

2014 Executive
Summary and Roadmap



TAG

FinTech

R E P O R T

*Data Analytics/Big Data
in Financial Services*



Market Research Report

Components:

1. Executive Summary (page 2): designed for management, this document synthesizes the market research data into the key points.
2. Roadmap to 2020 (page 5): Based on the research findings, TAG FinTech has assembled suggested areas to consider in building their Data Analytics/ Big Data roadmap.
3. Market Research Results Detail (separate document): the findings of the research study are packaged as a separate document available through TAG FinTech.

Introduction

During March, 2014 The FinTech Society of the Technology Association of Georgia (TAG) conducted a market research study with financial services and payment processing organizations in Georgia to determine how data analytics and Big Data technology are being used in their organizations.

The goal of the market research was to learn the following:

- *The role that data analytics and Big Data are playing in FinTech organizations today.*
- *Whether FinTech organizations are achieving measurable business value from their technology investments in data science.*
- *The challenges that impede the transition to a data-driven organization.*
- *Whether their current technology foundation supports their goal to deliver data-centric products and services.*
- *The changes management needs to make over the next 5-6 years to become data-driven.*

This TAG FinTech Report presents the findings of the market research and shares the insights gathered during the conference.

Our goal at TAG FinTech is to **open a dialogue** within FinTech organizations that embraces the data presented here and your organization's own research and planning. We hope the dialogue will drive meaningful discussion about the potential true data science can have for your organization.

Many thanks to the respondents for their participation in this primary market research study. We know there is a great deal of research being conducted in the FinTech community and answering yet another survey is not at the top of everyone's to-do list.

TAG FinTech plans to refresh this market research data every two years between now and 2020 to see how FinTech organizations are embracing the many opportunities presented through data science.

Data within your organization:

- 90% of data stored is never accessed
- 20% of the data stored is structured, 80% is unstructured.
- 10% of an organization's data is considered "hot" and a potential driver of revenue. But, hot data has a limited shelf life.
- Structured data generally looks back at historical results.
- Unstructured data can often add significant dimension to structured data.

"Payments processing is the linchpin of global trade and the Big Data impact on payments is already igniting dramatic expansions of trade and prosperity in many sectors. This cutting edge report shows us that Georgia companies already play a leading global role. A careful reading offers many clues to the policies and practices that will cement Georgia's leading global position in payments processing."

Christine Ries

Professor of Economics
Georgia Tech

Executive Summary

Over the past several years, TAG FinTech has focused on the adoption rate of Big Data technology by FinTech organizations. Clearly, financial institutions and payment processors generate huge volumes of data daily. But, questions arose about whether the FinTech companies are using available data to drive their organizations. Were they generating increased revenue by using new data-driven products and services? Were they using data to improve organizational performance?

To learn more, TAG FinTech sponsored multiple seminars focused on how data science technologies are being used. What we discovered was that the adoption rate of data science technologies by these FinTech organizations was very slow. In fact, we determined that the FinTech community was at the back end of the adoption curve and needed to catch up.

Before jumping to a judgment, we needed solid data to determine exactly where FinTech organizations stood on being data-driven. The result was the first primary market research study designed to measure the use of data analytics as a business driver with Georgia-based FinTech companies.

The Executive Summary is divided into two parts. In the first section we summarize the market research findings that look at Data Analytics in FinTech Organizations today. The second section summarizes the FinTech community's Data Analytics Plans for 2020.

More importantly, if FinTech organizations are behind the adoption curve we wanted to give them a roadmap to help them become a data-driven company by the year 2020.

We encourage you to review the detailed market research findings that are in a separate document called **Data Analytics and Big Data in Financial Services – Market Research Results**. This document is available through TAG FinTech.

Our market survey results indicate that data analytics based products and services are not yet core to the business strategies of many FinTech organizations.

TAG FinTech would like to recognize the following Board members for organizing Big Data 2020, the market research and the white papers:

- Don Campbell, Managing Principal, RightCourse, LLC
- Mark Pearson, SVP, SunTrust
- Monica Moore, SVP, Fleetcor
- Rajib Roy, CEO, Quantum Spatial (formerly President, Equifax Identity and Fraud Solutions)
- David Calhoun, Partner, Morris Manning & Martin
- Jonathan Siskin, Enterprise Growth Initiatives, Equifax
- Ann McDonald, Director Business Development, Morris Manning & Martin.

Data Analytics in FinTech Organizations Today

Here's what we learned about the current state of data analytics and Big Data adoption in the FinTech community.

- **While FinTech organizations believe that data analytics/Big Data should play an important role in their business, few organizations see it as a competitive advantage today.** Nearly all respondents believe that data analytics/Big Data is a significant and powerful resource and a strong source of potential economic value. Even though prior data analytics programs may have not been profitable, respondents overwhelmingly agreed that the potential exists within their organization, and by 2020, their organization will have to make them core to the organization's business strategy. Furthermore, the vast majority of FinTech organizations expect their competitors to continue to invest in data analytics/Big Data programs to strengthen their market position.
- **Today's FinTech organizations are not investing sufficiently to become data-driven.** The vast majority of survey responders indicated that their organizations are not making significant investments in data analytics programs, people, technology, and tools. In particular, most organizations believe their IT infrastructure and software tools are below what is required to support data analytics/Big Data capabilities. In addition, less than a quarter of FinTech organizations state that management is making a strong commitment to these programs today. Organizations know that this must improve if they are to extract value from these capabilities in the future.
- **Data analytics/Big Data projects are generally viewed as not delivering a strong ROI; however, areas are emerging where organizations are starting to see value.** Financial institutions and payment processors have invested in data analytics programs to improve fraud protection and risk management. While these applications of data analytics have delivered results, other forms of data analytics or Big Data programs have not shown sufficient financial results to justify increased investments based on our survey responders. The constant drive for profit has not prompted management to invest in data analytics programs that may have questionable or unpredictable margins. Furthermore, the market survey results indicate that data

One of the overwhelming responses of the survey was that FinTech management was insufficiently committed to data science today, in 2014.

analytics based products and services are not yet core to the business strategies of many FinTech organizations.

- **The adoption barriers organizations face are as much managerial and cultural as those related to data and technology.** Respondents cited a wide variety of challenges, and these, especially in combination, cannot be minimized or ignored. The biggest obstacles noted were competing priorities and lack of skills and talent. Concerns and/or restrictions related to privacy/regulatory issues and lack of understanding of business value were also frequently cited as important. While data and technology issues, such as access to data and concerns over the accuracy/veracity of the data, were highlighted, they are not often seen as significant as some of these other factors. Addressing these challenges will require a comprehensive effort by FinTech organizations and their leadership.
- **Data collaboration will increase in importance for FinTech organizations.** Collaborating around data analytics/Big Data opportunities and sharing data across the FinTech industry is viewed today as an important business function over the next five years. For example, blending financial transaction data with demographic data or purchasing trends from vertical market segments can add value to information surrounding a transaction.
- **From a regulatory perspective, the future of financial transaction processing seems fraught with change making the cost of compliance expensive and cumbersome. Data security and privacy regulations could slow adoption of data analytics as a business foundation.** Data security is an overwhelming priority for all FinTech companies. The changing regulatory landscape around data privacy laws (currently being strengthened at the state level) tells FinTech executives to proceed cautiously with data analytics initiatives. FinTech executives will continue to stay in step with regulations. Increased use of encryption and tokenization was acknowledged by responders to improve transaction security. PCI-DSS compliance was predicted to become stronger and more prevalent.
- **The vast majority of FinTech organizations expect their competitors to invest in data analytics and Big Data programs**

The majority of respondents saw their organization as growing organically by building internal capabilities. Some organizations saw acquisition and outsourcing as the best route.

to strengthen their market position. So, while caution is prevalent among FinTech executives, they expect their competitors to invest to deliver better decision-making data to their customers. Therefore, to maintain a competitive position or build a competitive advantage, data analytics and Big Data programs will be necessary. When to invest and how to invest is clearly the challenge.

- **Data collaboration will increase in importance for FinTech organizations.** Collaborating around data analytics/Big Data opportunities and sharing data across the FinTech industry is viewed today as an important business function over the next five years. For example, blending financial transaction data with demographic data or purchasing trends from market segments can add value to information surrounding a transaction. Collaboration will drive market opportunities.
- **Core components of a successful organizational strategy such as the IT infrastructure, training, education and professional talent are not in place.** FinTech respondents shared that their organizations were not yet ready to move up the adoption curve. While there has been significant focus on select areas, particularly around data security and data governance, comprehensive programs to build the required IT infrastructure have not generally been implemented. Respondents also frequently voiced concerns over skill gaps and lack of training/professional development in their organization. In addition to management's commitment to invest in data analytics/Big Data programs, respondents believed that their organizations were unprepared to take the next steps. Management needs to get these organization-wide systems moving as soon as possible.

Industry estimates project a shortage of data scientists in excess of 150,000 professionals by 2018. There will also be a 1.5 million person shortage of managers and analysts with the know-how to use data analytics to make effective decisions.

Strategies to strengthen core IT platforms and networks:

- *Strengthen core IT platforms and networks.*
- *Create separate data analytics/Big Data platforms with central access to departments.*
- *Standardize software tools across the enterprise.*
- *Take advantage of new IT tools such as massively parallel processing, in-memory analytics and specialized software applications.*

FinTech Organizations – Data Analytics Plans for 2020

As our market research responders looked ahead to 2020, here is a summary of what they shared with us about their data analytics and Big Data strategies.

- **Data will be a competitive advantage.** When asked whether data analytics will be a competitive advantage for their organization in 2020, respondents indicated overwhelmingly that data-centric management practices and products/services have to be core to their organization. This compares to their view today (2014) that data is either “not significant” or “playing an expanding role” in their business models. Data analytics and Big Data will become more pervasive across the FinTech industry to meet customer information demands and new market opportunities. Data, as a primary raw material, will drive economic value going forward.
- **Executive management must strengthen their commitment to becoming data-driven.** One of the overwhelming responses of the survey was that FinTech management was insufficiently committed to data science today. Therefore, if analytics programs are going to part of the management topology in 2020, senior managers need to start making the right investments that will yield good business results. Respondents identified the most important investments that will drive these changes: increased investments in IT infrastructure and data analytics tools; increased investment in people and training, particularly around the hiring of data scientists. The foundation of all of these investments is senior management’s commitment to making it work.
- **FinTech business models will change as organizations improve their ability to monetize data.** A segment of our survey focused on how the business models deployed by FinTech organizations would change. Our survey responders indicated that by 2020, FinTech organizations will evolve from being providers of tools that help customers analyze their data, to becoming purveyors of both the data and data analytic tools. While this future is unclear, business model innovation will continue to increase in importance within the FinTech sector. We may see late adopters acquire existing analytics organizations to monetize their data. FinTech organizations that prefer to grow their capabilities

Data scientists need to be integrated into the corporate structure. A culture that fosters increased data analysis by qualified professionals is needed by FinTech organizations.

organically will need to begin their strategic investments quickly.

- **The data-driven organization of 2020 will be structured differently than organizations are today.** Our responders believe that existing corporate and management structures need to evolve and change to support new data monetization models. To become data-driven, FinTech organizations will need to shed older, lethargic management systems in favor of more agile methodologies able to respond to market opportunities supported by data analytics. More contemporary management structures will be built around the data that will increasingly drive revenue.
- **FinTech organizations prefer to grow their data analytics/Big Data capabilities organically.** We asked FinTech executives to rank the growth options to determine whether they wanted to expand organically or inorganically. The majority of respondents saw their organization as growing organically by building internal capabilities. Some organizations saw acquisition and outsourcing as a viable route.
- **Data science requires a different caliber of talent acquisition.** There is a definite skills gap between where FinTech organizations are today and where they expect to be in 2020 with data analytics/Big Data. To close the gap and strengthen their data analytics capabilities, our FinTech responders indicated their organizations will add experienced data scientists to their workforce and cross-train existing staff.
- **Shortage of data scientists will create recruiting challenges.** Industry estimates project a shortage of data scientist in excess of 150,000 professionals by 2018. Respondents in the survey said that they were not confident in their organization's ability to attract and retain data scientists. They also believed colleges and universities need to strengthen their data science programs to help close the skills gap..
- **Data analytics training programs need to improve dramatically between now and 2020 to achieve a goal of being data driven.** Current internal data analytics training programs are considered fair-to-poor by our responders and the realization is evident that improvements are needed. As organizations retool to deliver data-driven business models, responders encouraged



Ellen Richey
Chief Enterprise Risk Officer
Visa

Data use holds the promise of making new connections between dispersed bits of information creating value, both economic and social. In the context of risk management, data analytics help us identify criminal patterns and create next-generation intelligence that saves our financial institutions and retailers millions in fraud losses, while providing consumers with peace of mind.

--As told to Anne VanderMey, Fortune Magazine

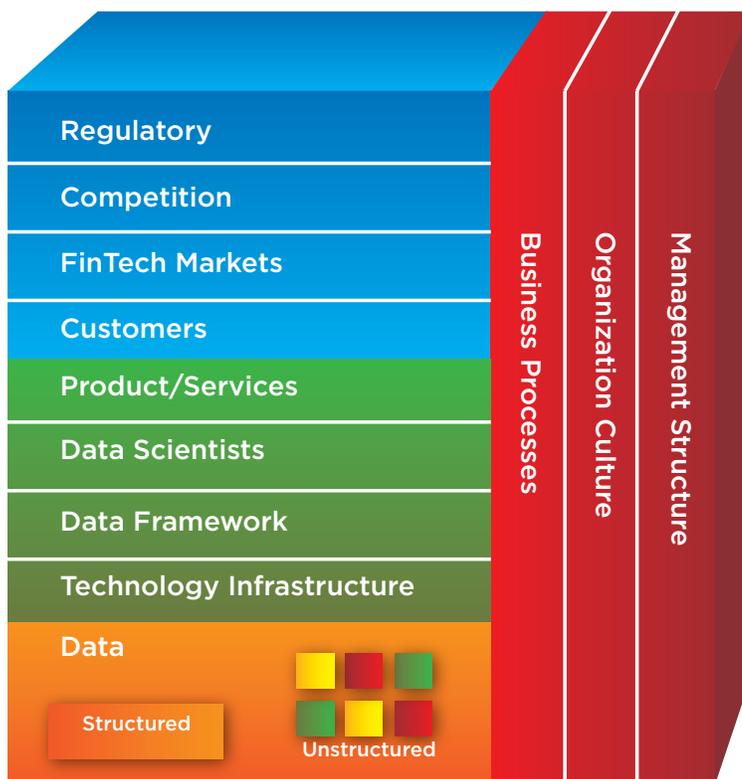
management to empower more and more employees to incorporate data-driven metrics into business process and day-to-day activities.

A Roadmap to 2020 – Becoming a Data Driven Organization

Unfortunately, there isn't a one-size-fits-all roadmap of how to become data-driven by 2020. If there were one roadmap, all organizations would have already moved their way up the adoption curve and become data-driven. Since each FinTech organization is different, each requires its own unique roadmap.

Our approach to the data-driven FinTech organization roadmap is to define the topology of the data science landscape, from a business perspective. Your data landscape is either viewed as a land of opportunity or a battlefield, whichever suits your strategic planning sense. With topographical planning we hope to help you understand the dimensions of the task.

Becoming a data-driven FinTech organization is a multi-dimensional effort. Where you are in the data science adoption cycle will determine the logical actions to take. And of course, each FinTech organization generates different kinds of data and leverages its data differently as a revenue source.





Jamie Miller
Chief information officer
General Electric

Big data is transforming how we deliver service for our customers, while simplifying the way we run our company. We firmly believe that the apps and services that can be built off of big data from machines will unlock new levels of productivity and value for our customers. It also helps us analyze and simplify the things that drive employees crazy, removing complex systems and arming them with the technology and insights they want and need to do their jobs. --As told to Michal Lev-Ram, Fortune Magazine

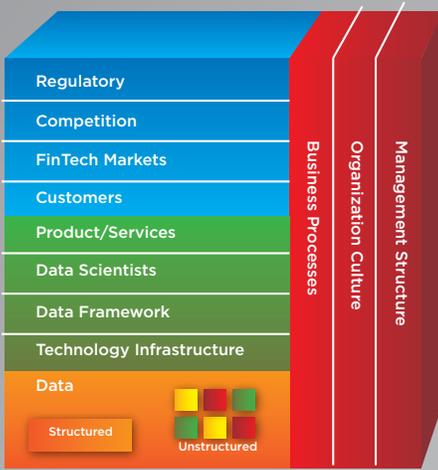
Our topology has the following dimensions:

1. **Business Culture:** FinTech organizations must build a culture in which data is central to the organization. Management must think data-analytically and support a culture where data science and data scientists thrive. Data-driven organizations are agile, able to respond to market opportunities, build new product/services faster and meet customer needs more thoroughly. FinTech organizations are data rich, but the availability of data does not ensure successful data-driven decision-making. Management must understand how data science works, how data is analyzed and how decisions are built from the results. Management should add to the senior management team a manager well versed in data science. Managers need to understand the fundamental principles of data science and be able to invest in and nurture a data science culture. The more “data” is an afterthought, or a sideline, the less competitive your organization will be in 2020.

2. **Technology:** there are many dimensions to technology. To build a data-driven organization, the technology assets must be in step with the business strategy. The more out-of-sync business and technology are, the more debilitating the impact on the organization’s agility. Investments in technology need to focus on the sources of data, how data is moved around the organization, and how it is handled, either through transactions, reporting or analytics. The analysis of large data sets (Big Data) and unstructured data requires new and different technology than the organization probably has today. Even if the organization has already invested in new technologies, management has to figure out how it becomes central to the organization – not just an incubation environment.

3. **Data Framework:** a FinTech organization must know where all of its data is (structured and unstructured). Data management specialists need to map the data to determine its structure/ schema and its potential value. Structured data such as accounts payable or accounts receivable is pretty straight forward, but sifting through customer data from blogs, emails, and social media is a different challenge. An organization’s data framework maps your data assets such that a management team knows what they have to work with. Tacked onto the data framework can be external sources of data such as industry databases,





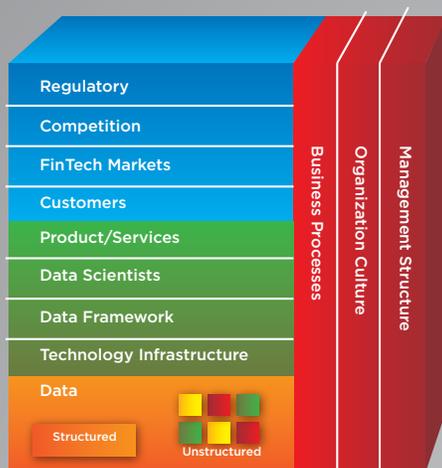
analyst reports, newspapers, and more.

4. **Data Scientists:** Interpreting the results of data analysis is not a job for the untrained. Just as a radiologist is trained to read MRIs and X-rays, a data scientist has a unique, trained skill set to interpret data. Market and product strategists must be able to shape new products and services from this data and constantly monitor performance results. Recruiting data scientists will be a challenge. They are in high demand as many organizations (not just FinTech) realize the value and potential of data.

5. **Management Structure:** Many of the management structures in FinTech organizations today are not designed to support a data-driven organization. Executives need to be trained how to organize, manage and nurture a data-centric culture. Moreover, they need to understand how to interpret the output of the data analytics. Management needs to empower the employee throughout all disciplines of the organization and reward risk, failures and successes. An executive, fluent in the management of data science programs and culture needs to be part of the senior management team. Organizations are often naming this position the Enterprise Data Officer (EDO). Managers across the organization need to be capable of interpreting data that comes from the analytics processes. They need to be trained and be willing to grow, learn and change the way they do things.

6. **Business Processes:** The way business runs day-to-day (business process) will need to be updated and evolve as data becomes more central to the organization. Decision making needs to be moved deeper into the organization as employees become empowered. KPI's need to track progress.

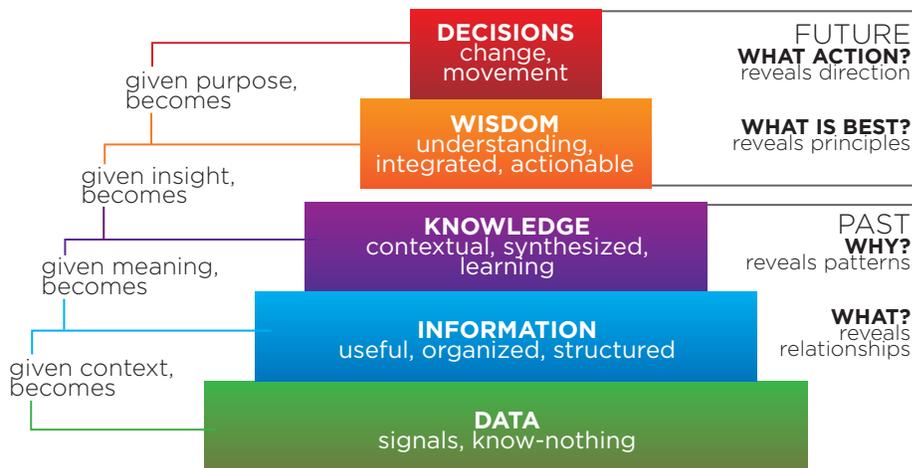
7. **Employees:** Becoming a data-driven organization means empowering as many employees as possible with actionable data. They need to understand how data can improve their day-to-day business processes. Employees of data-driven organizations in 2020 will be better equipped to handle data and to take action upon it. They will also be empowered by collaboration. While everyone cannot be a data scientist, the empowered employee will be trained to work with the dimensions of data more fluently.



8. Products/Services: As a natural resource of the FinTech organization, data can help define new products and services, and add dimension to existing products and services. Data can also improve the internal processes that define new product development. Even though past data analytics/Big Data programs have produced less than stellar financial results, FinTech organizations need to move beyond the testing stages and begin to make data science part of the mainstream. Again, management culture must support a data-ready and agile culture.

9. Customers: The customer relationship will become richer and more intimate. Data will add value and dimension to the relationship. Especially in the FinTech community, a data provider can leverage a new, potentially more profitable relationship with customers. Collaboration with customers can define new products and services and open new markets. Customer service will be reoriented to practices that enhance the profitability of both parties. FinTech organizations need to know how to present data to customers in a way that best suits their needs. Data may be delivered through an online portal using dashboards or analytics software that allows the customer to slice and dice the data.

10. Regulatory: While the crystal ball will always be a bit fuzzy here, it is clear that data privacy will be paramount in the coming years. For the FinTech organization, this is both a technology and a business process challenge. Opening up the uses of data within the organization will require a new taxonomy and operational structure. Weathering regulatory changes means being agile and responsive. The strength of your technology foundation and your management structure will define your success.



TAG FinTech

TAG FinTech was formed in early 2010 to focus on the specific needs of companies, individuals and investors serving the financial industry both domestically and abroad.

Did you know:

- Georgia FinTech companies have produced more than \$83 billion of shareholder value since 1995.
- Georgia FinTech company revenues are more than \$34 billion annually, which places us third in the nation behind New York and California.
- Together the banking, insurance and capital markets consistently spend more on technology than any other industry.

Atlanta, along with the surrounding areas of Georgia, has evolved to become the epicenter of a growing segment of the financial services industry – a sector often known as Financial Technologies or FinTech. This sector encompasses the product and service companies that support the technology needs of the financial services industry and, ultimately, the payment-processing infrastructure of the economy.

TAG FinTech's mission is to build recognition of Georgia as the hub of choice for the world's leading financial technology providers (a counterpart to Silicon Valley for technology or Hartford for insurance) with the goal of accelerating the accumulation of capital by its members.

We will accomplish this by fostering a business environment conducive to the ongoing success of the community's companies, employees, service providers, educational institutions, entrepreneurs and investors, helping them create, build, and maintain innovative financial services that meet their customers' growing needs.

To continue expanding the hub, FinTech will empower a collaborative culture that attracts and retains innovation, jobs, partnerships, and capital, and where successful entrepreneurs can reinvest in the local ecosystem to help sustain the space.

For more information visit:

www.tagonline.org/chapters-and-societies/fintech