



Turning Data into Competitive Advantage

Banking's Secret Weapon

Ab INITIO

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Abstract

Fintechs — technologically savvy financial services startups — are changing the financial services landscape. Data-driven and capable of extremely rapid responses to customer behavior, Fintechs represent a significant threat to traditional banks. Several banks have resorted to a strategy of co-opting rather than competing with Fintechs by bringing the Fintechs into the banks' technological ecosystems.

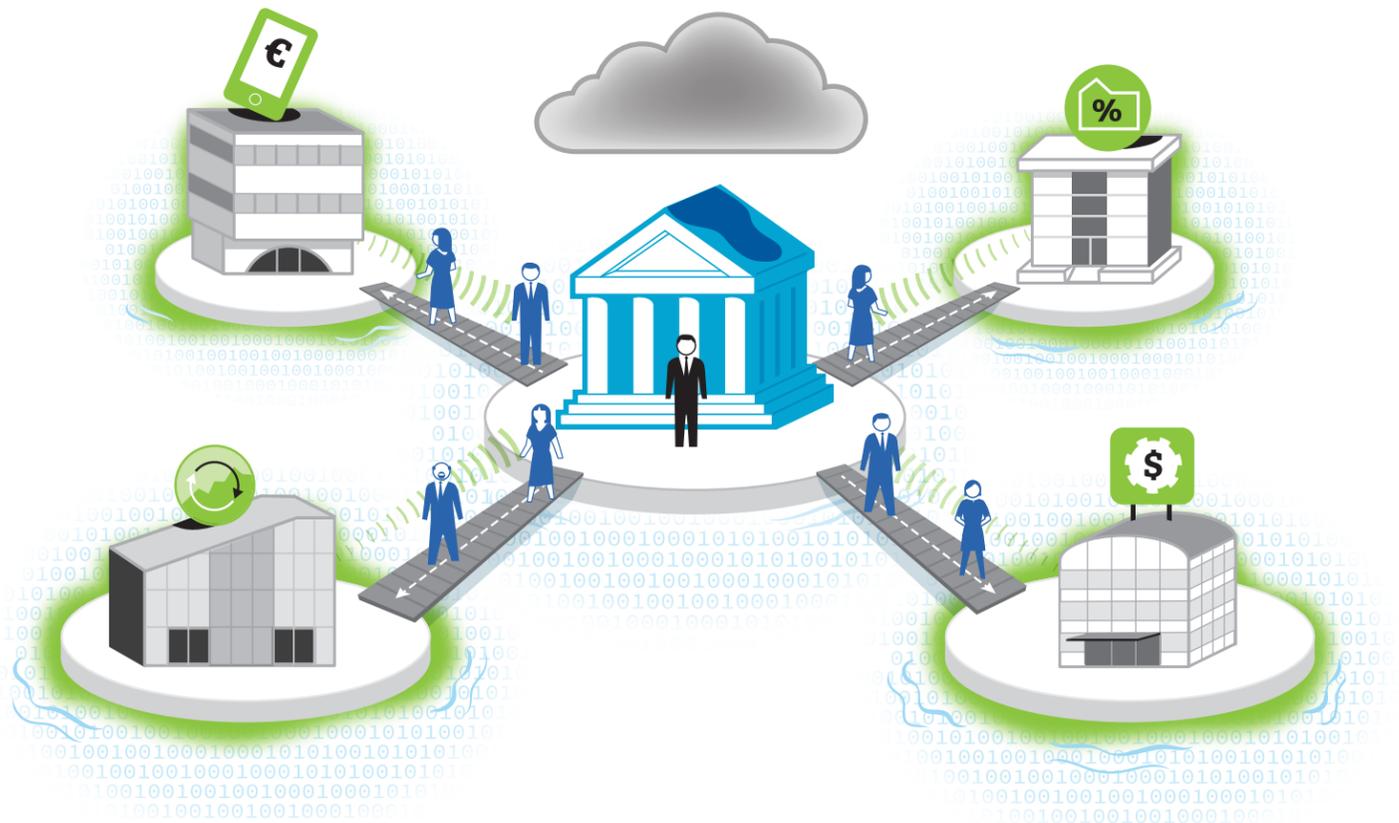
Banks, however, are neglecting a powerful weapon that they can use to beat back Fintech competition: data.

Established banks have data accumulated over millions of customers and many business cycles. Banks can use this data to improve each customer's service experience, increasing customer satisfaction and receptivity to personalized marketing messages.

Data at most banks is scattered across different technologies, formats, and business units. In order to meet customers' rising expectations, banks need to develop new ways of organizing their data assets. They need to gain insights from data and they need to apply these insights during real-time interactions with customers. Ab Initio software makes it possible for banks to use their existing data and gather data from a variety of external sources to better serve their customers and grow business, not just stave off competition.

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The Drawbridge Is Down

The Data and Marketing Association (DMA) reports that 62% of banking customers remain loyal to their banks only out of inertia, and some 20% of existing customers have added a service with another bank in the last year.¹ Fintech startups are taking advantage of that lack of loyalty by targeting some of banking's most profitable service lines. Goldman Sachs² estimates that non-banking competition could capture up to 7% of existing banks' profitability in the next few years. There is no reason to believe that the damage to banks will stop there.

Fintechs are disrupting banks with the following business processes:

- Capturing as much data as possible about customers
- Using that data to model customer behavior
- Applying insights from these models to up-sell or cross-sell to customers and to rapidly modify products, services, and promotions
- Quickly testing these insights to learn how to fine-tune their offerings at every point of interaction with a customer

¹ "Talking the consumer's language: financial services 2016" https://dma.org.uk/uploads/misc/57cc93647f0e-talking-the-consumer-s-languarge--financial-services-2016_57cec93647e74.pdf

² Goldman Sachs Equity Research, "The Future of Finance", March 3, 2015.

Banks' Secret Weapon: Data

Unfortunately, most banks haven't effectively organized their data to use it competitively. In addition, they must adhere to new and upcoming regulations that can require banks to provide customer data to competitors. For example, the EU's Payment Services Directive 2 requires them to let customers share their data with licensed third parties, and similar requirements have been proposed in the United States.

However, the power of banks' data – decades' worth, accumulated over countless business cycles – should not be underestimated. By learning how to use their data to competitive advantage, banks can defeat encroaching competition not just from Fintechs, but from rival banks as well.

The Competitive Bank Personalizes Every Customer Interaction

In order to differentiate itself from mass-market purveyors of commodity financial services, the competitive bank distinguishes itself by customer responsiveness. It would be nice to have a personal banker assigned to each customer, with detailed knowledge of the customer's financial situation, interests, goals, and behaviors. To that end, the competitive bank uses data to drive the type of personalized service to its retail customers that bankers used to offer only to a few high net-worth individuals.

The competitive bank collects data from every interaction with every customer. The goal is to understand each customer and that customer's unique journey with the bank. Insights from data allow the bank to understand where the customer is coming from and where the customer is going. Past interactions allow the bank to predict the best thing to do at each point of interaction in whichever channel the customer is using.

The competitive bank will execute the most appropriate response through the current channel. That may be to initiate some measure of proactive

service, such as “Your mortgage is due in two days, do you want to apply some of this current deposit to that payment?” It may be a financial advisory, along the lines of “You are 80% through your entertainment budget for the month, but we are only 50% of the way through this month.” Or it may be a targeted product offering, such as “You appear to be keeping over \$1000 in checking above what you need. Would you like to move some of that money to a high-yield CD?” Rapid, personalized responses cause customers to feel individually valued by a bank. A bank that is helpful and pleasant to interact with is a bank that customers want to work with.

Customer Interactions Are Data-Driven Marketing Campaigns

The digital world is changing customer expectations. Responding to customers in real-time with different service and marketing offers is an evolution in strategy beyond old-style campaign management. Traditional marketing campaigns take months to plan, last for a specified length of time, and are examined only periodically during their execution. They target customers based on analysis that may be out of date by the time of implementation. They flood customers with solicitations by direct mail, phone, and email, approaches that are at best ignored and at worst annoying and counterproductive.

Real-time campaigns are managed differently from traditional campaigns:

- They are not just sales efforts. Most real-time campaigns seek to improve the customer experience by providing proactive service and timely financial advice.
- They are much more fine-grained than traditional campaigns. They target micro-segments, including segments of one, and these micro-segments are dynamically determined and continuously re-evaluated.
- They are planned in a matter of days, not months, and are based on continuous data analysis.

- They are often designed to be run concurrently. Even within a specific micro-segment, marketers will try many things at once and simultaneously execute campaigns that compete with each other and with control groups.
- They are delivered to customers with messaging appropriate to each communication channel.
- They are designed to be modified on the fly. Marketers conduct controlled market testing and scale up a campaign quickly if it proves successful. Marketers can also halt a campaign that fails to meet targeted performance measures within hours or days, or redirect resources where they see better results from a competing campaign.

The goal is to deliver to each customer the right offering at the right time and in the most effective way to produce the desired response. Banks that can leverage their extensive customer data can seize the advantage.

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Success Criteria for Real-Time Customer Interaction Management

To be effective, a real-time customer interaction management system needs to do all of the following:

- Quickly gather customer data scattered across multiple databases, web logs, mainframe datastores, XML and JSON documents, and other record formats.
- Quickly integrate that information in order to form a single consistent image of the customer's experience to date.
- Empower business experts with the ability to create and monitor service and marketing campaigns, including the ability to specify rules for detecting business events and for making and monitoring target offerings.
- Integrate with legacy products and channel technologies without compromising existing performance and reliability SLAs.
- Accelerate time to market and be able to respond quickly to market changes.
- Scale to changing performance requirements in a way that is cost efficient, predictable, and linear.
- Provide the ability to add new data sources, change business rules, and add or change market segments within hours, not days or weeks.
- Provide continuous feedback through business and operational dashboards to track campaign performance and operational metrics.

Many software stacks are a patchwork of multiple and varied technology acquisitions, and the stitching holding the pieces together is a common point of failure.

Challenges with Building a Real-Time Customer Interaction System

Developing a real-time customer interaction system capable of responding to millions of customers across an arbitrary number of channels is a non-trivial undertaking. Data is in different locations and different formats, and different technology choices will have far-reaching effects. System capacity and scalability have to be planned. An operational process that enables easy rule development and rapid time to market is necessary. An effective solution has to enable the management of multiple concurrent and often competing campaigns. Digital data from the web, social networks, and mobile devices needs to be integrated with existing databases and with "analog" data from offline customer interactions such as branch visits, ATM transactions, and so on.

Addressing the following questions before starting development or investing in a technology stack will dramatically increase the odds of success:

- How diverse is the bank's data ecosystem? Bringing together diverse data from across the enterprise in order to make real-time decisions, and keeping that data continuously updated, is a significant engineering feat.
- Will business rules be developed by business experts or by software engineers? When software engineers develop rules, managing the transfer of knowledge between business experts and engineers comes with its own sets of problems and delays.
- Will the system be built with a fully integrated development framework or technology stack that has a consistent data model throughout? Many software stacks are a patchwork of multiple and varied technology acquisitions, and the stitching holding the pieces together is a common point of failure.

- How well can you integrate the system within your existing infrastructure and operations?
- How well will the various tools and frameworks you are using scale as demand increases?
- How long will it take you to develop the system? Software development can be extremely time consuming, and every day it takes to get the software up and running represents lost revenue that can never be recouped.
- How easy will it be to add new data sources to the system? Adding a data source, such as a new social network, can be extremely complex and time consuming.

It is certainly possible to build a real-time customer interaction management system from scratch or from existing real-time interaction management (RTIM) and multi-channel campaign management (MCCM) suites. However, building from scratch requires repeatedly reinventing the wheel, with all the problems inherent to software development. In addition, because many RTIM and MCCM suites are assembled from disparate technologies, building from existing suites will also inevitably entail significant development delays, headaches, and unexpected incompatibilities.

Fortunately, there is a better way.



Ab Initio: A Better Way

Over twenty years ago, Ab Initio revolutionized data processing for big data with its high-productivity, high-performance graphical programming platform. Ab Initio's Co>Operating System® makes it possible to access virtually any datastore across multiple operating systems. Ab Initio does not require that user data be stored in any particular repository; Ab Initio software can read data in virtually any format on practically any platform. Moreover, an Ab Initio installation can run entirely within a client's firewall, or on a remote cloud server. This highly robust, low-latency Ab Initio technology, used by many of the world's largest financial services companies for their mission-critical applications, provides a solid framework for real-time customer interaction management.

Ab Initio's event engine can accept and process data continuously at any scale to practically any service-level requirement. As it reads data, Ab Initio software triggers appropriate actions based on that data. Each step can be logged and analyzed: for example, the reason an offer was made, the type of offer it was, the messaging it included, and the customer's response to it.

Benefits of the Ab Initio Approach

Ab Initio approaches problems from first principles: The goal is to produce a solution, not a Band-Aid. Ab Initio software is designed to handle big data problems, making it possible to deliver solutions to market in a fraction of the time, and with a fraction of the programming staff, required by traditional software development approaches.

For Ab Initio customers the benefits are significant:



Reduced time to production of 75% or more, a potential savings of millions of dollars, compared with traditional software development or experimentation with open-source software.



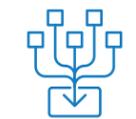
As much as a 70% reduction in the size of programming staff compared with other software development methodologies, with some customers reporting as much as a 90% reduction.



A 90% reduction in the cost of big data acquisition.



The ability to change and accelerate business and development processes.



Full metadata capture, allowing for data lineage and data governance as well as alignment with banks' BCBS 239 programs.



The ability to read and write any datastore on a variety of platforms, including Windows, Unix/Linux, Hadoop, Cloud Services (AWS, Azure, Google, etc.), and mainframe z/OS.



The ability to augment internal data with data from external sources such as social media feeds.



The ability to respond in real-time or near real-time to events with full historical context for each customer.



The ability to support real-time decisions.



The ability to create, initiate, and halt many concurrent event-based programs, such as marketing campaigns.



The ability to run campaigns that range in duration from minutes to months.



The ability to focus a campaign on one person or on a broad segment of the population.



Complete scalability, which means the ability to meet increasing demand by simply adding more commodity servers.



Fully automatic recovery, guaranteeing that data is never lost, even in the event of a crash.



An extremely stable, robust technology that shields users from the frustrations of a mixed development environment, including those particularly irritating bugs that result from subtle incompatibilities between tools, or inconsistencies in data representation between different programming languages.

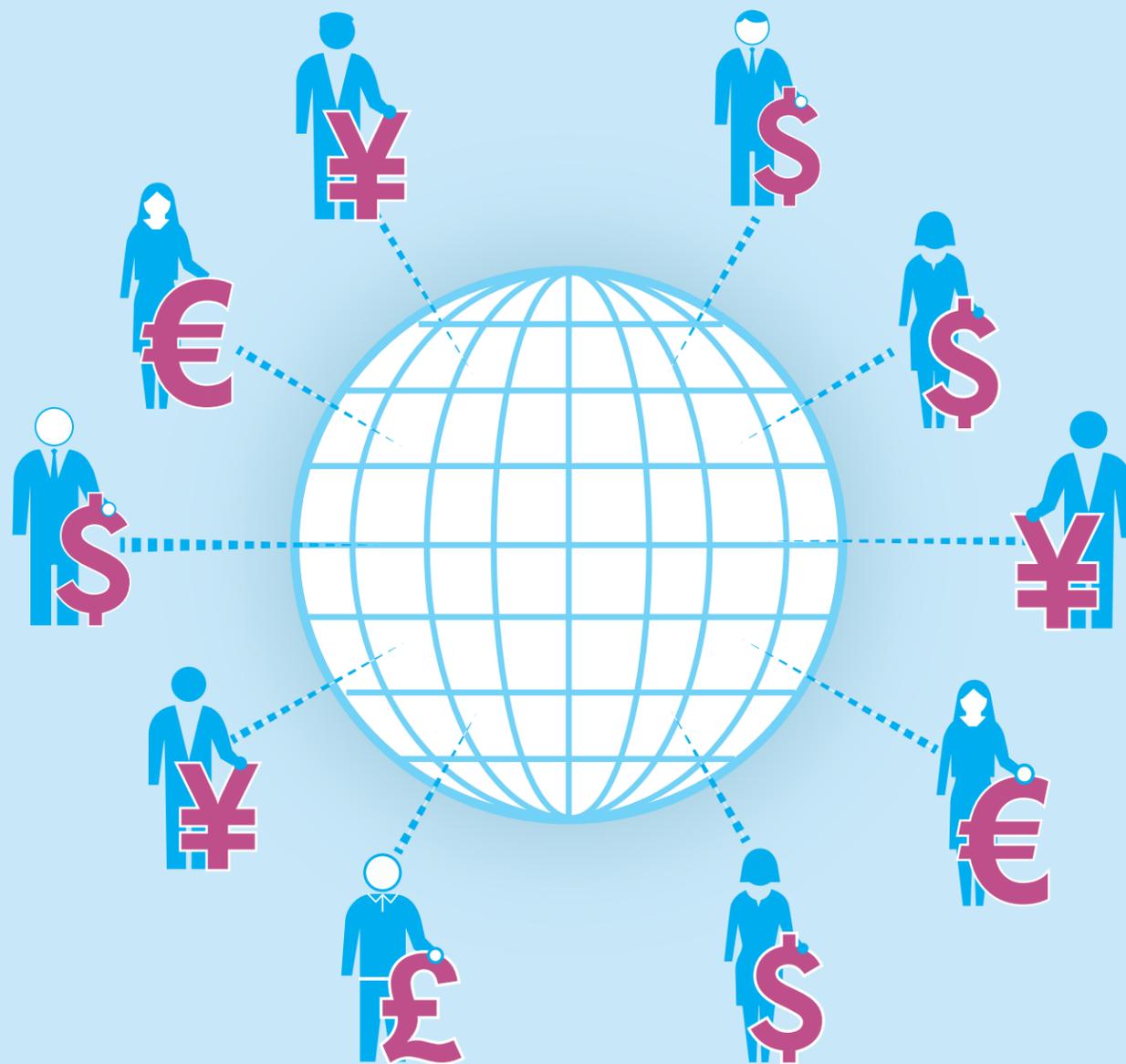
Case Study

One of the world's oldest and largest financial institutions wanted to extend to all of its customers the same degree of service and customized banking that, until then, could be offered only to its wealthiest clients. The strategy team figured out that the key to top-notch customer service was appropriate information about each customer combined with rapid response to customer actions. Their goal was a system so responsive that, the moment a customer walked into a branch office, the appropriate action would be in process; for instance, if a customer's credit card had just been declined at a gas station, by the time the customer reached a banker to complain, the situation would already be known and in the process of being resolved. Other goals of the system included providing customers with appropriate account information at the right time; contextual, location-based marketing; fraud protection; and cost reduction.

Making matters more complicated, this major bank had extensive legacy systems in place. Data was located not on just one system, but on a variety of systems, including mainframe datastores. Development efforts using a major database vendor and custom software development failed: Latency could not be reduced below 45 minutes. Three quarters of an hour is simply too long to wait for the system to take action, particularly for location-based marketing. The customer will have long since left the location by the time the location-based alert arrives, and the bank will be left looking foolish. Open-source solutions were no better: The bank quickly found that the programming involved would require it to recruit a small army of doctoral-level computer scientists and to devote its resources to software development instead of to banking.

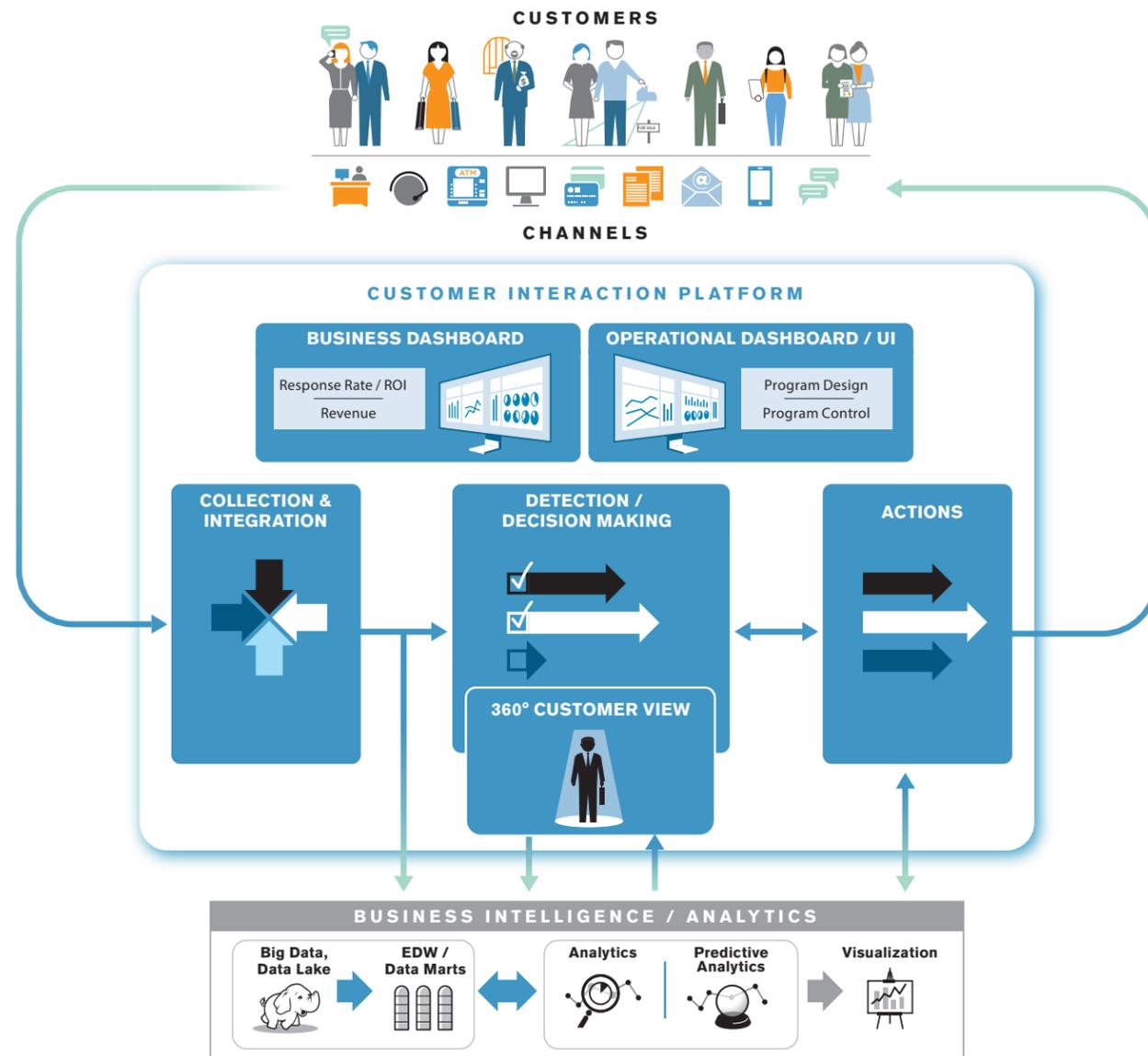
Using Ab Initio software, the bank was able to get its system working in under a month, including an interface with legacy mainframe systems. It is now able to process 150,000 transactions per second. Non-time-critical use cases have an average latency of 5 seconds, while time-critical use cases have a latency of just 10 milliseconds. The system has been live for over two years, and the bank is steadily adding additional use cases. The system is saving the bank several million dollars a year.

Results like these are not unusual with Ab Initio.



Ab Initio Technology

Ab Initio enables the development of real-time customer interaction management systems through its Collect-Detect-Act (CDA) framework.



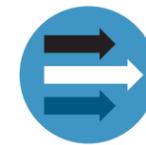
Ab Initio's CDA framework consists of five key components:



Collect The Collect component gathers data from virtually any conceivable source, including websites, social media feeds, mobile devices, and other digital technologies. No coding is required; rather, business analysts use Ab Initio's intuitive interface to develop rules that will read in data in its native format anywhere across the bank. Structured or semi-structured data sources can be added in hours or days, as compared with weeks or months using traditional approaches.



Detect The Detect component implements the complex business logic that is at the heart of understanding customer interactions. Real-time data is gathered as events, which are then combined with cached customer data and processed according to analyst-developed business rules. Ab Initio software can process rules of any complexity, including rules defining market segments, offers, promotions, and cross-campaign arbitration.



Act The Act component executes the results of the decision logic in Detect. For instance, this component might issue instructions to a fulfillment service or record a customer reaction to an offer.



Real-Time Customer Profile This fault-tolerant in-memory customer profile maintains up-to-the-minute information about each customer being processed. As customer interactions are detected by the Detect component and actions are triggered by the Act component, this profile is constantly updated with the latest information.



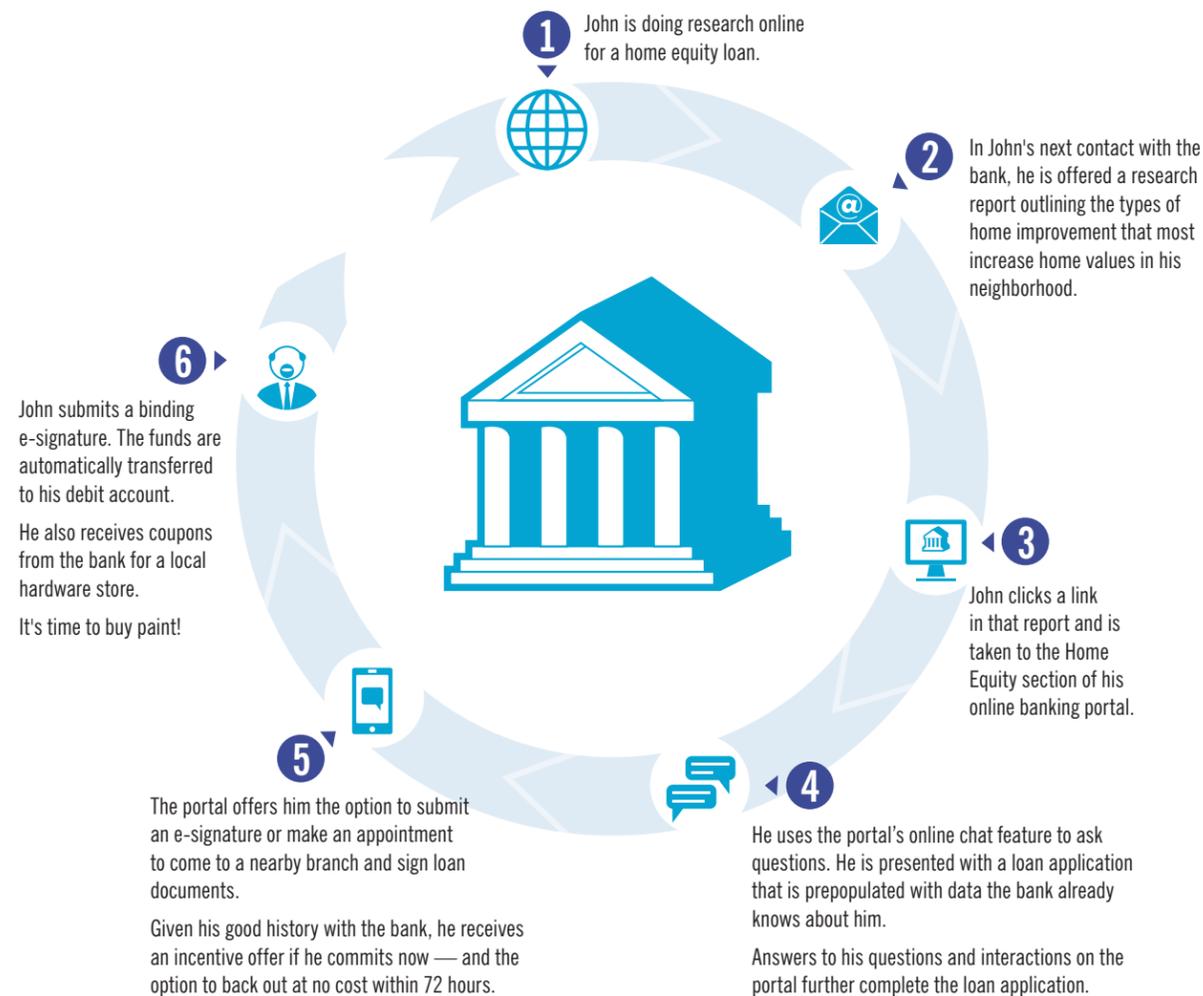
Business And Operational Dashboards The dashboards are the system UI. They have business pages that present and control the business function of the CDA framework: what campaigns are running, the campaigns' current relevant KPIs, campaign life-cycle stages, and so on. The dashboards also have operational pages that present the state of each CDA component while it is running: how many events are being processed, the status of system queues, the status of the file system, and so on.

The CDA framework runs on top of Ab Initio's Co>Operating System. It takes full advantage of Ab Initio's massive scalability and comprehensive software stack.

Understanding the Customer Journey

The easiest way to understand how the CDA framework enables real-time customer interaction management is by following a hypothetical customer, John, on his quest to obtain a home equity loan so he can make some improvements to his home.

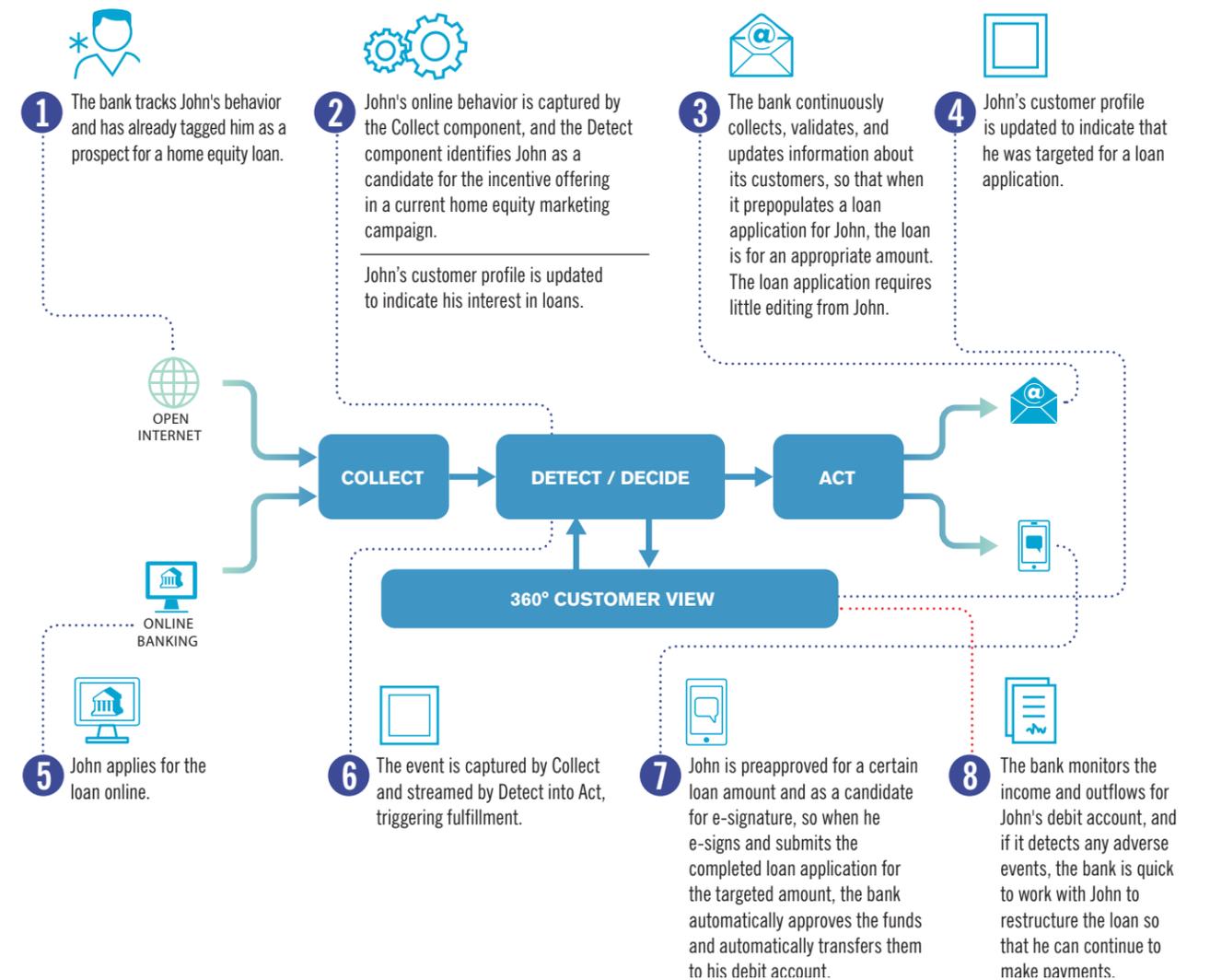
John's Home Improvement Journey



From John's perspective, the entire process has been relatively effortless. Under the surface, however, quite a bit is going on.

John's effortless journey was actually the result of Ab Initio technology operating behind the scenes to identify his needs and act to meet them.

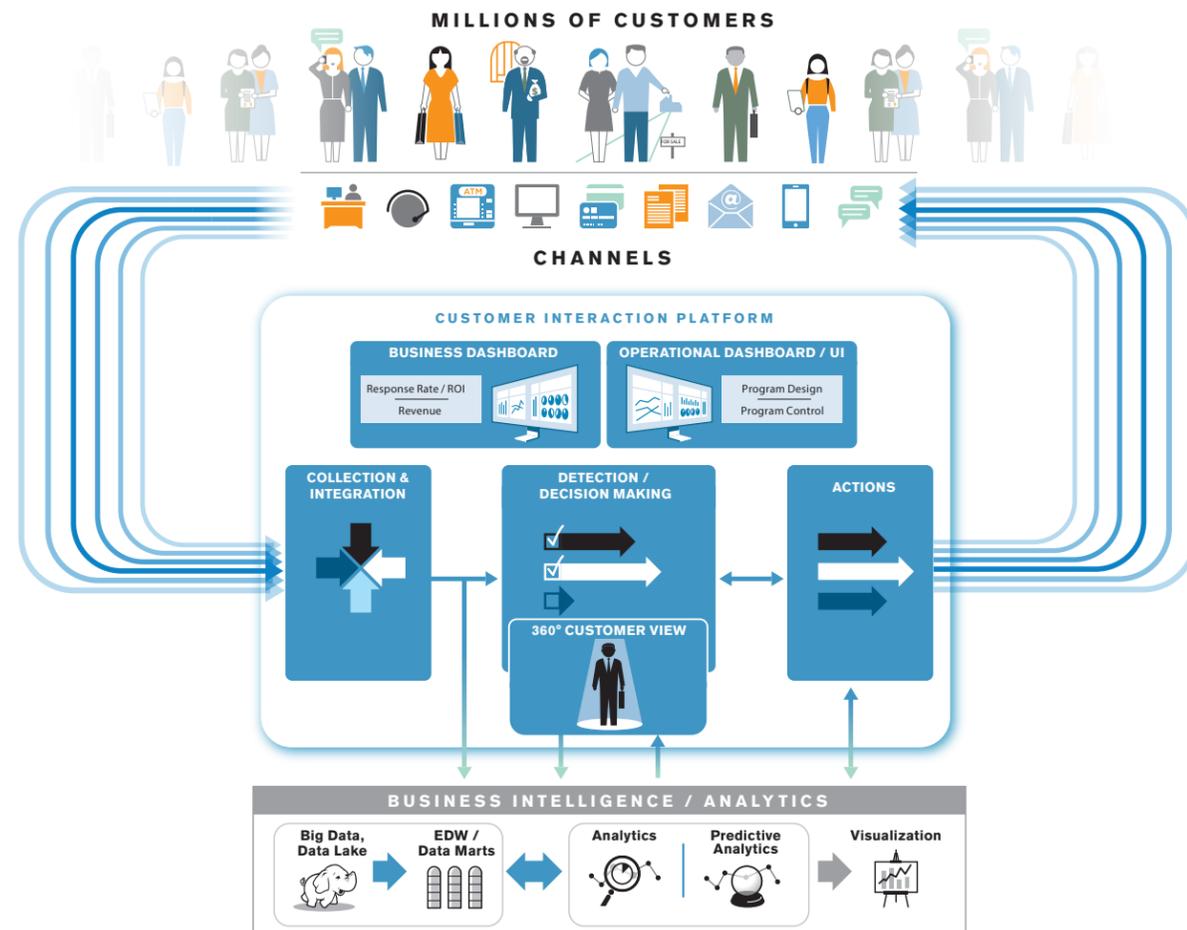
John's Home Improvement Journey, Step By Step



Of course, John is only one person. Because CDA runs on Ab Initio's Co>Operating System, it can handle not just John, but also millions of other people, all in near real-time.

A real-time customer interaction management system built on Ab Initio technology lets banks leverage their data advantage as never before, and lets them do it quickly.

Customer Journeys



World-Class Support

Ab Initio understands that systems that manage and respond to customers interactively need to be in continuous operation. With Ab Initio, businesses never need to go it alone.

In addition to providing extraordinarily powerful software and extensive documentation, Ab Initio also offers world-class support for mission-critical applications. With our support organization staffed by avid problem solvers with advanced technical degrees, we provide the same degree of engineering talent and product expertise in our global support team as we do in our field consulting group.

With Ab Initio's CDA framework, developing and adding new campaigns is remarkably simple. The framework does most of the work. Relatively few custom components are needed, and even developing those is straightforward with Ab Initio's highly intuitive graphical development model. New feeds and new rules can be added in hours or days, as opposed to weeks or months, and, once added, can be reused with no additional effort. With Ab Initio, you can get a system up and running in a fraction of the time required by other software engineering approaches.

Summary

Banks possess the data, gleaned from a variety of customers over countless business cycles, that can enable them to out-compete Fintechs in the marketplace. The challenge for banks is that this data is often fragmented, is scattered across different business units and different technologies, and is not easily accessible in a format that allows banks to use it to make effective, real-time decisions or to improve customer interactions.

Fortunately, Ab Initio's massively scalable, fully integrated data processing platform provides the necessary framework to enable banks to take full advantage of their accumulated data in ways that can maximize customer loyalty and satisfaction. With Ab Initio, banks can bring new products and services online in a fraction of the time it would take using traditional programming models, and they can use data from social media and the web to easily personalize customer interactions in real-time. With Ab Initio, banks can leverage their data and build customer loyalty as never before.

About Ab Initio

Ab Initio is a global software company headquartered in Lexington, Massachusetts. For more than 20 years, Ab Initio has worked with the largest and most sophisticated organizations in financial services, telecommunications, healthcare, retail, high-tech, transportation, manufacturing, and government, among others, to ensure their business success.

Ab Initio products are designed from the beginning to provide a single, cohesive technology platform for scalable, high-performance data processing, integration, and governance.

Ab Initio has offices in Istanbul, Johannesburg, London, Munich, Paris, Singapore, Sydney, Tokyo, and Warsaw.

Ab Initio software is transforming the way large institutions manage and process their data.

Contact us to learn more.

Ab Initio
201 Spring Street
Lexington, MA USA 02421

+1 781-301-2000
solutions@abinitio.com



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