



April 29, 2021

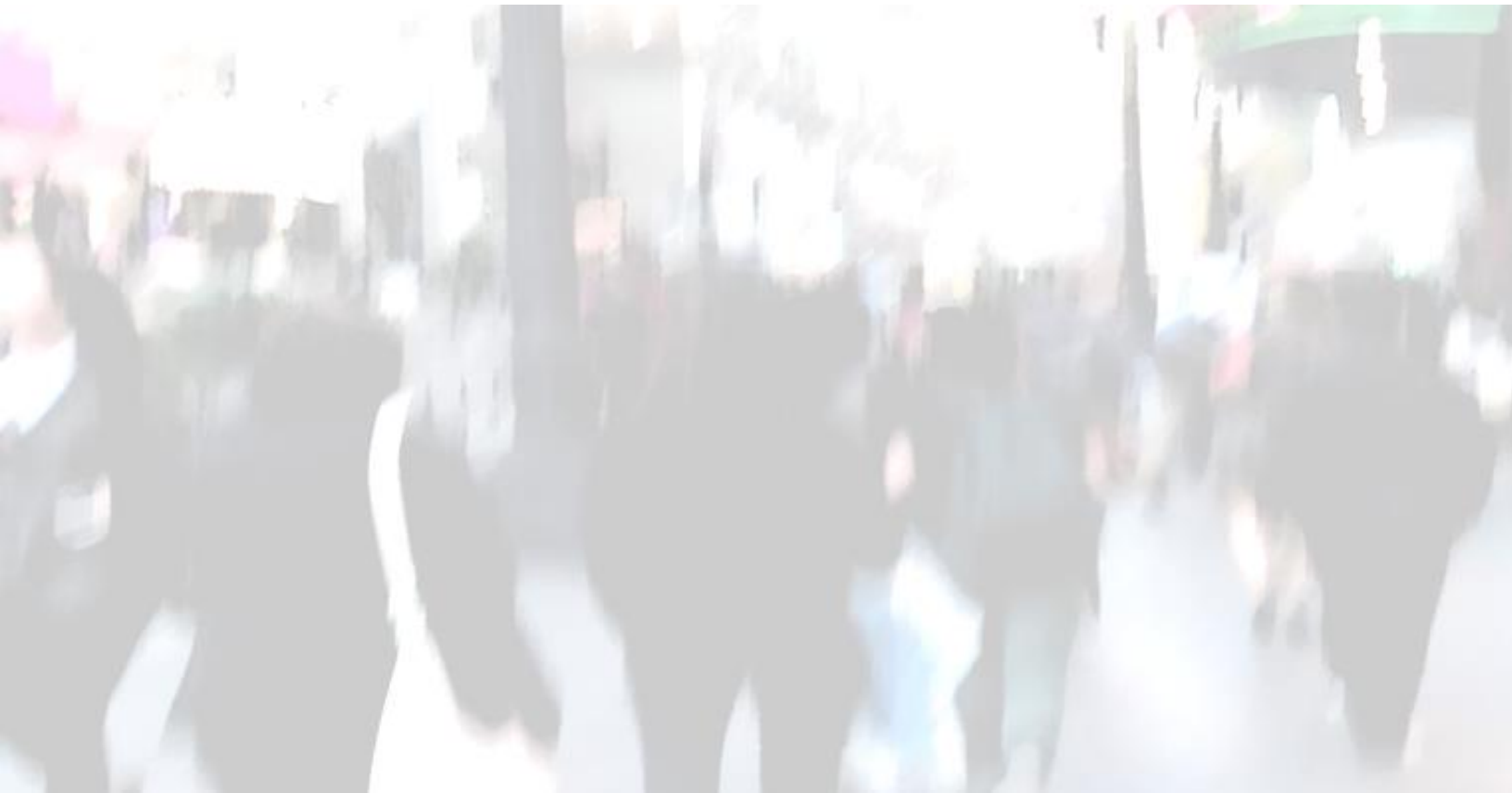
Dresner Advisory Services, LLC

2021 Edition

# **Self-Service Business Intelligence Market Study**

*Wisdom of Crowds® Series*

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## Definitions

### Business Intelligence Defined

Business Intelligence (BI) is “knowledge gained through the access and analysis of business information.”

Business Intelligence tools and technologies include query and reporting, OLAP (online analytical processing), data mining and advanced analytics, end-user tools for ad hoc query and analysis, and dashboards for performance monitoring.

Howard Dresner, *The Performance Management Revolution: Business Results Through Insight and Action* (John Wiley & Sons, 2007)

### Self-Service BI Defined

Self-service BI builds upon collaborative business intelligence and user governance to create an environment where users can easily create and share insights in a managed and consistent fashion.

Collaborative Business Intelligence is a process where two or more people or organizations work together to develop a common understanding, which they share and use to build consensus in support of organizational decision-making.

### Guided Analytics

Guided Analytics™ improves time to insight and action by supporting the creation of connections between related and relevant information and directing and suggesting analytical story flow.

User governance enhances the collaborative BI environment with facilities for directing content creation and sharing, thus improving information consistency and accelerating group-based decision-making.

## Introduction

In 2021, we mark the 14th anniversary of Dresner Advisory Services. Our thanks to all of you for your continued support and ongoing encouragement. Since our founding in 2007, we worked hard to set the “bar” high—challenging ourselves to innovate and lead the market—offering ever greater value with each successive year.

At the time of publication of this report, the COVID-19 pandemic continues to affect millions worldwide and impacts businesses and how they leverage data and business intelligence. As our data collection took place during Q1 of 2021, the data and resulting analyses continue to reflect the pandemic’s impact.

Through this period, we separately conducted specific COVID-19 research, which is not reflected in this report but is available on our blog at no cost. Additionally, we will continue to collect this data and will continue to publish research through the duration of the pandemic.

Our market study reports on “Self-Service BI” began in 2012 as “Collaborative BI,” followed by “Collective Insights” in 2016. Since that time, we expanded the criteria to include important topics including Guided Analytics™ and governance. As much of the data aligns across multiple years, we offer many multi-year comparisons, indicating important shifts in the market.

Self-service is an important topic for organizations seeking to better leverage both information resources and scarce human experts to drive improved group-based decision-making in a governed fashion.

We hope you enjoy this report!

Best,

A handwritten signature in black ink, appearing to read "Howard", written in a cursive style.

Chief Research Officer  
Dresner Advisory Services

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## Benefits of the Study

This Dresner Advisory Services Self-Service BI Market Study provides a wealth of information and analysis, offering value to both consumers and producers of business intelligence technology and services.

## Consumer Guide

As an objective source of industry research, consumers use the Dresner Advisory Services Self-Service BI Market Study to understand how their peers leverage and invest in collaborative BI and related technologies.

Using our unique vendor performance measurement system, users glean key insights into BI software supplier performance, which enables:

- Comparisons of current vendor performance to industry norms
- Identification and selection of new vendors

## Supplier Tool

Vendor licensees use the Dresner Advisory Services Self-Service BI Market Study in several important ways:

## External Awareness

- Build awareness for business intelligence markets and supplier brands, citing Dresner Advisory Services Self-Service BI Market Study trends and vendor performance
- Gain lead and demand generation for supplier offerings through association with Dresner Advisory Services Self-Service BI Market Study brand, findings, webinars, etc.

## Internal Planning

- Refine internal product plans and align with market priorities and realities as identified in the Dresner Advisory Services Self-Service BI Market Study
- Better understand customer priorities, concerns, and issues
- Identify competitive pressures and opportunities

## About Howard Dresner and Dresner Advisory Services

The Dresner Advisory Services Cloud Computing and Business Intelligence Market Study was conceived, designed, and executed by Dresner Advisory Services, LLC—an independent advisory firm—and Howard Dresner, its President, Founder and Chief Research Officer.

Howard Dresner is one of the foremost thought leaders in business intelligence and performance management, having coined the term “Business Intelligence” in 1989. He



has published two books on the subject, *The Performance Management Revolution – Business Results through Insight and Action* (John Wiley & Sons, Nov. 2007) and *Profiles in Performance – Business Intelligence Journeys and the Roadmap for Change* (John Wiley & Sons, Nov. 2009). He lectures at forums around the world and is often cited by the business and trade press.

Prior to Dresner Advisory Services, Howard served as chief strategy officer at Hyperion Solutions and was a research fellow at Gartner, where he led its business intelligence research practice for 13 years.

Howard has conducted and directed numerous in-depth primary research studies over the past two decades and is an expert in analyzing these markets.

Through the Wisdom of Crowds® Business Intelligence market research reports, we engage with a global community to redefine how research is created and shared. Other research reports include:

- [Wisdom of Crowds® Flagship BI Market Study](#)
- [Analytical Data Infrastructure](#)
- [Cloud Computing and Business Intelligence](#)
- [Data Preparation](#)
- [Data Science and Machine Learning](#)
- [Embedded Business Intelligence](#)
- [Enterprise Performance Management](#)
- [Natural Language Analytics](#)

Howard conducts a Twitter “tweetchat” twice per month on Fridays at 1:00 p.m. ET. During these live events, the #BIWisdom “tribe” discusses a wide range of business intelligence topics.

You can find more information about Dresner Advisory Services at [www.dresneradvisory.com](http://www.dresneradvisory.com).

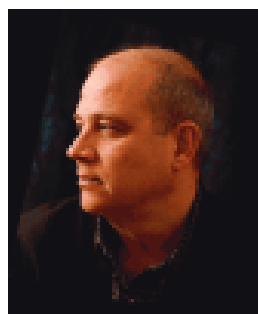


## About Jim Ericson

Jim Ericson is a Research Director with Dresner Advisory Services.

Jim has served as a consultant and journalist who studies end-user management practices and industry trending in the data and information management fields.

From 2004 to 2013 he was the editorial director at *Information Management* magazine (formerly *DM Review*), where he created architectures for user and industry coverage for hundreds of contributors across the breadth of the data and information management industry.



As lead writer he interviewed and profiled more than 100 CIOs, CTOs, and program directors in a program called “25 Top Information Managers.” His related feature articles earned ASBPE national bronze and multiple Mid-Atlantic region gold and silver awards for Technical Article and for Case History feature writing.

A panelist, interviewer, blogger, community liaison, conference co-chair, and speaker in the data-management community, he also sponsored and co-hosted a weekly podcast in continuous production for more than five years.

Jim’s earlier background as senior morning news producer at NBC/Mutual Radio Networks and as managing editor of MSNBC’s first Washington, D.C. online news bureau cemented his understanding of fact-finding, topical reporting, and serving broad audiences.

## **Survey Method and Data Collection**

As with all our Wisdom of Crowds® Market Studies, we constructed a survey instrument to collect data and used social media and crowdsourcing techniques to recruit participants.

## **Data Quality**

We carefully scrutinized and verified all respondent entries to ensure that only qualified participants were included in the study.

# Executive Summary

## Executive Summary

- Self-service ranks sixth in importance among 44 topics under our study. Fifty-eight percent consider self-service BI “critical” or “very important,” a slight decline year over year (p. 19-20). Industry sentiment resonates with high-level user attitudes toward self-service BI importance (p. 80).
- Email and virtual meetings are the most popular collaboration methods, and both gather importance year over year. Successful BI organizations use multiple collaboration channels (p. 21-27).
- Sentiment toward collaborative BI is on an uptrend, near an all-time high of “very important” and valuable across functions and other measures (p. 28-32). Industry sentiment toward sharing BI content in a group-based decision-making process is at an all-time high (p. 81).
- “Search and navigation for content” and “share content and commentary” are the top collaborative feature requirements (p. 33-37). Industry support for content co-creation and sharing is well supported (p. 82-83).
- Integration with enterprise collaboration frameworks is slightly less than “important” with sentiment slightly lower year over year. “Extended sharing” and “search” are the most important features (p. 38-47). Industry investment well supports current user feature requirements (p. 85).
- For 2021, Microsoft Teams moves ahead of SharePoint as the most popular enterprise collaborative framework; use increases with global headcount (p. 48-52). Industry support is more than adequate to meet current user feature requirements (p. 86).
- For a sixth year, governance of content creation and sharing is a “very important” topic across industries and other demographics. The top feature need is ability to “define levels of access to shared documents and data” (p. 53-63). Industry sentiment toward governance is very high, and support is in line with requirements (p. 83-84).
- One-third say Guided Analytics™ are “critical” or “very important,” and about two-thirds say these features and services are at least “important” (p. 64-68).
- The most important Guided Analytics authoring feature is “flexible, customizable authoring/content creation” (p. 69-73). The most important Guided Analytics user feature is “user interaction with visual/analytical objects” (p. 74-78). Industry user and authoring feature support meets user requirements (p. 87-88).
- Vendor ratings are on page 90.

# Study Demographics

## Study Demographics

Study participants provide a cross-section of data across geographies, functions, organization sizes, and vertical industries. We believe that, unlike other industry research, this supports a more representative sample and better indicator of true market dynamics. We constructed cross-tab analyses using these demographics to identify and illustrate important industry trends.

### Geography

North America, which includes the United States, Canada, and Puerto Rico, represents the largest group (58 percent) of respondents, followed by EMEA (30 percent). Asia Pacific and Latin America account for the balance of respondents (fig. 1).

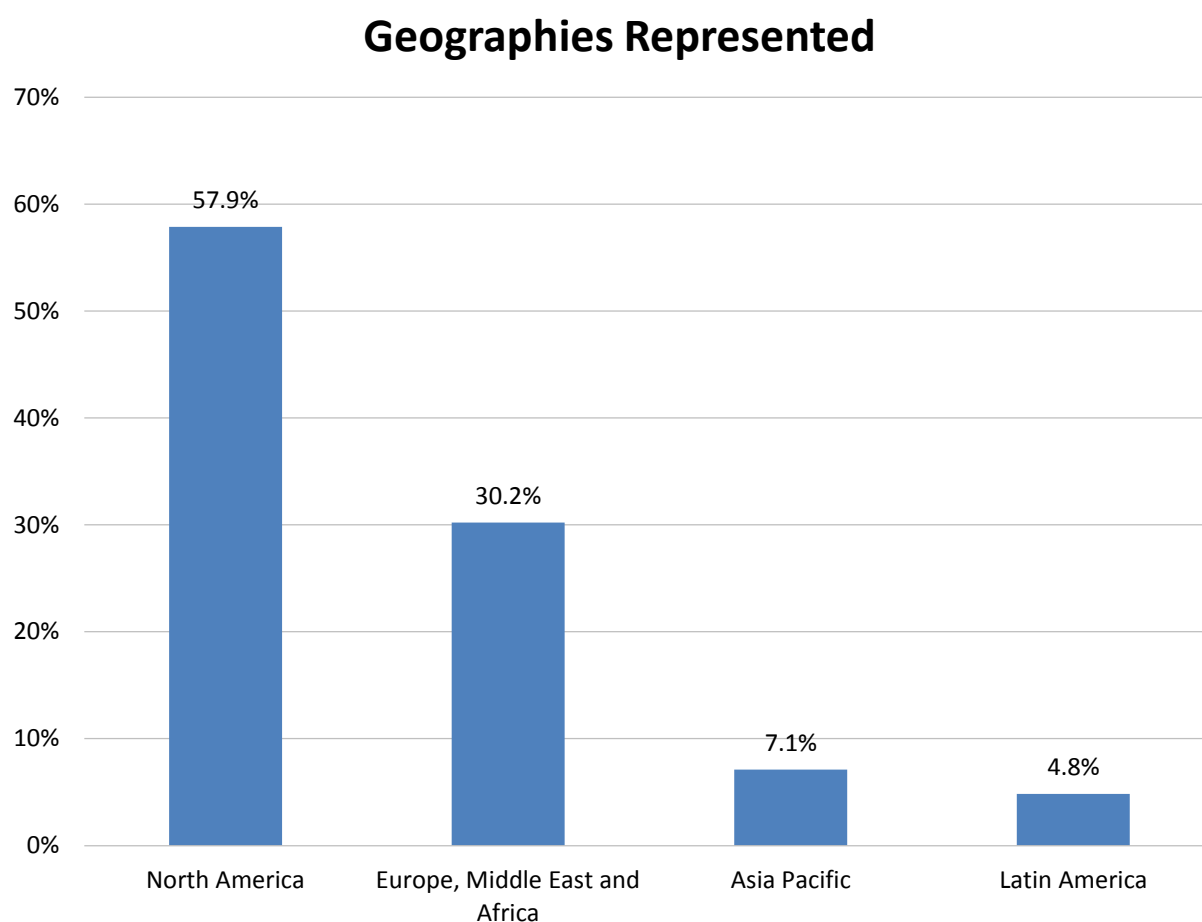


Figure 1 – Geographies represented

## Functions

In 2021, Information Technology respondents account for about 40 percent of our sample, followed by Finance (16 percent), Executive Management (14 percent), and BICC (10 percent) (fig. 2). Tabulating results across functions helps us develop analyses that reflect the differences and influence of different departments within organizations.

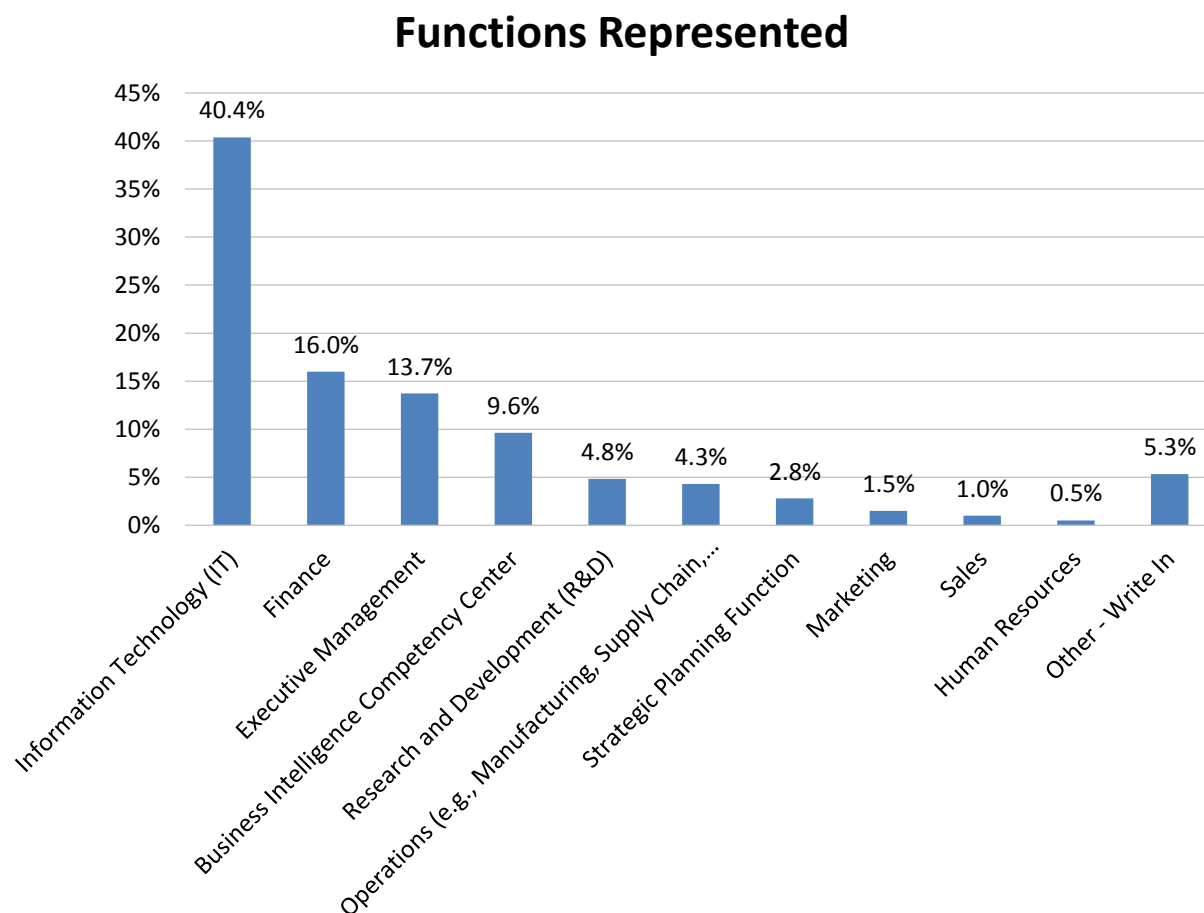


Figure 2 – Functions represented

## Vertical Industries

In our 2021 study, Manufacturing leads vertical industry distribution (22 percent), followed by Business Services (18 percent), Financial Services (13 percent), Technology (12 percent), Healthcare (10 percent), and Consumer Services (8 percent) (fig. 3). Higher Education, Retail/Wholesale, and Government round out our vertical sample.

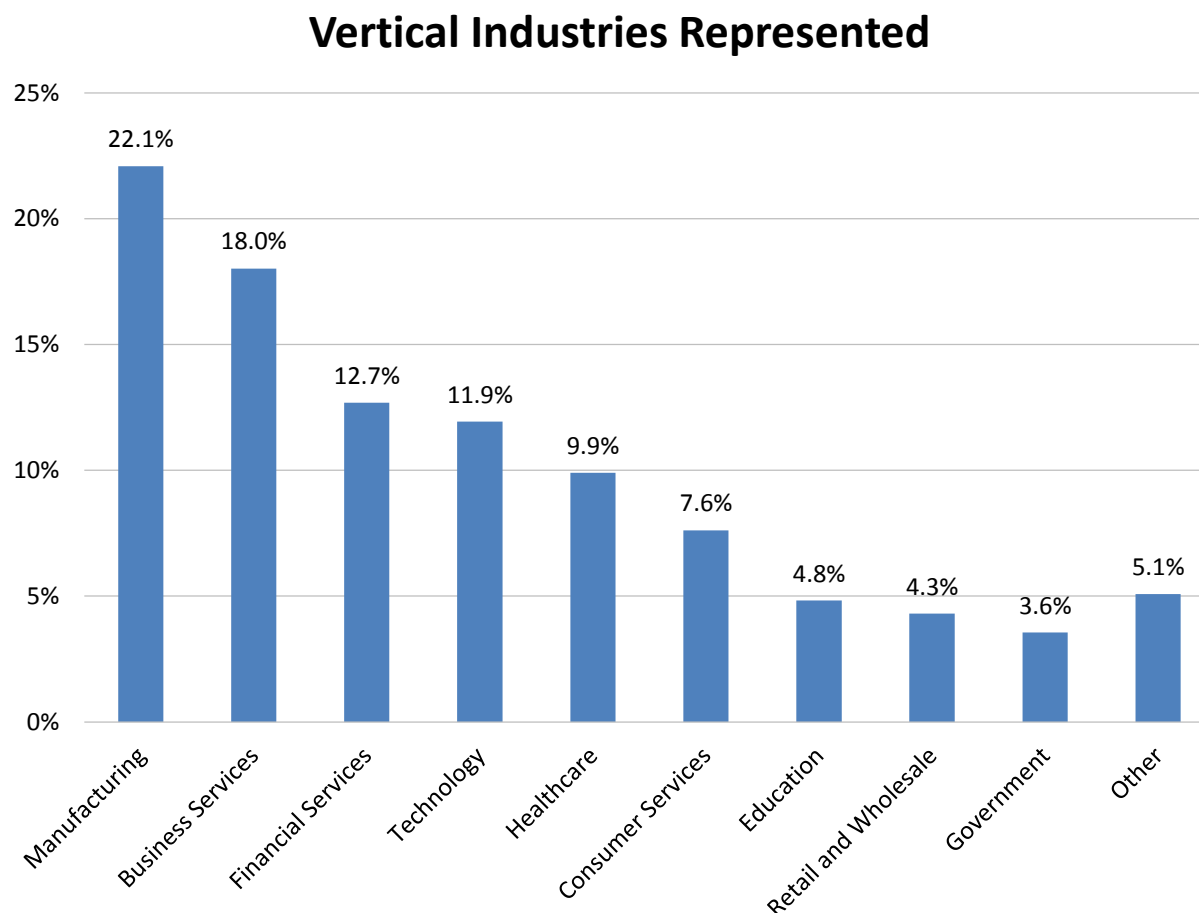


Figure 3 – Vertical industries represented



## Organization Size

In 2021, our study base includes a balance of small organizations (1-100 employees), mid-sized organizations (101-1,000 employees), and large organizations (>1,000 employees) (fig. 4). This year, small organizations account for about 18 percent of our sample, mid-sized organizations account for 33 percent, and the remaining 50 percent or so of respondents are from large organizations.

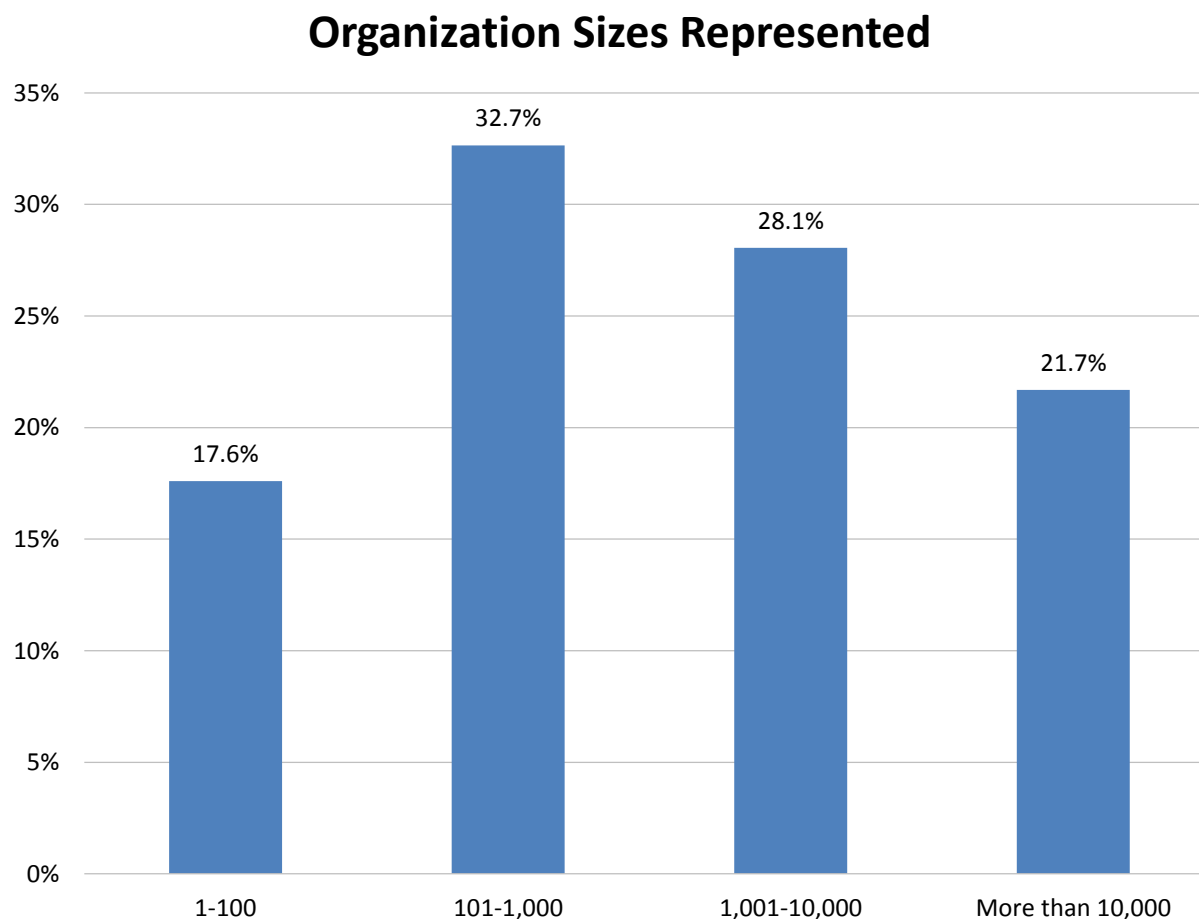


Figure 4 – Organization sizes represented

# Analysis & Trends

## Analysis and Trends

### Importance of Self-Service Business Intelligence

In our 2021 study, top technologies and initiatives strategic to BI are staples that include reporting, dashboards, and data integration (fig. 5). The umbrella topic of self-service ranks sixth (unchanged from 2020) among 44 topics. Related topics are collaborative support for group-based analysis (ranks 26<sup>th</sup>), data storytelling (14<sup>th</sup>), and governance (8<sup>th</sup>).

## Technologies and Initiatives Strategic to Business Intelligence

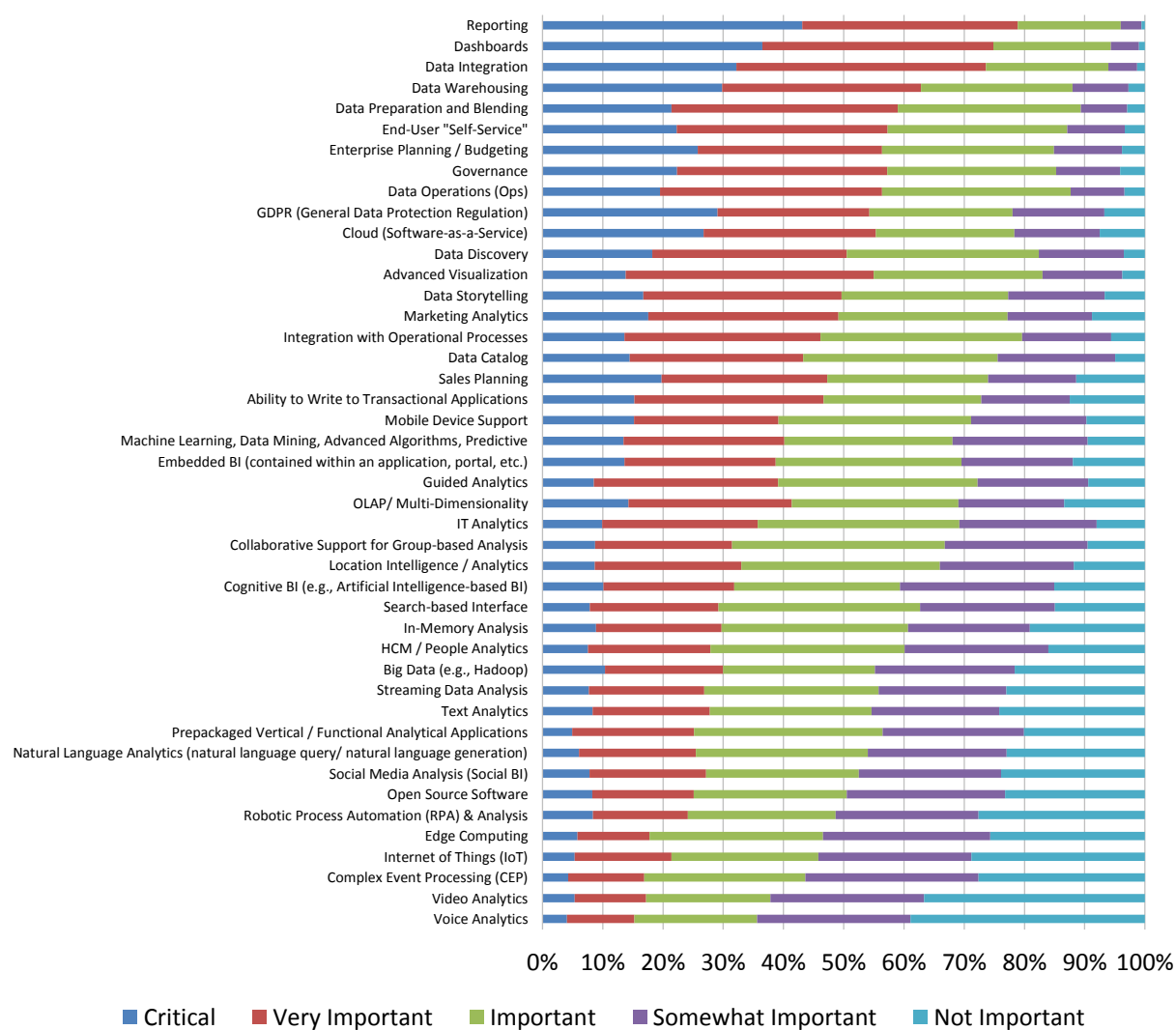


Figure 5 – Technologies and initiatives strategic to business intelligence

### Self-Service BI Importance 2017-2021

In our 2021 study, 58 percent of the sample consider self-service BI “critical” or “very important” (fig. 6). This figure reflects a slight decline from 62 percent in 2020, during which weighted-mean importance also declined slightly from 3.7 to 3.6. Both these measures nonetheless reflect perceived criticality well above “important” and toward a value of “very important.” Five-year weighted-mean values also remain in the 3.6-3.7 range, reflecting steady awareness to value. “Not important” scores fell to just 3 percent in the last two years of study.

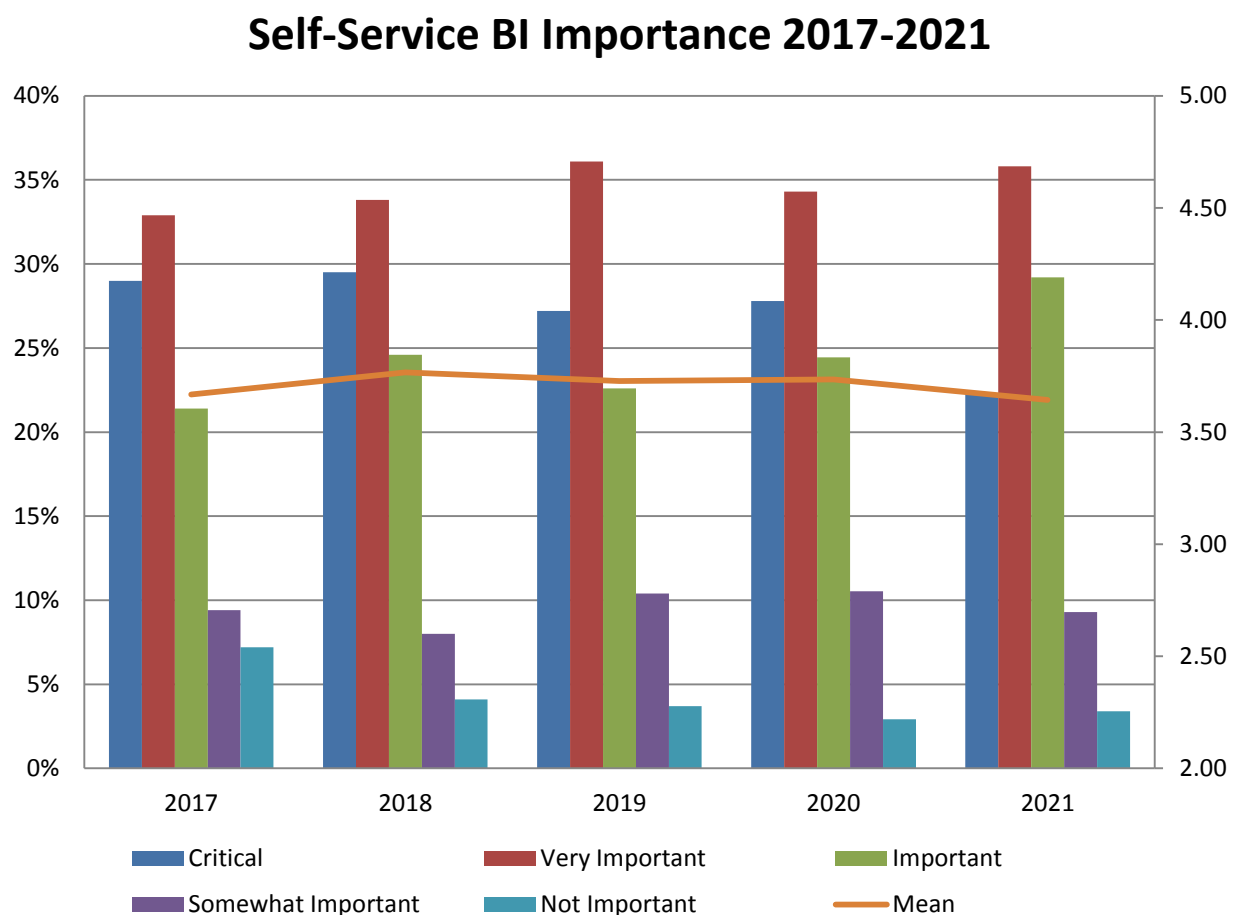


Figure 6 – Self-service BI importance 2017-2021

## Methods of Collaboration

Multiple conventional avenues for collaborating with business intelligence are popular and widely used by respondents, led by email, virtual meetings, face-to-face meetings, and formal presentations (fig. 7). These top four picks are at least "occasional" channel choices for close to or more than 90 percent of respondents. At least 80 percent of respondents also occasionally use collaborative features in BI tools. After this, 60 percent or more of respondents at least occasionally use a second tier of embedded, telephone, file sharing, instant messaging and enterprise collaboration tools. Also notable is the finding that social media channels are the least used for collaboration (> 60 percent "never").

### Methods of Collaboration Today

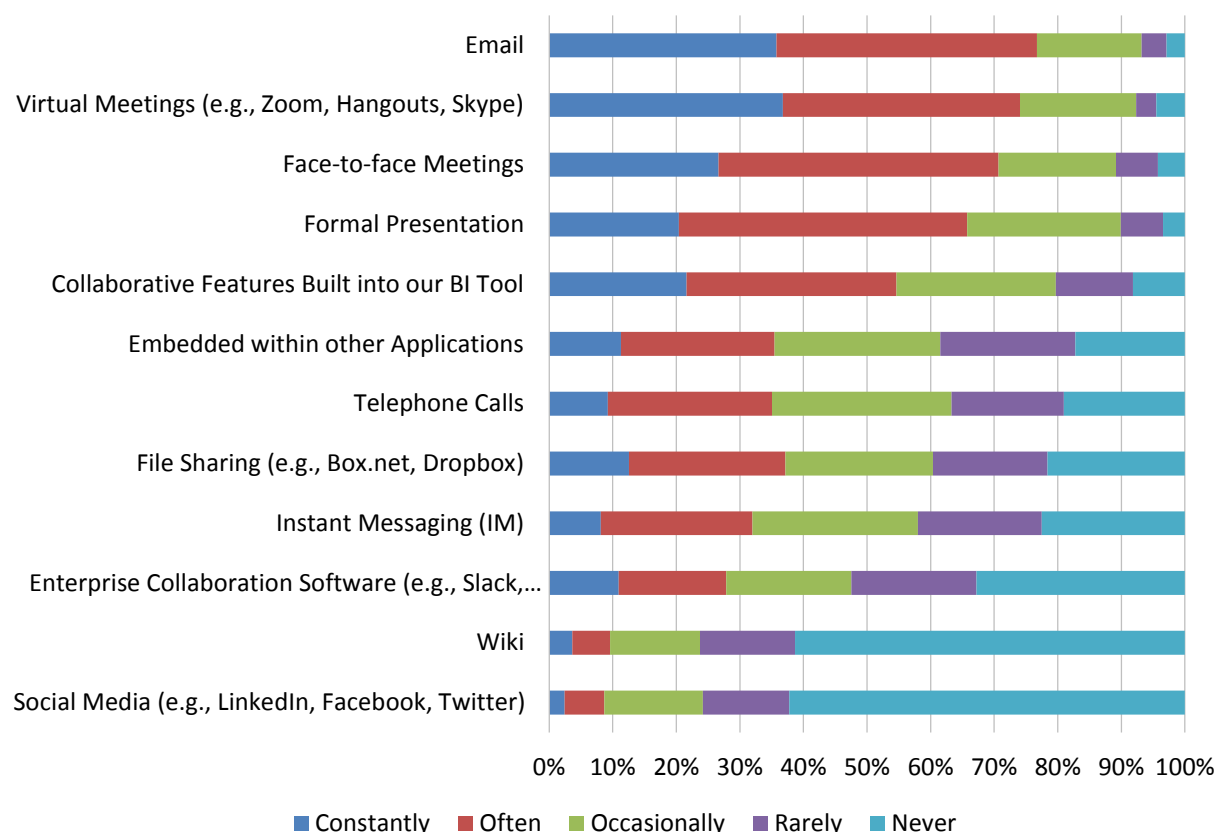


Figure 7 – Methods of collaboration today

Multiple avenues for collaborating with business intelligence grow or retain value over time, though work dynamics changed priorities in the last year (fig. 8). Predictably in the wake of the COVID-19 pandemic, virtual meetings (most obviously Zoom), overtake all collaboration channels except email in our 2021 study. While email never surrendered the top spot and even gathers importance this year, only a hair's breadth now separates it from virtual meeting criticality: both channels are considered “very important” in 2021. The last 12 months also brought declines in face-to-face meetings but also to telephone calls and other methods of sharing. The increase in the importance of collaborative features built into BI tools is noteworthy.

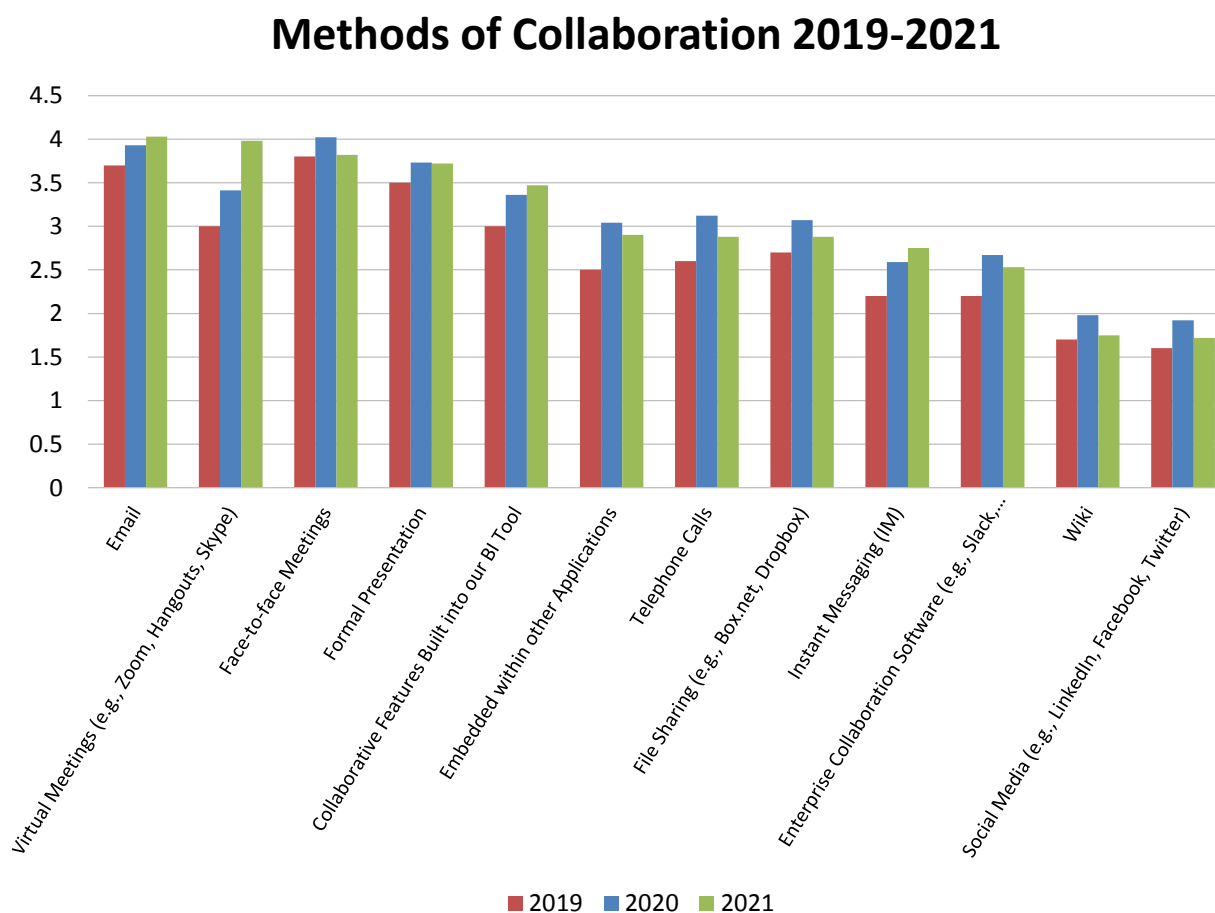


Figure 8 – Methods of collaboration 2019-2021

Interest in collaboration channels varies by function (fig. 9). This year, Strategic Planning respondents' top categories include virtual meetings, face-to-face meetings, formal presentations, and telephone calls. Email is very relevant to all functions, though a bit less to R&D and Strategic Planning respondents. In the latter case, respondents prioritized virtual meetings over email and other channels. Operations respondents most likely turn to collaborative features in BI tools and give higher than "important" scores to enterprise collaboration. IT gives top scores to embedded collaboration and file-sharing tools. Finance, Marketing/Sales, and other functions are all involved in multiple collaboration channels but are not leaders in the use of any specific choice.

## Methods of Collaboration by Function

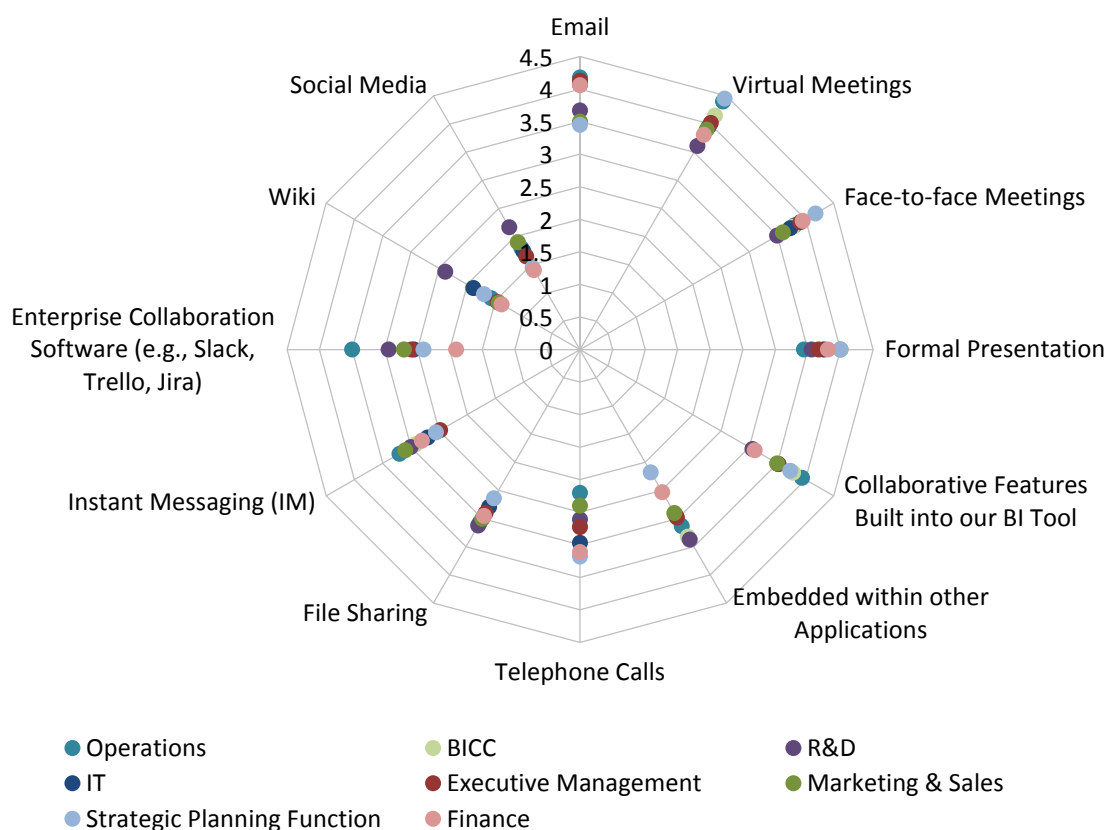


Figure 9 – Methods of collaboration by function

Face-to-face meetings and email are the most common denominators of collaboration in organizations of different sizes (fig. 10). Many channels also tend to scale in importance as organization size increases. This year, large (1,001-10,000 employees) and very large organizations (> 10,000 employees) are the most likely users of any given channel except enterprise collaboration software and social media, where small organizations (1-100 employees) show the greatest interest. The largest and smallest organizations favor collaborative features built into their BI tool compared to other sized organizations.

## Methods of Collaboration by Organization Size

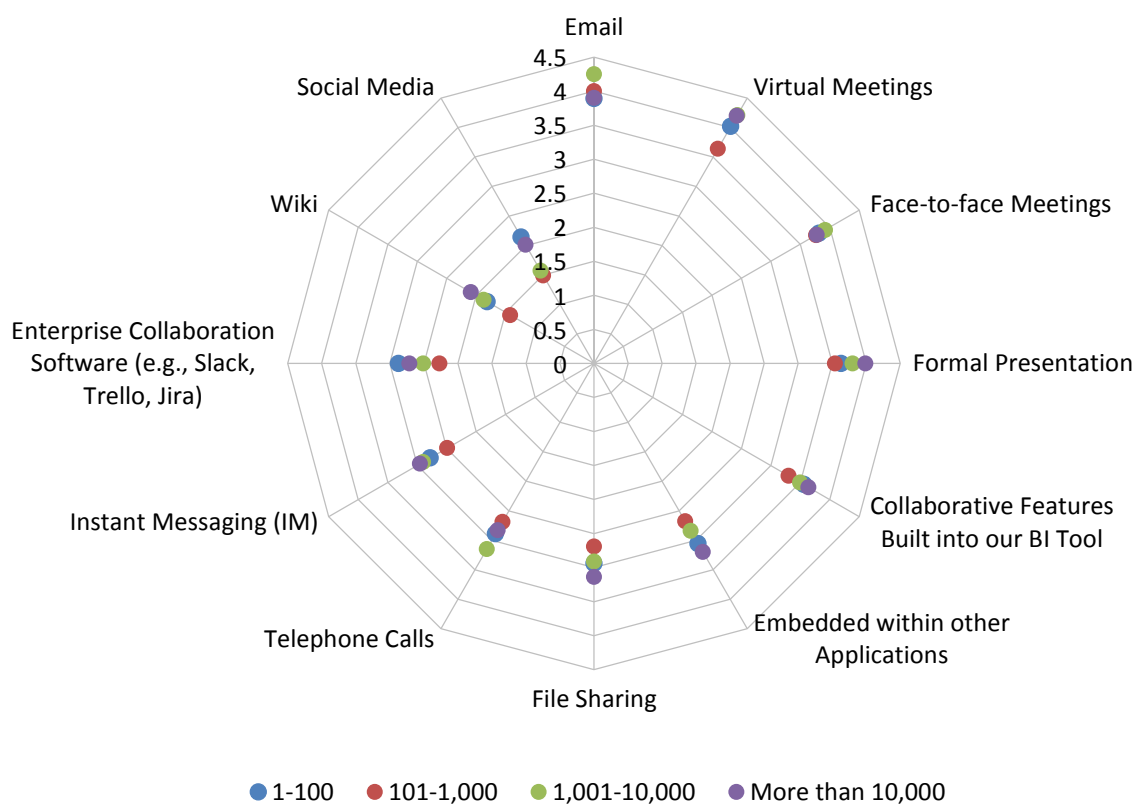


Figure 10 – Methods of collaboration by organization size



Email, virtual and face-to-face meetings, and formal presentations are the common top choices for collaboration in different vertical industries (fig. 11). This year, email importance tightly clusters across nearly all industries excluding Education. Financial Services and Technology respondents are especially likely to choose virtual meetings, while Manufacturing respondents narrowly prefer face-to-face meetings and formal presentations. Among many examples, all industries show relative interest in a wide variety of collaboration channels and give scores of “important” to well above “very important” to most channels. Compared to other industries, Technology is more likely to use BI tool-based collaborative capabilities.

## Methods of Collaboration by Vertical Industry

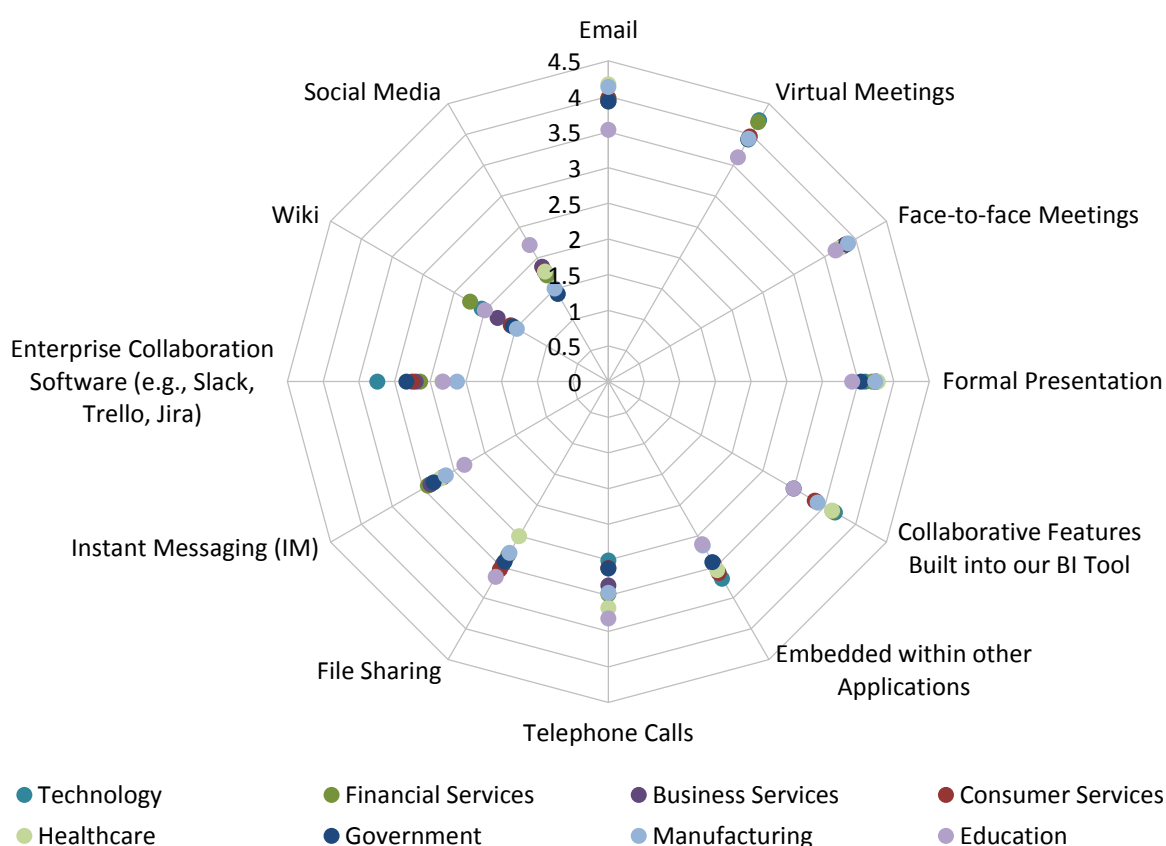


Figure 11 – Methods of collaboration by vertical industry

We would expect that culture plays a role in preferences for collaborative tools, which indeed varies by geography (fig. 12), though many channels are universally important. In our 2021 study, email and virtual meetings are most important, the latter especially so among Latin American respondents. The top four channels, which also include face-to-face meetings and formal presentations, get weighted-mean scores greater than 3.5, midway between “important” and “very important,” from all geographies. Latin American organizations are much more likely to use collaborative features built into their BI tool.

## Methods of Collaboration by Geography

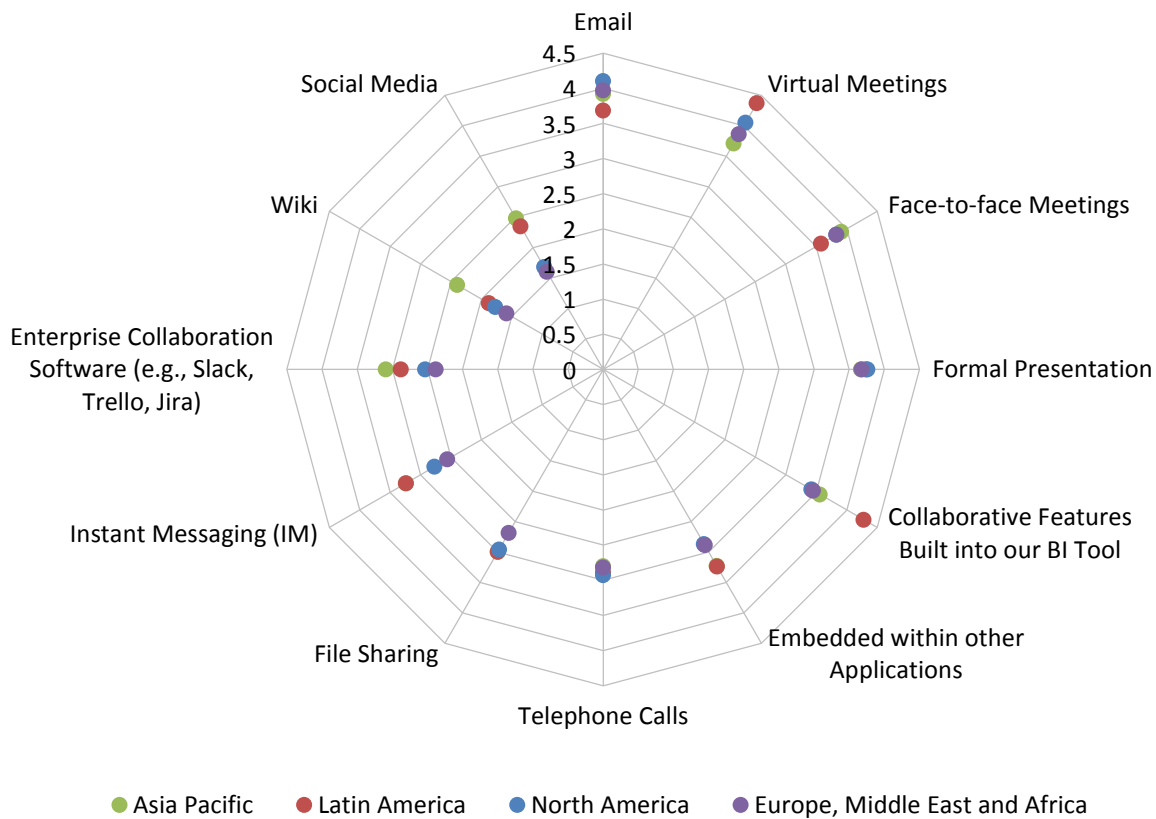


Figure 12 – Methods of collaboration by geography

Organizations that are more successful with BI are universally more likely to use individual—and multiple—channels of collaboration (fig. 13). Regardless of their success with business intelligence, all organizations are highly likely common users of email and virtual meetings in 2021. After these top choices, the more successful BI organizations begin to distinguish themselves in the use of alternative collaboration methods. A noticeable disparity is in the use of “collaborative features built into our BI tool,” in which “completely” and “somewhat successful” respondents are far more likely to be users compared to less-successful BI peers.

## Methods of Collaboration by Success with BI

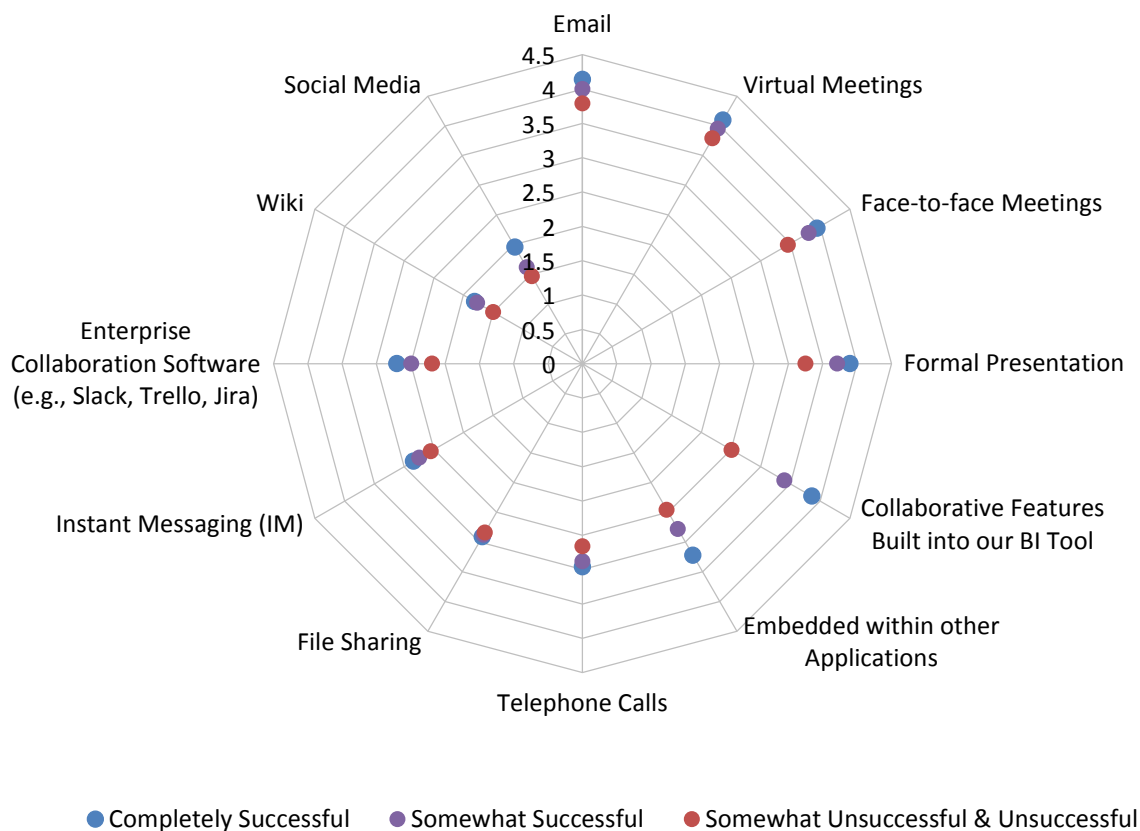


Figure 13 – Methods of collaboration by success with BI

## Importance of Collaborative BI

Collaborative BI remains on a long-term uptrend and high level of criticality over time, which (with a weighted mean of 3.89) is close to an all-time high sentiment near "very important" (fig. 14). During the years 2019 through 2021, more than 70 percent of respondents say collaborative BI is either "critical" or "very important," and more than 90 percent say collaborative BI is, at minimum, "important." The most notable spike in this trend occurred in 2016, and the sustained high importance in the years since makes collaborative BI a consistently relevant topic.

### Importance of Collaborative BI 2012-2021

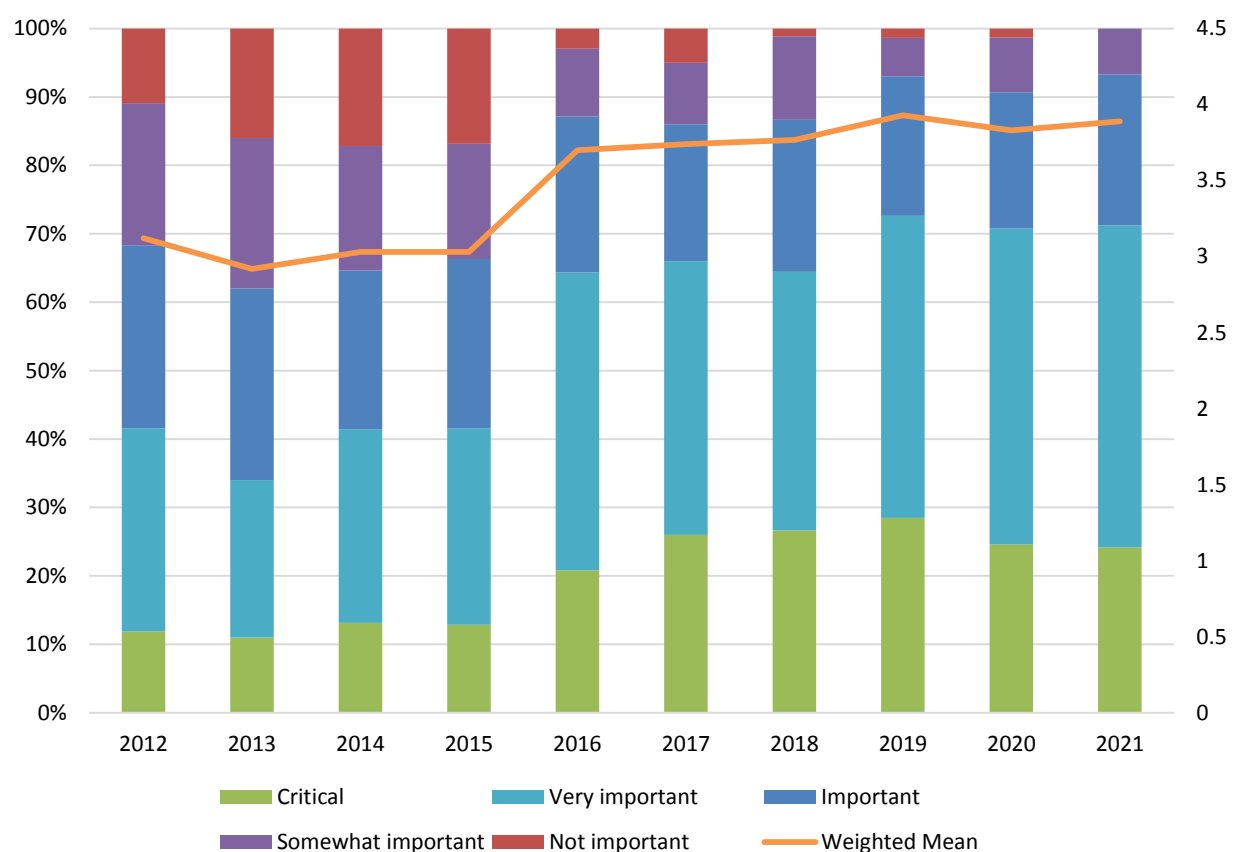


Figure 14 – Importance of collaborative BI 2012-2021

Interest in collaboration and business intelligence is uniformly high across functions (fig. 15). In our 2021 sample, importance is similarly highest by weighted mean among respondents in Operations, R&D, and Executive Management, where close to one-third or more say collaboration is “critical.” An even higher percentage of Human Resources respondents call collaboration and BI “critical.” Among all other functions, between two-thirds and 90 percent say collaboration and BI are, at minimum, “very important.”

### Importance of Collaboration and BI by Function

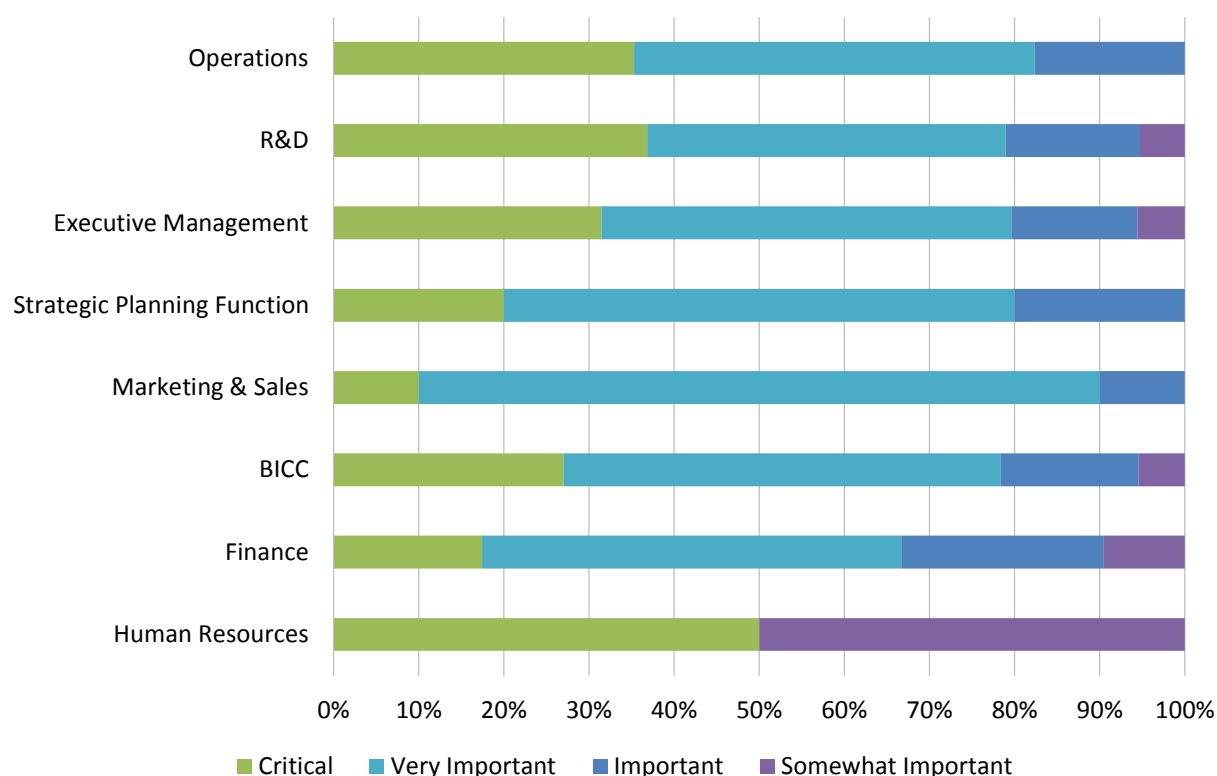


Figure 15 – Importance of collaboration and BI by function

The mean perceived importance of collaboration and business intelligence tends to increase with organization size (fig. 16). This is particularly true for "critical" sentiment, which is lower (20 percent) in small organizations (1-100 employees) where information workers might be in close proximity by percentage of headcount. Still, combined "critical" and "very important" scores cluster between 66-75 percent for any organization regardless of size, indicating uniform respect for the value of collaboration and BI.

### Importance of Collaboration and BI by Organization Size

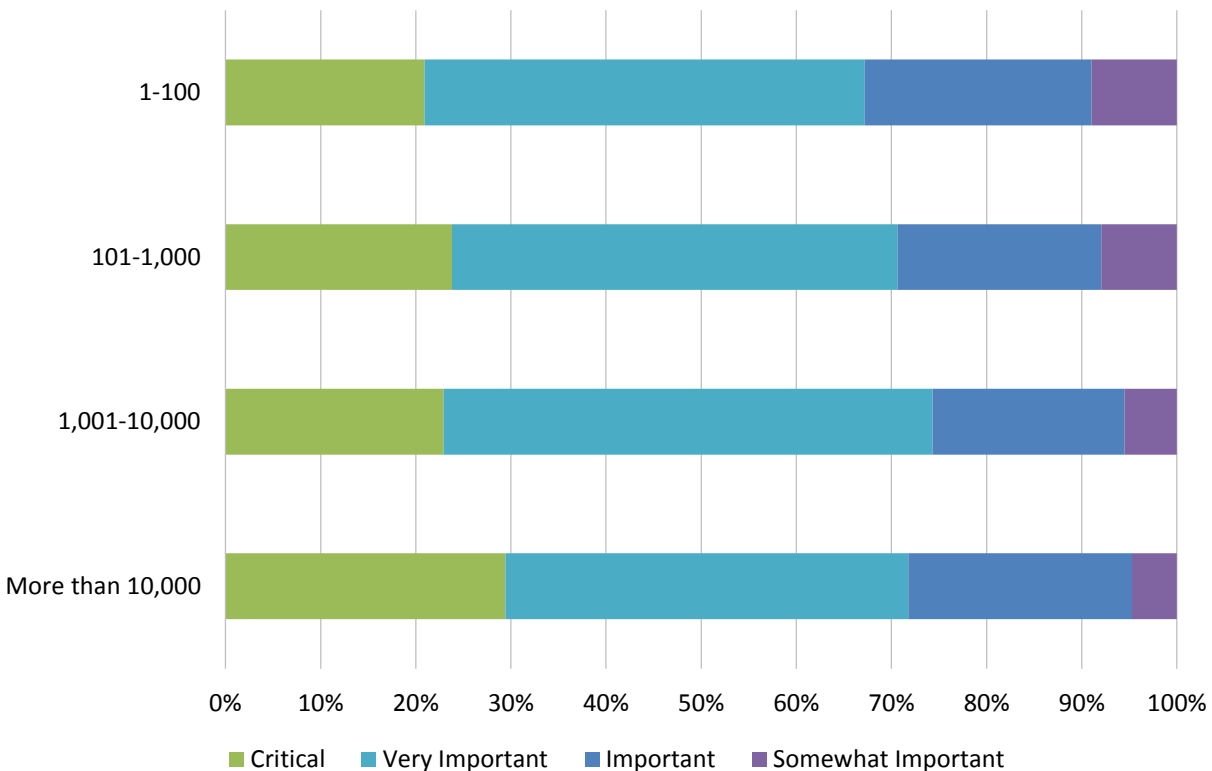


Figure 16 – Importance of collaboration and BI by organization size

Mean interest in collaboration and BI varies by vertical industry but again shows uniformly high criticality scores well above the level of "important" (fig. 17). In our 2021 study, Technology, Financial Services, and Business Services report the highest weighted-mean importance and highest combined "critical" and "very important" scores. Education and Government respondents are seemingly less collaborative and assign the lowest relative criticality and overall importance among industries sampled.

### Importance of Collaboration and BI by Industry

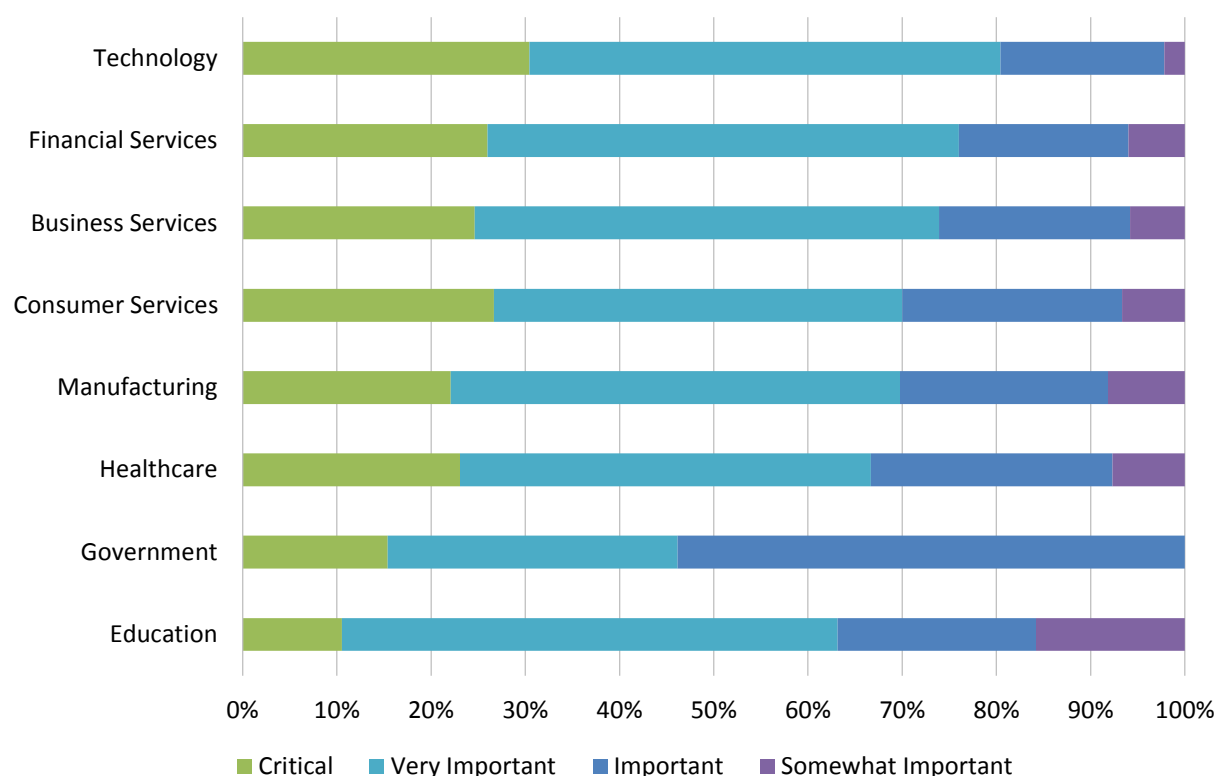


Figure 17 – Importance of collaboration and BI by industry

In 2021, the perceived “critical” importance of collaboration and BI varies rather dramatically and is highest in Latin America followed by North America, EMEA, and Asia Pacific (distantly at just 7 percent) (fig. 18). Even so, large majorities from all geographic regions (between 66-90 percent), consider the topic either "critical" or "very important." Likewise, between 92-100 percent say collaboration and BI is, at minimum, "important."

### Importance of Collaboration and BI by Geography

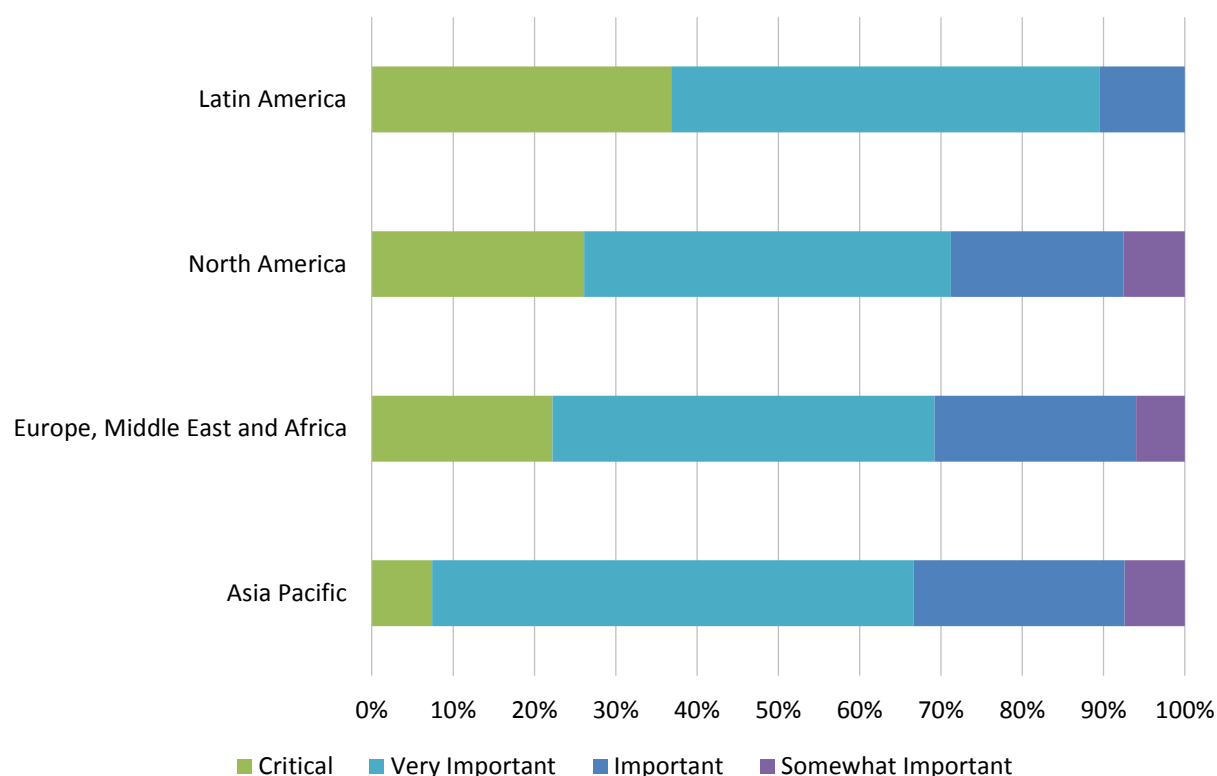


Figure 18 – Importance of collaboration and BI by geography



## BI Collaboration Requirements

In our 2021 study, "search and navigation for content" and "share content and commentary" are the top collaborative feature requirements among users (fig. 19). Along with "annotate content," the top three features are identical to our previous four studies. "Follow objects" is the next most important feature, narrowly ahead of "user-defined groups," which also echoes previous studies. Overall, adjusted-mean scores for all but two features are, at minimum, "important" to 60 percent or far more of our sample base.

### Collaborative Feature Requirements

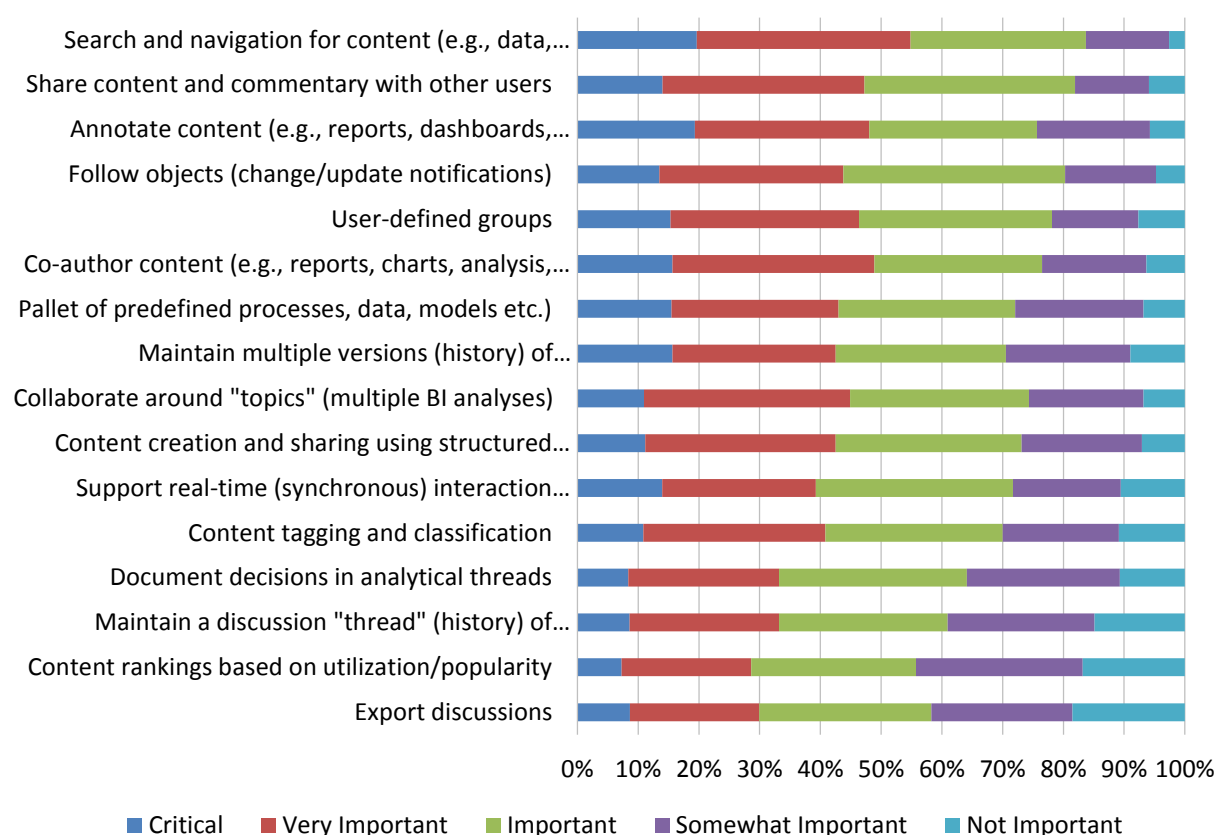


Figure 19 – Collaborative feature requirements

Interest in BI collaboration features varies by function (fig. 20). The top feature, "search and navigation for content," resonates most strongly with BICC and Operations audiences. "Annotate content" interest is highest in BICC and Finance, while "share content and commentary" gets high marks from Executive Management, BICC, and Marketing/Sales. Among other findings, "support real-time interaction" and "document decisions in analytical threads" get high marks from Strategic Planning. R&D respondents are generally least interested in collaboration features.

## Collaborative Feature Requirements by Function

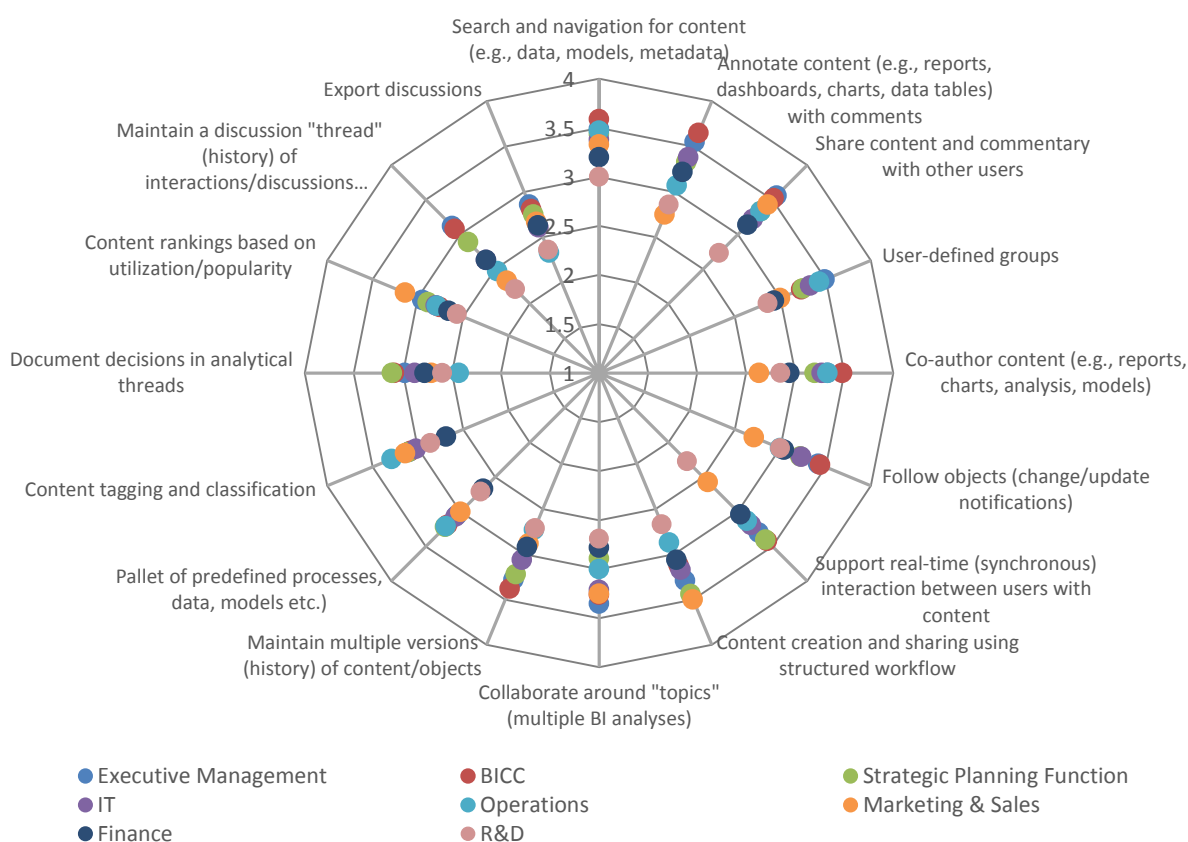


Figure 20 – Collaborative feature requirements by function

Interest in collaborative features most often increases with global organization headcount but can also find high interest in small organizations (1-100 employees) (fig. 21). This year, very large organizations (> 10,000 employees) lead interest in several categories including “search and navigation,” “share content and commentary,” “user-defined groups,” “follow objects,” “support real-time interaction,” and “content creation and sharing.” Yet, small organizations also give near-top marks to several collaboration features, and the highest scores in areas including “annotate content,” “maintain multiple versions,” “document decisions in analytical threads,” and “maintain a discussion thread.” Respondents in mid-sized organizations (101-1,000) trail interest in collaborative feature requirements.

## Collaborative Feature Requirements by Organization Size

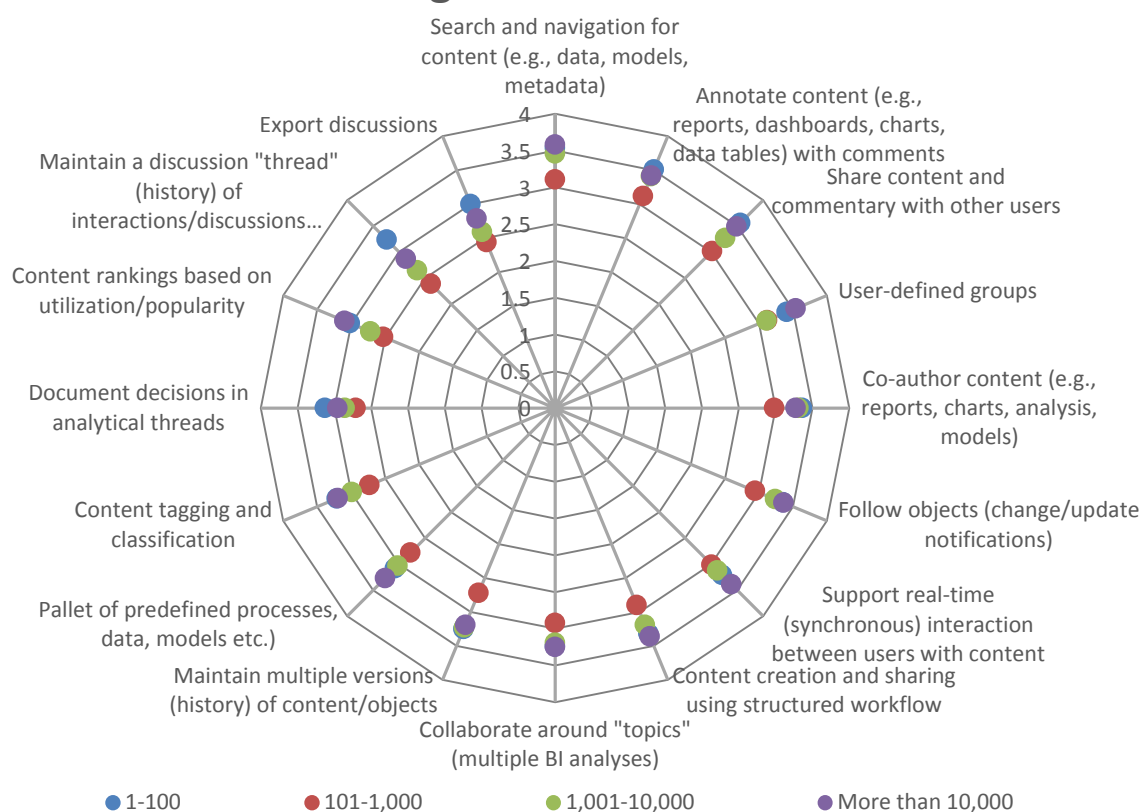


Figure 21 – Collaborative feature requirements by organization size

Organizational priorities for collaborative feature requirements vary rather broadly by vertical industry in our 2021 study (fig. 22). Among many examples, Consumer Services and Financial Services lead interest in “search and navigation.” Healthcare respondents most often mention “annotate content” and “support real-time interaction.” Retail/Wholesale respondents are partial to features including “user-defined groups,” “follow objects,” and “content rankings based on utilization/popularity.” Higher Education respondents are most often least interested in collaborative features.

## Collaborative Feature Requirements by Vertical Industry

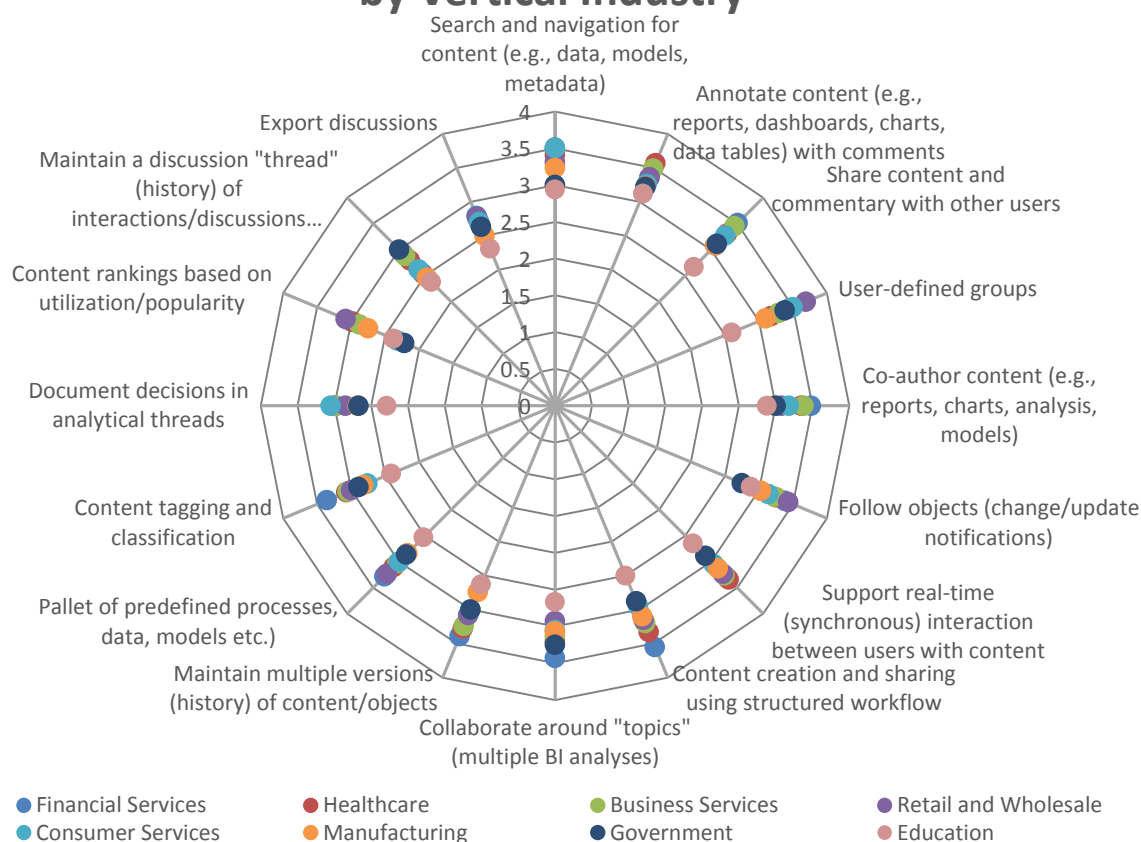


Figure 22 – Collaborative feature requirements by vertical industry

Interest in collaborative feature requirements varies by geography, but the top nine features are, at minimum, “important” in all regions in 2021 (fig. 23). This year, Latin American respondents lead 11 categories including “annotate content,” “share content,” and user-defined groups. North American respondents narrowly lead universal interest in “search and navigation.” Asia-Pacific respondents give top scores to “support real-time interaction,” “maintain a discussion thread,” and “export discussions.” EMEA respondents are least interested in collaboration features by region.

## Collaborative Feature Requirements by Geography

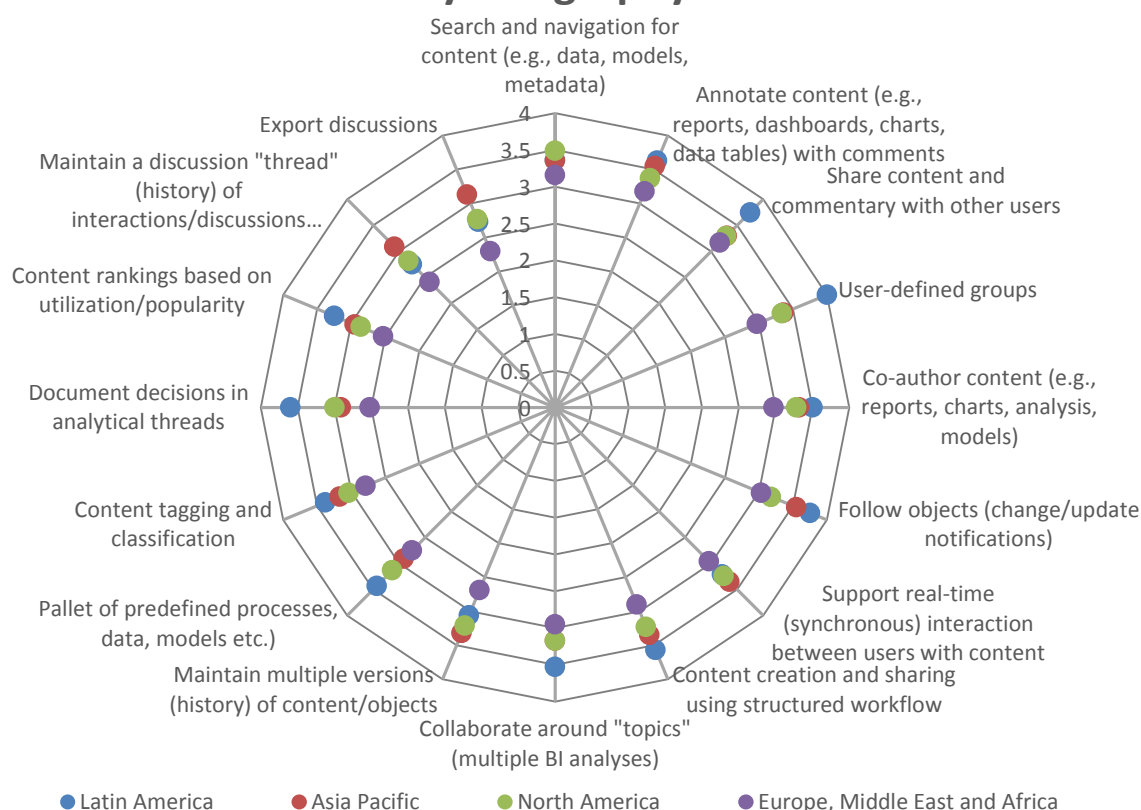


Figure 23 – Collaborative feature requirements by geography

### Integration with Enterprise Collaborative Frameworks

To extend core collaborative features of a business intelligence tool, organizations may choose to employ enterprise collaborative frameworks to gather more features, scale, or expand scope (fig. 24). 2021 weighted-mean importance of collaboration framework integration stands at 2.8 (below "important" and down from 2.95 year over year). Across five years of data, the importance of enterprise collaborative frameworks remains between a rounded weighted mean between 2.8-2.9. In 2021, more than 60 percent of respondents still say it is, at minimum, "important."

### Importance of Integration with Enterprise Collaborative Frameworks 2017-2021

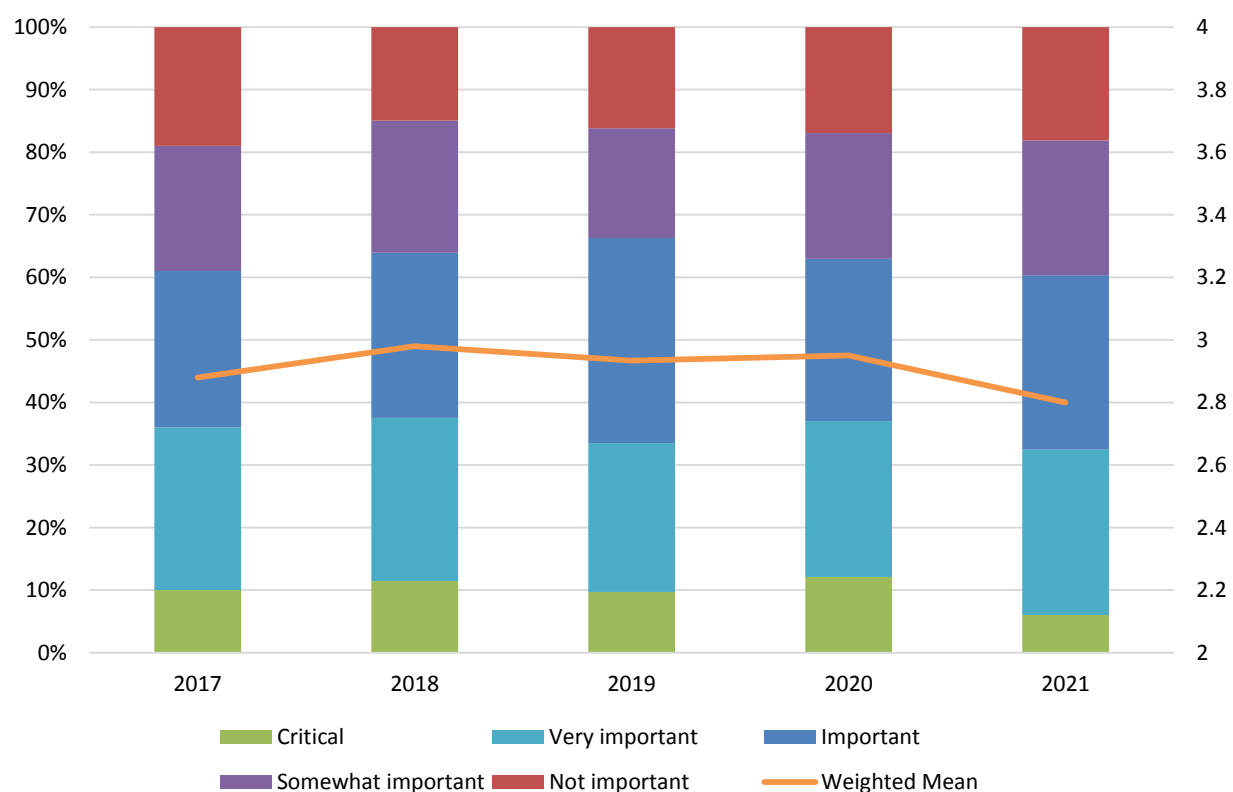


Figure 24 – Importance of integration with enterprise collaborative frameworks 2017-2021

By function, BICC respondents report the highest interest in enterprise collaboration frameworks and the most “critical” scores (13 percent) in 2021 (fig. 25). BICC respondents are also most likely (70 percent) to say enterprise collaboration frameworks are either “critical” or “very important.” IT respondents are the next most interested. Back-office interest from Strategic Planning, Finance, and R&D come next. Operations respondents show the lowest weighted-mean interest in enterprise collaboration frameworks.

### Importance of Integration with Enterprise Collaborative Frameworks by Function

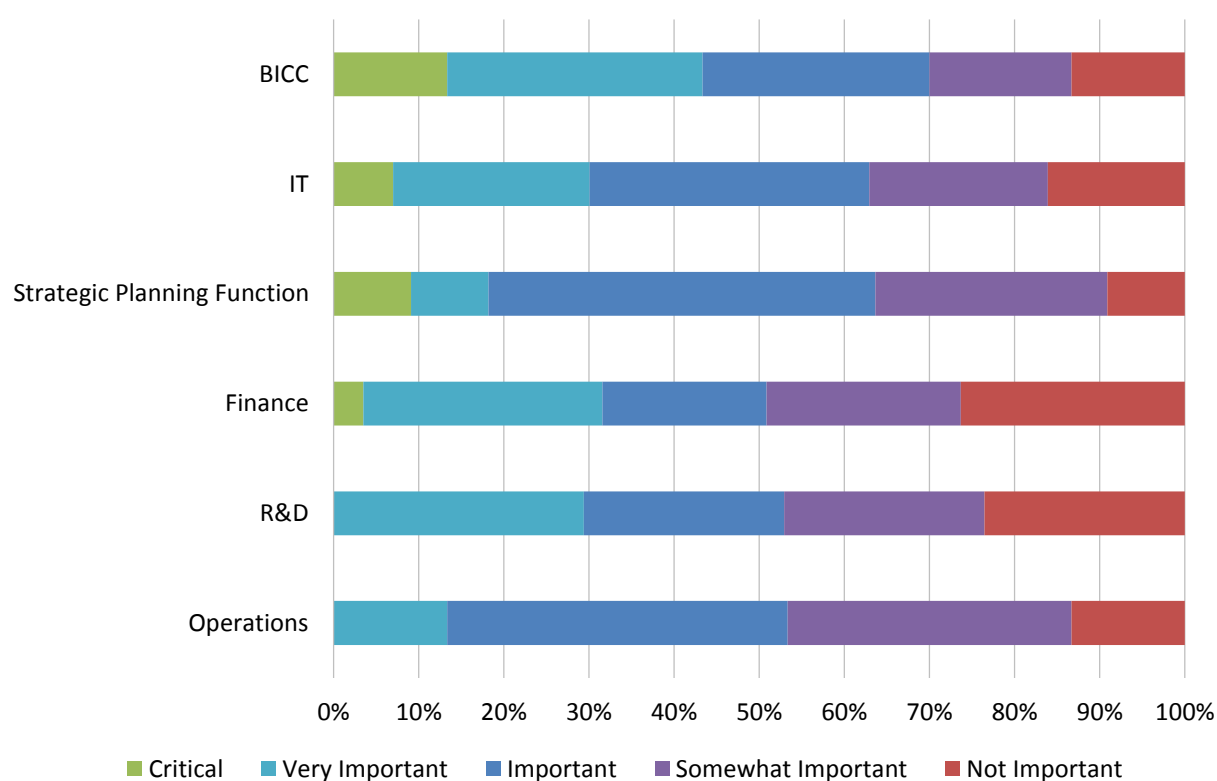


Figure 25 – Importance of integration with enterprise collaborative frameworks by function

The perceived importance of enterprise collaborative frameworks generally grows as organization size increases, indicating that the adoption of tools and services is loosely correlated with global headcount (fig. 26). Again, though, small organization interest outweighs that of some larger peers. Very large organizations (> 10,000 employees) are not especially more likely to assign “critical” importance to enterprise frameworks but are noticeably more likely to say they are at least “important” (76 percent) compared to smaller peers. Also, scores of “somewhat important” or “not important” decrease noticeably as headcount increases.

### Importance of Integration with Enterprise Collaborative Frameworks by Organization Size

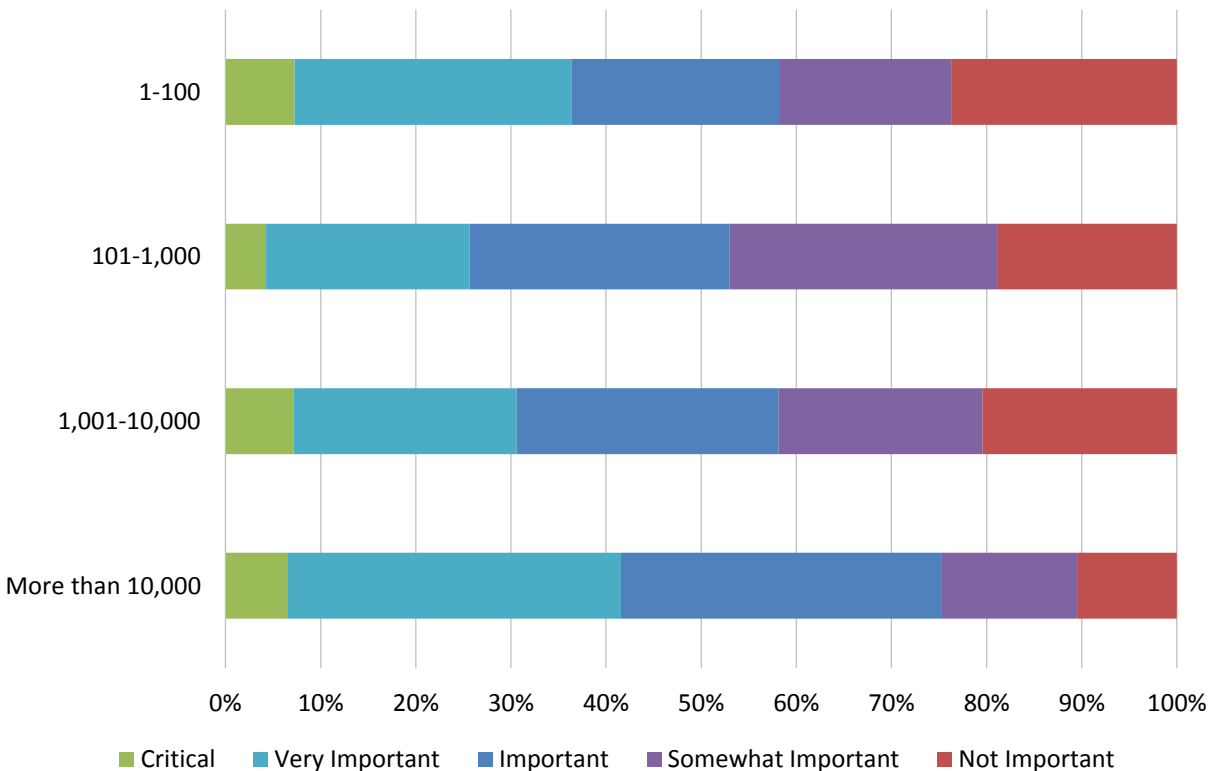


Figure 26 – Importance of integration with enterprise collaborative frameworks by organization size



Measured by weighted mean, the importance of integration with enterprise collaboration frameworks is highest in Financial Services, Technology, Business Services, and Consumer Services (fig. 27). Sentiment is weakest in Retail/Wholesale and Manufacturing. Within these rankings, industry respondents can show pockets of extreme interest. For example, lower-ranked Healthcare is about as likely as any industry to report scores of at least “very important.” This may indicate narrow use of enterprise frameworks driven by department or roles in certain organizations.

### Importance of Integration with Enterprise Collaborative Frameworks by Industry

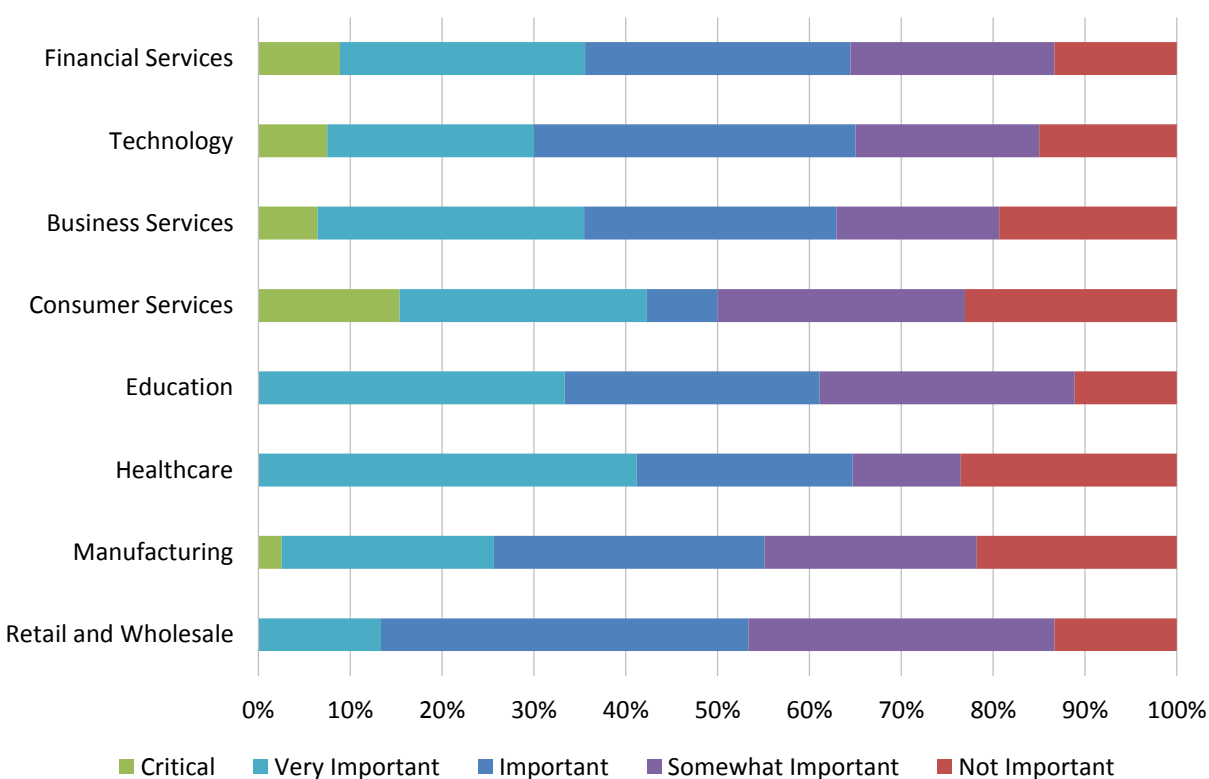


Figure 27 – Importance of integration with enterprise collaborative frameworks by industry

2021 interest in enterprise collaborative frameworks is highest in Latin America, where almost 60 percent of respondents call these tools and services "critical" or "very important" (fig. 28). Interest declines among Asia-Pacific respondents; though like Latin America, this group is about 75 percent likely to consider enterprise collaborative frameworks, at minimum, "important." North American and EMEA audiences post the lowest scores and the highest percentage (39-48 percent) of those that say the technology is "somewhat important" or "not important."

### Importance of Integration with Enterprise Collaborative Frameworks by Geography

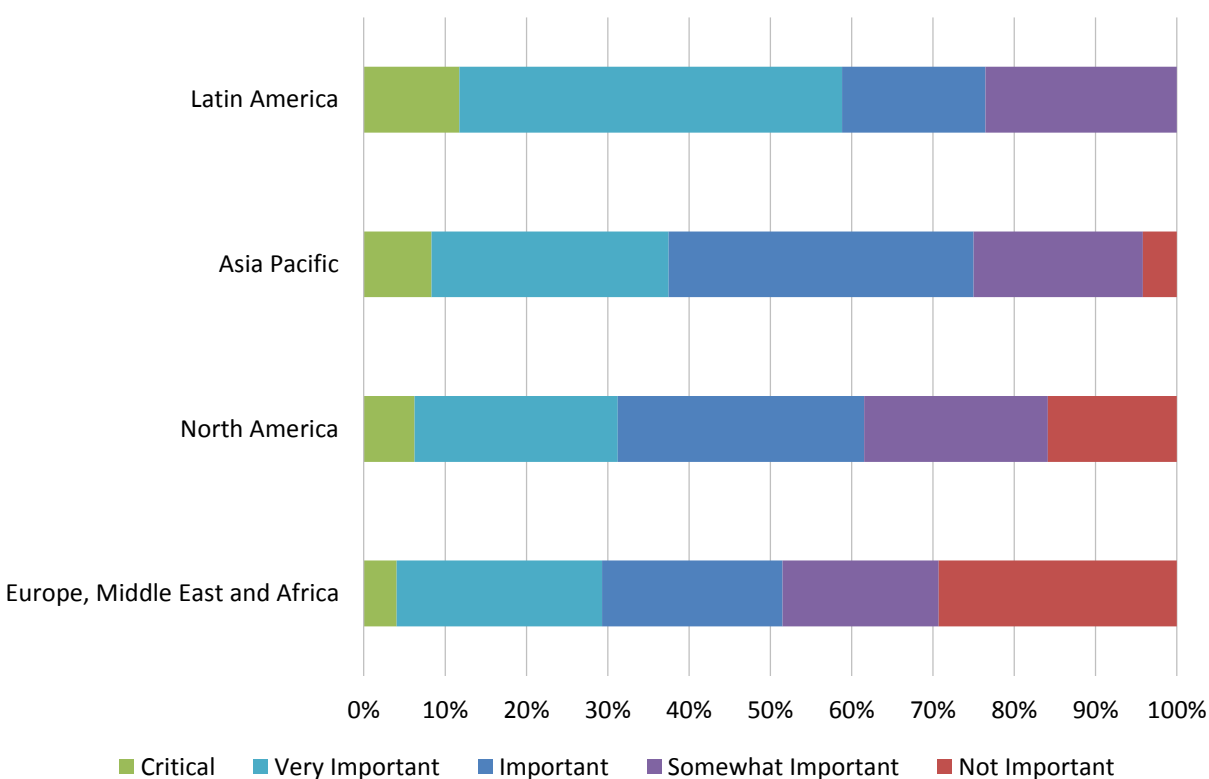


Figure 28 – Importance of integration with enterprise collaborative frameworks by geography

## Collaborative BI Features with Enterprise Frameworks

We asked respondents to score their interest in four collaborative BI features that might be available in enterprise collaborative frameworks: "inclusion of BI objects," "extended sharing," "ability to reference and search content," and "creating BI objects" (fig. 29). In our 2021 study, these features all elicit somewhat similar interest among respondents, led only marginally by "ability to reference and search BI content." None of the features summon more than about one-third combined "critical" and "very important" scores, though all are, at minimum, "important" to close to 60 percent or more respondents. Over the history of our study, slowly growing pluralities of respondents find these features at least "important;" but historically, fewer than 10 percent believe any are "critical."

### Collaborative BI Features with Enterprise Frameworks

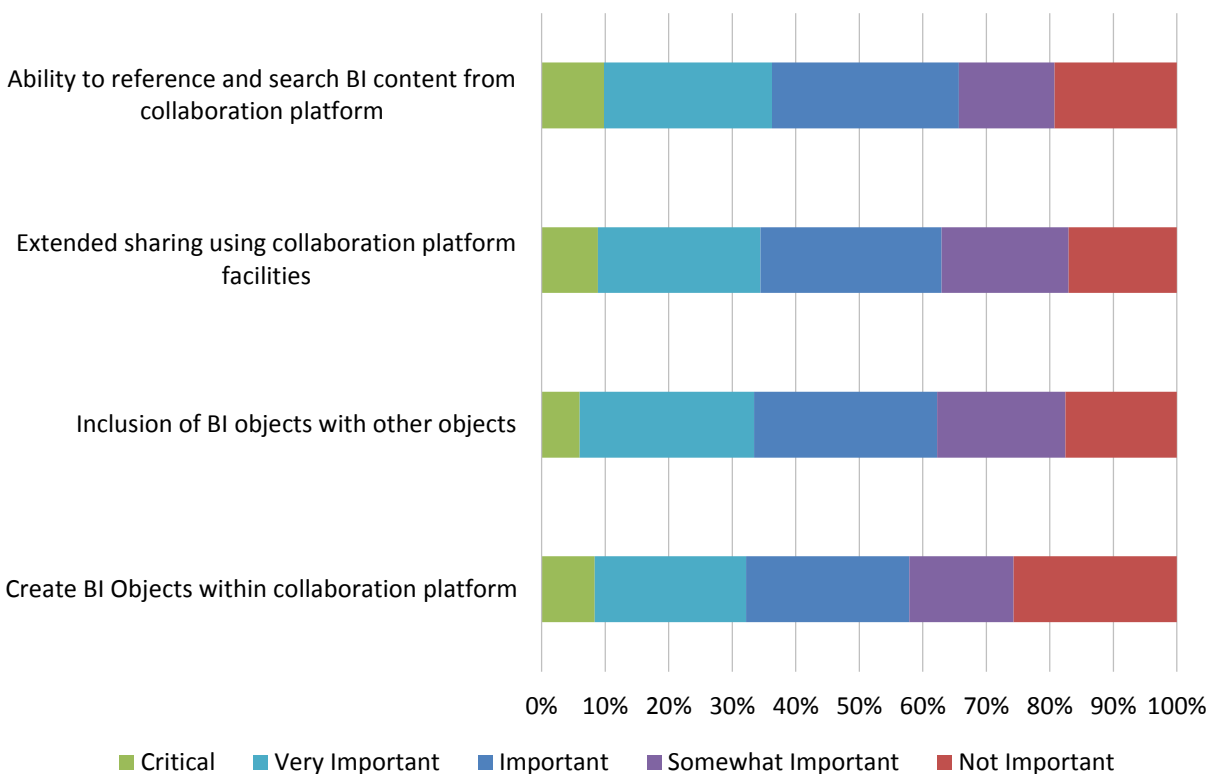


Figure 29 – Collaborative BI features with enterprise frameworks

By function, BICC respondents lead user interest in three of four collaborative BI features within enterprise frameworks under study in 2021 (fig. 30). These include "ability to reference," "extended sharing," and "inclusion of BI objects." These are the only features to receive scores higher than 3.0, or "important." The remaining feature, "create BI objects," receives just slightly higher marks from Strategic Planning respondents. R&D respondents are generally least likely to use features within enterprise collaboration frameworks.

### Collaborative BI Features with Enterprise Frameworks by Function

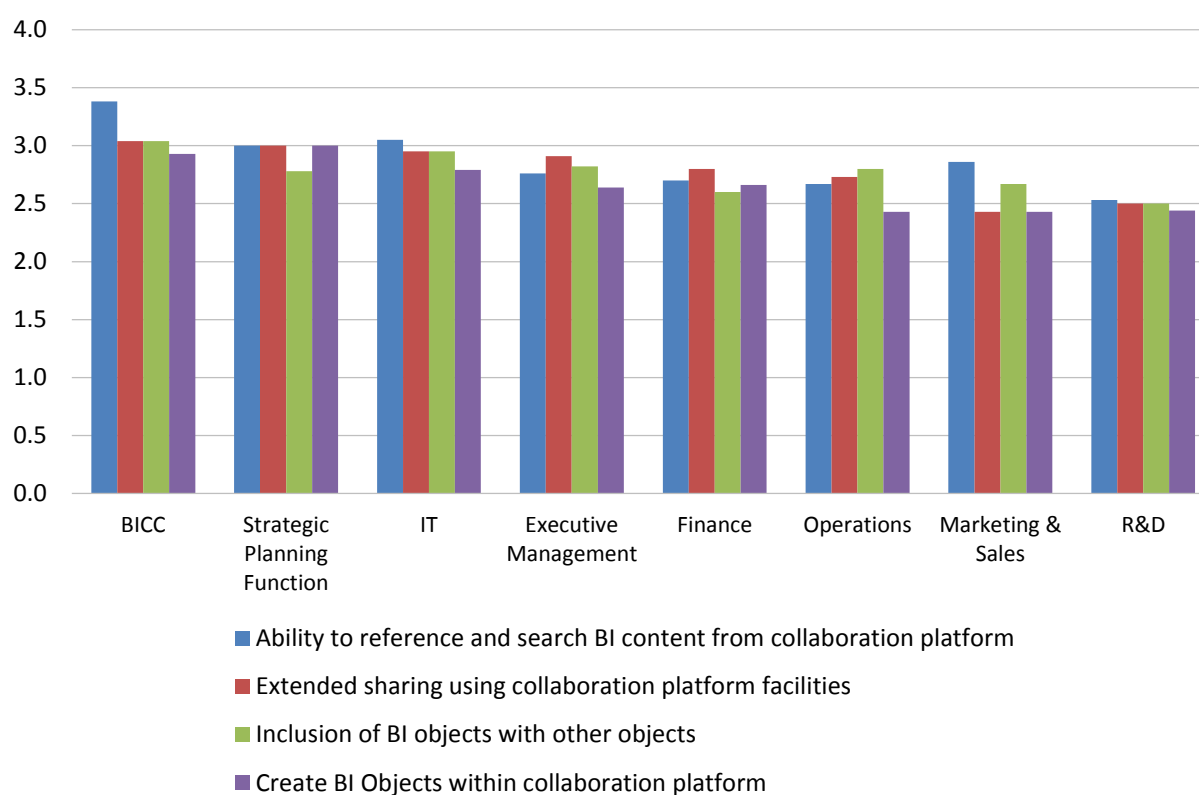


Figure 30 – Collaborative BI features with enterprise frameworks by function

Very large organizations (> 10,000 employees) express the highest interest in all collaborative enterprise framework features in 2021 (fig. 31). At very large organizations, respondents consider all features above "important." After this, interest in enterprise framework features declines among small (1-100 employees) and large (1,001-10,000 employees) organizations. At mid-sized organizations (101-1,000 employees), mean interest in enterprise collaborative framework features falls in a range between "somewhat important" and well below "important."

### Collaborative BI Features with Enterprise Frameworks by Organization Size

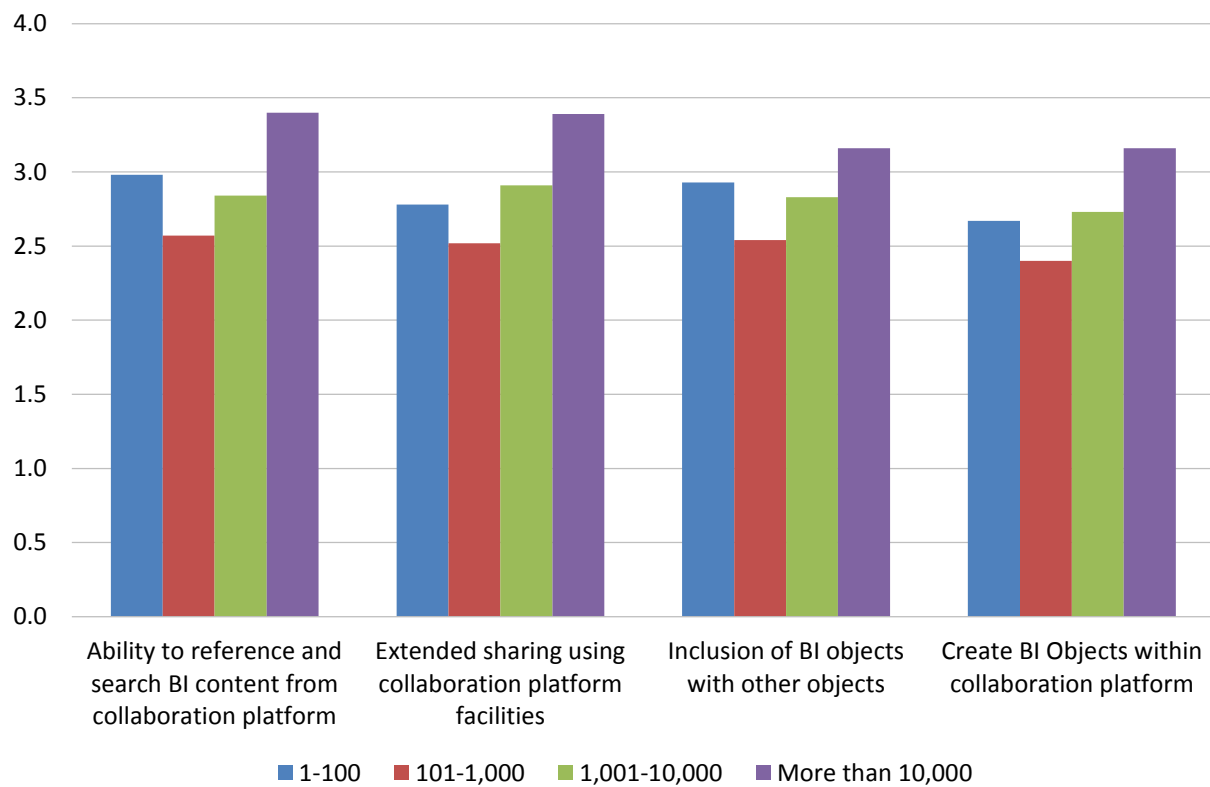


Figure 31 – Collaborative BI features with enterprise frameworks by organization size

Interest in collaborative BI features within enterprise frameworks varies by industry in 2021 and is highest overall in Financial Services, where "ability to reference and search" approaches the level of "very important" (fig. 32). Healthcare assigns the next-highest scores, tightly grouped across all four features, all in the range of "important." Business Services and Technology rank next highest, with three of four features seen as "important." Education, Retail/Wholesale, and Manufacturing all post lower than "important" scores for every feature.

## Collaborative BI Features with Enterprise Frameworks by Vertical Industry

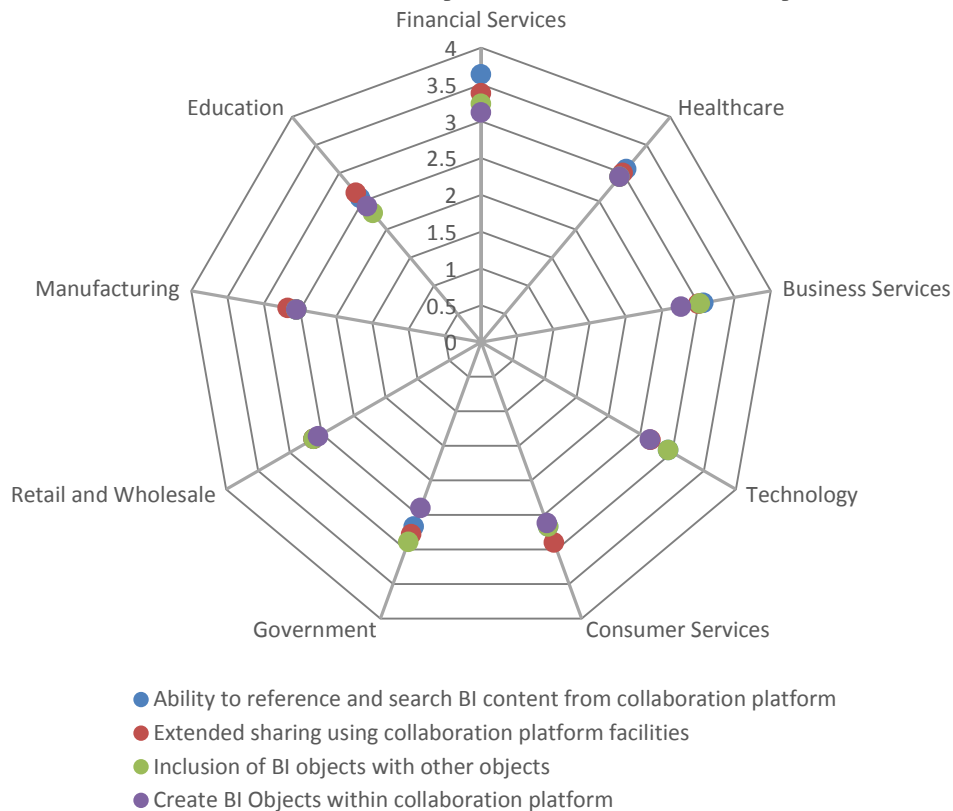


Figure 32 – Collaborative BI features with enterprise frameworks by vertical industry

By geography, respondents in Latin America report the highest overall interest in all the framework features, all well above scores of 3.0 or "important" (fig. 33). Excluding Latin America, interest is narrowly higher in Asia Pacific than among North American respondents. EMEA respondents are uniformly least interested in all four collaborative features, with scores about midway between "somewhat unimportant" and "important."

### Collaborative BI Features with Enterprise Frameworks by Geography

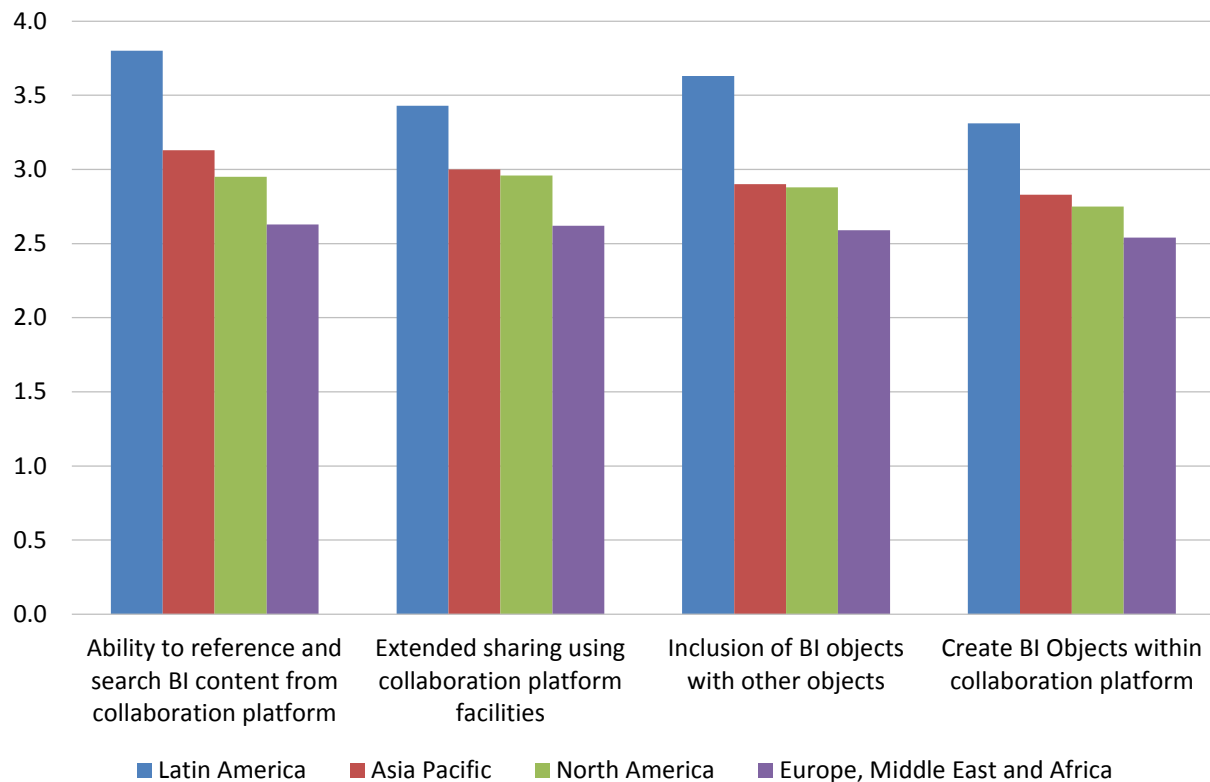


Figure 33 – Collaborative BI features with enterprise frameworks by geography

## Enterprise Collaboration Frameworks in Use

In 2021, Microsoft Teams moves ahead of Microsoft SharePoint as the most popular enterprise collaborative framework among respondents; nearly 70 percent of respondents report Teams use (fig. 34). Though well behind, other enterprise frameworks jockey for attention. After SharePoint (54 percent), the next most common are Jira (31 percent) and Confluence (22 percent). All other frameworks are in use by fewer than 20 percent of respondents.

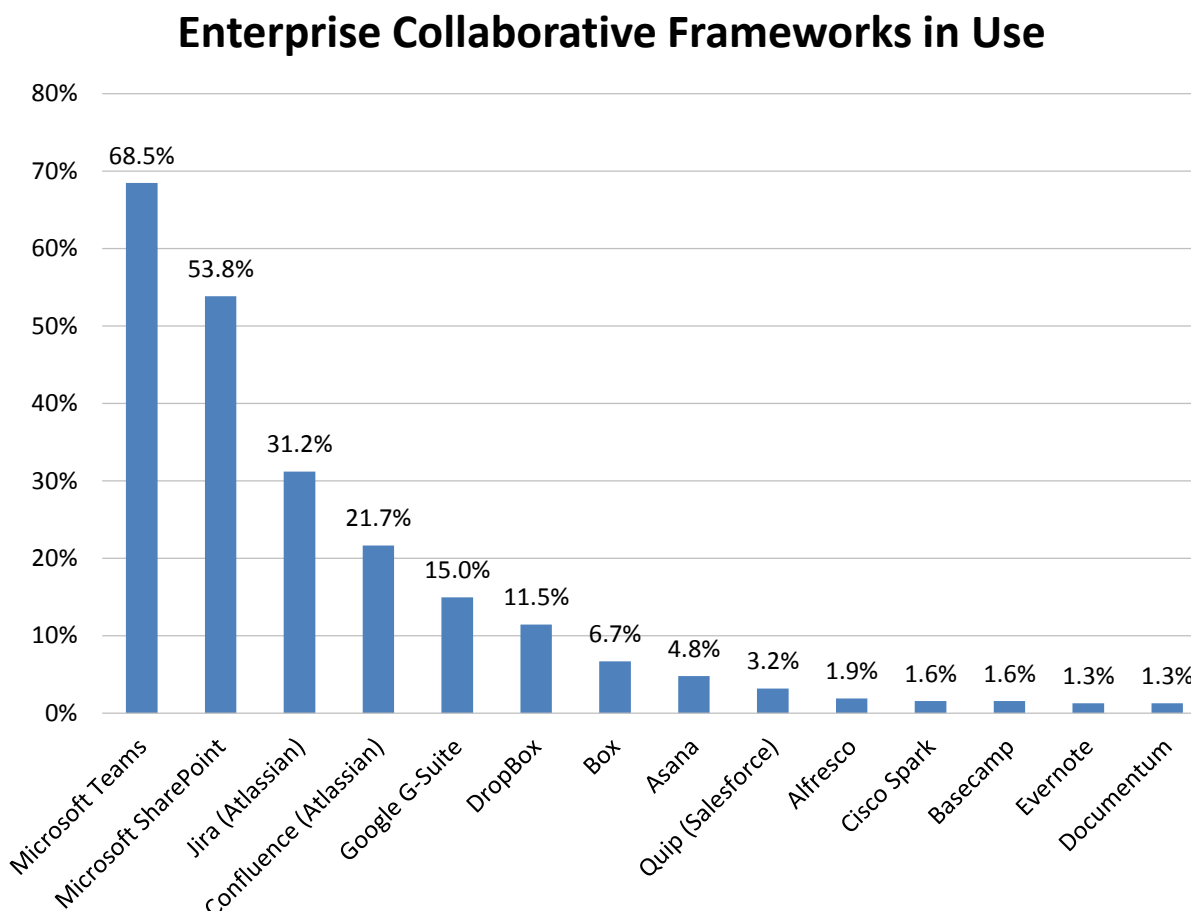


Figure 34 – Enterprise collaborative frameworks in use



Enterprise collaboration framework usage answers to function but not always predictably (fig. 35). In our 2021 sample, Strategic Planning respondents report an outsized 90 percent use rate for Microsoft Teams, followed by users in R&D, Finance, and Executive Management. Operations respondents are most interested in Microsoft SharePoint and see adoption drop noticeably after the two Microsoft products. BICC respondents give the highest scores to Jira. All remaining frameworks are reported used by fewer than 40 percent in any role. The use of frameworks all depend on function, but we note that the capabilities of these collaborative services are often "apples and oranges."

## Enterprise Collaborative Frameworks in Use by Function

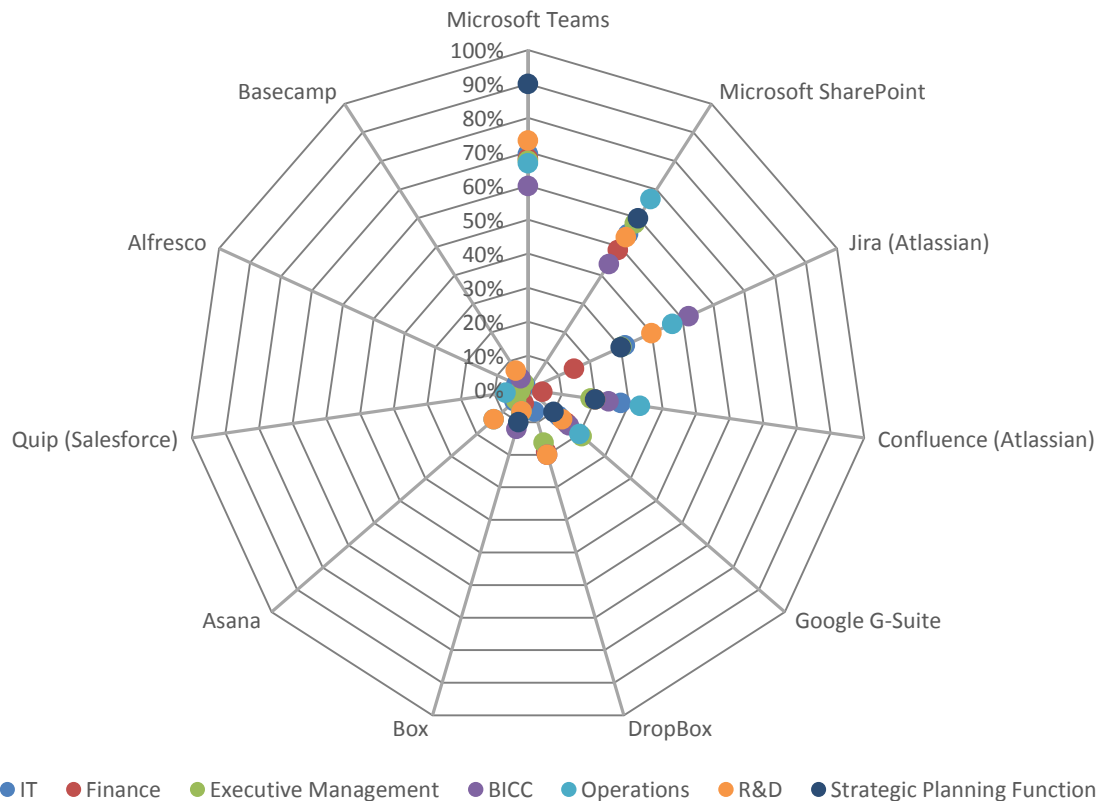


Figure 35 – Enterprise collaborative frameworks in use by function

As we would expect, the use of enterprise collaborative frameworks increases noticeably with organization headcount (fig. 36). In the case of Microsoft Teams, adoption ranges from about 61 percent in small organizations (1-100 employees) to about 75 percent in very large organizations (> 10,000 employees). As we might expect, the use of Microsoft SharePoint ramps even more quickly from mid-sized organizations (101-1,000 employees) to very large organizations. The use of Jira and Confluence also increase with organization headcount.

## Enterprise Collaborative Frameworks in Use by Organization Size

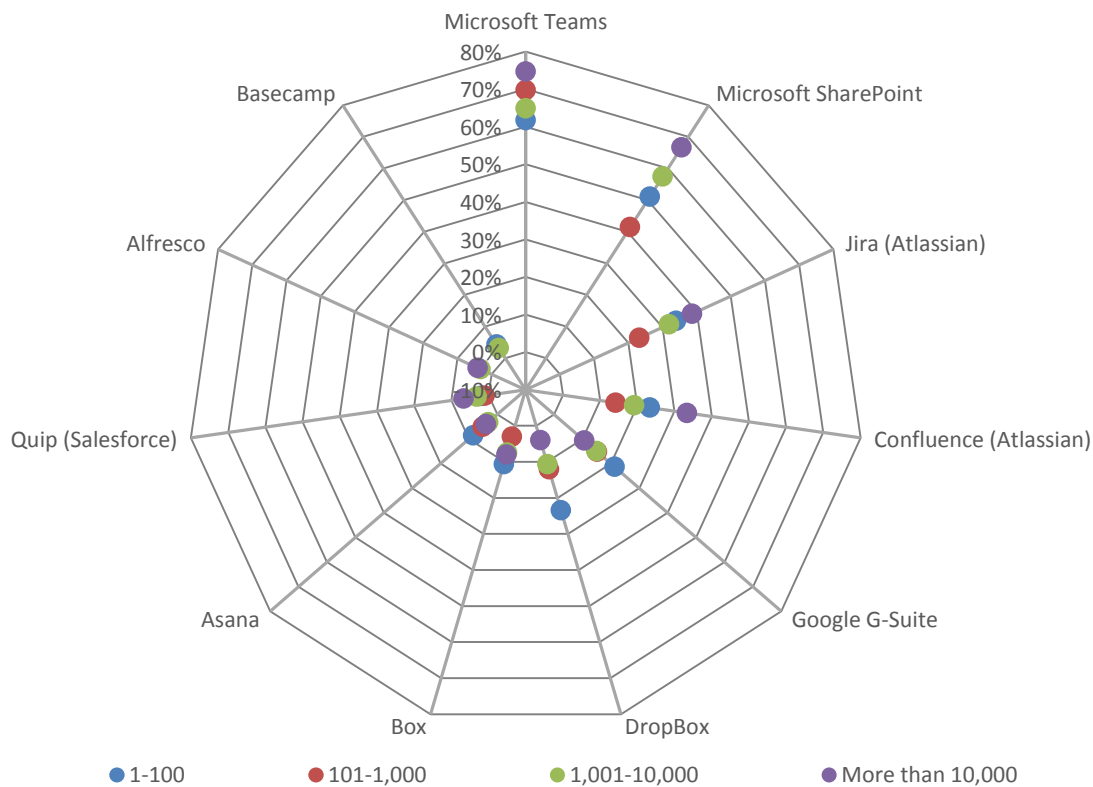


Figure 36 – Enterprise collaborative frameworks in use by organization size

In our 2021 sample, Consumer Services respondents report the greatest use of Microsoft Teams, though all functions are highly involved (fig. 37). Microsoft SharePoint use in 2021 ranges between about 50-60 percent and is highest in Financial Services and Consumer Services. Conversely, Jira is by far most popular with Technology respondents, followed by Business Services this year. Confluence gets top scores from Technology and Financial Services industry respondents in 2021.

## Enterprise Collaborative Frameworks in Use by Vertical Industry

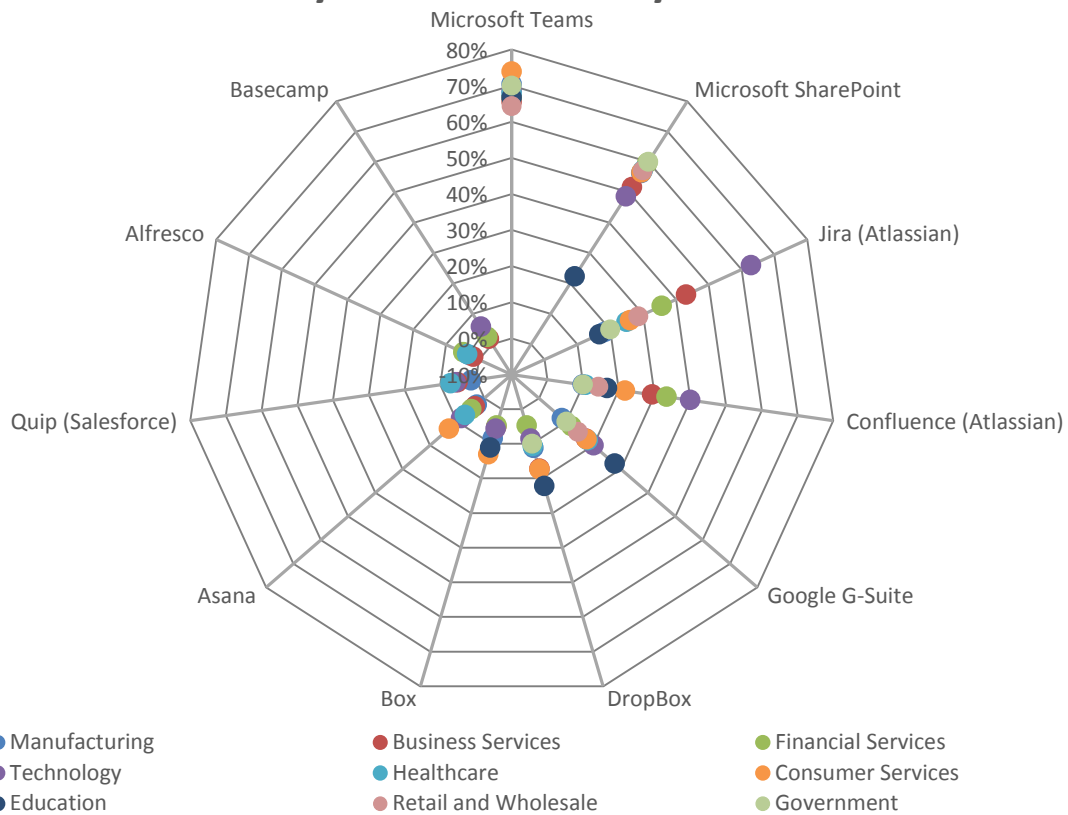


Figure 37 – Enterprise collaborative frameworks in use by vertical industry

In our 2021 sample base, the use of Microsoft Teams is highest in EMEA followed by Latin America, North America, and Asia Pacific (fig. 38). Microsoft SharePoint use is highest in Latin America, North America, and EMEA, while Jira is most favored in Asia Pacific and EMEA. Confluence is most used in EMEA and North America, while Google G-Suite and Dropbox use is highest in Latin America. Again, we point out that these frameworks are not mutually exclusive and often service different user purposes.

## Enterprise Collaborative Frameworks in Use by Geography

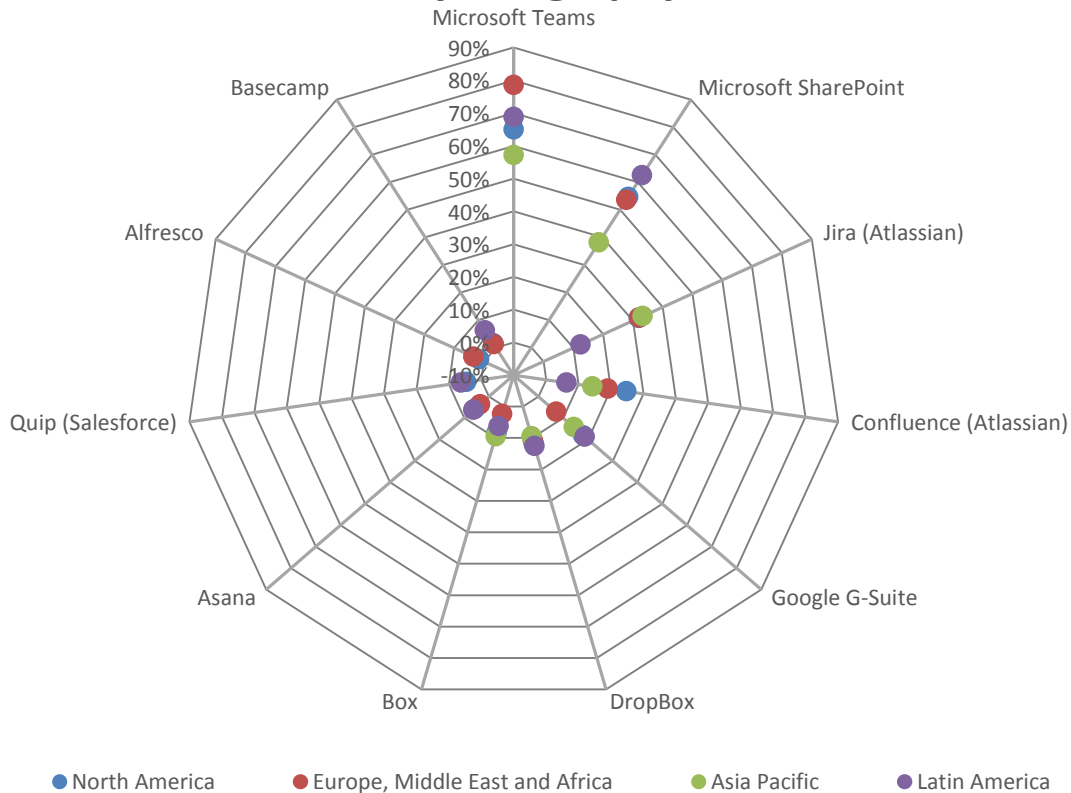


Figure 38 – Enterprise collaborative frameworks in use by geography

## Governing BI Content Creation and Sharing

In 2021 and for a sixth consecutive year, governance of content creation and sharing is a “very important” topic driving BI content creation and sharing in the self-service landscape (fig. 39). In 2021, year-over-year criticality decreased slightly, from a weighted mean of 4.2 to 4.1. Even so, this same range of importance applies to each of the last six years of our study. In each of the last five years, more than 95 percent of respondents say this kind of governance is either “critical,” “very important,” or “important.”

### Importance of Governing BI Content Creation and Sharing 2016-2021

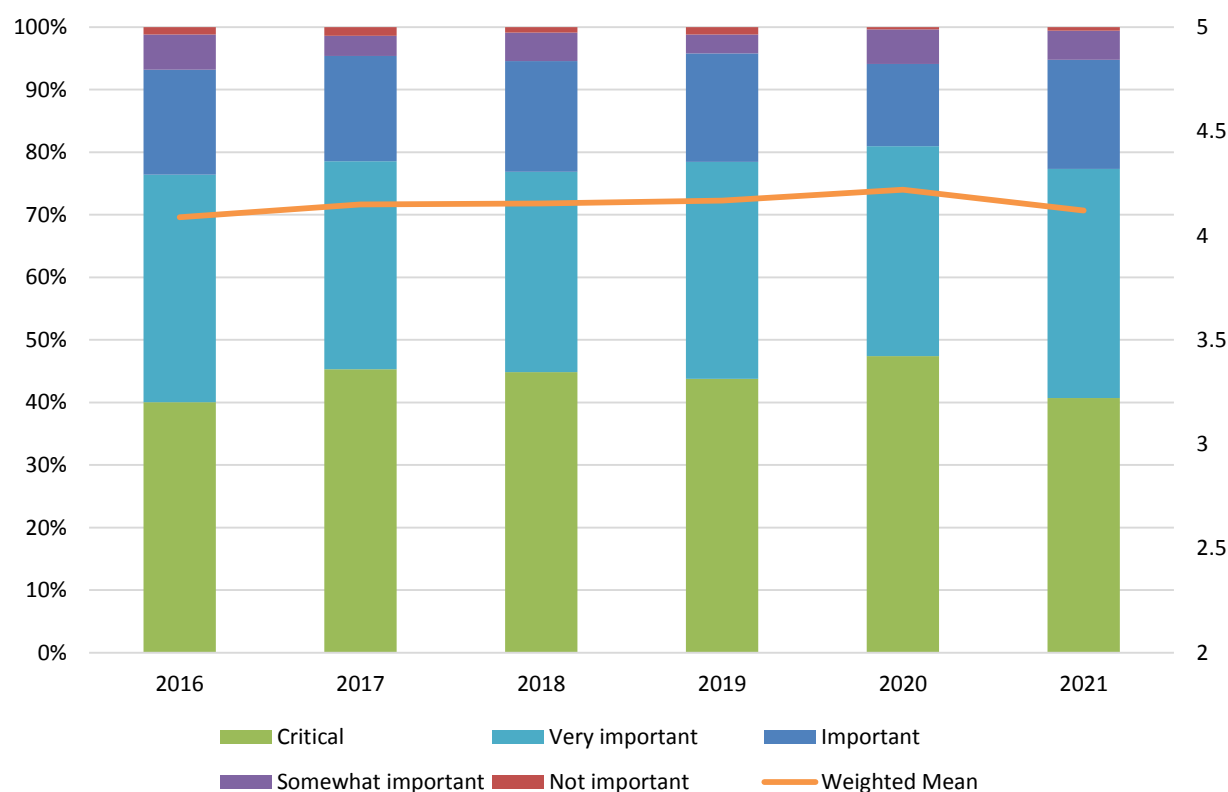


Figure 39 – Importance of governing BI content creation and sharing 2016-2021

Across organizational roles and functions, respondents in 2021 broadly identify with the high importance of governing BI content creation (fig. 40). The highest number of "critical" scores comes from respondents in Strategic Planning (64 percent) and Executive Management (53 percent). Ninety percent of the same two functions say governance of content creation is, at minimum, "very important." Finance, IT, and Operations assign the next-highest importance to governing content creation and are 73 percent or more likely to say governance is at least "very important." R&D and BICC are the least likely to say governance is at least "very important."

### Importance of Governing BI Content Creation and Sharing by Function

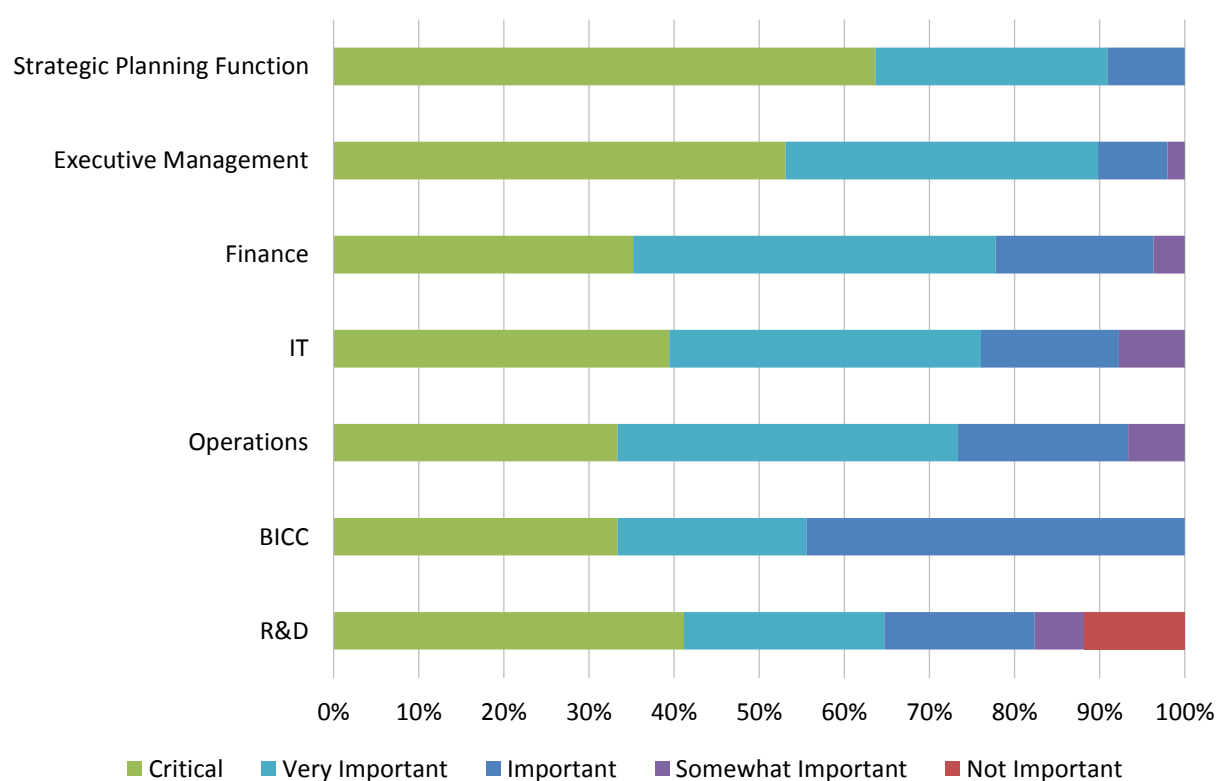


Figure 40 – Importance of governing BI content creation and sharing by function

The perceived importance of governing BI content creation is very high across organizations of different sizes in 2021 and does not skew noticeably with global headcount (fig. 41). In our 2021 study, small organizations (1-100 employees) are most likely (35 percent) to say governance of content creation and sharing is “critical,” compared to about 30 percent at larger peer groups. Small and very large organizations (> 10,000 employees) are about equally likely to say content creation governance is at least “very important.” Fewer than 7 percent of organizations of any size say governance is “somewhat important” or “not important.”

### Importance of Governing BI Content Creation and Sharing by Organization Size

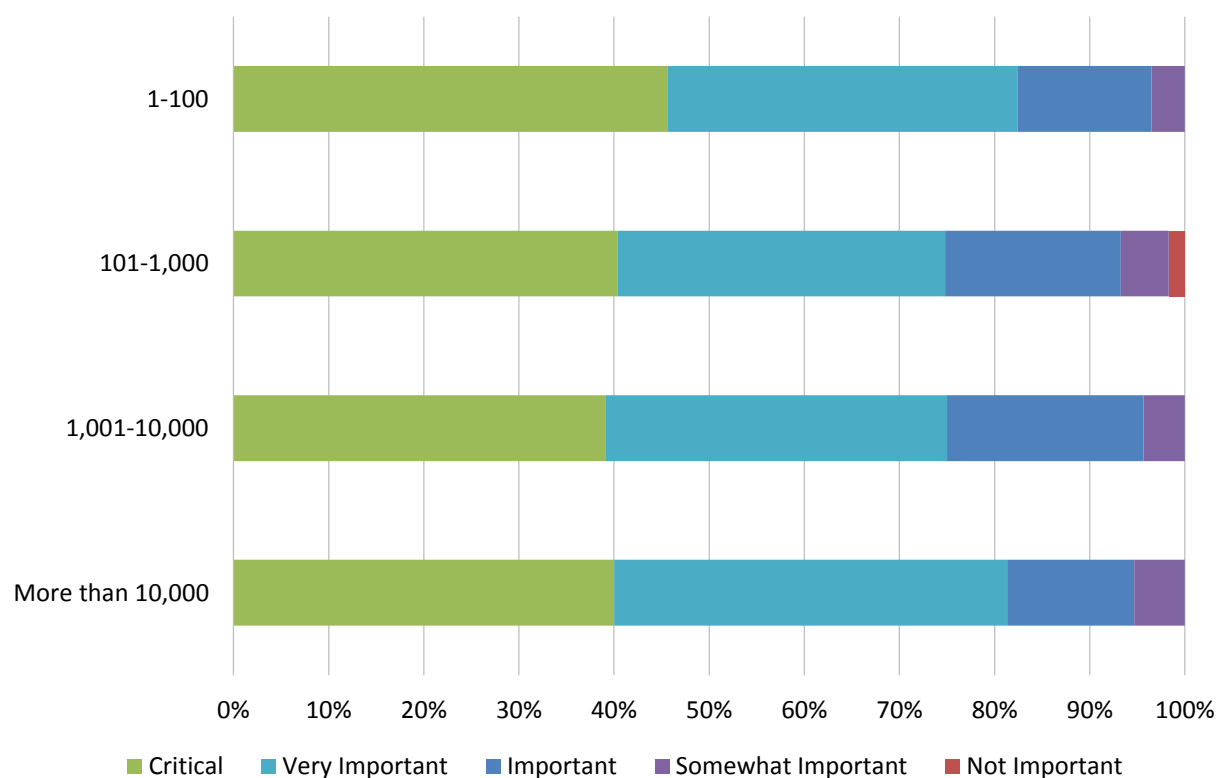


Figure 41 – Importance of governing BI content creation and sharing by organization size

The perceived “critical” importance of governing BI content creation is highest in Business Services (52 percent) and Consumer Services (50 percent) (fig. 42). Government and Financial Services respondents also assign above-average importance to governance. That said, the criticality of governance is undeniably high across most industries in 2021. In all cases except Higher Education, more than 90 percent say governance is, at minimum, “important.”

### Importance of Governing BI Content Creation and Sharing by Industry

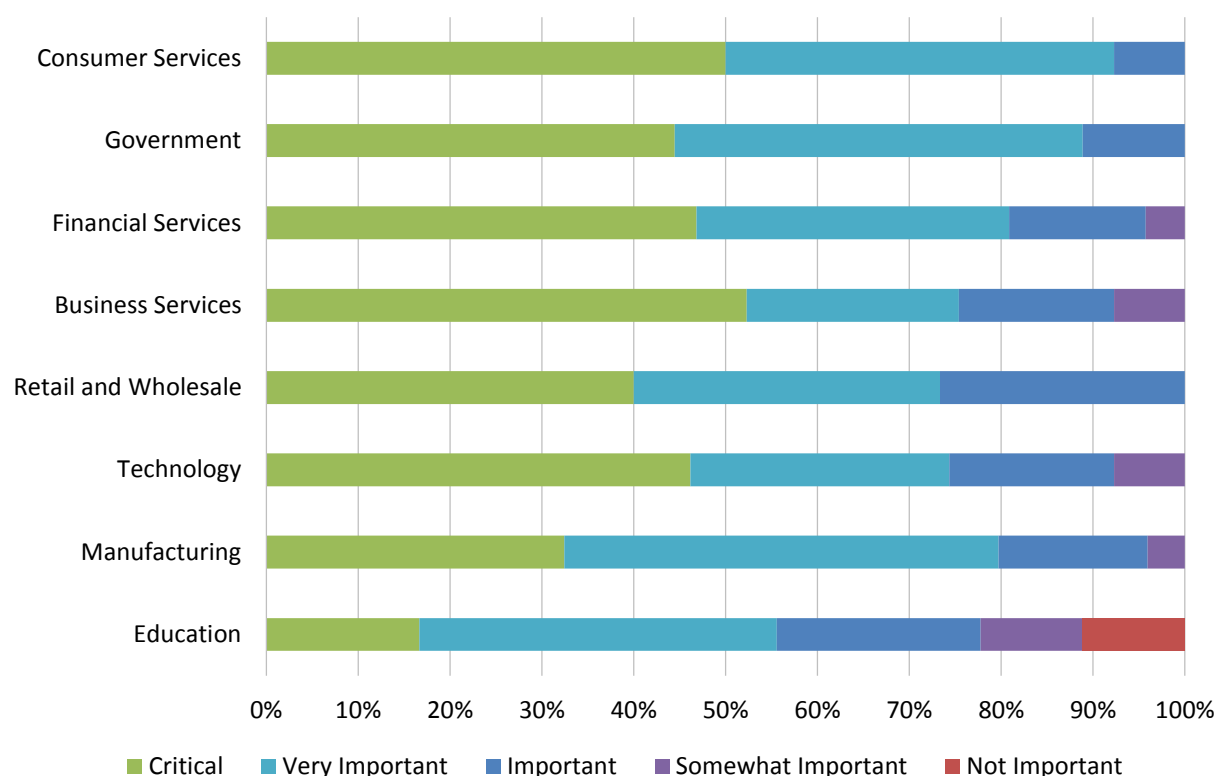


Figure 42 – Importance of governing BI content creation and sharing by industry



In differing degrees, all geographic regions assign high importance to BI content creation governance (fig. 43). This year, Latin American respondents give the highest "critical" importance scores (50 percent), while EMEA respondents give the lowest "critical" scores (about 33 percent). Even so, almost 98 percent of EMEA respondents say content creation governance is, at minimum, "important."

### Importance of Governing BI Content Creation and Sharing by Geography

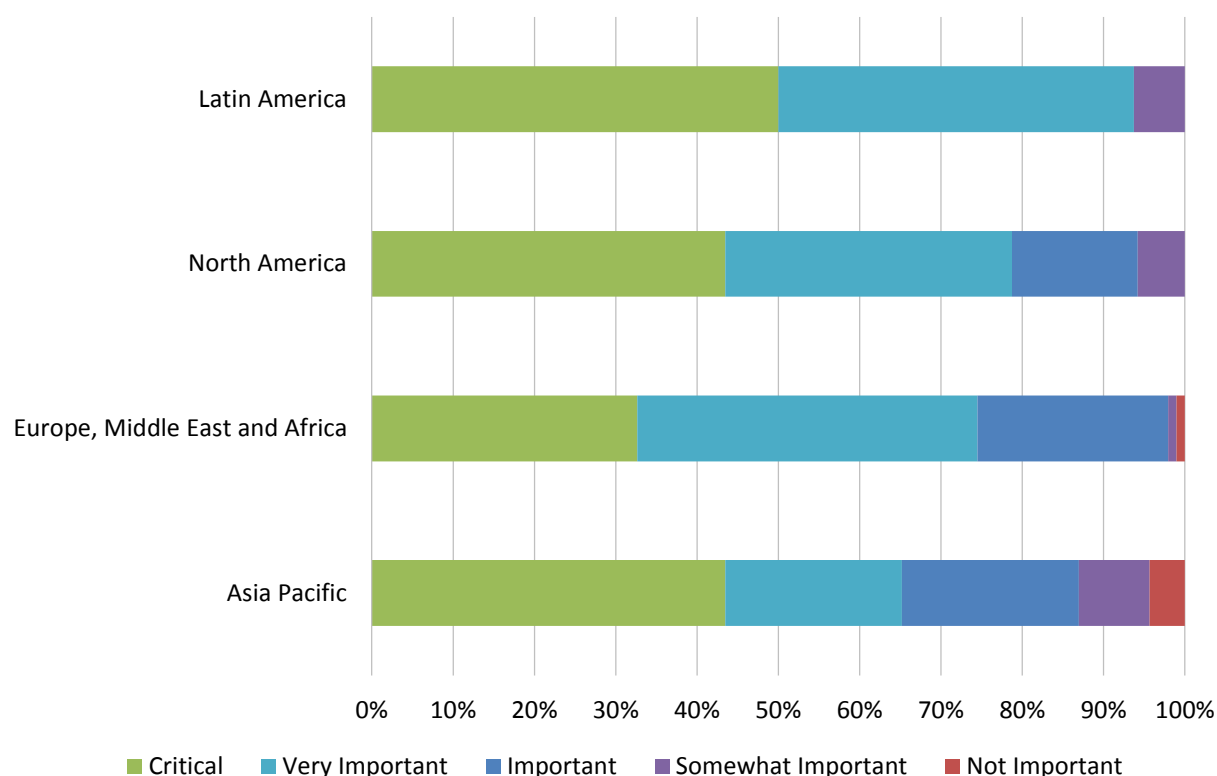


Figure 43 – Importance of governing BI content creation and sharing by geography

## Governance Features

We asked respondents to rank their preference for different BI content governance features and found broad appeal in our survey sample (fig. 44). As befits control of content creation specifically, the top feature need is the ability to “define levels of access to shared documents and data.” “Integration with access management systems” and “ability to certify official versions of shared metadata, etc.” are the next most important. These three top features are “critical” or “very important” to more than half of respondents. Not far behind, remaining requirements for administrative oversight, APIs, analyze/audit, and other review tools are, at minimum, “important” to three-quarters or more of all respondents. In sum, individual governance features are highly relevant though less important to respondents than the notion of governance itself (fig. 39, p. 53).

### BI Content Governance Feature Requirements

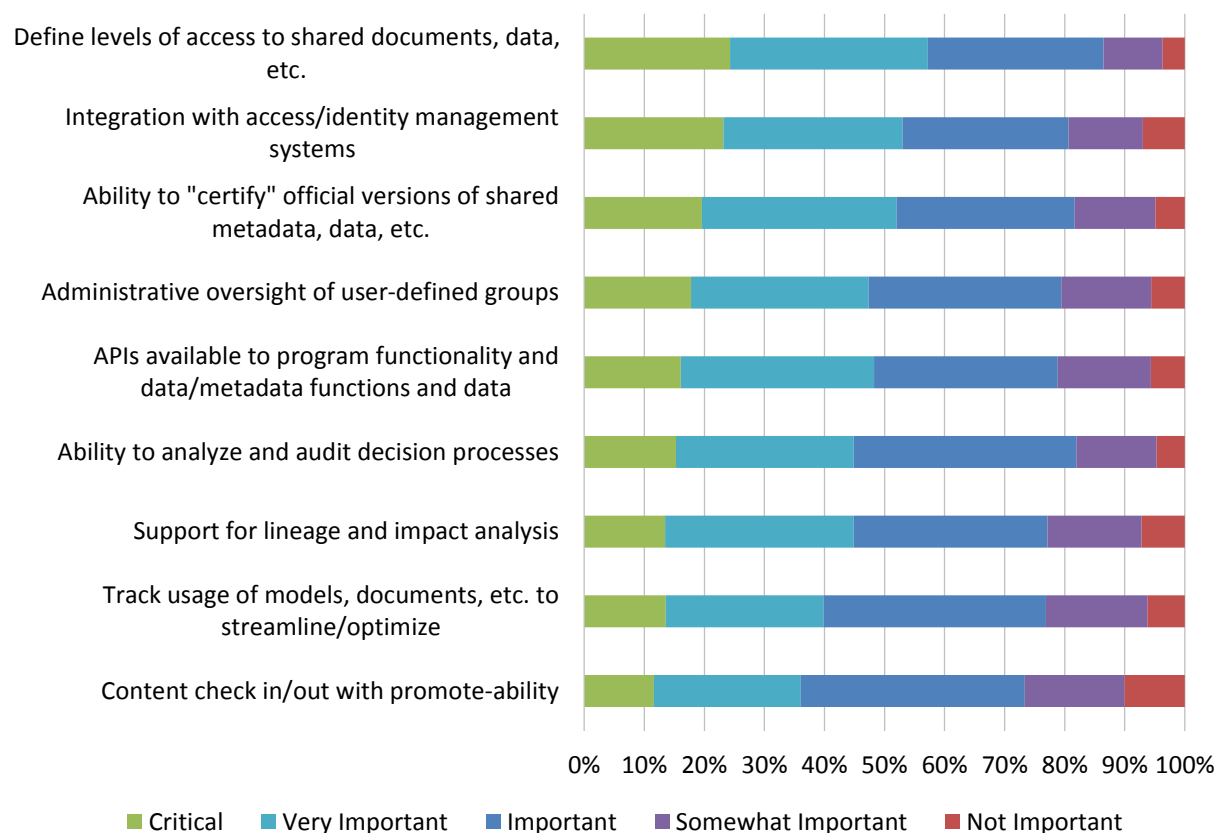


Figure 44 – BI content governance feature requirements

BI content governance feature requirement preferences remain consistently important and in some cases gathered importance during the last three years of our study (fig. 45). Features that stand at all-time high importance include “integration with access/identity management systems,” “ability to certify official versions,” “ability to analyze and audit,” and “support for lineage and impact analysis.” Though it remains the top priority, sentiment for the ability to “define levels of access to shared documents and data” declines slightly year over year. “Administrative oversight of user-defined groups” and lower-ranked “track usage of models” and “content check in/out” also lose some momentum year over year. All said, we see a continuing need for a broad range of BI content governance feature requirements in 2021.

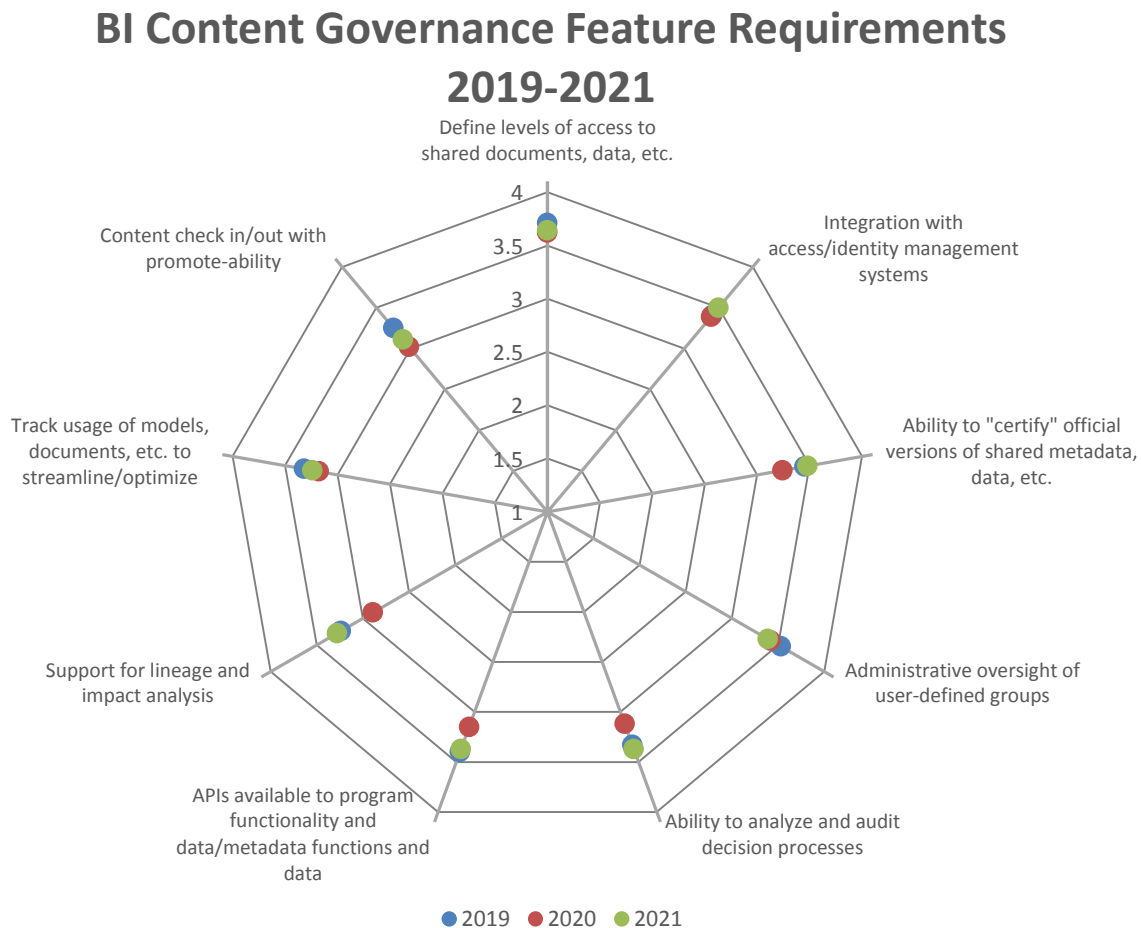


Figure 45 - BI content governance feature requirements 2019-2021

Viewed by function, respondents demonstrate distinct preferences for BI content governance features (fig. 46). This year, Marketing/Sales and IT give the highest marks to "define levels of access," while IT and the BICC sensibly most focus on "integration with access/identity systems" and "ability to certify official versions." Among many other findings, Executive Management shows high interest in "APIs available," "ability to analyze and audit," and "track usage of models, documents, etc." Finance respondents take average or lower interest in many features but are expectedly most interested in "ability to certify official versions" and "administrative oversight of user-defined groups."

## BI Content Governance Feature Requirements by Function

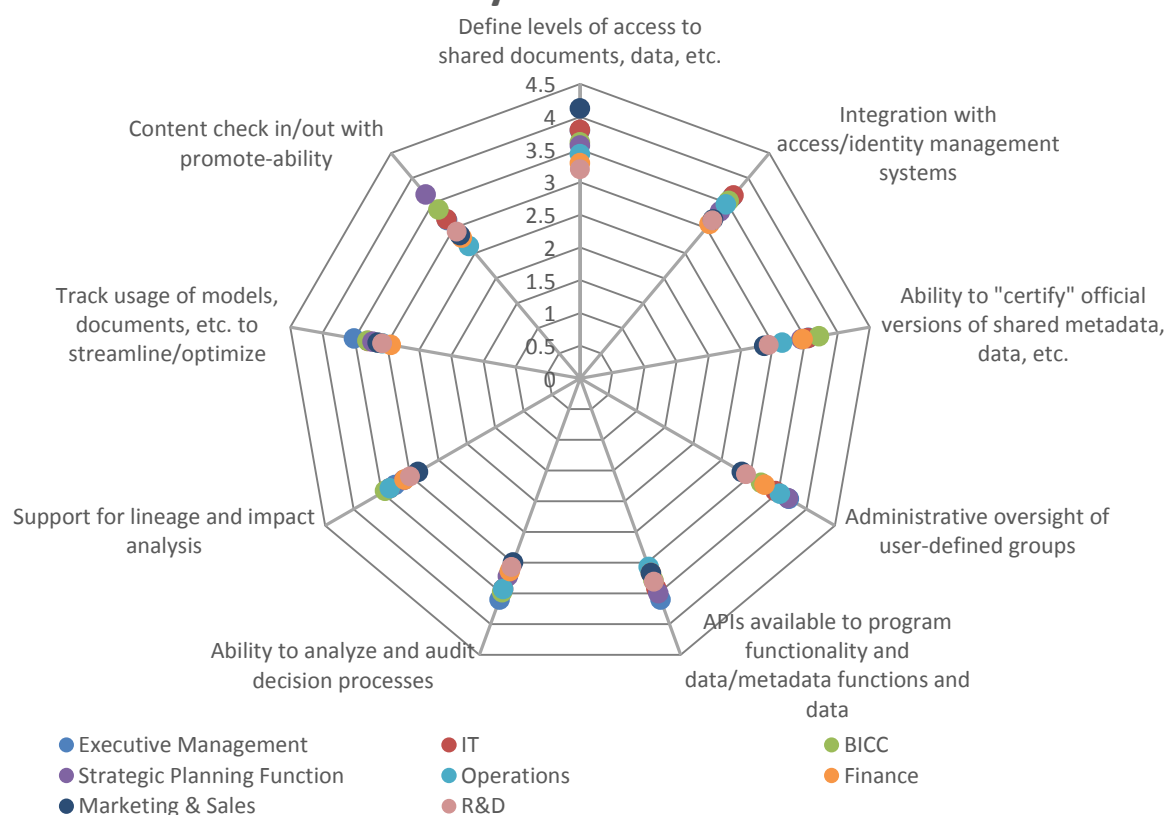


Figure 46 – BI content governance feature requirements by function

The importance of BI content governance feature requirements correlates positively with increasing global headcount (fig. 47). This year, every feature is most important in very large organizations (> 10,000 employees), followed by large organizations (1,001-10,000 employees). The top governance features, "define levels of access," "integration with access/identity management systems," and "ability to certify official versions," most obviously differ in preference scores from larger to smaller organizations. An exception to the headcount hierarchy is in mid-sized organizations (101-1,000 employees), which invariably trail interest in governance features but still rank all but "content check in/out" at a level of "important" or higher.

## BI Content Governance Feature Requirements by Organization Size

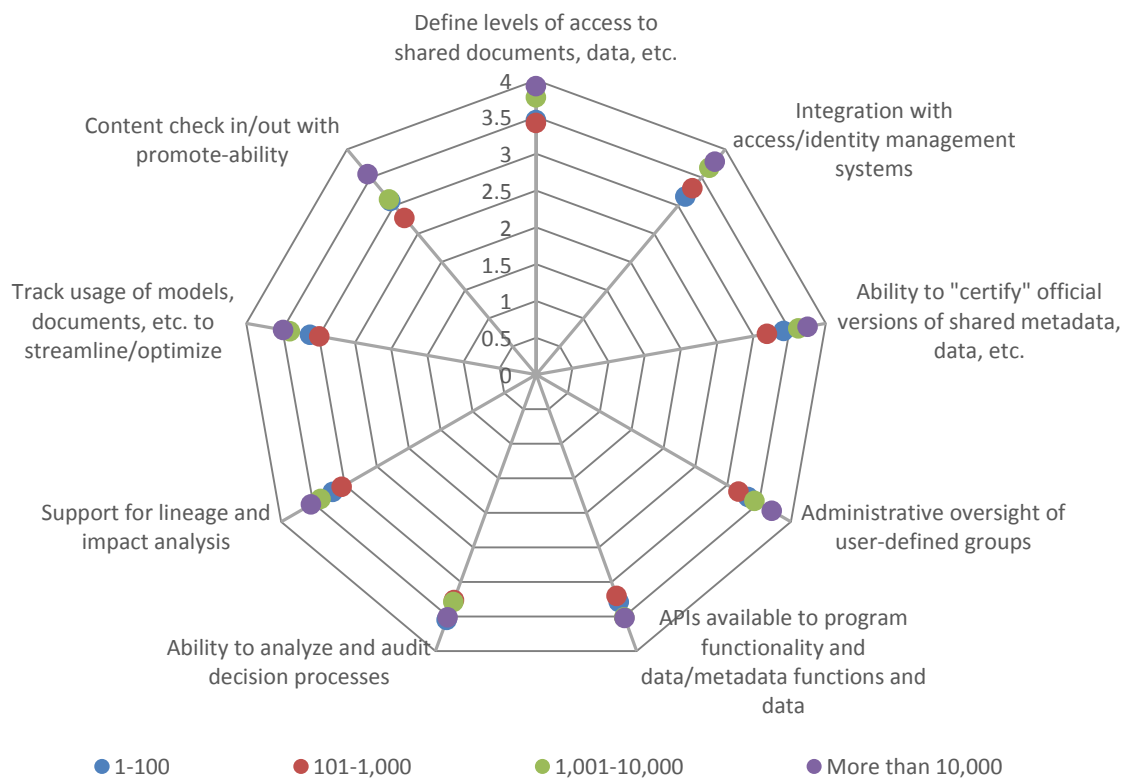


Figure 47 – BI content governance feature requirements by organization size

Respondent preferences for BI user content governance features vary by industry in 2021 (fig. 48). This year, Government respondents report the highest interest in "define levels of access," "integration with access/identity management," and "APIs available to program functionality." In other examples, Financial Services gives top scores to "ability to certify," "ability to analyze and audit," "support for lineage and impact analysis," and "content check in/out." Healthcare most requires "administrative oversight of user-defined groups" and "track usage of models, documents, etc." Higher Education respondents noticeably give the lowest overall scores to governance feature requirements.

## BI Content Governance Feature Requirements by Vertical Industry

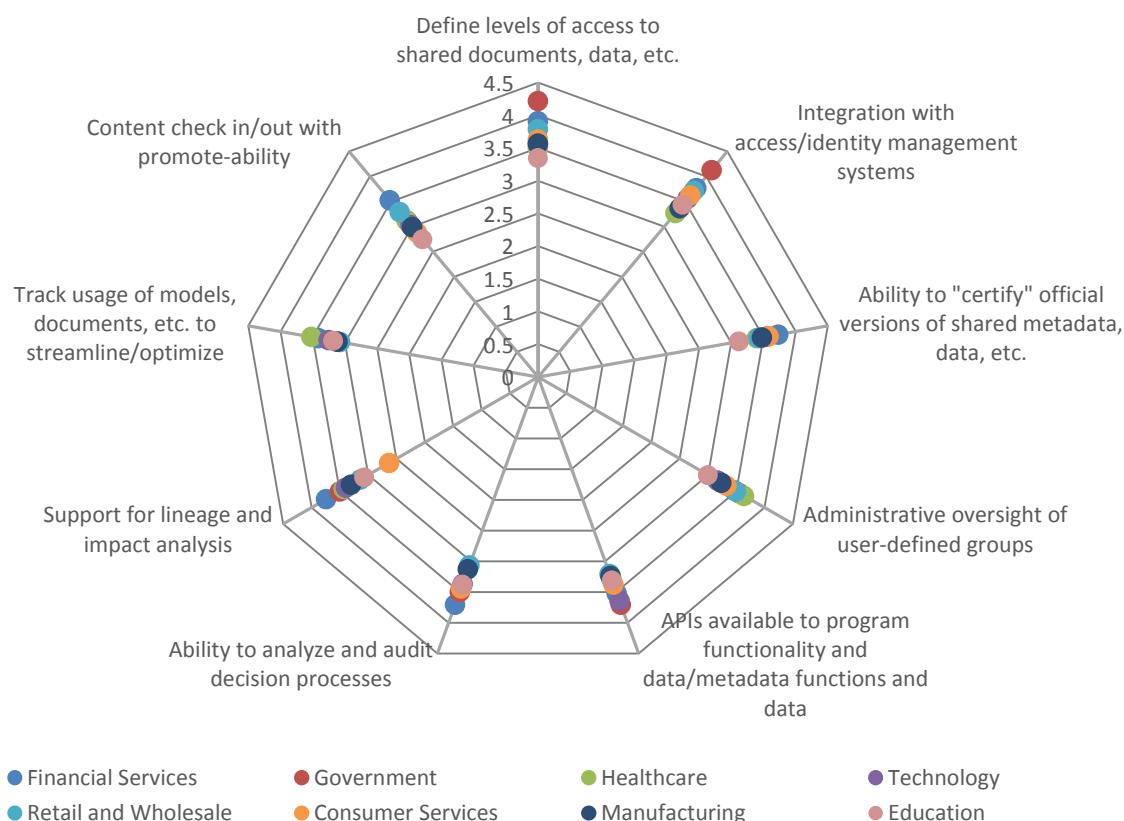


Figure 48 – BI content governance feature requirements by vertical industry

Respondent preference for BI user content governance features varies by geography but in 2021 is often higher in Latin America and Asia Pacific than in other regions (fig. 49). An exception to this observation is “administrative oversight of user-defined groups,” where North American respondents report the highest interest. North American respondents give near-average scores for many or most features, while respondents in EMEA consistently report the lowest importance scores.

## BI Content Governance Feature Requirements by Geography

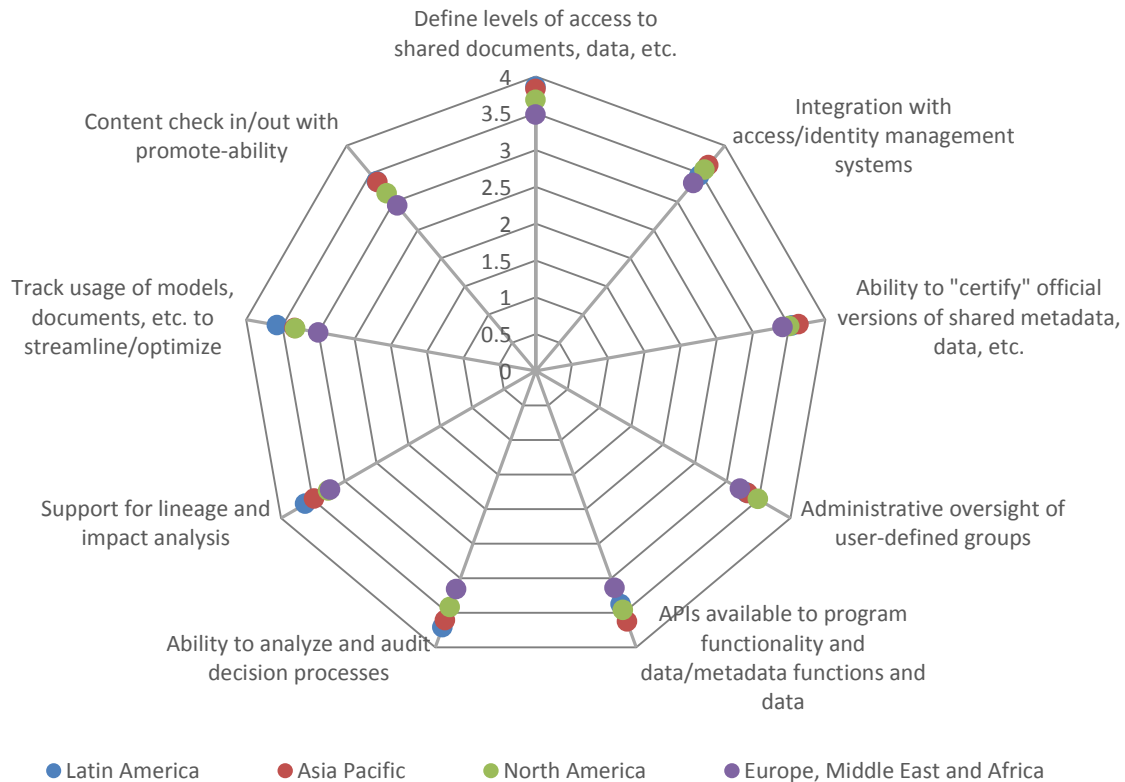


Figure 49 – BI content governance feature requirements by geography

## Guided Analytics™

In our 2021 study, we include questions to sample the importance of Guided Analytics™, an outgrowth of our earlier research of data storytelling and related topics. Guided Analytics improves time to insight and action by supporting the creation of connections between related and relevant information and directing and suggesting analytical story flow. This year, one-third of respondents say Guided Analytics is “critical” or “very important,” and about two-thirds say these features and services are, at minimum, “important” (fig. 50). “Not important” scores are just 15 percent of the sample, reflecting a high perceived criticality of these capabilities.

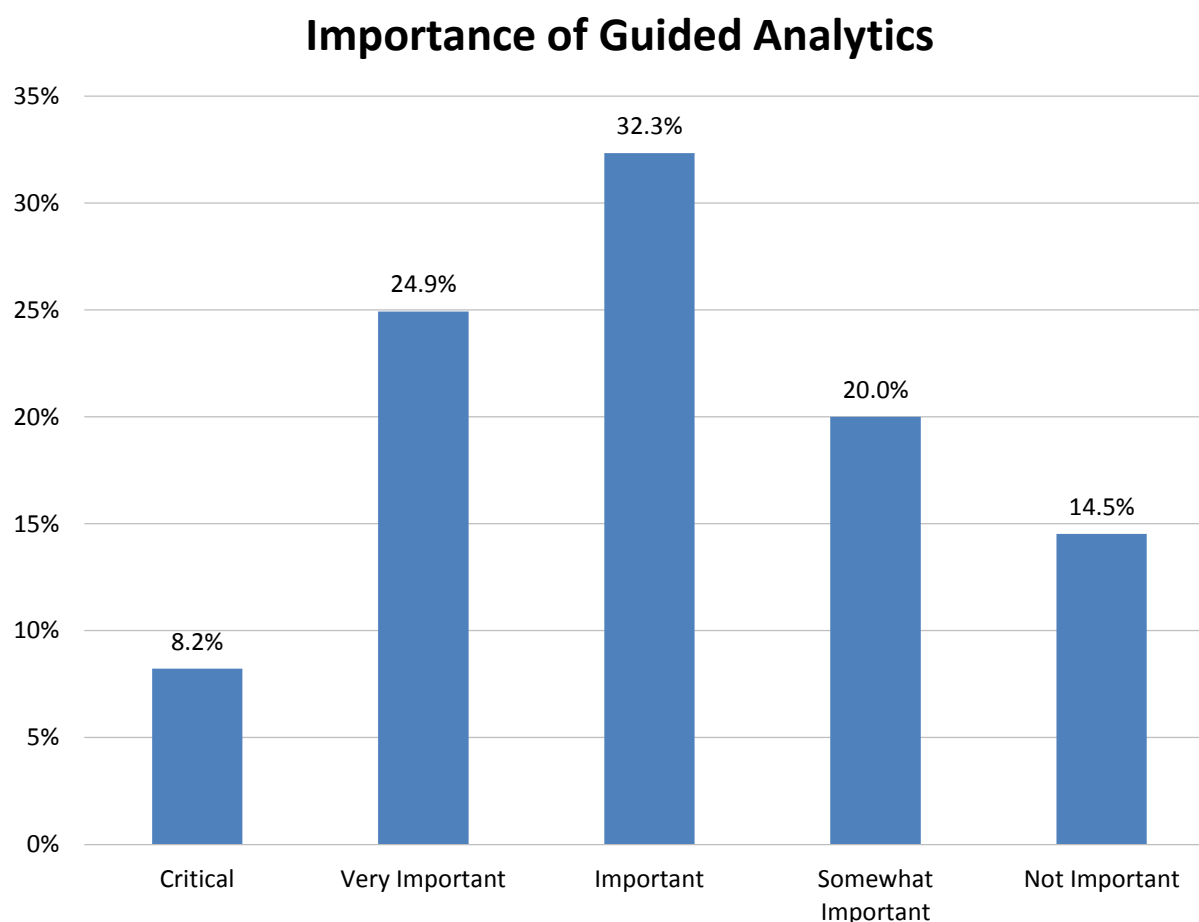


Figure 50 – Importance of guided analytics



The importance of Guided Analytics varies by function with interest tilted especially toward Operations, BICC, and Executive Management roles (fig. 51). Among these, Executive Management replies include a high 44 percent of combined “critical” and “very important” scores, an indicator of endorsement and possible incipient penetration of Guided Analytics features and services. Higher interest and low skepticism in BICC and Operations also suggests further deployment and incorporation of day-to-day use of these capabilities. Lower interest in IT and R&D ranks suggests these capabilities arrive with little overhead through provider tools and services.

### Importance of Guided Analytics by Function

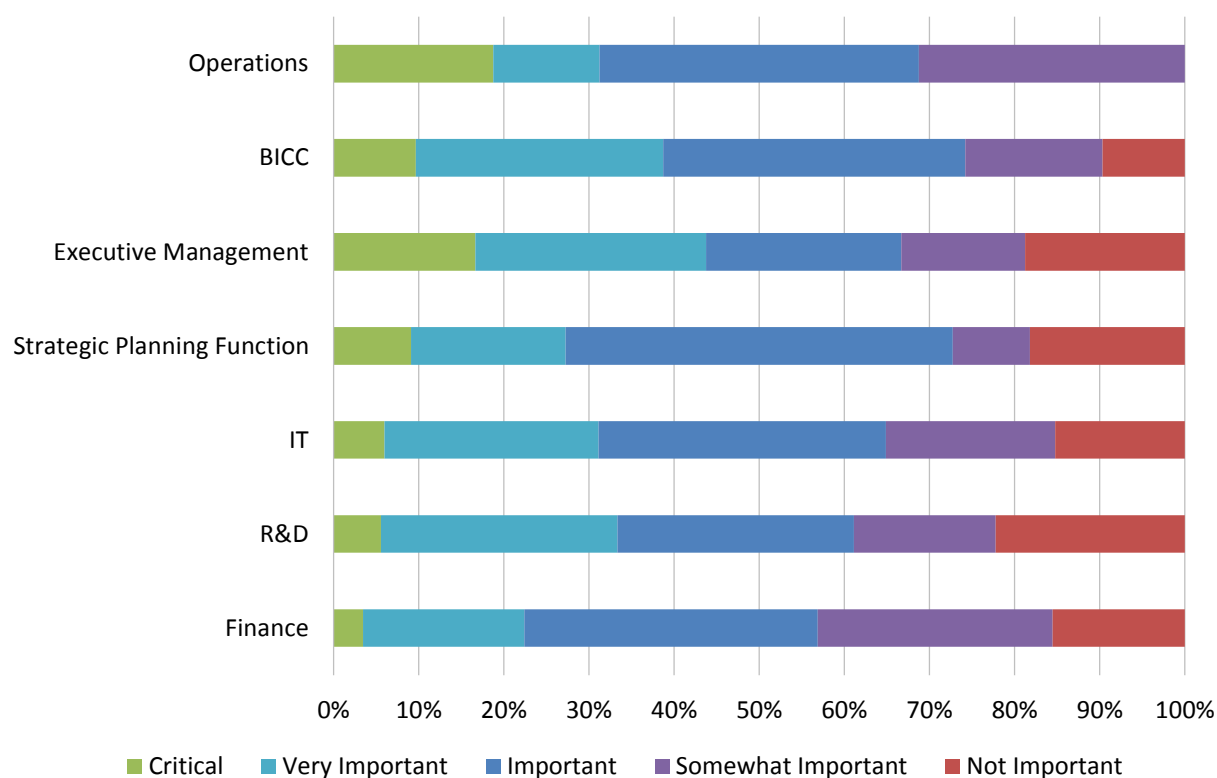


Figure 51 – Importance of guided analytics by function

The importance of Guided Analytics is most often of interest in very large organizations (> 10,000 employees) but also has appeal extending next most often to small organizations (1-100 employees) (fig. 52). Intuitively, we might expect Guided Analytics capabilities to be most leveraged in bigger, more distributed organizations. The results, however, do not correlate directly to size, indicating somewhat universal appeal and high importance levels in all organizations.

### Importance of Guided Analytics by Organization Size

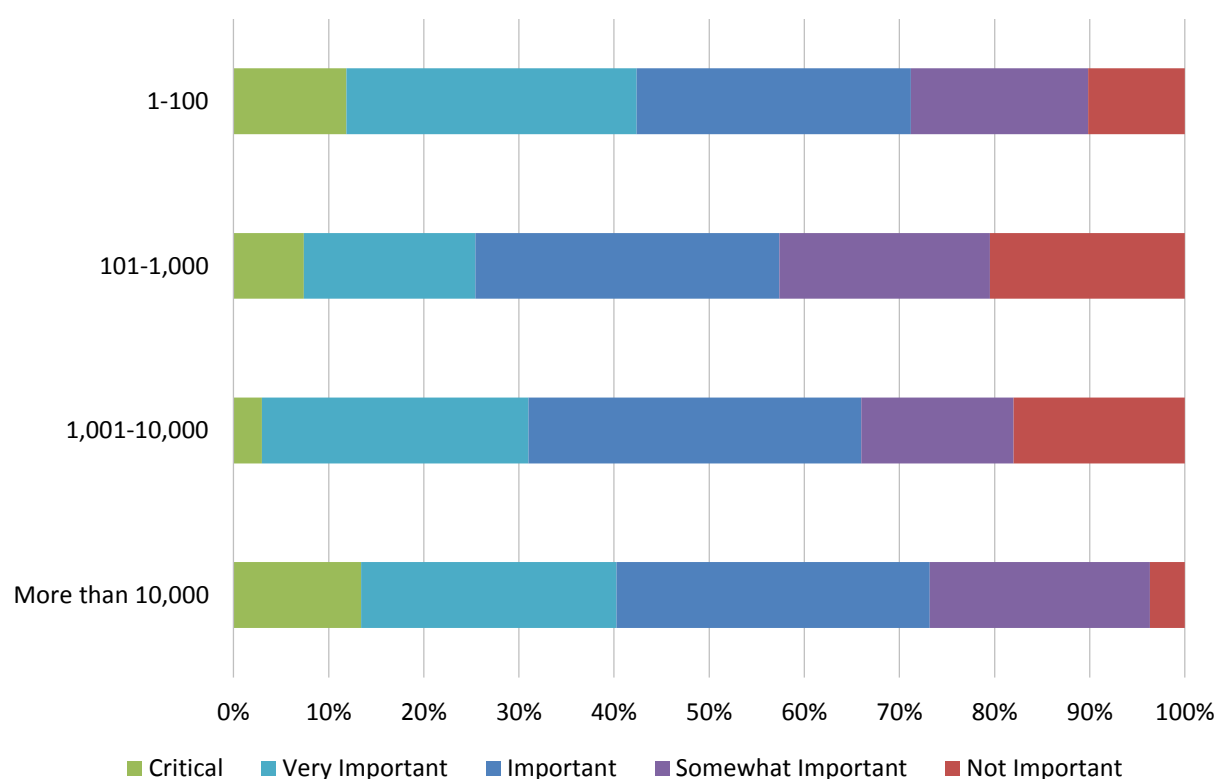


Figure 52 – Importance of guided analytics by organization size

The importance of Guided Analytics is reflected in the broad appeal in multiple vertical industries (fig. 53). In our 2021 study, Healthcare and Financial Services show the greatest interest with combined “critical” and “very important” scores near 40 percent or more. More than 70 percent of respondents in most industries say Guided Analytics are at least “important.” The two noticeable laggards in 2021 are Government, where fewer than half of respondents say Guided Analytics are at least “important,” and Consumer Services.

### Importance of Guided Analytics by Industry

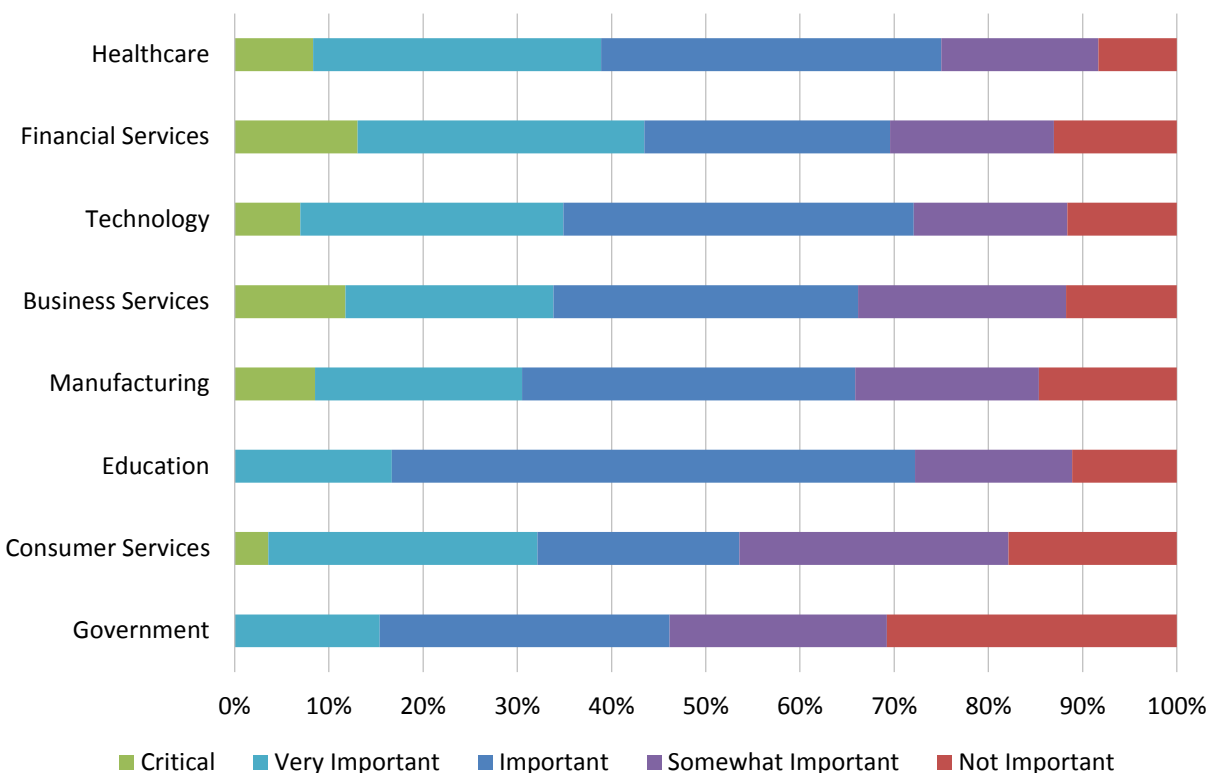


Figure 53 – Importance of guided analytics by industry

The importance of Guided Analytics has global appeal, with 2021 sentiment most strongly in Latin America (fig. 54). Latin American respondents are almost 60 percent likely to describe these capabilities “critical” or “very important.” Sentiment thereafter declines in Asia Pacific and North America, where a bit more than one-third says Guided Analytics is “critical” or “very important.” Sentiment is weakest in EMEA though even here, 63 percent say Guided Analytics is, at minimum, “important.”

### Importance of Guided Analytics by Geography

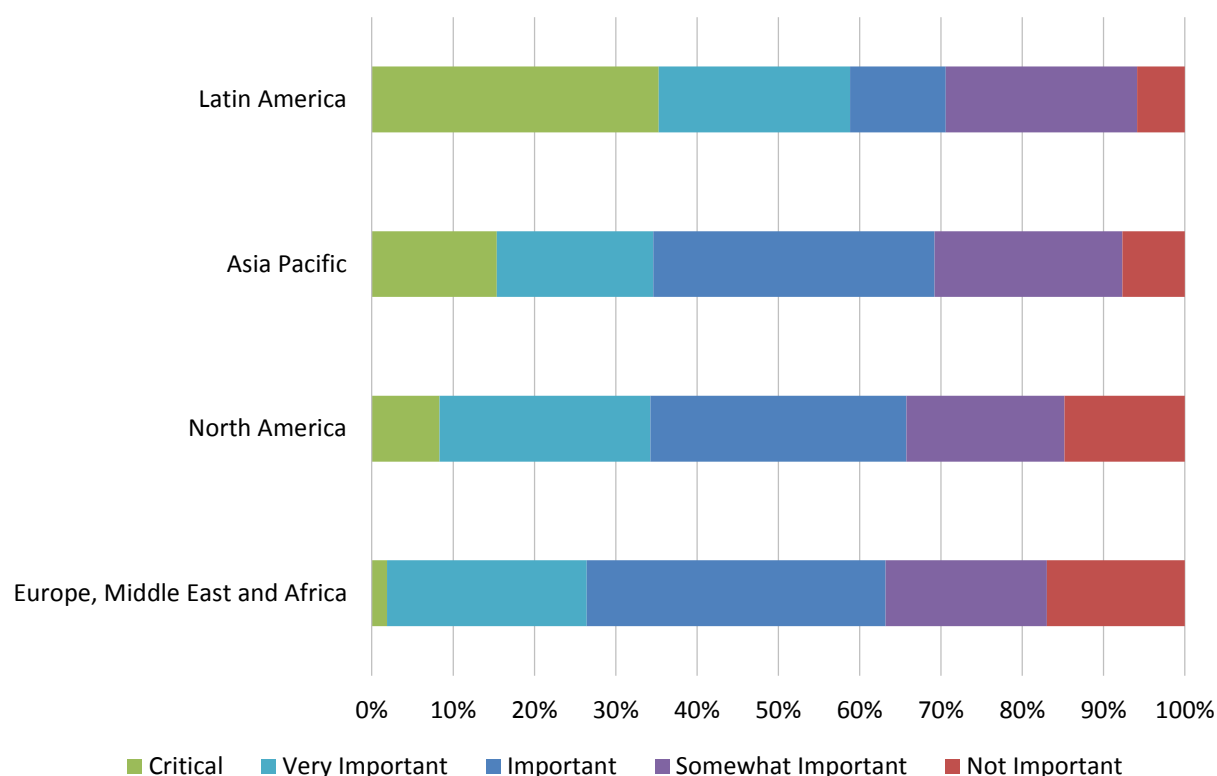


Figure 54 – Importance of guided analytics by geography

## Guided Analytics Authoring Features

We asked respondents to describe the appeal of a variety of authoring features in Guided Analytics in 2021 (fig. 55). The most important of these, “flexible, customizable authoring/content creation,” is at least “important” to about 80 percent of respondents. The next six features are at least “important” to about 70 percent or more respondents and include “author-defined navigation,” “ability to save/share guides,” “navigational aids,” “author highlighting,” and “text annotations.” Somewhat less important are features that involve machine learning, videos, and voice recordings.

### Guided Analytics Authoring Features

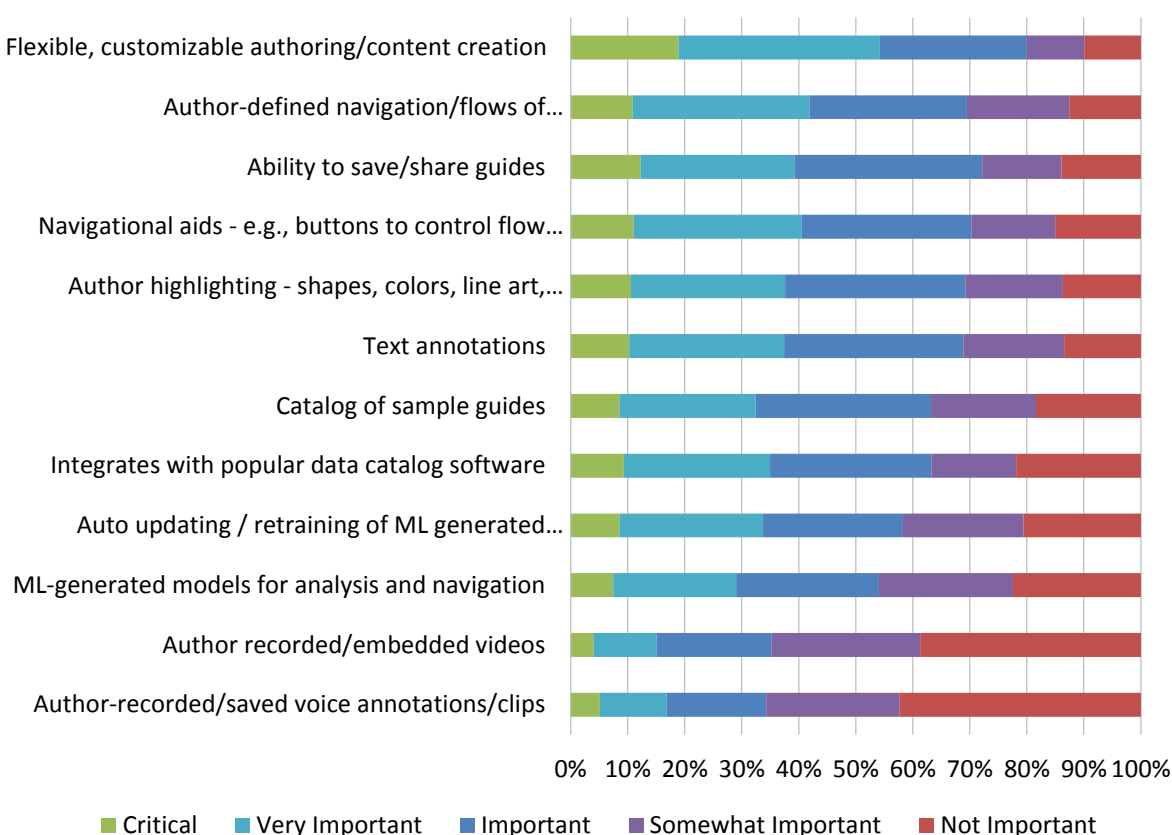


Figure 55 – Guided analytics authoring features

Guided Analytics authoring features appeal to multiple functions in the organization in 2021 (fig. 56). The most important, “flexible, customizable authoring/content creation,” gets its highest scores from respondents in Operations, followed by Marketing/Sales. Marketing/Sales is also most interested in “author-defined navigation/flows of visual/analytical objects.” Among other examples, Executive Management is most drawn to “ability to save/share guides,” while BICC respondents most support “navigational aids” and several lower-ranked authoring features.

## Guided Analytics Authoring Features by Function

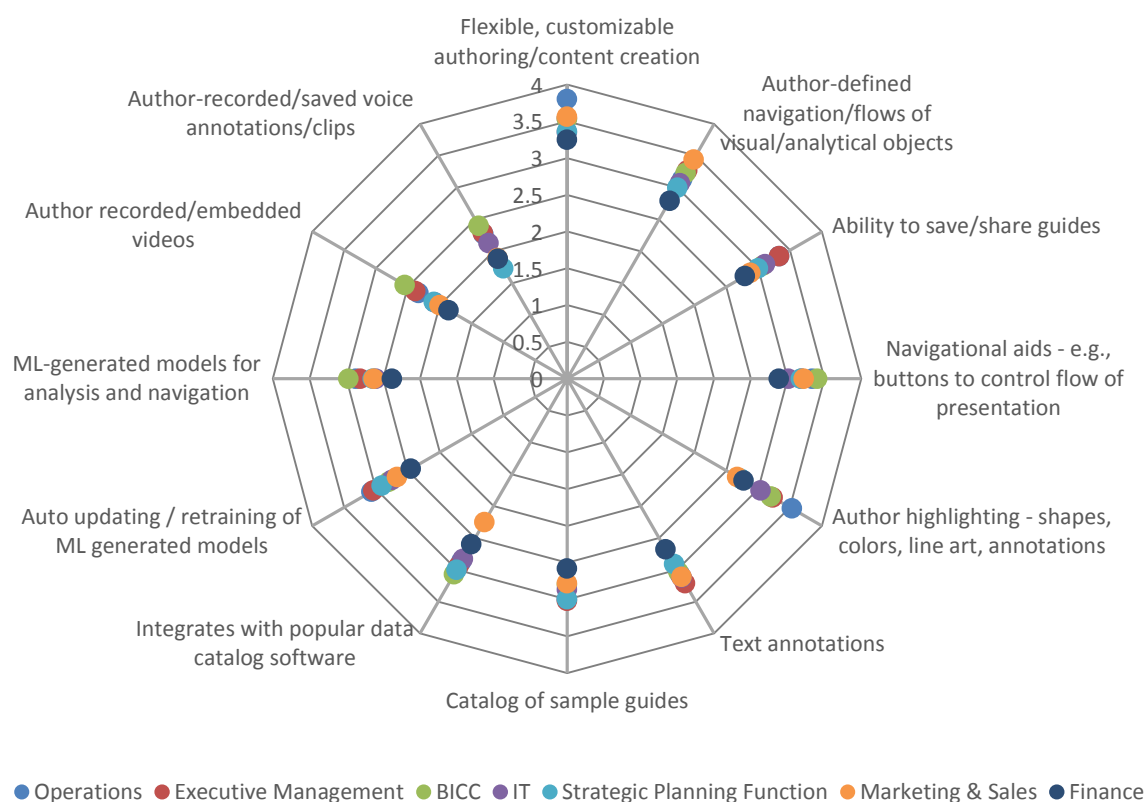


Figure 56 – Guided analytics authoring features by function

In 2021, Guided Analytics authoring features are most important to very large organizations (> 10,000 employees) (fig. 57). While all 12 features are most popular with very large organizations, small organizations (1-100 employees) show the next-most interest in most features. Very large and small organizations give scores of at least “important” to all but two of the features sampled. Consistent with other findings, mid-sized organizations (101-1,000 employees) report the lowest interest in Guided Analytics authoring features.

### Guided Analytics Authoring Features by Organization Size

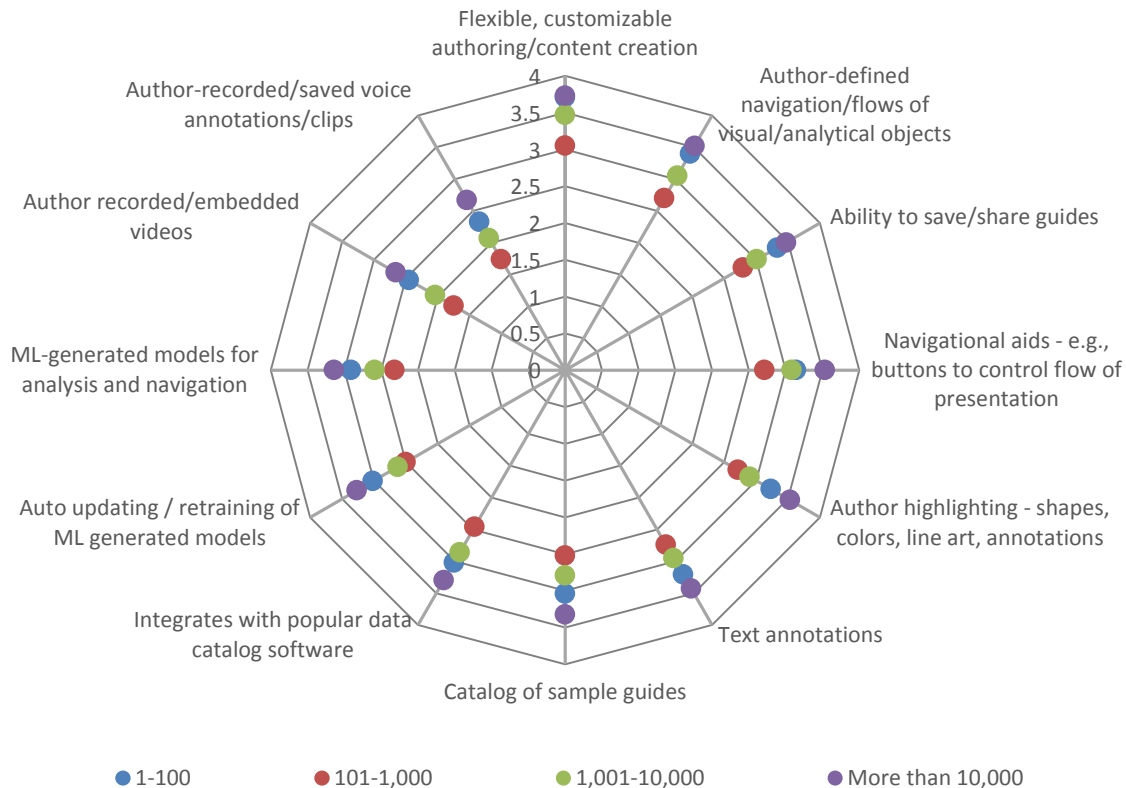


Figure 57 – Guided analytics authoring features by organization size

The importance of Guided Analytics authoring features extends broadly across multiple vertical industries (fig. 58). In our 2021 study, Technology organizations lead interest in “flexible, customizable authoring/content creation” and “ML-generated models.” Among other examples, Business Services post high marks for “author-defined navigation/flows” and “ability to save/share guides.” Government respondents most prefer “author-defined navigation/flows” and “ability to save/share guides.” Government respondents most prefer “author-defined navigation/flows,” while Healthcare respondents most likely require “author highlighting” and “text annotations.”

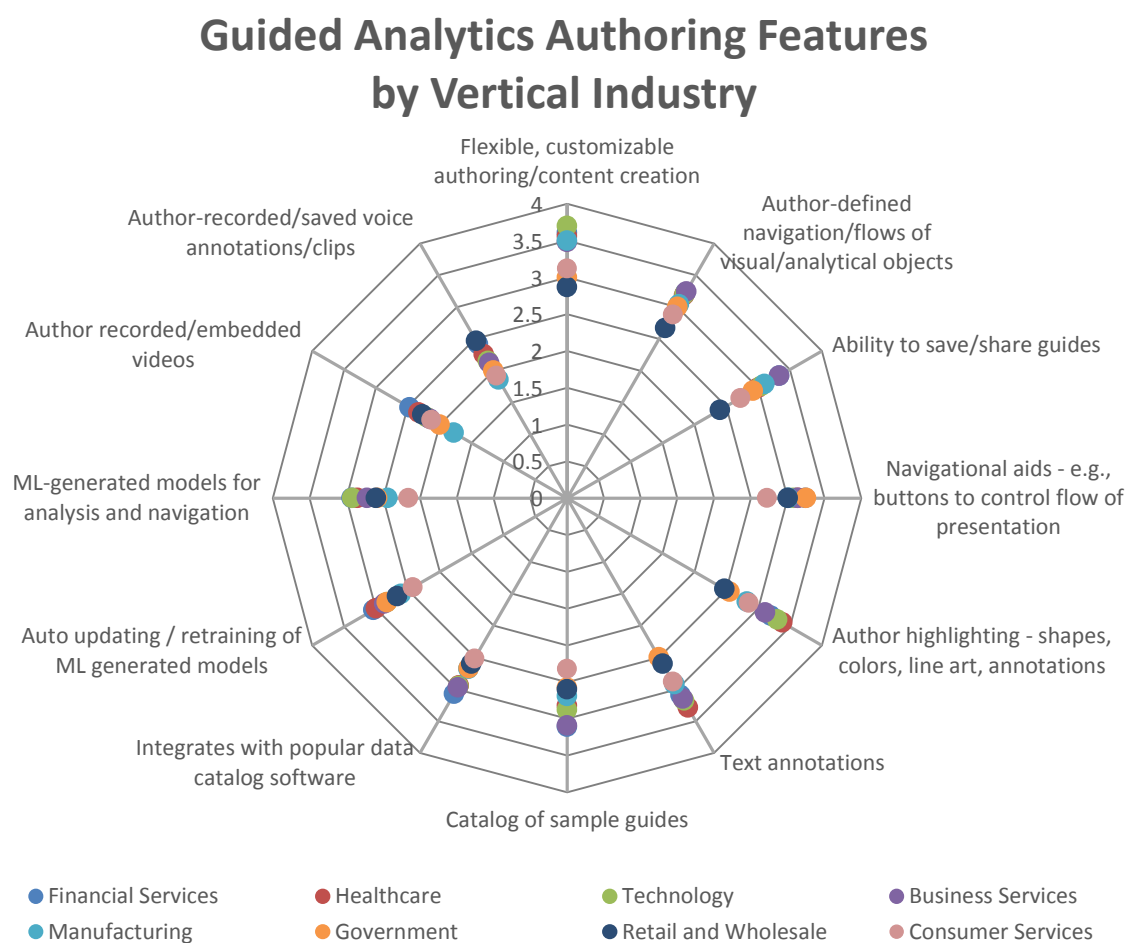


Figure 58 – Guided analytics authoring features by vertical industry



Guided Analytics authoring features have importance to respondents across multiple geographies, most often among respondents in Latin America and Asia Pacific (fig. 59). Asia-Pacific respondents lead interest in top-pick “flexible, customizable authoring/content creation” and seven other lower-ranked features. Latin American respondents give top marks to “author-defined navigation/flows,” “navigational aids,” and “integrates with popular data catalog software.” Almost invariably, North American respondents report the next highest interest in authoring features, while EMEA scores are lowest by geography.

### Guided Analytics Authoring Features by Geography

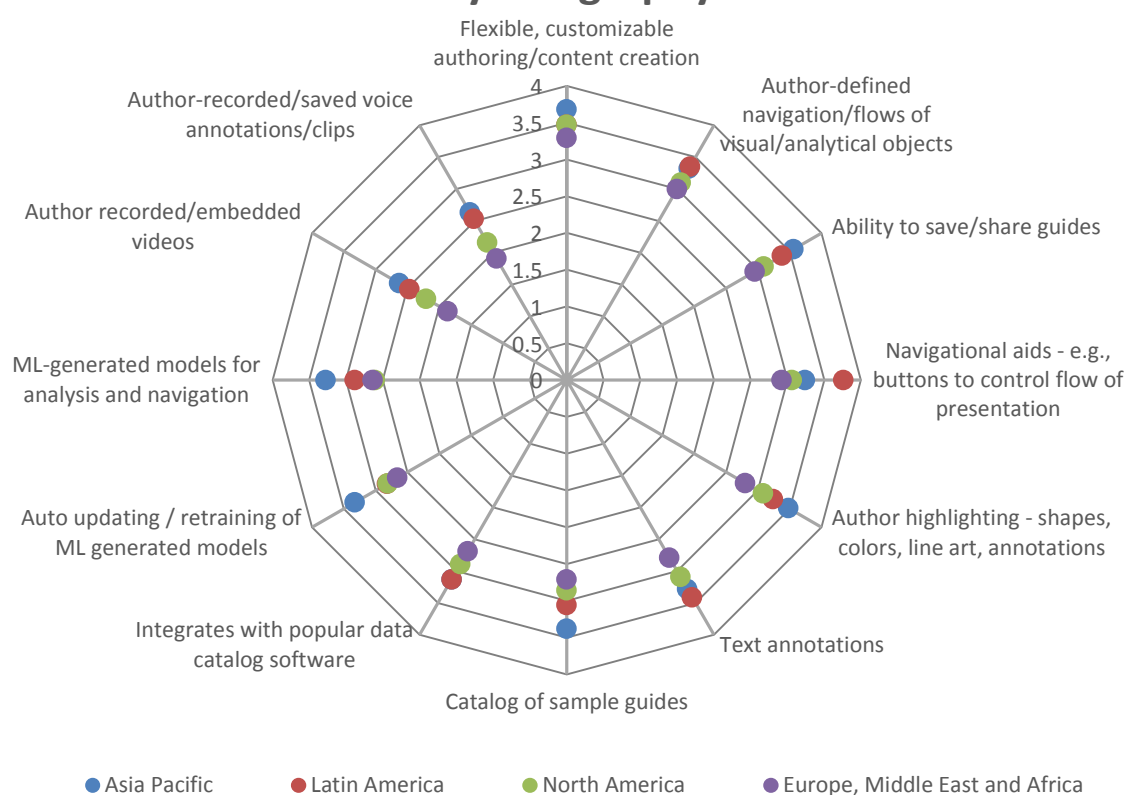


Figure 59 – Guided analytics authoring features by geography

## Guided Analytics User Features

We asked respondents to describe the appeal of 12 Guided Analytics user features in 2021 (fig. 60). The most important of these, “user interaction with visual/analytical objects,” is “critical” or “very important” to about 45 percent of respondents and, at minimum, “important” to about three-quarters. A second tier of importance includes “directed navigation,” “anomaly identification,” “search/navigate/recommend available guides,” “automated highlighting,” and “contextual explanation capability.” All these latter features are at least “important” to close to 70 percent or more respondents. Interestingly, recommendations engines, connections to governance systems and machine learning-related functionality are all among lower-ranked features.

## Guided Analytics User Features

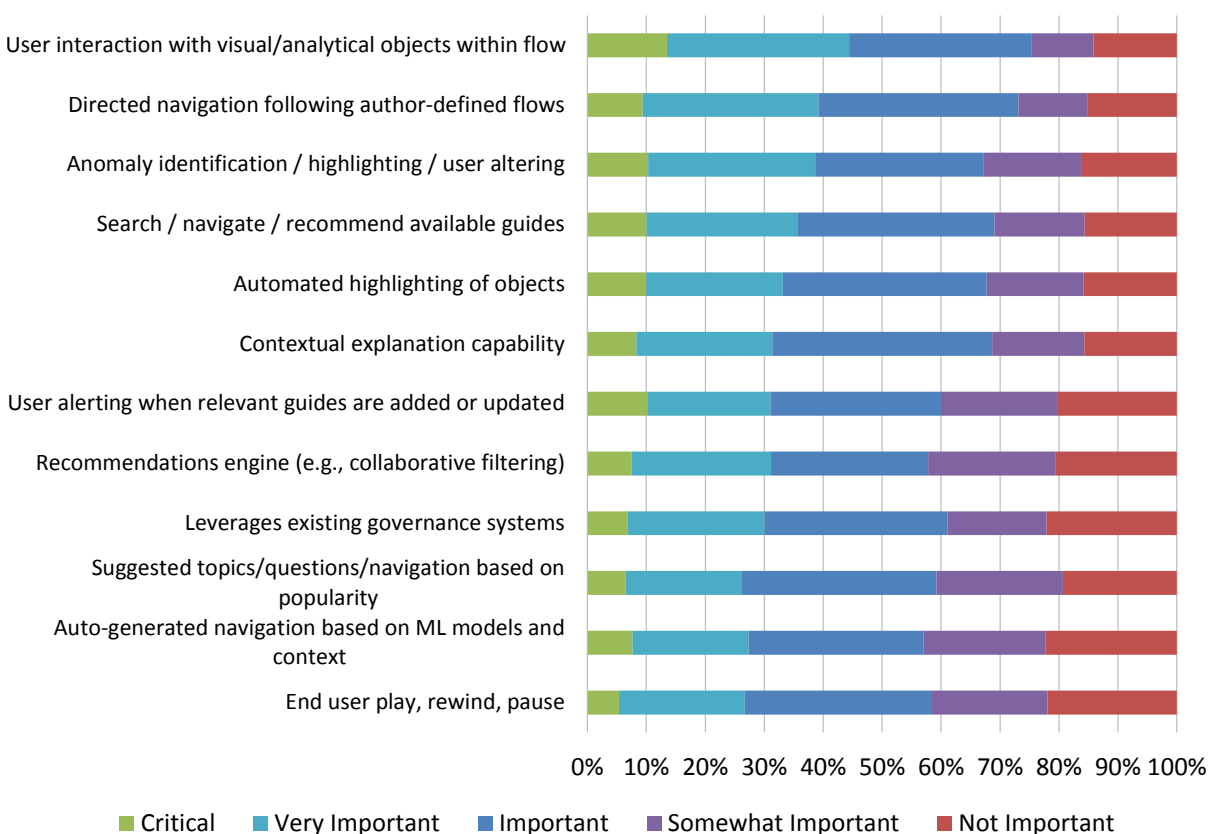


Figure 60 – Guided analytics user features

Guided Analytics user features appeal to multiple functions in the organization (fig. 61). The most important, “user interaction with visual/analytical objects,” is most relevant to respondents in Operations, BICC, and Marketing/Sales. “Directed navigation” also resonates most strongly with BICC respondents, while Operations tops several lesser requirements including “anomaly identification” and “search/navigate/recommend.” Among other examples, Marketing/Sales is likely to select “contextual explanation” and “suggested topics/questions/navigation;” and Executive Management is most drawn to “automated highlighting” and lesser features.

## Guided Analytics User Features by Function

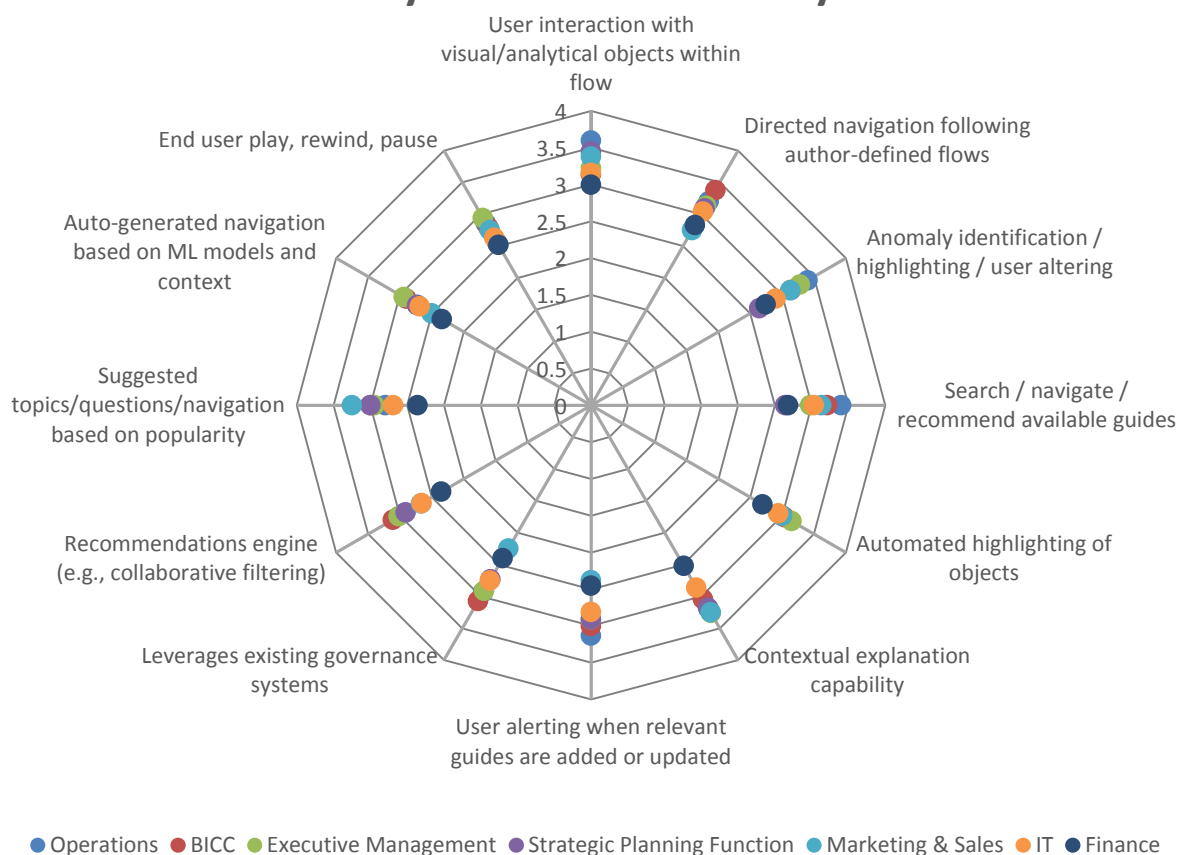


Figure 61 – Guided analytics user features by function

Guided Analytics user features are in every case most important to very large organizations (> 10,000 employees) (fig. 62). While all 12 features are most popular with very large organizations, small organizations (1-100 employees) show the next-most interest in nearly every remaining feature and give the highest scores to “user alerting when relevant guides are added or updated.” Again, as in other findings, mid-sized organizations (101-1,000 employees) report the lowest interest in Guided Analytics user features.

## Guided Analytics User Features by Organization Size

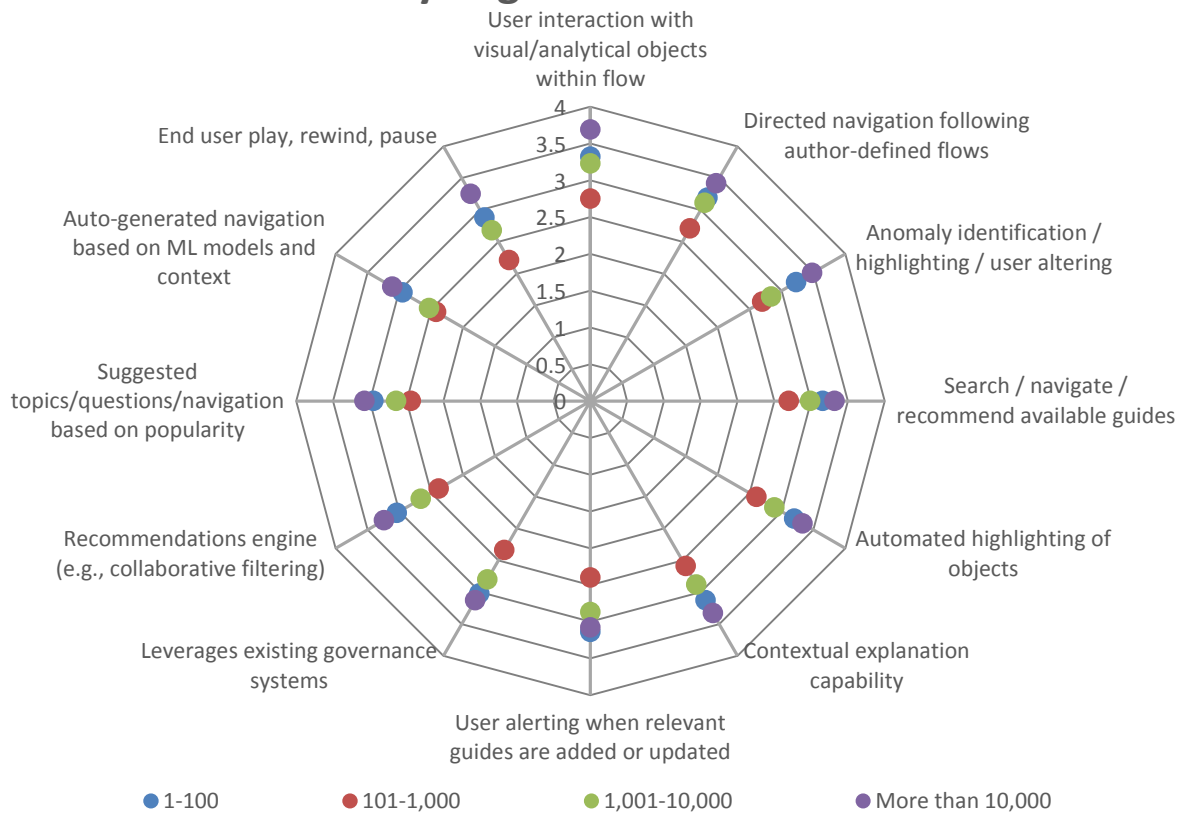


Figure 62 – Guided analytics user features by organization size

The importance of Guided Analytics user features extends broadly across multiple vertical industries (fig. 63). This year, Healthcare organizations lead interest in “user interaction with visual/analytical objects” and “directed navigation” and give near-high marks to “search/navigate/recommend.” Financial Services organizations are the most likely users of “anomaly identification,” “search/navigate/recommend,” “user alerting and more. Business Services tops interest in “automated highlighting of objects,” “contextual explanation capability,” and other lower-ranked features. Consumer Services and Education respondents most often report the lowest interest in user features for Guided Analytics.

## Guided Analytics User Features by Vertical Industry

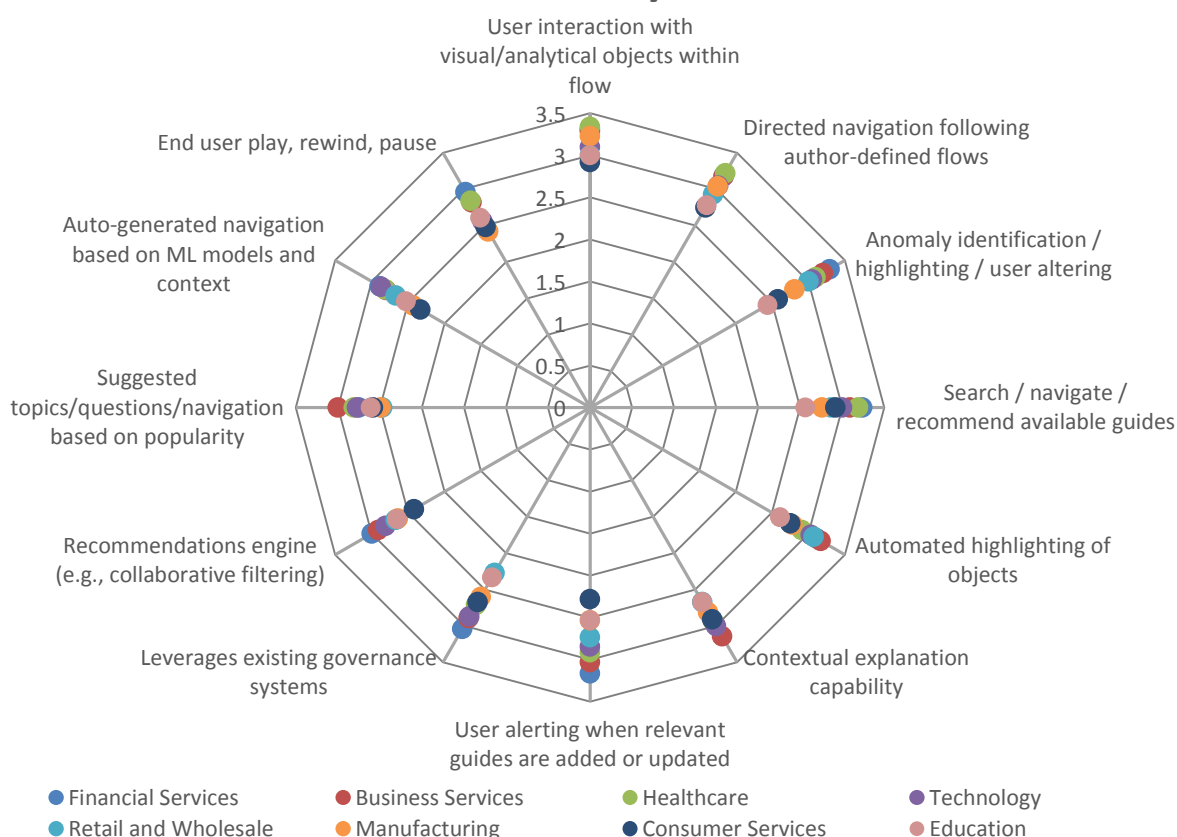


Figure 63 – Guided analytics user features by vertical industry

Guided Analytics user features have importance to respondents across multiple geographies, most often among respondents in Latin America and Asia Pacific (fig. 64). Latin American respondents lead interest in top-pick “user interaction with visual/analytical objects,” “automated highlighting of objects,” and several lower-ranked user features. “Anomaly identification” and some other features are most important to Asia-Pacific respondents. Excluding these geographies, North American respondents report higher scores than EMEA peers, though both geographies give lower than “important” scores to several features.

## Guided Analytics User Features by Geography

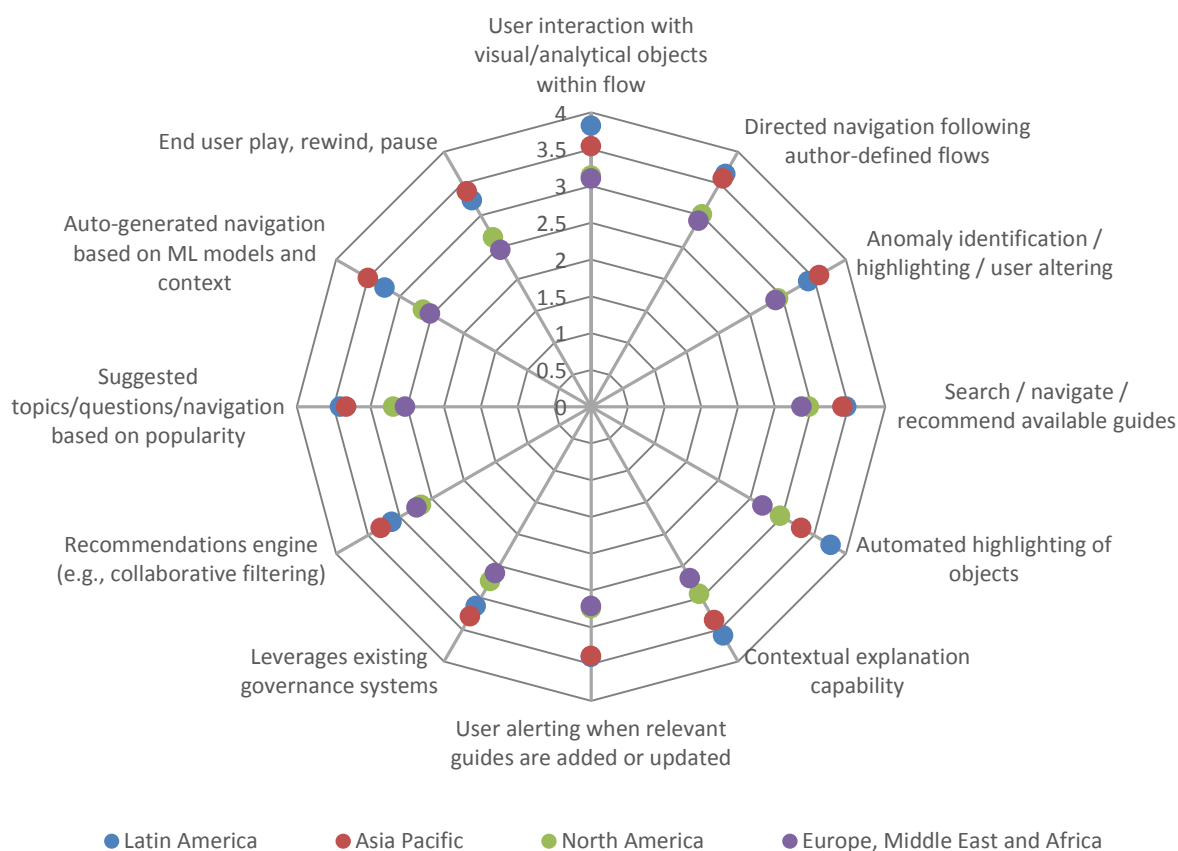


Figure 64 – Guided analytics user features by geography

# Industry and Vendor Analysis

## Industry and Vendor Analysis

### Industry Support for Self-Service BI

We asked our industry vendor sample to describe which self-service features they currently support and which are designed for independent user operation versus products and services that require IT support (fig. 65). A primary observation here is that business intelligence solutions are now primarily designed for independent user operation (blue bars); the top 22 self-service operations are now offered as user-directed capabilities by between 60-100 percent of our vendor sample. Capabilities that might disproportionately call for IT intervention include “complex event processing” and “custom CSS support.” IT support might also be required for applications addressing “data pipelines and integration,” “embedded BI,” “data governance,” and “ability to write transactions.” Industry support for self-service BI resonates with many high-level user attitudes toward strategic BI technologies and initiatives (fig. 5, p. 19).

### Industry Support for Self-Service BI

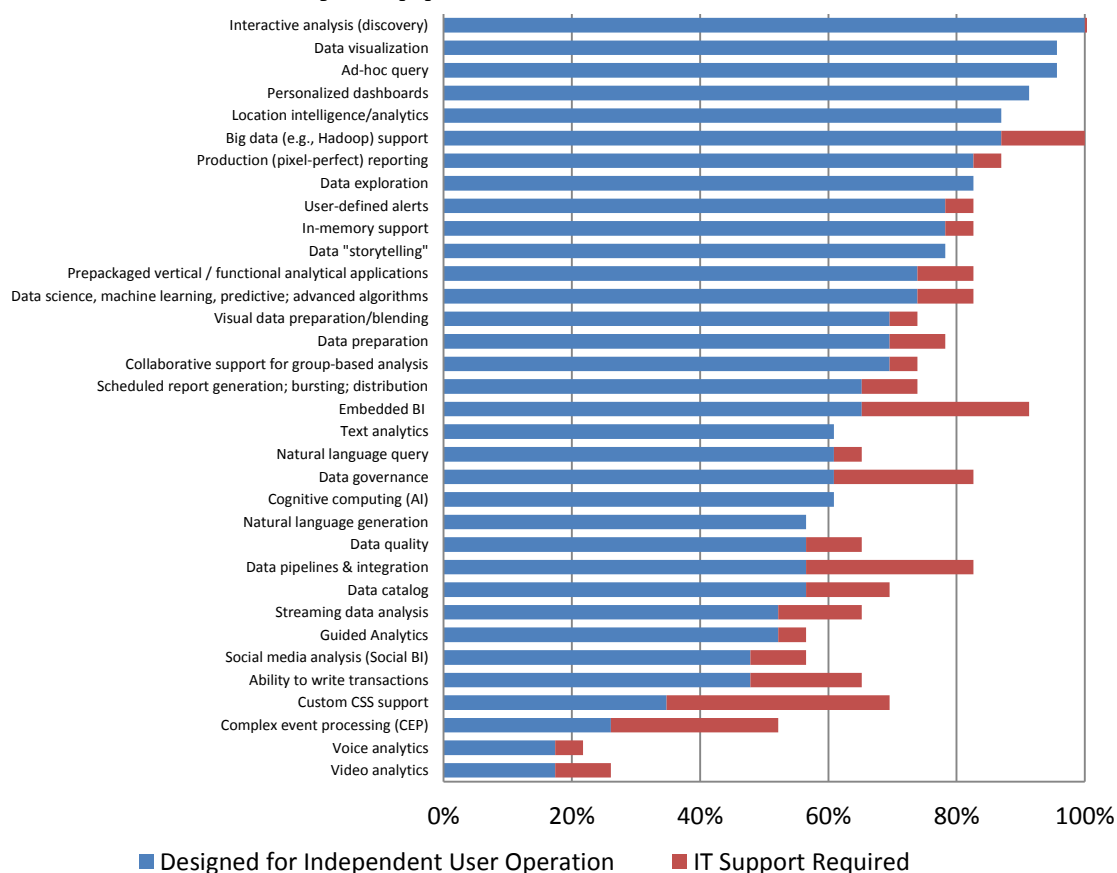


Figure 65 – Industry support for self-service BI



### Importance of Sharing BI Content

Industry vendor sentiment toward the importance of sharing BI content in a group-based decision-making process remains very strong in 2021 and shows a rebound compared to 2020 data (fig. 66). In the last 12 months, weighted-mean importance increased notably from 4.23 to 4.45 (well above “very important”), and standalone “critical” scores increased from 43 percent to 58 percent. Across five years of data, we see an unusual shifting sentiment in alternate years, though it is possible that the COVID-19 pandemic also plays a role in the current state of very strong vendor survey sentiment toward self-service. This year’s industry sentiment is well ahead of user-reported self-service BI importance (fig. 6, p. 20).

### Industry Importance of Sharing BI Content in a Group-Based Decision-Making Process

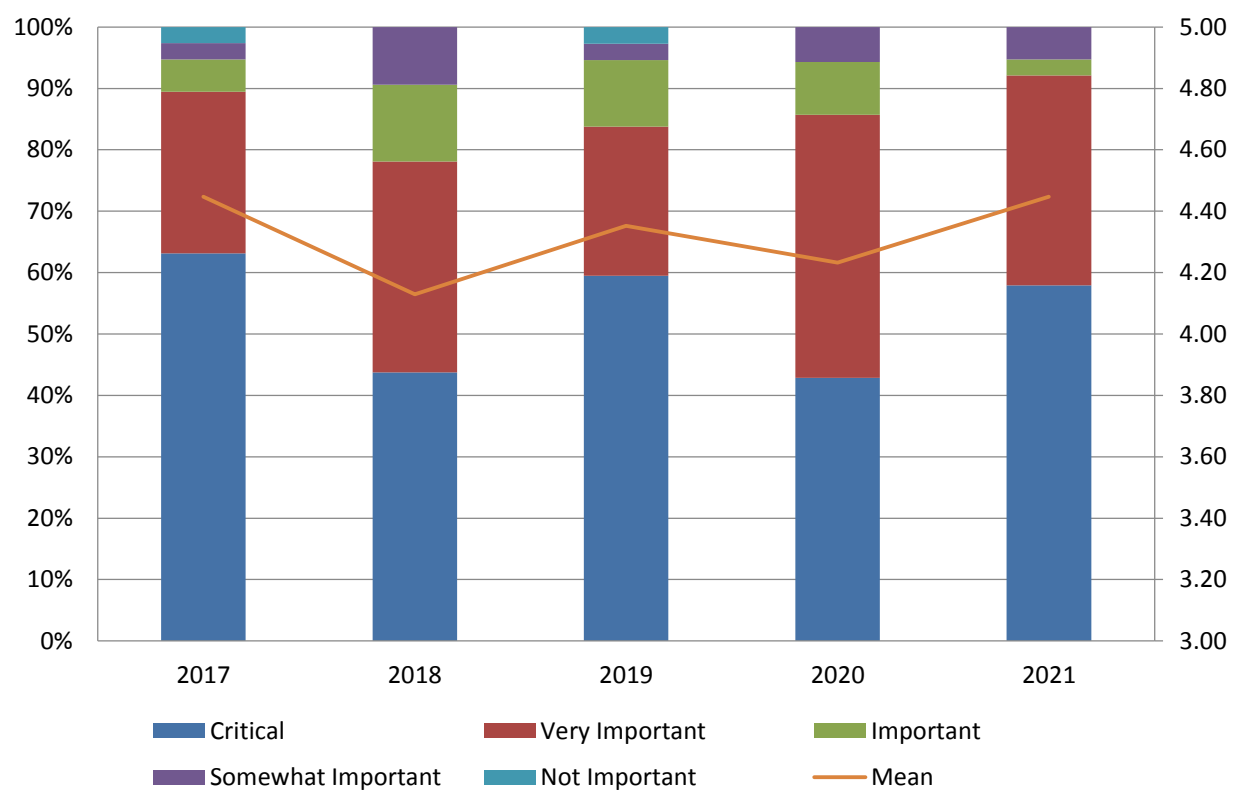


Figure 66 – Industry importance of sharing BI content in a group-based decision-making process

## Support for Content Co-creation and Sharing Features

Industry support for content co-creation and collaboration features is robust, with future vendor investment expected to close most existing gaps (fig. 67). Current support for the top three features ("share content and commentary," "search and navigation," and "co-authoring of content") is now greater than 90 percent (fulfilling a prediction in our 2020 study), and future plans will bring nearly all industry participants in line with support in the coming 12 months. Vendors expect the top nine features to have 90 percent or greater support in 24 months or sooner. Top user requirements (fig. 19, p. 33) appear to be well supported by current industry support and future plans.

### Industry Support for Content Co-creation and Sharing Features

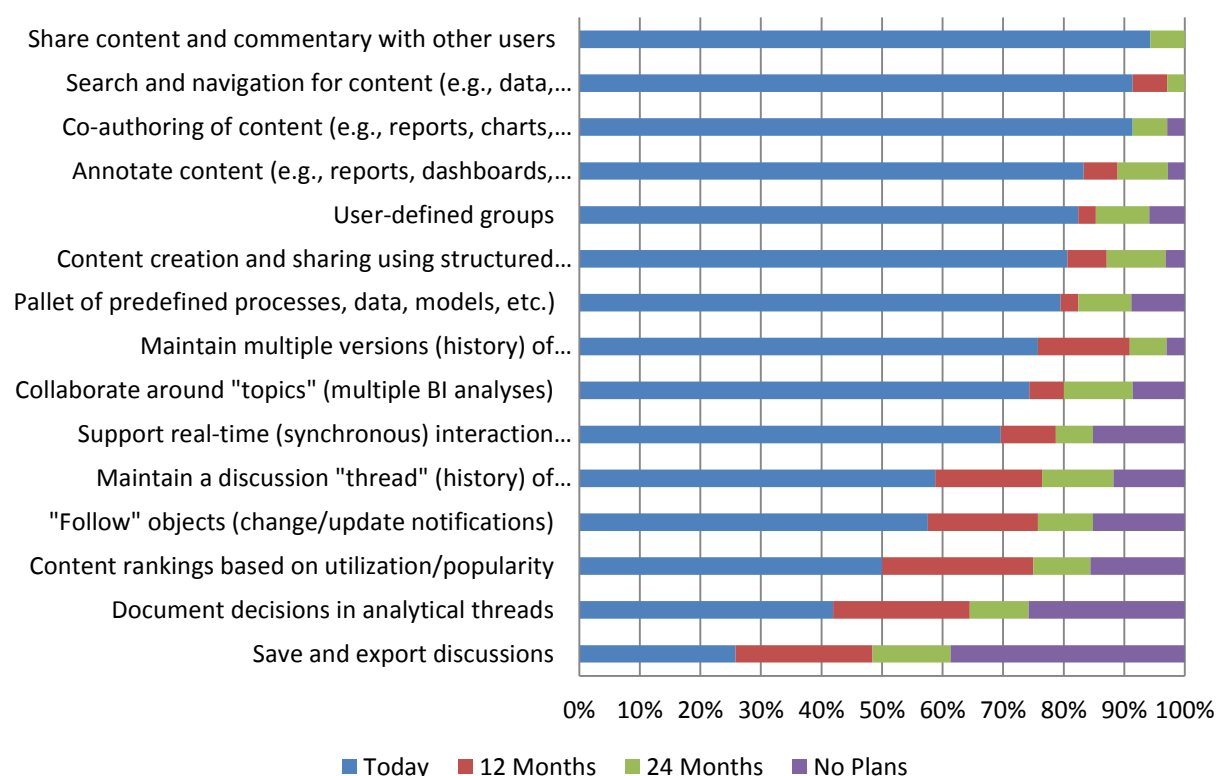


Figure 67 – Industry support for content co-creation and sharing features

### Importance of Governing BI Content Creation and Sharing

Industry sentiment toward the importance of governing BI content creation and sharing remains very strong in 2021 with 66 percent of respondents describing these activities and processes as "critical" (fig. 68). This year, weighted-mean sentiment is 4.6, up from 4.5 in 2020. Five years of data show a steadily improving curve of sentiment approaching the highest levels, powered in good part by the disappearance of skepticism in "somewhat important" and "not important" scores." We can say generally that the topic of content governance remains near the forefront of both industry attention and user importance sentiment (fig. 39, p. 53) in 2021.

### Industry Importance of Governing BI Content Creation and Sharing

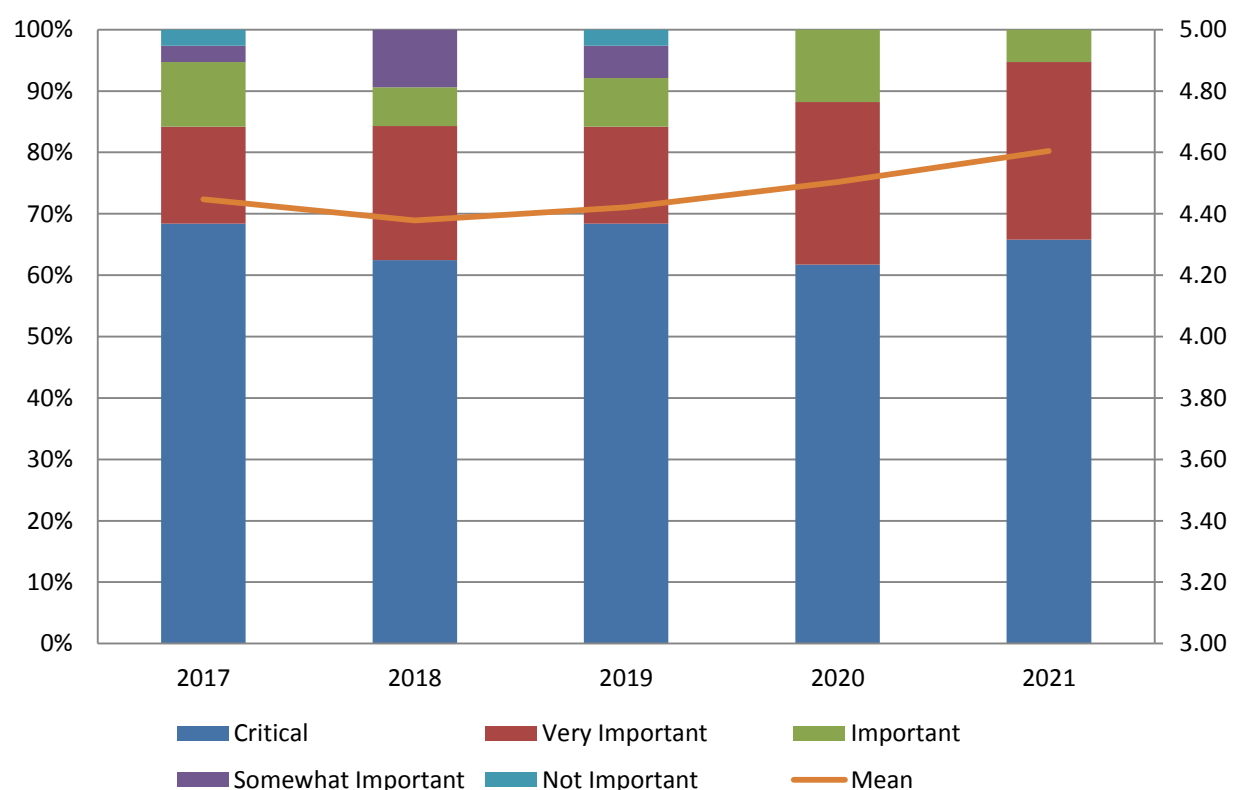


Figure 68 – Industry importance of governing BI content creation and sharing

### Support for BI Content Governance Features

Content governance feature support in 2021 is highest for "define levels of access to shared documents, data, etc." (97 percent) and "integration with access/identity management systems" (94 percent) (fig. 69). These levels are up from 89 percent and 88 percent respectively in our 2020 study.) "Track usage of models" and "administrative oversight of user-defined groups" are the next most-supported features (85 and 79 percent respectively). "Content check in/out" and "ability to analyze and audit decision processes" are the least supported. While vendor and user feature definitions differ slightly, industry support (particularly for access/identity) is more than adequate to meet current user feature requirements (fig. 44, p. 58) in 2021.

### Industry Support for Administrative/Governance Features

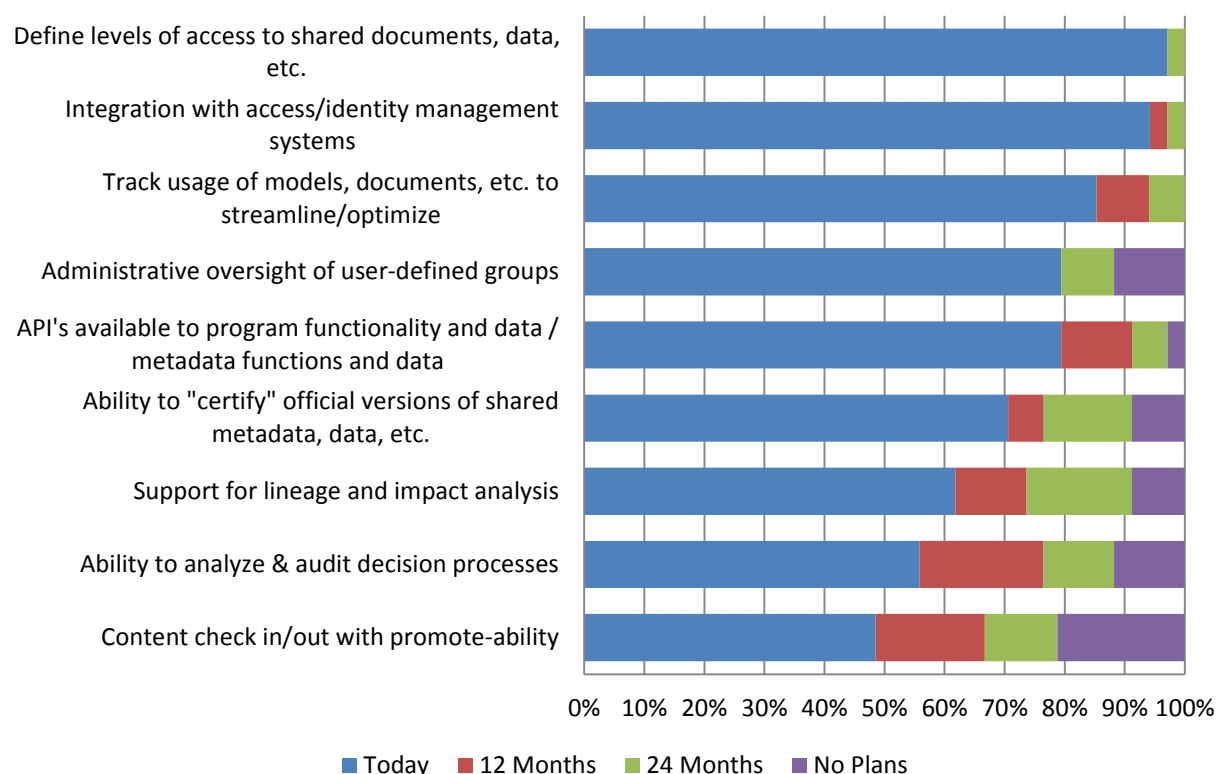


Figure 69 – Industry support for administrative/governance features

### Support for Enterprise Collaborative Framework Features

In 2021, current industry support for enterprise collaborative framework features is greatest for "share/integrate content" (60 percent), followed by "reference and search content" (49 percent) (fig. 70). (These figures improved from 49 percent and 46 percent respectively in our 2020 study.) Vendors project 12-month investment plans for all features, especially the aforementioned top two choices, and "manage content created for your solution." Vendor and user terms for collaborative feature requirement (fig. 34, p. 48) differ somewhat, but industry investment well supports current user requirements.

### Industry Support for Enterprise Collaborative Framework Features

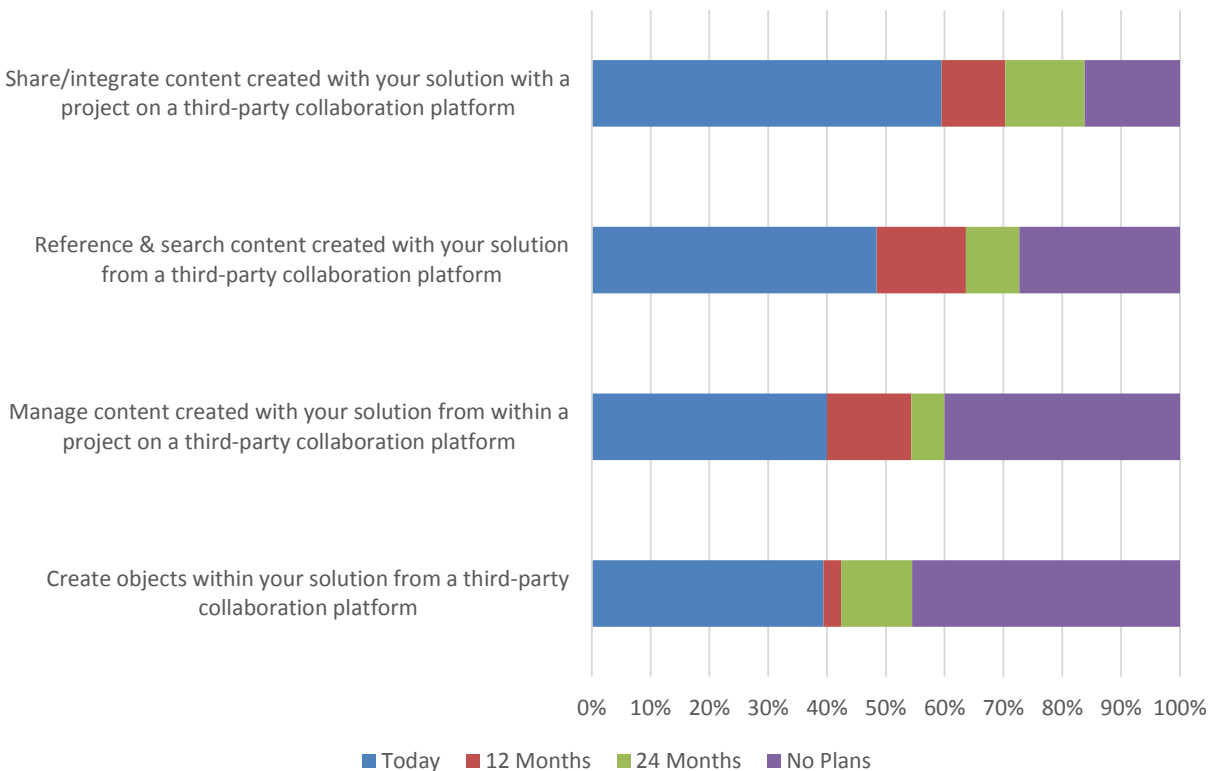


Figure 70 – Industry support for enterprise collaborative framework features

### Support for Enterprise Collaborative Frameworks

Industry support for enterprise collaborative frameworks is highest for Microsoft SharePoint (50 percent) in 2021 (fig. 71). Support for Slack is next highest (47 percent), while Jira and Microsoft Teams are supported by 40 percent of the industry sample. Dropbox, Google G-Suite, and Box round out the significant industry-supported services in 2020. When we compare industry with user preferences (fig. 39, p. 53), we primarily note the strong user surge in requirements for Microsoft Teams that now stand at 69 percent, a likely indicator of a shortfall in vendor support. (Microsoft Teams user requirements stood at just 43 percent in our 2020 study, but it was the most quickly growing enterprise framework at the time.)

### Industry Support for Enterprise Collaborative Frameworks

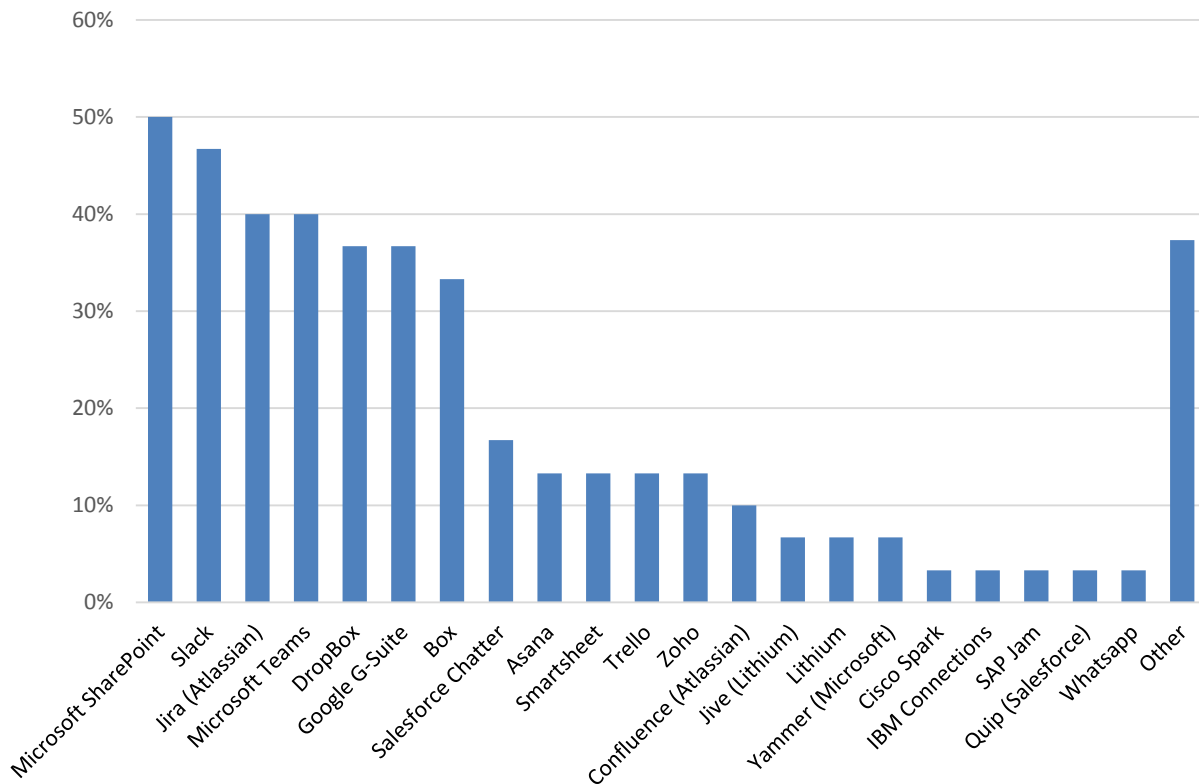


Figure 71 – Industry support for enterprise collaborative frameworks

## Support for Guided Analytics

We asked our industry sample to describe current and future levels of support for Guided Analytics authoring features in 2021 (fig. 72). The most important of these, “flexible, customizable authoring/content creation,” has greater than 90 percent current support and is expected to reach 95 support within 24 months. (This same feature is also the top user requirement, fig 55, p. 69). The remaining features all show lesser levels of current support and mixed plans for future investment. The largest 12-month industry investment targets are machine learning-related features; other 12-month targets include “text annotations” and “integrates with popular data catalog software.” As noted in the user section of the study (ibid), machine learning penetration among users is currently low and, like current industry support, user requirements for audio and video-related features are low priorities.

### Industry Support for Guided Analytics Authoring Features

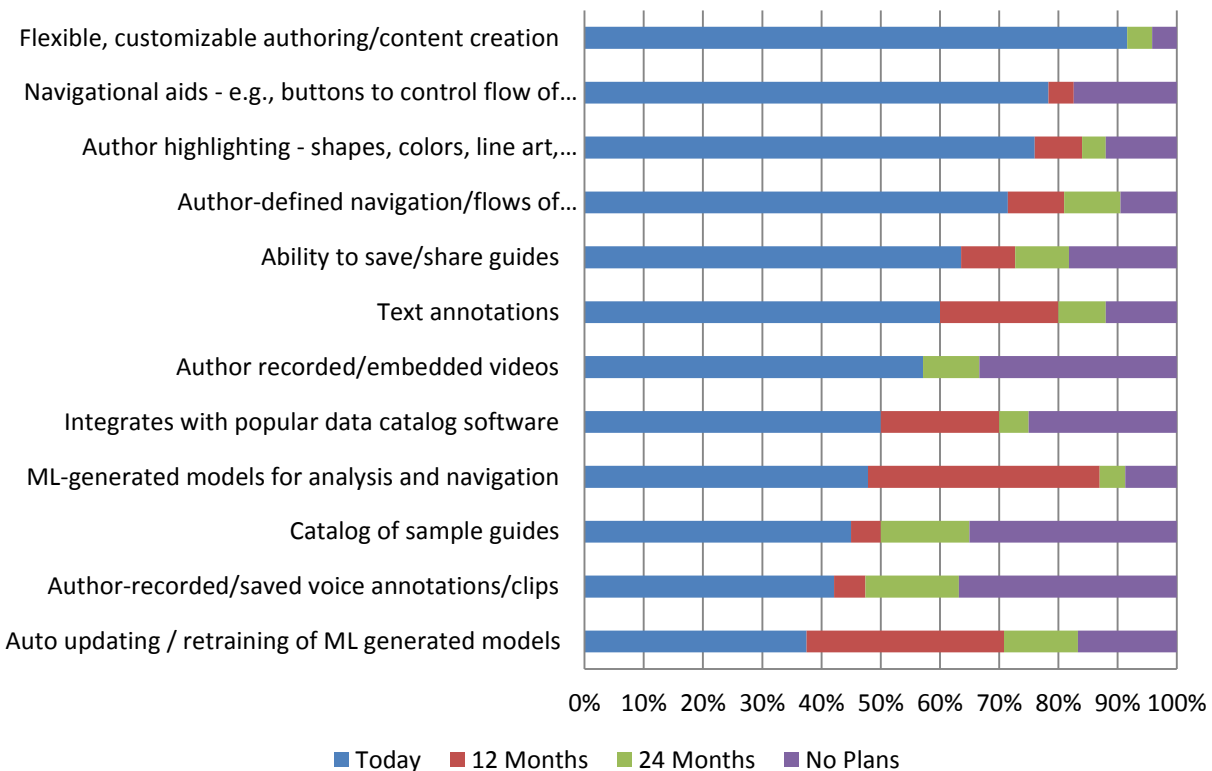


Figure 72 – Industry support for guided analytics authoring features

We asked our industry sample to describe current and future levels of support for Guided Analytics user features in 2021 (fig. 73). The four top features include “directed navigation,” “anomaly identification,” “leverages existing governance,” and “user interaction with visual/analytical objects,” which are currently supported by between 67-74 percent of vendors. Higher-priority features targeted for 12-month industry investment include “anomaly identification,” “auto-generated navigation based on machine learning models,” and “recommendation engine.” There is also a fairly robust agenda for support of features to be accomplished in the next 24 months. User feature support appears in line and adequate with user feature requirements (fig. 60, p. 74).

## Industry Support for Guided Analytics User Features

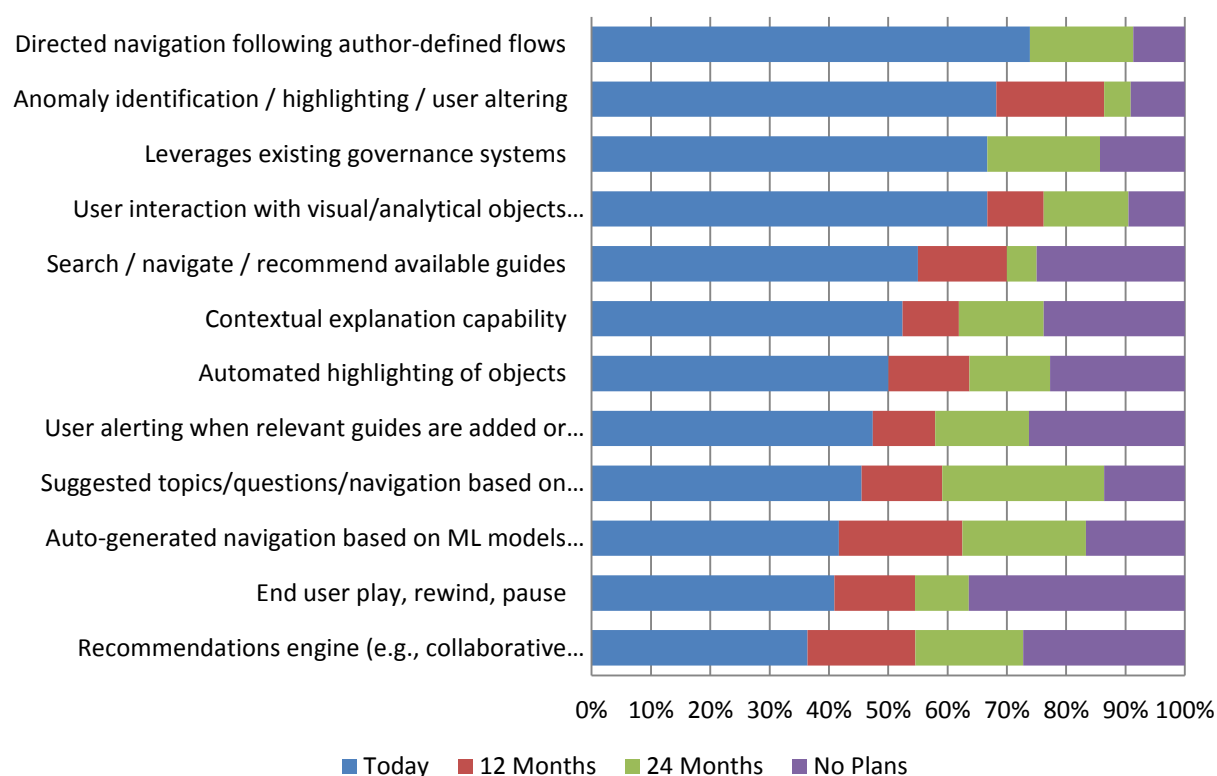


Figure 73 – Industry support for guided analytics user features



# Vendor Ratings

## Self-Service Vendor Ratings

In rating the vendors, we considered all self-service BI, collaborative, governance, and guided analytics features as reported by vendors and weighted by users. Thus, this chart (fig. 74) represents those vendors with the strongest (or most complete) capabilities.

Top vendors include Pyramid Analytics and Domo (tied for 1<sup>st</sup>), Microsoft (2<sup>nd</sup>), Tableau and TIBCO (tied for 3<sup>rd</sup>), Infor (4<sup>th</sup>) and ThoughtSpot (5<sup>th</sup>).

## Self-Service BI Vendor Ratings

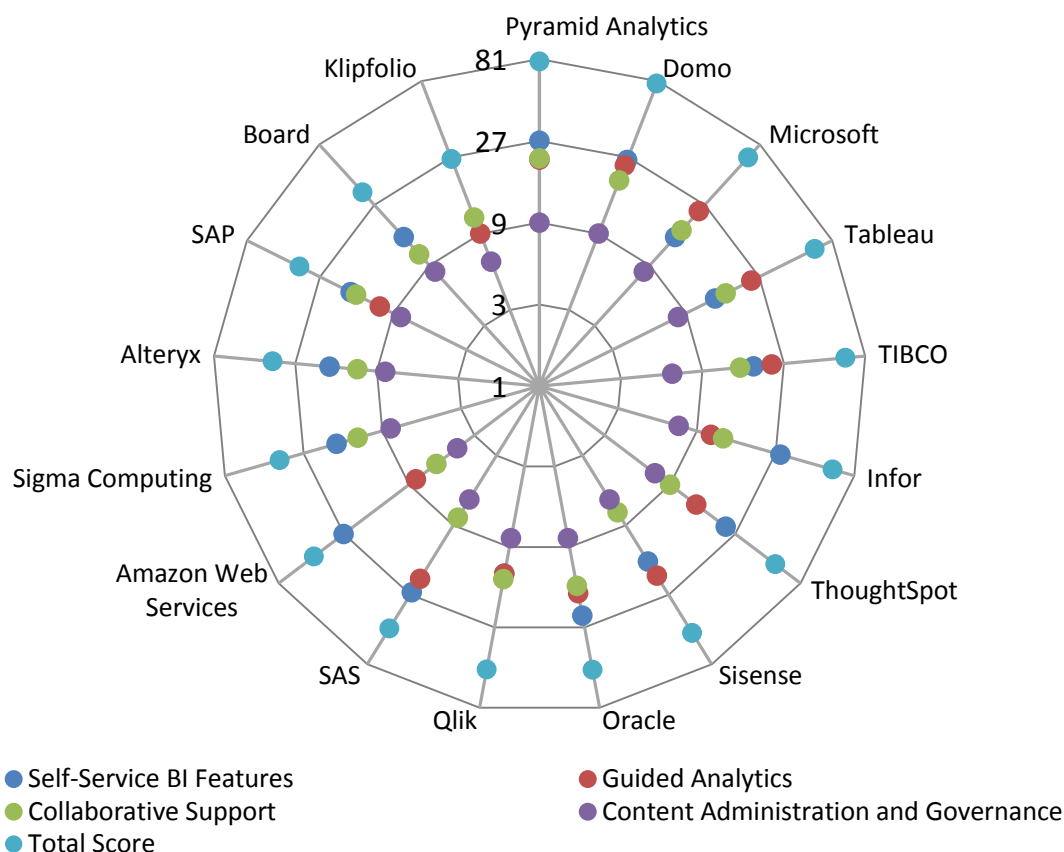


Figure 74 – Self-Service BI vendor ratings

## Other Dresner Advisory Services Research Reports

- [Wisdom of Crowds® “Flagship” Business Intelligence Market Study](#)
- [Analytical Data Infrastructure](#)
- [BI Competency Center](#)
- [Big Data Analytics](#)
- [Cloud Computing and Business Intelligence](#)
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- [Enterprise Performance Management](#)
- [Natural Language Analytics](#)
- [Sales Performance Management](#)
- [Small and Mid-Sized Enterprise Business Intelligence](#)
- [Small and Mid-Sized Enterprise Performance Management](#)

## Appendix: Self-Service Survey Instrument

First Name\*: \_\_\_\_\_

Last Name\*: \_\_\_\_\_

Title: \_\_\_\_\_

Company Name\*: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_

Zip: \_\_\_\_\_

Country: \_\_\_\_\_

Email Address\*: \_\_\_\_\_

Phone Number: \_\_\_\_\_

URL: \_\_\_\_\_

May we contact you to discuss your responses and for additional information?

☐ Yes

☐ No

What major geography do you reside in?\*

☐ North America

☐ Europe, Middle East and Africa

☐ Latin America

☐ Asia Pacific

Please identify your primary industry\*

- ( ) Advertising
- ( ) Aerospace
- ( ) Agriculture
- ( ) Apparel & accessories
- ( ) Automotive
- ( ) Aviation
- ( ) Biotechnology
- ( ) Broadcasting
- ( ) Business services
- ( ) Chemical
- ( ) Construction
- ( ) Consulting
- ( ) Consumer products
- ( ) Defense
- ( ) Distribution & logistics
- ( ) Education (Higher Ed)
- ( ) Education (K-12)
- ( ) Energy
- ( ) Entertainment and leisure
- ( ) Executive search
- ( ) Federal government
- ( ) Financial services
- ( ) Food, beverage and tobacco
- ( ) Healthcare
- ( ) Hospitality
- ( ) Insurance

- ☐ Legal
- ☐ Manufacturing
- ☐ Mining
- ☐ Motion picture and video
- ☐ Not for profit
- ☐ Pharmaceuticals
- ☐ Publishing
- ☐ Real estate
- ☐ Retail and wholesale
- ☐ Sports
- ☐ State and local government
- ☐ Technology
- ☐ Telecommunications
- ☐ Transportation
- ☐ Utilities
- ☐ Other - Please specify below

Please type in your industry

---

How many employees does your company employ worldwide?

- ☐ 1-100
- ☐ 101-1,000
- ☐ 1,001-2,000
- ☐ 2,001-5,000
- ☐ 5,001-10,000
- ☐ More than 10,000

What function do you report into?\*

- ☐ Business Intelligence Competency Center
- ☐ Executive management
- ☐ Faculty (Education)
- ☐ Finance
- ☐ Human resources
- ☐ Information Technology (IT)
- ☐ Manufacturing
- ☐ Marketing
- ☐ Medical staff (Healthcare)
- ☐ Operations
- ☐ Research and development (R&D)
- ☐ Sales
- ☐ Strategic planning function
- ☐ Supply chain
- ☐ Other - Write In

How important is sharing business intelligence and analytical content in a group-based decision-making process?

- ( ) Critical
- ( ) Very Important
- ( ) Important
- ( ) Somewhat Important
- ( ) Not Important

How are business intelligence (analytical) content/insights shared today?

	<b>Constantly</b>	<b>Often</b>	<b>Occasionally</b>	<b>Rarely</b>	<b>Never</b>
Collaborative Features Built into our BI Tool	( )	( )	( )	( )	( )
Email	( )	( )	( )	( )	( )
Embedded within other Applications	( )	( )	( )	( )	( )
Enterprise Collaboration Software (e.g., Slack, Trello, Jira)	( )	( )	( )	( )	( )
Face-to-face Meetings	( )	( )	( )	( )	( )
File Sharing (e.g., Box.net, Dropbox)	( )	( )	( )	( )	( )
Formal Presentation	( )	( )	( )	( )	( )



Instant Messaging (IM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social Media (e.g., LinkedIn, Facebook, Twitter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Telephone Calls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Virtual Meetings (e.g., Zoom, Hangouts, Skype)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wiki	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How important is Guided Analytics as a means of expanding BI and analytics more broadly within your organization?

- ☐ Critical
- ☐ Very Important
- ☐ Important
- ☐ Somewhat Important
- ☐ Not Important

How important are each of the following guided analytics authoring features?

	<b>Critical</b>	<b>Very Important</b>	<b>Important</b>	<b>Somewhat Important</b>	<b>Not Important</b>
Flexible, customizable authoring/content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

creation					
Author highlighting - shapes, colors, line art, annotations	( )	( )	( )	( )	( )
Text annotations	( )	( )	( )	( )	( )
Author-defined navigation/flows of visual/analytical objects	( )	( )	( )	( )	( )
Author-recorded/saved voice annotations/clips	( )	( )	( )	( )	( )
Author recorded/embedded videos	( )	( )	( )	( )	( )
Navigational aids - e.g., buttons to control flow of presentation	( )	( )	( )	( )	( )
ML-generated models for analysis and navigation	( )	( )	( )	( )	( )
Auto updating / retraining of ML generated models	( )	( )	( )	( )	( )
Ability to save/share guides	( )	( )	( )	( )	( )
Catalog of sample guides	( )	( )	( )	( )	( )
Integrates with popular data catalog software	( )	( )	( )	( )	( )

How important are each of the following guided analytics user features?

	<b>Critical</b>	<b>Very Important</b>	<b>Important</b>	<b>Somewhat Important</b>	<b>Not Important</b>
Directed navigation following author-defined flows	( )	( )	( )	( )	( )
Auto-generated navigation based on ML models and context	( )	( )	( )	( )	( )
End user play, rewind, pause	( )	( )	( )	( )	( )
User interaction with visual/analytical objects within flow	( )	( )	( )	( )	( )
Automated highlighting of objects	( )	( )	( )	( )	( )
Suggested topics/questions/navigation based on popularity	( )	( )	( )	( )	( )
Contextual explanation capability	( )	( )	( )	( )	( )
Recommendations engine (e.g., collaborative filtering)	( )	( )	( )	( )	( )
Anomaly identification / highlighting / user altering	( )	( )	( )	( )	( )
Search / navigate / recommend available guides	( )	( )	( )	( )	( )
Leverages existing governance systems	( )	( )	( )	( )	( )

User alerting when relevant guides are added or updated	( )	( )	( )	( )	( )
---	-----	-----	-----	-----	-----

How important is it to control access to and ensure accuracy and consistency across data, models and analyses shared across decision makers?

( ) Critical

( ) Very Important

( ) Important

( ) Somewhat Important

( ) Not Important

How important are the following features for BI and analytics co-creation and sharing (i.e., collaboration)?

	<b>Critical</b>	<b>Very Important</b>	<b>Important</b>	<b>Somewhat Important</b>	<b>Not Important</b>	<b>Don't Know</b>
"Follow" objects (change/update notifications)	( )	( )	( )	( )	( )	( )
Annotate content (e.g., reports, dashboards, charts, data tables) with comments	( )	( )	( )	( )	( )	( )
Co-author content (e.g., reports, charts, analysis, models)	( )	( )	( )	( )	( )	( )
Collaborate around "topics" (multiple BI analyses)	( )	( )	( )	( )	( )	( )

## 2021 Self-Service BI Market Study

Content creation and sharing using structured workflow	( )	( )	( )	( )	( )	( )
Content rankings based on utilization/popularity	( )	( )	( )	( )	( )	( )
Content tagging and classification	( )	( )	( )	( )	( )	( )
Document decisions in analytical threads	( )	( )	( )	( )	( )	( )
Export discussions	( )	( )	( )	( )	( )	( )
Maintain a discussion "thread" (history) of interactions/discussions (asynchronous sharing)	( )	( )	( )	( )	( )	( )
Maintain multiple versions (history) of content/objects	( )	( )	( )	( )	( )	( )
Pallet of predefined processes, data, models etc.)	( )	( )	( )	( )	( )	( )
Search and navigation for content (e.g., data, models, metadata)	( )	( )	( )	( )	( )	( )
Share content and commentary with other users	( )	( )	( )	( )	( )	( )
Support real-time (synchronous) interaction between users with content	( )	( )	( )	( )	( )	( )

User-defined groups	( )	( )	( )	( )	( )	( )
---------------------	-----	-----	-----	-----	-----	-----

Using current systems, how difficult is it to find content (e.g., models, datasets, reports, dashboards) created by others?

( ) Impossible

( ) Difficult

( ) Somewhat Difficult

( ) Relatively Easy

( ) Extremely Easy

How important are the following administrative features for governing content creation and sharing?

	<b>Critical</b>	<b>Very Important</b>	<b>Important</b>	<b>Somewhat Important</b>	<b>Not Important</b>	<b>Don't Know</b>
Content check in/out with promote-ability	( )	( )	( )	( )	( )	( )
Ability to "certify" official versions of shared metadata, data, etc.	( )	( )	( )	( )	( )	( )
Ability to analyze and audit decision processes	( )	( )	( )	( )	( )	( )
Support for lineage and impact analysis	( )	( )	( )	( )	( )	( )
Define levels of	( )	( )	( )	( )	( )	( )

access to shared documents, data, etc.						
Integration with access/identity management systems	( )	( )	( )	( )	( )	( )
APIs available to program functionality and data/metadata functions and data	( )	( )	( )	( )	( )	( )
Track usage of models, documents, etc. to streamline/optimize	( )	( )	( )	( )	( )	( )
Administrative oversight of user-defined groups	( )	( )	( )	( )	( )	( )

How important is it that your BI tool integrate with an enterprise collaboration framework?

- ( ) Critical
- ( ) Very Important
- ( ) Important
- ( ) Somewhat Important
- ( ) Not Important

Which of the following enterprise collaborative solutions does your organization currently use?

- ☐ Alfresco
- ☐ Asana
- ☐ Basecamp
- ☐ Box
- ☐ Cisco Spark
- ☐ Confluence (Atlassian)
- ☐ Documentum
- ☐ DropBox
- ☐ Evernote
- ☐ Google G-Suite
- ☐ IBM Connections
- ☐ Jira (Atlassian)
- ☐ Jive (Lithium)
- ☐ Lithium
- ☐ Microsoft SharePoint
- ☐ Microsoft Teams
- ☐ OpenText
- ☐ Oracle Beehive
- ☐ Podio
- ☐ Quip (Salesforce)



How important are the following integration capabilities between a BI tool and an enterprise collaboration framework?

	<b>Critical</b>	<b>Very Important</b>	<b>Important</b>	<b>Somewhat Important</b>	<b>Not Important</b>	<b>Don't Know</b>
Create BI Objects within collaboration platform	( )	( )	( )	( )	( )	( )
Extended sharing using collaboration platform facilities	( )	( )	( )	( )	( )	( )
Inclusion of BI objects with other objects	( )	( )	( )	( )	( )	( )
Ability to reference and search BI content from collaboration platform	( )	( )	( )	( )	( )	( )