

2014 Market  
Research Results



TAG

R E P O R T

FinTech

*Data Analytics/Big Data  
in Financial Services*



Market Research Report  
Components:

The TAG FinTech Report on Data Analytics and Big Data comprises two reports:

1. Market Research Results Detail: the results of the March, 2014 FinTech research study are included in this document
2. Executive Summary and Roadmap to 2020: designed for management, this document synthesizes the market research data into the key points, and provides suggested areas to consider in building a Data Analytics / Big Data roadmap.

## Introduction

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

The FinTech market is well represented in Georgia with more than 80 companies focused on delivering a wide range of technology solutions. For example, about two-thirds of all payment card transactions pass through the global networks of Georgia FinTech organizations. Representing more than 85 billion transactions, much data is generated. Our goal was to learn how FinTech organizations are using data analytics technologies to improve their bottom line from a revenue and operations-improvement perspective. We wanted to learn:

- 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 organizations need to make between today and the year 2020 to become data-driven.

The results of the market research were presented in May, 2014 at the TAG FinTech Big Data 2020 conference. Using the research results as a foundation, several panels focused on the business, legal/compliance, and technology challenges organizations will face to evolve and improve their data science capabilities by the year 2020.

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

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.

Our goal as a TAG Society is to refresh the market research data every two years between now and 2020 to see how FinTech organizations are embracing the many opportunities presented through data science.

## Market Research Results – Respondent Profile

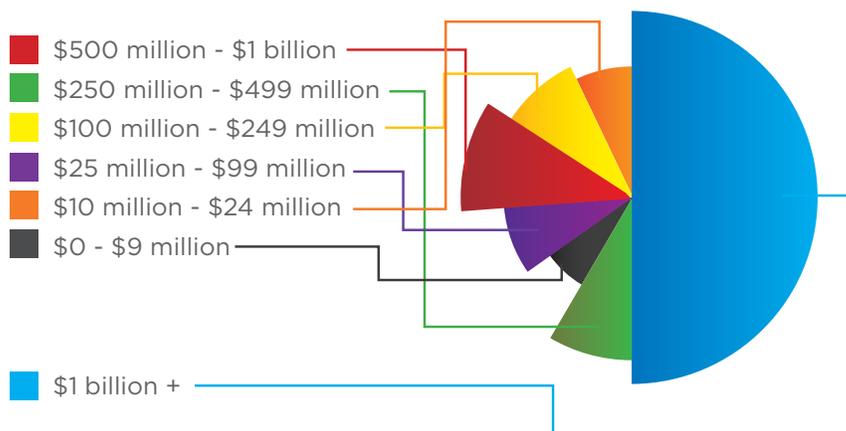
The market research study was distributed to financial services and payment processing organizations throughout Georgia. The distribution list included over 100 organizations. About two-thirds of the organizations responded.

46% of the responders listed themselves as a Financial Services Provider while 54% listed themselves as suppliers to the Financial Services Market. The five largest market segments responding include in descending order:

- Payment Solutions
- Analytics Providers
- Card Processing
- Banks/Financial Institutions
- Risk Solutions

Since Georgia is a hotbed for large financial transaction processing organizations, it is not surprising that about 50% of the respondents listed revenue at more than \$1 billion. The next largest FinTech segments measured by revenue were the \$500 million-to-\$1 billion and \$10 million-to-\$24 million groups. About 8% of the organizations had revenues less than \$10 million, thus representing the entrepreneurial market segment.

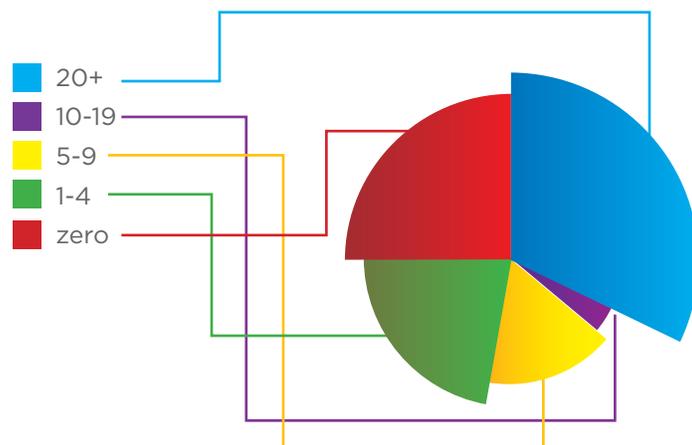
### What is the Revenue Size of your Organization?



Publicly held companies represented 53% of the responders and 6% were divisions of larger organizations. In terms of number of employees, 35% of the responding companies had 5000+ staff members, while 14% had fewer than 50 employees.

The chart below shows the number of data analysts/scientists currently employed by the organizations. While one-third of the respondents had more than 20 data analysts, about 50% of the respondents had fewer than four. 25% had zero data analysts. Later in this report, we will see how the investment in trained, experienced data scientists will be critical to the move to become data-driven.

### How many data analysts/data scientists does your organization currently have?



While 40% of the companies generate revenues from more than 10 global offices, 46% generate less than 10% of their annual revenues from international operations. The next largest segment derived 25% from international revenues. 35% of the companies responding had no global presence.

Our goal was to have as many managers as possible within the FinTech organization answer our survey so that we would get a balanced perspective across each organization. We wanted the view of executive management, marketing, sales, legal, IT and the data analytics organizations.

Our responders' roles within the organization breaks down as follows:

- Data Analytics Executive - 30%
- CEO/President/COO - 23%

- General Manager/ Business Unit Head – 13%
- Chief Information Officer – 10%
- Chief Technology Officer – 8%

Before proceeding with the results, we want to thank 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 was not at the top of everyone’s to-do list. We hope the data generated from this survey will help create a dialogue within the FinTech organizations about how data science can find its way to the bottom line.

### The Role of Data Analytics in Today’s FinTech Organization

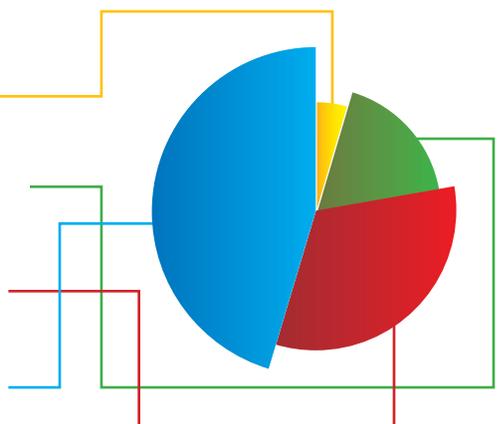
Following the organization profile, we asked the respondents to share the state of data analytics and Big Data within their organizations today. We started by asking them whether they considered their organization data-driven and what role data analytics played in their current business models.

In both cases, respondents agreed or were neutral about whether their organization was data-driven. Yet, our respondents indicated that the role that data analytics/Big Data play in their current business model was either “Not Significant” or “Expanding.” In turn, we asked the FinTech organizations to select a phrase that best described their organization’s use of data analytics. The chart below shows that 44% of the respondents believed their organization needed to do a better job of embracing data analytics. 34% indicated that “data helps our organization day to day, but is not a competitive advantage.”

There will be a 1.5 million person shortage of managers and analysts with the know-how to use data analytics to make effective decisions.

### In the context of the FinTech segment in which your organization competes, please select the phrase that best describes your organization’s use of data analytics?

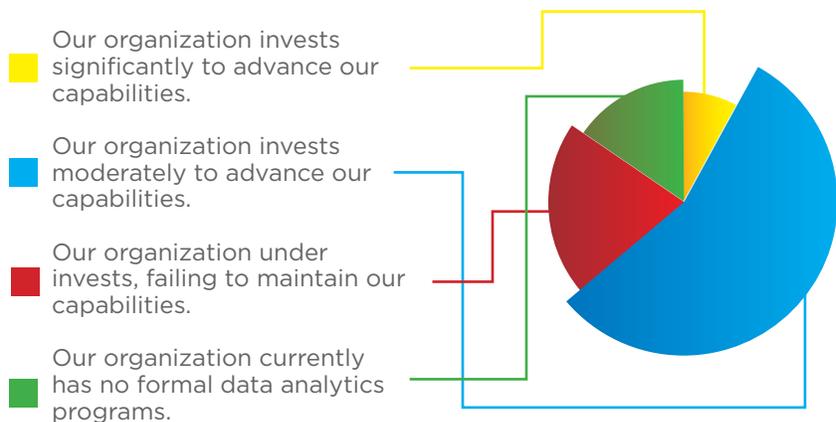
- We are the market leader using our data to our competitive advantage.
- While not the market leader, we are very competitive in the use of data analytics.
- Data analytics helps our organization day to day, but not a competitive advantage.
- Our organization needs to do a better job of embracing the use of data analytics.



While this appears to paint a dire picture for use of data analytics/Big Data within today’s FinTech organization, we will see later in the survey that respondents have a little more confidence in their capabilities than may be reflected by this question. The bottom line, though, is that the analysis of data to improve decision-making and guiding the strategy of the organization is less than it could be.

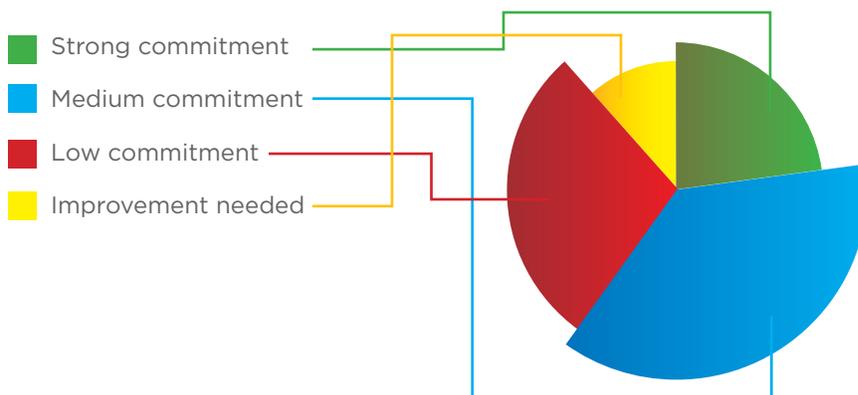
Our research study asked about the strength of internal investments in the foundation components of data analytics/Big Data. As the chart below shows, 75% of the respondents believed their organization was either moderately or under-investing in their data analytics capabilities. The telling statement from the majority of respondents: “Our organization invests moderately to advance our capabilities.”

**Which of the following statements best describes your organization’s investments in data analytics programs, people and technology tools:**



**Management commitment** to new technology initiatives is, and will always be, a major factor in driving an organization in a new direction. When we asked the FinTech community to rate the commitment of its management to data analytics programs, we learned that there is a perception of low-to-medium commitment on behalf of executive management. Clearly, if FinTech organizations are going to become data-driven, management commitment will need to strengthen, sooner than later. The chart below shows the breakdown. A low-to-medium management commitment combined for 65% of the respondents’ selections. “Strong commitment” represented 24% of the respondents’ answers. When we look ahead at 2020, you’ll see that management commitment is a key element of the success of becoming a data-driven company.

**Please select one of the following to describe your organization’s management commitment to data analytic programs in the short-to-medium term (0-2 years):**



Determining how FinTech organizations are structured today to support data analytics programs would help us understand what changes, if any, might need to be made in the coming years. 43% of the respondents indicated that data analytics is currently being handled within functional groups such as IT, Finance or Marketing. As you will see when we look at plans for 2020, the preferred structure evolves to a centralized organization. Today, about 29% are using a centralized approach.

**Which of the following statements best describes how your organization is structured to support a data-driven model?**

Answer Options	Response %
We have a centralized group dedicated to data analytics	28.6%
Data analytics is generally handled within functional groups (e.g., IT, Finance, Marketing)	42.9%
Our data analysts float between departments to help where needed	2.4%
We use external consultants to help analyze our data	2.4%
We have no particular structure to support data analytics	23.8%

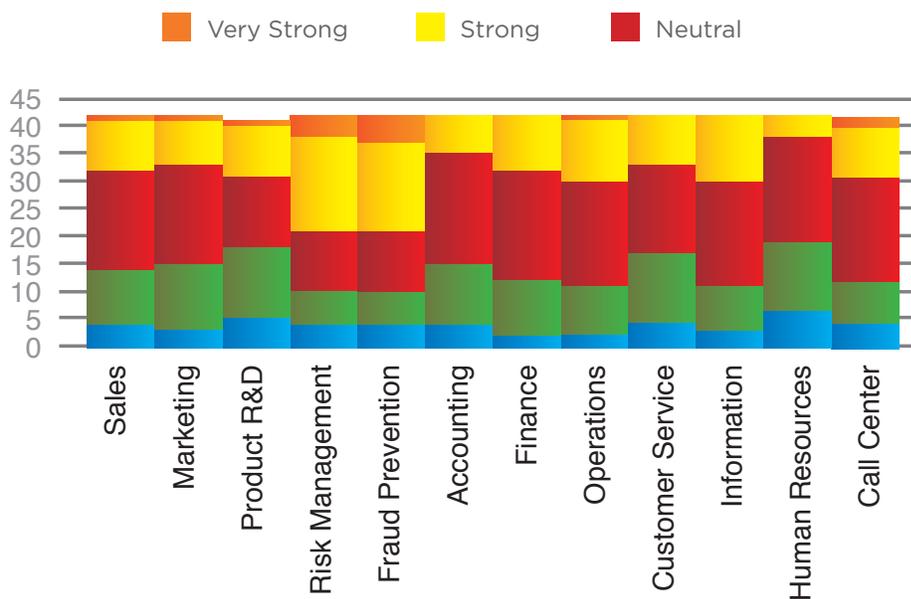
One test of the use of data analytics is to see whether executive management has put in place Key Performance Indicators (KPIs) to track the performance of various parts of the organization. For management teams that use KPIs as standard performance measurements, data analytics is clearly a core component of the internal management reporting system.

Our research questionnaire asked to what extent they agreed with

the following statement: “Our organization’s executive team has clearly defined KPIs that data analytics/Big Data must address.” 69% of the respondents were neutral or disagreed with the premise. Again, management commitment to data science was below par for most FinTech organizations.

The following chart shows the departments of the FinTech organization in which data analytics/Big Data are currently being used. It’s not surprising that in the FinTech industry Risk Management and Fraud Prevention ranked the strongest in terms of data science use. Disciplines such as Call Center, Sales, Marketing and Operations were next in line. Remember from our earlier question, we noted that the majority of data analytics/Big Data work was performed within departments. As we look ahead at 2020, this structural approach will change.

**Please select one of the following to describe your organization’s management commitment to data analytic programs in the short-to-medium term (0-2 years):**



We then quoted from the book Data Science for Business (O’Reilly, 2013) to determine the level of agreement FinTech organizations had with the statement. Authors Foster Provost & Tom Fawcett made the following statement:

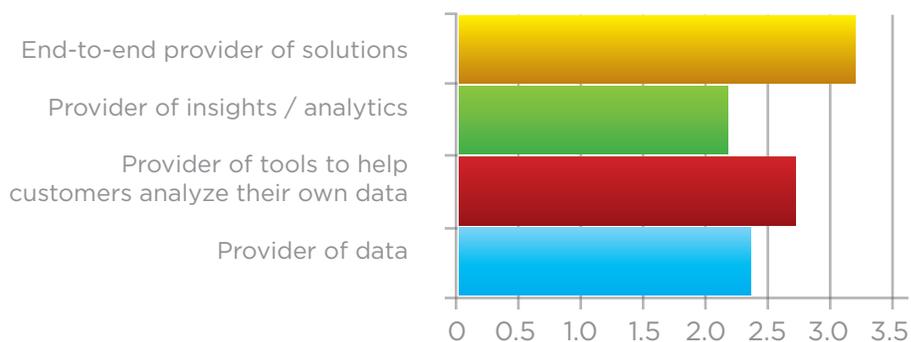
*“The benefits of data-driven decision-making (DDD) have been demonstrated conclusively—showing that statistically, the more data-driven a firm is, the more productive it is. On the DDD scale,*

a **4-to-6 percent increase in productivity** ... correlated to higher return of assets, return on equity, asset utilization, and market value. Using big data technologies is associated with **1-to-3 percent higher productivity** than the average firm.”

Our respondents agreed, 73%-strong, that the **economic value of data** analytics and Big Data is there and achievable.

Our next step was learning which **business models** FinTech organizations are currently using to monetize their data analytics/Big Data initiatives. Remember that earlier in the survey we established that management was not confident in the performance of former or existing data analytics projects. The chart below depicts various models that a FinTech organization can use to monetize its data. You will note that the types of models used are reasonably balanced between the FinTech organizations with a slight preference for being an “End-to-End Provider of Solutions.” You will see that as we track towards the year 2020, the FinTech organizations will fine-tune their desired business models in favor of becoming a “Provider of Data.”

**Please rank each of the following FinTech business models in terms of its importance to monetizing Data Analytics/Big Data initiatives at your organization, with 5 being the highest, and 1 the lowest? (Please check all that apply)**



We then asked the FinTech community to identify where they sourced their data. In other words, is the data being analyzed mostly from internal sources (e.g., ERP, CRM, HR and Call Center systems), or is data being extracted from external industry sources to analyze? We learned the most common **data source** is from within FinTech organization itself and from customers/suppliers to the organization.



## What is Big Data?

Big Data is the process of analyzing very large volumes of data. This includes structured semi-structured and unstructured data, social media, blogs, email, and data from various industry sources. Big Data is often discussed within the following parameters:

- **Volume:** the amount of data to be analyzed.
- **Velocity:** the speed at which data arrives (think social media).
- **Variety:** the many ways data can be structured.
- **Veracity:** the accuracy of the data in predicting business value.

We also learned that **unstructured data** was very low as a source for analytics data. Unstructured data represents the vast amount of data in today's organizations that is not stored in an easily accessible format (i.e., relational database management system). Unstructured data would include emails, PDFs, social media, MS Word documents, etc.

In today's organizations, 80% of all data is unstructured. In that large unstructured data source, organizations can find a wealth of perspective about their customers, their operations, and their risks. Unstructured data adds **dimension** to the structured data that drives most of an organization's management reporting system. For example, when analyzing customer churn, the structured data reports from ERP or CRM systems will provide the black and white statistics about how many customers left. Unstructured data will often add the perspective of why the customer left (analysis of emails, call center recordings, customer support blogs or social media).

We learned that 57% of the responding FinTech organizations do not track social media at this time – the analysis of social media definitely fits into the Big Data realm of data analysis based on the volume of data, the variety and velocity. In our FinTech Big Data seminars, we found that very few, if any FinTech organizations were capturing and analyzing social media data.

Big Data is capturing everyone's interest and a good deal of press today, so we wanted to learn what current **Big Data projects** were ongoing within their organization. 50% of the respondents had Big Data projects underway. Here are examples of the projects that respondents classified as Big Data:

- *Enterprise search*
- *eDiscovery/analytics*
- *Knowledge Management*
- *Financial analytics*
- *Fraud detection*
- *Risk trended data*
- *Real time sales offers*
- *360 view of client and fraud analytics*
- *Product Development*

Understanding the many dimensions of a customer can strengthen the long-term relationship.

- *Fraud customer experience improvement*

So, what is inhibiting today's FinTech organization from adopting a data-driven model? We provided a list of impediments/challenges for the respondents to choose from. The most frequent responses are as follows:

- *Competing priorities*
- *Lack of skills/talent*
- *Lack of understanding of data value to improve the business*
- *Lack of executive sponsorship*
- *Ability to get the data-data ownership*
- *Lack of ROI of prior programs*
- *Lack of strategy and funding*
- *Concerns/restrictions related to privacy and other regulatory issues*
- *Existing culture does not encourage sharing information/collaboration*

To measure the viability of a data-driven model, we asked respondents to rate the following statement: "**Data is a true asset** of our organization and a strong source of potential revenue." 76% of the respondents strongly agreed or agreed with this statement. Whether data is being mined today or not, FinTech organizations know the potential is there to create profitable revenue streams.

In addition to the potential increase in revenues, we asked about the potential **business benefits** of data analytics/Big Data programs. Responders listed many. Below is a partial list of the verbatim comments about potential business benefits of data analytics/Big Data shared by the respondents:

- *Better relationship pricing / greater pricing precision*
- *Understanding trends, customers, markets*
- *Higher revenue*
- *New products*
- *Better investment decisioning*
- *Better customer experience / customer stickiness*
- *Add margin to data with value added analytics*
- *Better marketing*
- *Operations improvement / improvements on business KPIs*
- *Better fraud protection*

Our questionnaire asked our responders to rank the perception of their respective organization's **investments in technology** and whether they are perceived as a market leader. 35% of the respondents considered their company as a technology leader, ranking their position as “very strong” or “strong.” 65% of the respondents, though, ranked their perception as “average” or “weak.”

Another investment category to drive data analytics programs is in staff training. **Training programs** are critical as new technology, software applications and business processes impact the day-to-day operations of the organization. Investments in training impact the adoption curve and are mandatory if an organization expects to get economic value from their data analytics/Big Data investments.

Today in 2014, training programs within FinTech organizations are generally perceived as weak. 86% of the respondents ranked existing data analytics/Big Data training programs equally between fair, poor or nonexistent. Only 14% of the responders believed their organization's training and development programs around data analytics to be “strong” or “good.”

As we look ahead to 2020, we will see that organizational training on data analytics software tools, collaboration techniques (e.g., Agile Methodology) and data access and retrieval are a very important part of leveraging the true value of data.

### **Data Analytics/Big Data in the FinTech Industry - External Perspective**

Our market research moved from the internal perspective of what FinTech organizations are doing with data analytics programs to the respondents' external perspective. We asked the responders to look around the industry to get their perspective on other FinTech organizations. We wanted to see if the grass appeared greener at other FinTech organizations.

We also wanted to see which other FinTech organizations were perceived as doing a good job with their data analytics/Big Data programs; which companies might disrupt the industry; and how collaboration around data resources might be accomplished.



We asked about how competitors will be viewed in the context of the strength or weakness of their data analytics/Big Data programs.

**The following points summarize our findings.**

- *When looking at the data analytics capabilities of other FinTech companies, our responders respected the work being done at organizations such as Wells Fargo, PNC Bank, FICO, Experian, Cardlytics, First Data, Paypal, Google, Square, Elavon, Fleetcor, AMEX, among others.*
- *61% indicated that they will measure the strength of a competitor's analytics capabilities when doing competitive analysis. They will look at partner relationships, core strengths of their analytics programs, revenue and volume from data analytics/Big Data programs, and new products based on data science.*
- *70% of responders indicated that competitors with strong data analytics capabilities are either a "modest" or "significant" threat in their respective markets.*
- *When asked whether FinTech organizations are likely to collaborate around data analytics/Big Data opportunities, 66% of the respondents believed they would find ways to collaborate with partners.*
- *How important is collaboration across industry players? 54% of respondents indicated that it was "important" to "very important" while 17% indicated that it is "somewhat important" to "not important." Note: We'll test this premise again as we look ahead to 2020.*
- *When asked about non-traditional competitors, the following names were mentioned most often: PayPal, Walmart, Google, Apple, Bitcoin, Amazon, among others.*

**Your Organization's Data Analytics/Big Data Technology Foundation**

This section of the six-part market research study focused on the IT infrastructure – this includes the computer, network and storage devices that represent the foundation of the organization's ability to deliver data and analytics applications to users. We wanted to understand the real or perceived strengths of the IT infrastructure to support the rigors of data analytics. While the FinTech infrastructures are highly respected for their transaction processing capabilities, are they able to analyze very large data sets (Big Data)? Does the network support a company-wide view of data? Can data be used collaboratively across the organization?

First and foremost, **data security** was highlighted as paramount to a FinTech organization’s network infrastructure design and execution by all respondents as you would expect. **Data governance** (data quality, data management, data policies, data handling, business process management and risk management) was a close second with indications that existing programs need improvement, especially in the data management area which governs the accessibility of data. Here is a summary of the survey responses:

- *61% believed their organization’s IT infrastructure was not really a competitive advantage.*
- *66% believed the existing IT infrastructure design was not highly scalable to meet the demands of data analytics.*
- *71% stated that IT infrastructure support for Big Data analytics is not up to par.*
- *68% believed the internal IT systems are under-powered to support data analytics.*
- *65% indicated that data is only moderately available to users across a wide geographic span.*
- *When we asked whether organizations are using the Cloud (public or private) to augment internal compute power, 57% indicated that their organization had not gone in this direction.*
- *45% of the respondents believed their organization’s analytical capabilities are limited by the volume of data to be analyzed.*
- *We asked if the complexity of their organization’s data made it difficult to analyze. 38% stated that their data was “well understood, documented and governed,” while 43% stated that the data was only understood by their analytics team.*

We asked the FinTech responders to rate how their organization’s IT infrastructure handled key processing assignments. We wanted to see the extent to which the central IT infrastructure supported both the corporate systems as well as core data analytics. We asked them to rate the strength of the IT infrastructure based on its ability to support the following areas:

- **Corporate Systems:** *73% rated their internal corporate systems (transaction processing, ERP, CRM, HR, Call Center, procurement,*

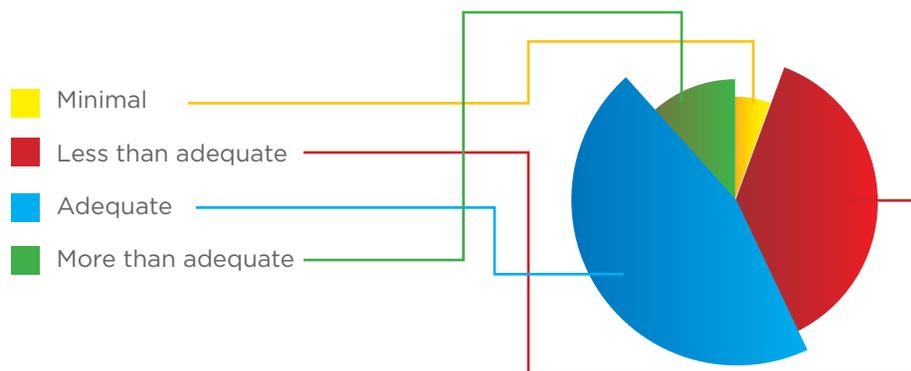


etc.) to be “strong,” granting it the highest rating.

- **Data Analytics Systems:** 68% rated their IT infrastructure as “medium strength” when handling data analytics/Big Data.
- **Integration between corporate and DA/BD systems:** 73% rated the integration to be “moderate” to “weak.”
- **Data Warehouses:** This category was split evenly between responders who believed their IT infrastructure in support of data warehouses were either “very good” or “very poor.” Only 19% were in the middle saying that the IT infrastructure was “adequate.”
- **Private Clouds:** 78% indicated that Cloud-based technology was not being used to augment the IT infrastructure. In a question later in the survey in which we specifically targeted the use of Cloud/Private Cloud technology, only 24% of the responders confirmed that their organization extensively uses or are “expanding” their use of the Cloud. Further, 54% indicated that their management did not consider Cloud-based systems to be secure enough.

We asked responders to rate the access to relevant, accurate and timely data in their organization which is a reflection of the strength of the IT infrastructure. The chart below shows that the majority

### How would you rate the access to relevant, accurate and timely data in your company today?



#### Legal/Compliance:

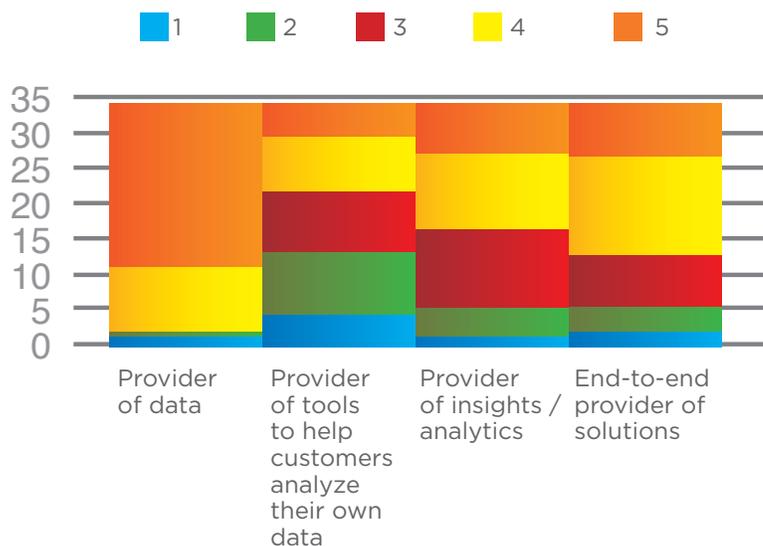
##### Considerations for Data Analytics/Big Data Programs

The TAG FinTech questionnaire started the legal/compliance section by asking whether the **U.S. regulatory environment** will become more or less stringent in its data privacy requests. (Note: Since the majority of our respondents generate the bulk of their

revenues in the U.S., we focused our questions on the U.S. regulatory environment.) To be expected, 51% of the respondents believed the environment to be “much more stringent” while 46% believed it would be “somewhat more stringent.”

We then wanted to measure the impact level of the more stringent U.S. regulations on the business models discussed earlier in the survey. The chart below shows the business models and the extent to which the regulatory environment will have an impact.

**Please rank the level of impact more stringent U.S. regulations will have on the business models used for your Data Analytics/Big Data products and services, where 5 is the highest, and 1 is the lowest.**



The highest impact of stringent U.S. regulations was clearly on the “Provider of Data” business model. In other words, the more data an organization provides, the more data security regulations come into play. Whether that data is being moved across networks, analyzed in place, or analyzed and reported to customers, regulatory constraints are an integral part of the life and costs of a FinTech organization.

We asked the extent to which FinTech organizations use their compliance with **data privacy** and security regulations as a competitive advantage. In other words, are FinTech organizations simply in compliance with the regulations, or do they view “exceeding regulatory obligations” as a marketing advantage. You’ll



see from the table below that about one-quarter of the responders' organizations exceeds regulatory obligations.

Answer Options	Response %
Consistent with applicable regulations	60.0%
Exceeding regulatory obligations	25.7%
Working to meet regulations impacting new business units	11.4%
Not applicable	2.9%

How are FinTech organizations managing the risks associated with data privacy? Our questionnaire asked whether the organization has a dedicated risk compliance officer focused on data privacy. 66% of the respondents' organizations bundled data privacy into the compliance officer's responsibility while 20% indicated that their organization had a dedicated compliance officer for data privacy and data risk.

Both Massachusetts and California have strengthened their regulations on organizations that store **personally identifiable information** regarding those states' residents. We asked if their organization was required to comply with these state regulations. 47% of the respondents said that "all of their data" complied with these state regulations, 24% are complying with MA and CA regulations, while these state regulations were not applicable to the remaining responders.

Having a strong privacy and security policy was considered a "significant benefit" to the vast majority of the respondents. In other words, it's not just a requirement; it's a must in their businesses. As the respondents look ahead to 2020, the strength of their organization's data privacy compliance will continue to be a leverageable market advantage.

We asked our responders to look ahead to the year 2020 and assess the data privacy and security landscape. Here are some verbatim responses:

- *Increasingly more stringent data security and privacy requirements*
- *More sharing of data and therefore more obfuscation of data and*

*its origins*

- *More frequent requests for security/regulatory audits from customers*
- *Strong information security will be increasingly demanded by consumers*
- *Introduction of Federal PII standard to streamline business compliance nationwide*
- *PCI compliance of Hadoop*
- *Better designed applications with a security focus*
- *Stricter, more expansive use of encryption and tokenization*

### Your Organization in 2020 – Building a Data-Driven Company

A fundamental principle of data science is that data and the ability to extract **useful knowledge** from the data should be regarded as a key strategic asset. It is pretty clear that our responders agree and expect their organizations to embrace the power of data in the short-to-medium term.

The FinTech industry is in transition when it comes to making the most of its raw material data. Our responders indicated that FinTech organizations are beginning to embrace the potential of data as a core, revenue-generating corporate asset.

Since there are some challenges ahead, we asked the responders to share what **core changes** are needed to make their organizations data-driven. We asked them to rate 15 potential constraints or opportunities.

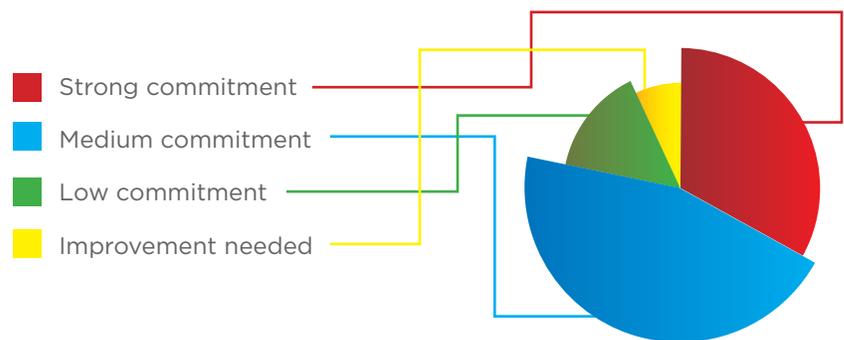
The table below highlights the relative importance of these factors. For simplicity, we have rated each as high or medium (the number of low responses was minimal).

Challenge/Opportunity	Rating
Senior management commitment	high
Promote a culture that values data more	high
Staff empowerment	high
Increased technology investments	high
Increased investments in data analytics software tools	high
Increased investments in IT infrastructure	medium
Hiring data analysts/data science specialists	high
Consistent KPIs across the organization	high
Push data and decision making deeper into the organization	medium

Challenge/Opportunity	Rating
Training and education	high
Organization structural changes	medium
Improve data governance/data security	medium
Embrace the Cloud	medium
Standardize data analysis tools across organization	medium
Increase use of data analytics across our global markets	medium

The chart below shows that the expectation of increased management commitment is medium to strong, a significant improvement over the view today.

**Over the next 5 years, Please rate your organization’s management commitment to data analytics/Big Data products and services as a core component of the corporate strategy.**



Percentage wise, the perception of management’s commitment to a **data-driven strategy** improved from 60% (medium-to-high commitment) to 76% (medium-to-high commitment) today. What’s more telling is that the optional choice of “low commitment” went down from 29% to 15% when considering management’s commitment to data analytics and Big Data.

In 2014, responders told us that data generated within the organization and data collected from customers and suppliers were the most important data sources. By 2020, the sources of data remain consistent but there is an anticipated growth in the gathering and analysis of customer/supplier data. The analysis of unstructured data also grew about 50% from 2014 to 2020.



Sources of Data: Answer Options	Response %
Data generated within your organization	28.3%
Data collected from your customers / suppliers	43.3%
Data purchased from 3rd parties	10.0%
Data collected from public sources	0.05%
Unstructured data (e.g., social media)	13.3%

For FinTech organizations to become more data-driven, they need more data scientists – professionals trained in data analytics and various contemporary software tools. When planning for 2020, we asked the FinTech organizations how their employee profile would change in terms of the hiring of fully trained and experienced data analysts. The table below shows the anticipated growth between 2014 and 2020.

Number of Data Scientists: Answer Options	Response % 2014	Response % 2020
20+	33.3%	39.4%
10 to 19	2.1%	12.1%
5 to 9	16.7%	15.2%
1 to 4	22.9%	15.2%
Zero, or we will be hiring, but unsure of the #	25.0%	18.2%

When asked the perceived strengths of their organization’s ability to recruit data analysts/data scientist though, their confidence was not as strong. Of the respondents, 64% believed their organization’s **recruiting ability** to be either fair, poor or needs improvement. Only 24% of the respondents believed their organization’s strengths to be good or strong.

The challenge for the FinTech industry will be that demand across all industries will be high over the coming 6 years and other industries will be competing for the same talent. McKinsey and Company has predicted that by 2018, there will be a shortage of professionals with deep analytical skills of between 140,000-to-190,000. Potentially

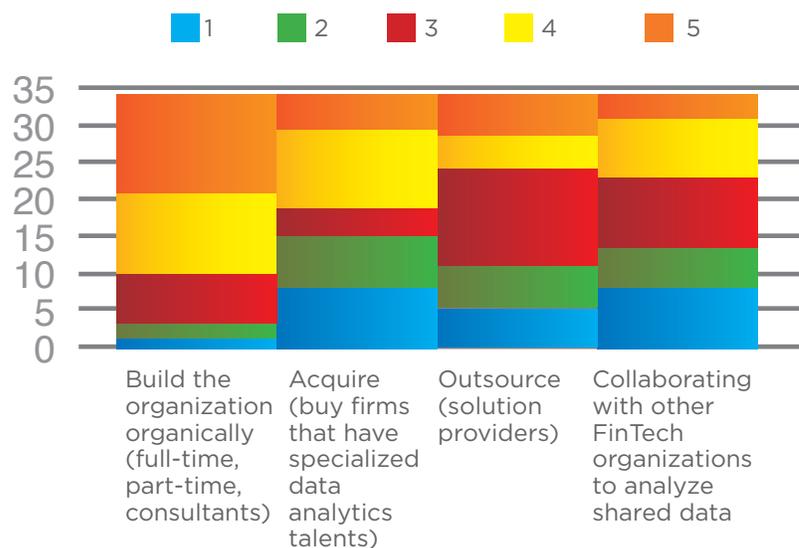
more significant, there will be a 1.5 million person shortage of managers and analysts with the know-how to use data analytics to make effective decisions. To emphasize, it's not just having the right technology, IT infrastructure and software tools, it takes the right training, knowledge and expertise to interpret the results of the data.

When we asked if the **colleges and universities** were delivering the talent needed, 56% of the survey responders rated the output as “fair” or “poor,” while 29% rated the university programs as “good” or “strong.”

There are multiple ways an organization can build its data analytics/Big Data capabilities so we asked how FinTech companies would approach the challenge.

The chart below shows that the majority of respondents’ organizations prefer to **build their data analytics capabilities organically** – building a team of full-time staff members. The larger firms with deep pockets may consider acquisition as the best way to onboard the best capabilities. Outsourcing to external providers is certainly a possibility, and can provide significant value to certain organizations, but was not the top choice.

**When considering the expansion of your Data Analytics/Big Data capabilities, please rank each of the following growth options for its probability for use by your organization, with 5 being the highest, and 1 being the lowest.**



We then asked how the data analytics/Big Data professionals should be organized. At the opening of the market research survey, we asked how data analytics resources are organized today. Our respondents indicated that data analysis is generally handled within functional groups such as Marketing, Finance or IT. **Centralized teams** dedicated to analytics were the second preferred organizational methodology.

When looking ahead to 2020, 51% of the respondents preferred a centralized team compared to 29% in 2014. In 2020, 26% preferred keeping the analysts within the functional areas compared to 43% in 2014.

Next, we wanted to see if the business models used to monetize data analytics and Big Data programs would change by 2020. Would the business models become more data centric? Would they reflect the use of data analytics? The business models that received the highest marks were **“Provider of Data”** and **“Provider of Insights/Analytics.”**

Business Model	Ranking
Provider of Data	1
Provider of Tools to help customers analyze their own data	4
Provider of insights/analytics	2
End-to-end Provider of Solutions	3

**Strengthening the corporate IT infrastructure** was a core objective of our respondees. So we asked them what the best ways to accomplish this were.

IT Infrastructure Improvement Suggestion	Rating
Strengthen the corporate IT platform to run both corporate and data analytics applications	high
Creating a separate Data Analytics/Big Data platform running beside the corporate business systems platform	medium
Using a Private Cloud with an external vendor as the Data Analytics/Big Data platform	medium
Outsourcing all Data Analytics/Big Data processing to an outside vendor	low
Standardizing the software tools across the organization	high
Improve network performance, security and global accessibility	high
Take advantage of new hardware tools such as massively parallel processing, in-memory analytics, etc.	high

On the technology side, we asked about how technology companies were helping. Were the software technology companies providing the right data analytics and Big Data software? Were computer and storage manufacturers delivering the right hardware?

We started by asking how well the FinTech organization respondents understood what's available in the market. 74% of the respondents shared that they were “learning” or “not experienced” in the technology vendors' offerings. 24% on the other hand felt they were “knowledgeable” about the available technology and plans of the vendors.

When asked for suggestions of what technology companies and service providers could offer over the next five years, some of the resulting verbatim comments included:

- *More out-of-the-box analytics specific to industries, customers and products*
- *More intuitive and comprehensive platforms and services*
- *An affordable and tailored SMB solution/service*
- *Better all-in-one cloud services that aggregate the core costs over multiple clients thereby reducing costs to subscribers*
- *Virtualized, easy-to-provision Big Data analytics environments*
- *Change management services that enable business processes to accommodate and take advantage of data analytics and Big Data*
- *Ease of use for business users*
- *Standardized approach to sharing data*

## Summary and Conclusion

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. Clearly, data analytics and Big Data will expand in the coming years.*
- **Management needs to get committed to data analytics/Big Data.** *One of the overwhelming responses of the survey was that FinTech management was insufficiently committed to data science today, in 2014. Therefore, if analytics programs are going to be part of the management topology in 2020, senior managers need to start making the right investments that will yield good business results. The idea is not just to create a skunk works and incubate data analytics programs deep within the organization. Rather, management must view data as a primary raw material that will drive products and services going forward. Think about some of the demographics data of today:*
  - 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.
- **The data-driven organization of 2020 will be structured differently from organizations today.** *Our responders believe that existing corporate and management structures need to evolve and change. To become data-driven, FinTech organizations will need to shed older, lethargic management systems in favor of more agile management systems able to respond to market opportunities supported by data analytics. This means that*

organizations will need to transform themselves in response to the coming data age.

- **FinTech business models will change towards being data providers offering customers insights and analytics tools.** 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. Evolving their business models clearly suggests a need to increase and leverage their investments in data science.
- **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 employee.** There is a definite skills gap between where FinTech organizations are today and where they expect to be in 2020. To close the gap and strengthen their data analytics strengths, 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 scientists in excess of 150,000 professionals by 2018. FinTech organizations responded in the survey that they were not confident in their organization's ability to attract and retain the needed talent. Responders also shared that they believed colleges and universities need to strengthen their data science programs.
- **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.

- **IT and business functions need to change together.** *Across the board, respondents agreed that the current IT infrastructure is below average in meeting the data analytics/Big Data needs of the next 5 to 6 years. As suggested earlier, management culture needs to change - it needs to become more agile. Getting IT and the business functions on the same page is vital.*
- **FinTech executives need to find ways to monetize data analytics/Big Data opportunities.** *Respondents agreed that the market for data analytics solutions exist, that all their competitors will have solutions by 2020, and that core changes to management culture and structure are needed, but the missing element continues to be how to monetize the value of data. Late comers will most likely acquire to deliver profitable revenue. Organic growers need to begin investing immediately.*

## 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](http://www.tagonline.org/chapters-and-societies/fintech)

