aiming to find the ideal deposit price based on deposit volume and the maximum amount of interest expense it's willing to incur.
- **West Coast commercial bank** – also uses analytics to develop "relationship pricing" for different customers. The bank gathers intelligence on all services a customer uses across the organization and generates customized prices.
- **Fortune 500 Bank** – also uses analytics to examine internal customer data as well as competitor pricing data.

4. **Increasing the bank's productivity:** Time is money. Why utilize the efforts of several individuals over the course of days or weeks when today's algorithms can produce the same results in seconds or minutes? By reducing the time spent on menial tasks, human resources can be better utilized in their specific areas of expertise.

At a macro level, analytics can help banks achieve their deposit growth strategy by increasing the effectiveness of their marketing campaigns. At the micro level, analytics can be used to focus on sales, cross-selling and attrition goals by deepening customer relationships, producing relevant lists of clients whom the bank should be talking to and communicating what differentiates their brand.

5. **Increasing on-line banking safety:** Banks are risk-adverse by nature because customer relationships are built upon the trust customers place in the institution to safeguard their assets. The rise of the digital relationship between banks and their customers places a strain on this level of trust. Banks continually face malicious threats from hackers, thieves and defrauders, as well as unreliable insiders. Analytics can provide constant, proactive monitoring of suspicious activity and mitigate false alerts.

6. **Improved Risk Management:** From simply measuring time in delinquency as the primary measure of default risk, market leaders in banking have moved to more sophisticated risk models to determine value at risk. Instead of running logistic regressions with limited data, leaders are using conditional probability rather than assign customers single risk scores. The conditional score is determined on a range of tailored approaches to customer contact and engagement: every borrower has several scores depending on the contact strategy and offer. Lenders would then use the strategy and offer that optimizes recoveries. Such an approach better calibrates the intensity of contact with each account, thus optimizing resources. A next-generation value-at-risk assessment can further reduce charge-offs by 5 to 15 percent depending on maturity of current operations, analytics, and availability of data.

AI can effectively simulate huge numbers of parallel market scenarios over large portfolios. Additionally, banks are using automated systems to compare what's happening now with benchmark data for normal behavior, so they can spot risks in real-time. These steps lead to better outcomes with reduced effort.

7. **Prevention & timely detection of Fraud Risks:** Smart algorithms help banks identify unusual transactions that could be fraudulent so that banks can immediately quell such transactions.

8. **Better Credit risk assessment:** Analytics can help banks make better decisions on the credit-worthiness of applicants while greatly accelerating the process of credit risk assessment. For new potential customers, today's banking analytics can assess the risk of any given loan in a matter of minutes. Reducing the bank's exposure to credit collections and potential write-offs pays off in the long run.

9. **More efficient regulatory compliance:** Banking compliance regulations are increasing in complexity with every passing year. The standards laid down by Financial and Accounting Standards Board, the SEC disclosure requirements, Third-party risk management expectations, the European Union's General Data Protection Regulation (GDPR), the California Consumer Privacy Act (CCPA), New York Department of Financial Services Cybersecurity Regulation, the list is never ending and ever evolving. However, regulatory challenge can be effectively managed with good support from an AI platform.

Planning the implementation of Advanced Banking Analytics

AI adoption will have multifaceted positive impact on financial institutions, financial markets consumers and investors. Prioritization of use cases has to be made jointly by the business group and by the operations team to choose the most practical use cases to be worked on.

What use cases are picked up for development in full-fledged analytics solutions, depend on the complexity of the following components:

1. Activities to be automated
2. Processes
3. Data – baseline things like cleaning and wrangling data as well as connecting to data sources very often becomes a top challenge in the Enterprise AI implementation process
4. Transaction volume
5. Technology compatibility
6. Scalability, model risk validation- The struggle between the needed frequency and finding the proper processes for model risk validation can become an impediment to the progress of AI initiatives. Incorporating consistency and reproducibility into the processes of validation can be achieved through AI. This ensures faster validation of models and keeps out inconsistencies in the chain of banking processes.

In-house analytics development or outsourcing?

Banks looking to utilize data analysis and AI to stay relevant in the face of increasing competition in the coming years should enlist the skills of a professional data science consultants and providers. AI cannot be completely automated without some level of internal expertise or external consulting. External providers can compress the time to value and deliver sustained results in a fraction of the time.
Bigger banks that have better capability for innovation can afford to recruit top talent and make expensive investment in infrastructure. One of the obstacles facing smaller companies in adopting AI is the shortage of talent and the speed with which the industry transforms. Forming a strategic partnership creates a variable cost model or the needed resources, tools and processes can be obtained as a service, an operational expense.

Why form a strategic partnership in your Advanced Banking Analytics journey?

Speed to market, access to resources, experience and specialization are all reasons to select a strategic partner on the AI journey, regardless of where your organization is at today. If you are searching for a reliable provider that can help your bank modernize and compete in the coming years, look no further than Pegasus Knowledge Solutions. PKSI's expert data scientists and

consultants help their clients create value from their data, delivering insights that drive operational improvements.

Banking Business Challenges

BARRIERS TO ADOPTION

What's holding banks behind in AI?

Data silos and outdated IT infrastructure   Tighter regulatory scrutiny   Slow to react   Hype-driven, scattershot goal setting

1. **Data** - *Silos of data that isn't integrated, can't be trusted, impacting 360-degree customer insight.*
2. **Reactive** - *Cumbersome, historical reporting vs. insightful dashboards with predictive and prescriptive insight.*
3. **Resources** - *Lack of AI skilled resources, including data scientists, data engineers, data architects, infrastructure resources.*
4. **Budget constraints** - *Capital budget process vs. affordable, operating expense.*
5. **Process considerations** - *Security, governance, compliance, proven use cases, model bias eliminated, model support included.*

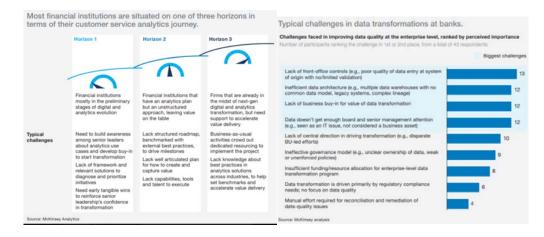## *Advanced Banking Analytics (ABA) Solution Highlights*
1. *All Banking/Fintech data sources integrated, leveraging existing tools and platform investments*
2. *Advanced visualization of employee data in an intuitive, 360-degree dashboard*
3. *Dramatically reduced customer attrition rates and associated costs*
4. *High-value customer retention*
5. *Customer Acquisition - Best prospects easily identified, replicating past success through AI*
6. *Forward-looking planning and forecasting*
7. *Turn-key, results-as-a-service, with 24x7x365 support for the entire organization*
8. *Customer satisfaction guarantee*

ABA ROI
1. **Dramatic results** - *Typical ABA cost savings range from 20X-250X monthly expense*
2. **Speed** - *ABA implementation in 3-6 weeks*
3. **Compressed time to value** - *Automated connectors to existing Banking data sources accelerates results (FIS, Fiserv, Jack Henry, ASI, Finastra, etc.)*
4. **Peace of Mind** - *One vendor, combining the market-leading software platform with proven results and 24x7x365 enterprise support*

Conclusion

Artificial intelligence (AI) is disrupting diverse industries, but banking is projected to benefit the most out of incorporating AI systems in the next couple of years. According to industry analysts' projections, banks will invest as much as $57.6 billion in AI and ML by 2021 — and with good reason. Some experts believe that implementing AI technologies could save the banking industry as much as $1 trillion in revenue by 2030. AI will dramatically impact the banking industry. AI, ML and other emerging technologies have the potential to transform nearly every inch of the banking industry. Almost every business unit within financial services organizations is looking to leverage these capabilities in one form or another. AI is poised to transform next-generation IT across the enterprise. Every role in the transformed organization will be impacted by AI's ability to inform, augment, and automate decision making.

The financial services sector is an amalgamation of cutting-edge initiatives and conservative practices. The industry is embracing AI and ML, but the impact of these technologies is only just beginning to be realized. The use cases are numerous, from attrition, to segmentation to operational efficiency. Perhaps the most compelling reason for ML and analytics in financial services is marketing, the capability to deliver a superior, contextually relevant end-to-end experience that anticipates customer need based on signals of intent. The level of personalization is unsurpassed, and in many cases, not entirely intuitive to how banks have traditionally segmented audiences.
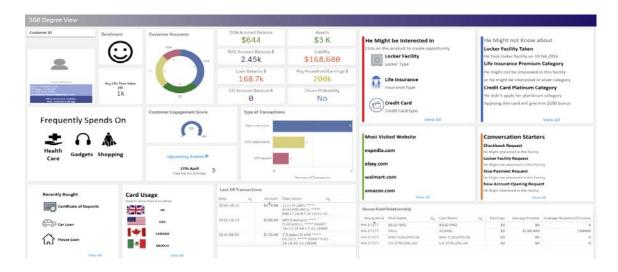
On the one hand, financial services organizations must be at the forefront of new technology deployments. They must deliver offerings that serve current and future customer needs. AI fuels a comprehensive knowledge of the customer base and specific market segments. Survey results indicate that 53 percent of executives from the financial services industry say using ML allows their companies to gain a competitive advantage. Financial services organizations use ML to improve customer service, as well as deploying chatbots and analyzing data collected across their organizations to create personalized offers. And they look to technologies like natural language processing for client onboarding and loan approvals.

With reduced lending costs, and better credit-decision models, banks can expand their reach and offer better products to more underserved clients in faster, more cost-efficient and engaging ways. Artificial intelligence (AI) is gaining widespread adoption, with the potential to radically transform many areas of the financial services industry. For the full year 2019, financial firms will have spent d more than US$1.5 billion on AI-related technologies. By 2021, this will rise to US$2.8 billion, representing an increase of 75%. Consultants estimate a 28% improvement in financial institutions' cost-to-income ratio by 2025 as they automate routine processes currently performed by employees.

About PKSI

Pegasus Knowledge Solutions, Inc. (PKSI) enables organizations to harness the power of artificial intelligence (AI) and machine learning to drive both top-line growth and bottom-line savings. Organizations are struggling to leverage AI use cases across their data, data that exists in multiple and disparate data sources, to arrive at strategic decision-making insights. PKSI provides decision-makers with real-time, predictive insights that make it easier for them to make informed and impactful decisions quickly. Organizations are striving to leverage AI because there is a tremendous return on their investment, but often lack the resources, expertise, and support required to truly leverage advanced analytics. Solution offerings from Pegasus deliver savings in manpower costs, time, timely risk alerts and more, all of which directly contribute to a healthier bottom line for clients.

Efficient, cost-effective solutions from Pegasus enable large, medium and small-sized businesses to enjoy the benefits of advanced analytics in their business processes. Pegasus enables organizations (which do not employ or cannot afford an in-house analytics team) to enjoy the advantages of up-to-date technologies like machine learning and predictive analytics. If data is truly the new oil in the industry, PKSI taps it, refines it and helps its customers monetize it, quickly and affordably. With pre-built, hardened and tested solutions, PKSI brings AI solutions to the masses, delivering results-as-a-service.

Customer 360 Dashboard: