

BI Trend Monitor 2017

The world's largest survey on BI trends

BARC Research Study

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A CXP GROUP COMPANY



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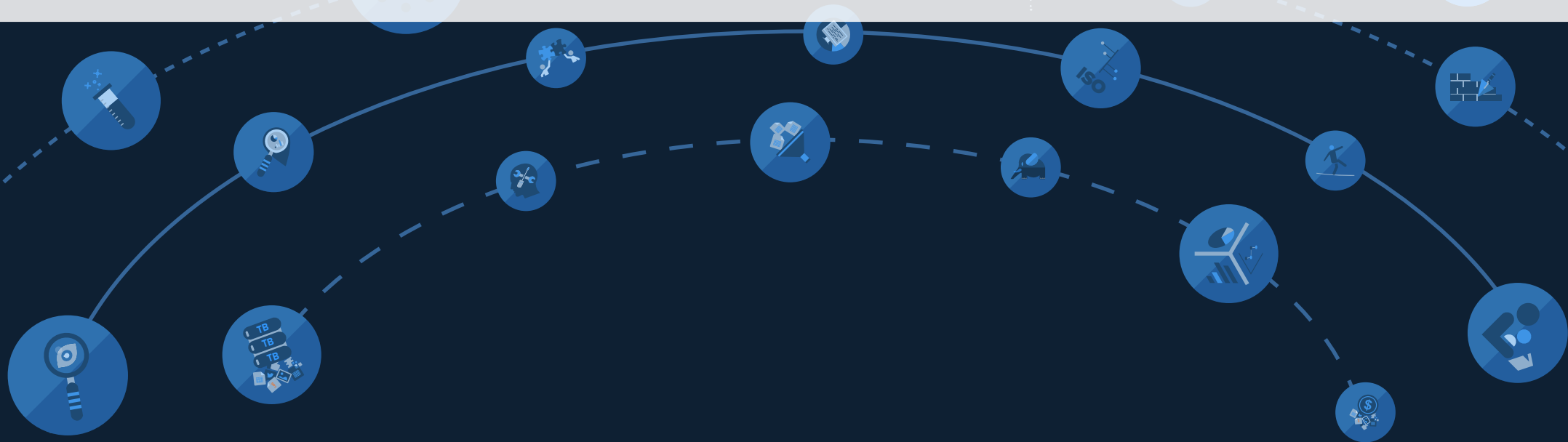
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Foreword



The IT industry and the world at large have always been subject to technology and business trends, sometimes undergoing major changes, such as the development of the personal computer, client/server computing or the evolution of the Internet. Over the last few years, new trends have emerged that have had an enormous influence on how organizations work, interact, communicate, collaborate and protect themselves. Eight IT 'meta-trends' influence organizations' strategies, operations and investments in a wide variety of ways:

Digitalization, Consumerization, Agility, Security, Analytics, Cloud, Mobile and Artificial Intelligence.

These meta-trends can be considered as the main drivers behind a number of important trends either related to the usage of software and technologies for business intelligence/analytics (BI) and data management or to the way BI is organized. They shape the BI and data management trends presented in this document.

The BI Trend Monitor 2017 from BARC reflects on the trends currently driving the BI and data management

market from a user perspective. In order to obtain useful data for the BI Trend Monitor, we asked close to 2,800 users, consultants and vendors for their views on the most important BI trends. Their responses reveal a comprehensive picture of regional, company and industry specific differences and deliver an up-to-date perspective on the BI market.

Dr. Carsten Bange

Würzburg, Germany. November 2016.



Management Summary



The market for BI and data management is constantly changing. Trends come and go and one of the tasks of industry analysts is to highlight and predict important topics that have an impact on the agendas of organizations and the people within them. We took a unique

approach in identifying trends for The BI Trend Monitor 2017. As well as gauging the opinion of our analysts, we asked close to 2,800 users, consultants and vendors for their views on the most important BI trends, revealing a comprehensive picture of regional, company

and industry specific differences and delivering an up-to-date perspective on the BI market. We have summarized the main findings of this study into six result areas.

Result area 1

Top trending topics

Data discovery/visualization, self-service BI and data quality/master data management are the three topics BI practitioners identify as the most important trends in their work. These trends are stable and were also identified as the top three trends last year. At the other end of the spectrum, data labs/data science, cloud BI and data as a product were voted as the least important of the twenty-one trends covered in this report. This shows that 'hyped' topics or initiatives in early-moving companies cannot win a greater mindshare as important trends than more mainstream topics like data discovery and self-service BI, or fundamentally important topics that have been around for a while like data quality and master data management.

Compared to last year's results, there haven't been any major changes in opinion on the importance of specific BI trends. This is a good indicator that our survey participants are not seeing any major market shifts or disruptions impacting their work.

Result area 2

Best-in-Class companies

Best-in-class companies* attach greater importance to all BI trends than organizations that see themselves as laggards*. The biggest differences in perceived importance between these two groups are in agile BI, data labs/science and visual design standards. There is less difference in the rating of self-service BI, data governance and master data/data quality management. These responses indicate that laggard companies deal mostly with the major market trends while best-in-class companies are more likely to address more advanced topics.

* Best-in-class companies comprise the top 10 percent in terms of achievement of specific BI-related business benefits (e.g. "Faster reporting, analysis or planning" and "Increased competitive advantage") in this survey. Laggards represent the lowest 10 percent.

Result area 3

Vendors vs. users

Vendors, consultants and users often agree on their rating of the importance of BI trends. However, a difference of opinion can be seen when it comes to cloud BI, agile BI and Hadoop. Vendors consider these topics to be much more important than users do, especially business users. And the gap is particularly wide when it comes to cloud BI. While vendors see cloud BI as much more important than last year (5.9 up from 4.9 last year), the corresponding value for users has remained unchanged at 3.7.

Conversely, users attach greater importance to master data/data quality management and analytical databases than vendors do.



Result area 4

Industry comparison

Generally speaking, the manufacturing industry considers BI trends less important than other industries despite the ongoing discussion around big data analytics, digitalization and the industrial internet. The same is true for telecommunications companies, except when it comes to agile BI and Hadoop. This probably reflects the BI maturity in this highly competitive sector where “standard” BI trends have already been implemented and do not seem so important anymore.

The IT industry, services and the public sector generally regard BI trends as more important, possibly for different reasons.

The biggest differences in the perception of importance of trends between industries can be seen with cloud BI (important for IT, but much less important for manufacturing), predictive analytics (most important in financial services, but less so in telcos) and data as a product (important in IT and the public sector, but less important in manufacturing and utilities).

Result area 5

Global differences

Overall, Asia, North America and especially South America view BI trends as more important than Europe. It is unclear whether there might be cultural factors favoring an overly euphoric response behavior, or if they really do regard most BI trends as more important.

In Europe as a whole, almost all trends are less relevant – particularly in the German-speaking region (see Result area #6). On a global level, the biggest differences from region to region can be seen in data integration for business users, data storytelling, agile BI and cloud BI.

Result area 6

Europe

The perception of importance of BI trends varies significantly across different regions of Europe: Participants from Eastern Europe and the UK & Ireland generally view trends as more important. Compared to the rest of Europe, BI practitioners in UK & Ireland attach greater significance to mobile BI, data storytelling and data governance.

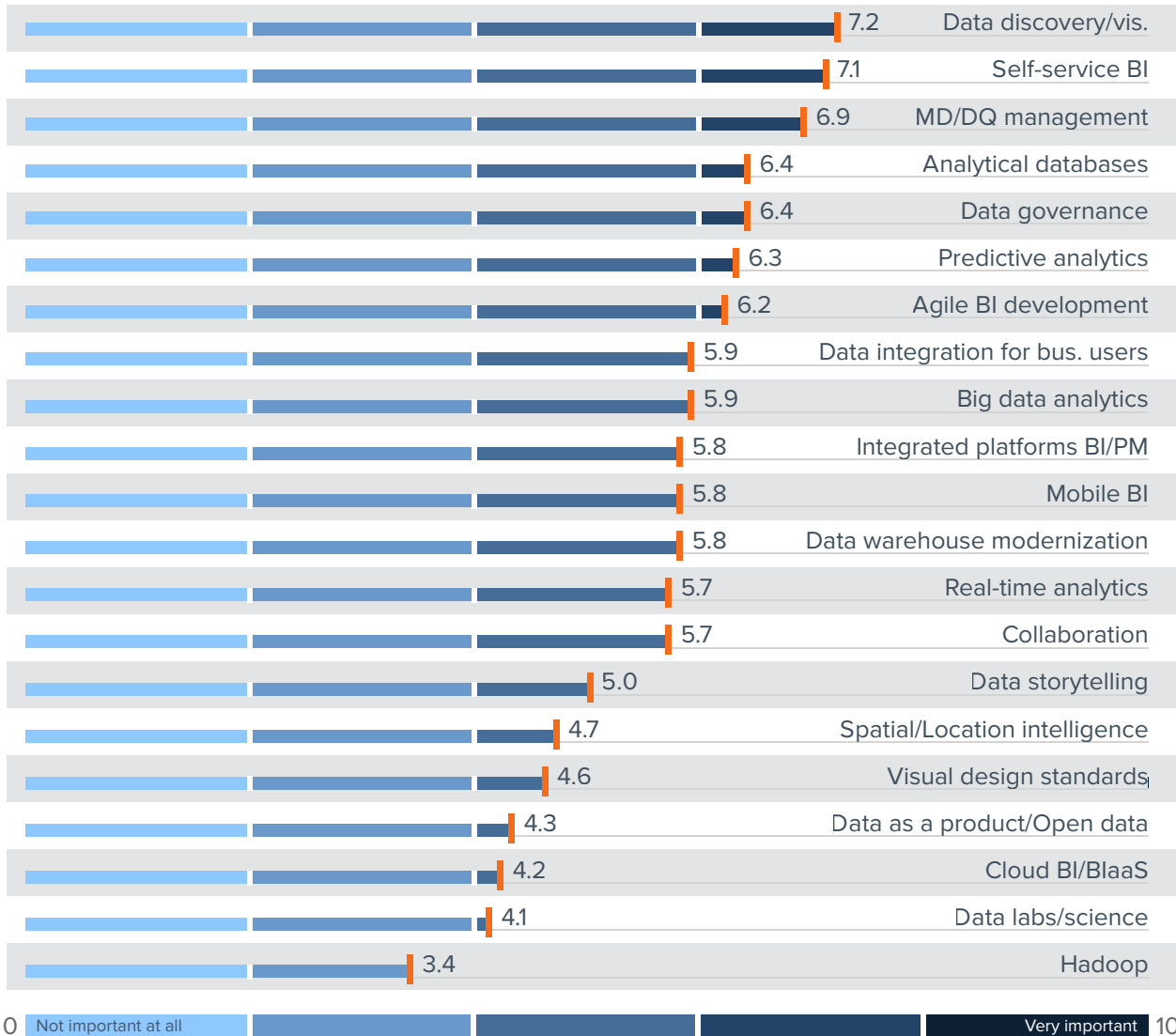
The German-speaking countries (“DACH”) are more reserved and assign medium to medium-high importance to most trends – with one notable exception: visual design standards. This trend is much more relevant to companies in the DACH region than anywhere else. Compared to other European countries, survey participants from the DACH region see less significance in a wide range of topics including agile BI, data governance, cloud BI, data as a product, data discovery, data integration for business users, and data storytelling.





BI Trends Overview



Importance of BI Trends from "Not important at all" (0) to "Very important" (10)



n = 2772

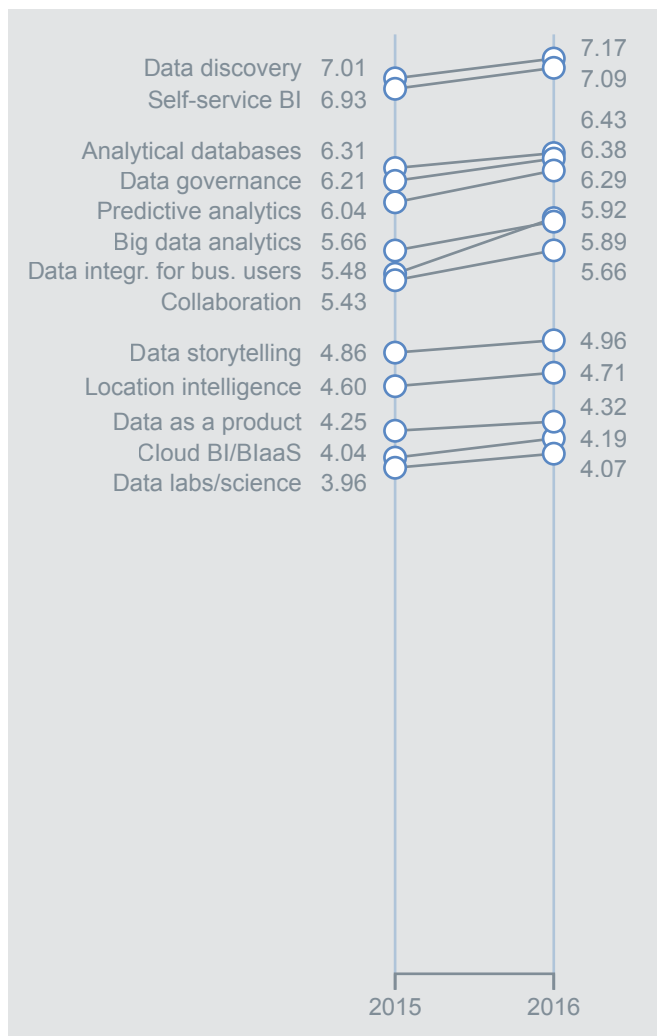
Overall, there are no major changes in the ranking of importance of BI trends compared to last year. Data discovery, self-service BI and master data/data quality management are currently the top BI trends. While self-service BI and data discovery increased moderately in importance, master data and data quality management decreased slightly. Self-service BI has been on organizations' wish lists for a long time as IT departments struggle to satisfy constantly growing demand from end-users for faster changes and new developments to meet their BI needs. Enabling the business user community through 'self-service BI' is a good idea. Data discovery and visualization as well as predictive analytics are among the typical functions users want to consume in a self-service mode. However, an agreed data and tool governance framework is paramount to avoid losing control over data. End-users recognize the need for data quality and master data management and, in our experience, initiatives in this area are often announced with a fanfare before quickly moving down the list of priorities for a variety of reasons. But at least organizations seem to be aware that the best looking dashboard is worth nothing if the data shown has flaws. Business intelligence will not work without comprehensive data integration and data quality initiatives, but these have to be backed up with the right level of attention, resources and funding.

Trends in the BI market are relatively stable. The biggest surge in interest is seen with "Data integration for business users"

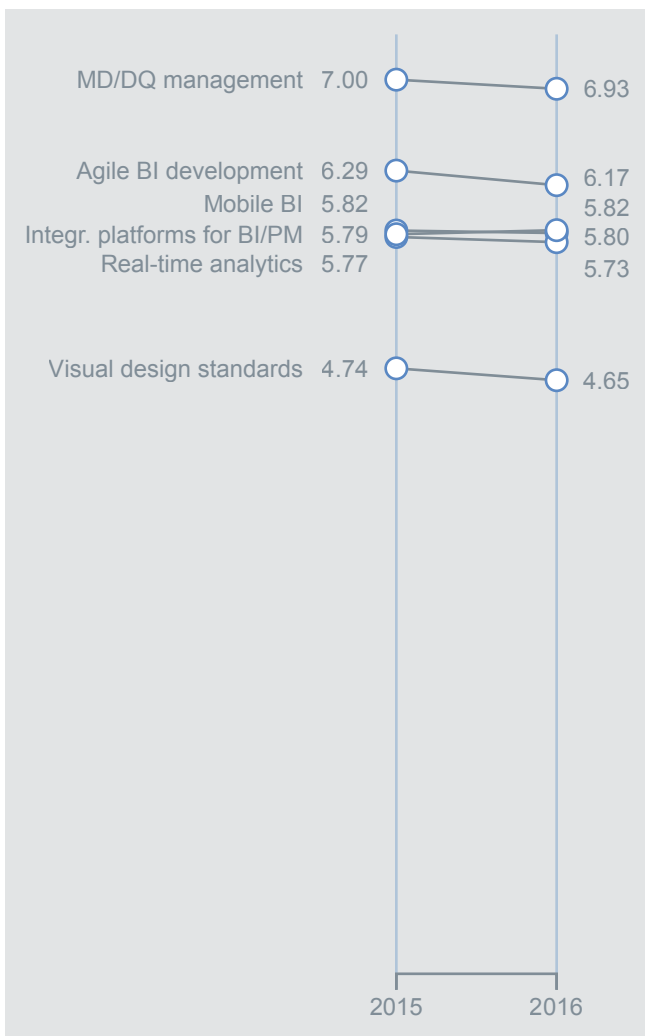


Development of the Importance of BI Trends from "Not important at all" (0) to "Very important" (10)

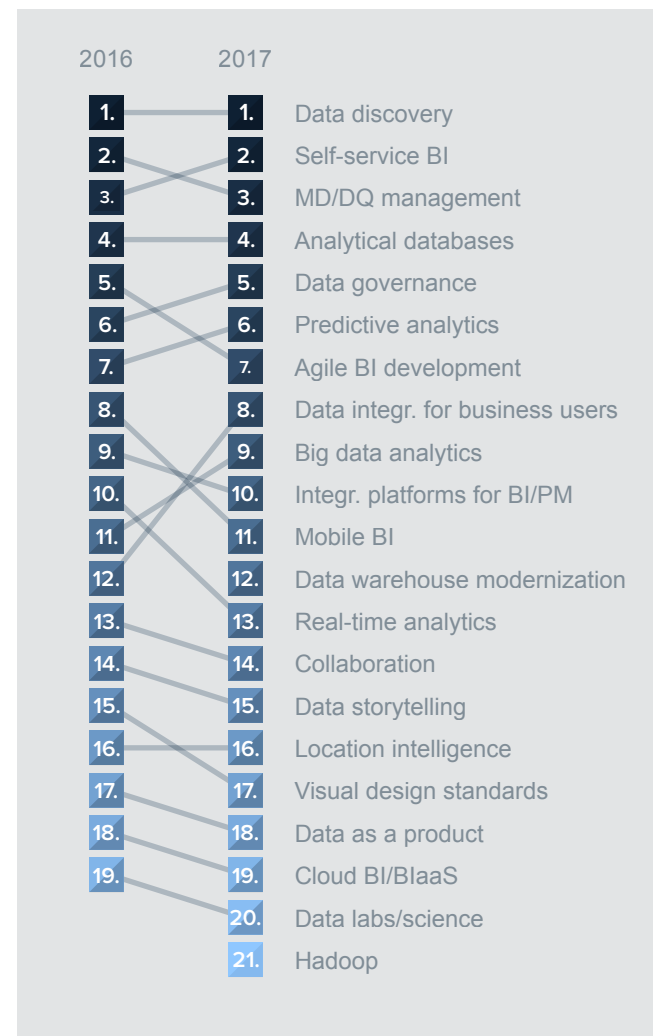
Trends with an upwards tendency



Trends with a downwards tendency



Ranks



n = 2794/2772



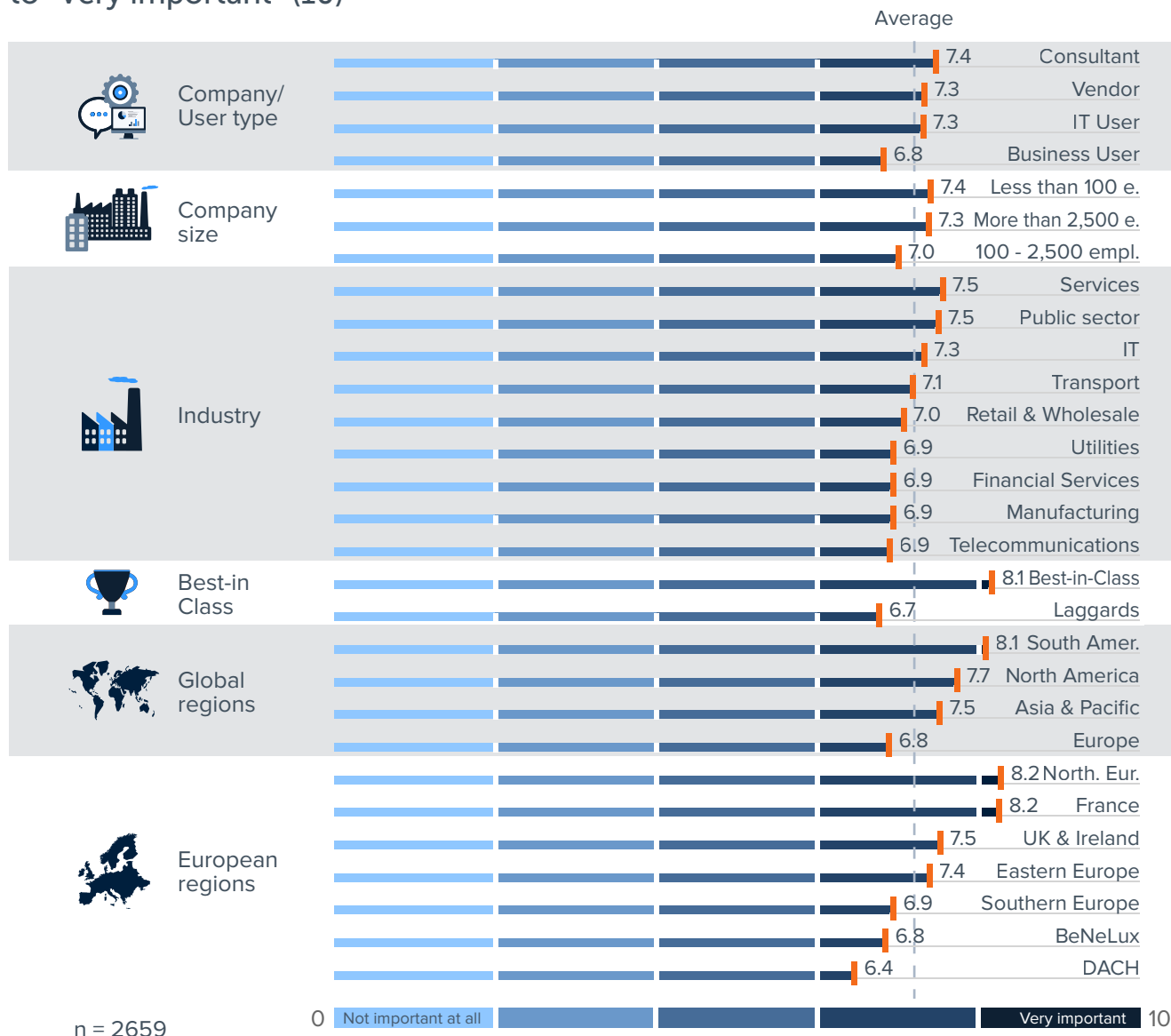
16		Data discovery/visualization	38		Data warehouse modernization
18		Self-service BI	40		Real-time analytics
20		Master data/data quality management	42		Collaboration
22		Analytical databases	44		Data storytelling
24		Data governance	46		Spatial/location intelligence
26		Predictive analytics/data mining	48		Visual design standards
28		Agile BI development	50		Data as a product/open data
30		Data integration for business users	52		Cloud BI/BlaaS
32		Big data analytics	54		Data labs/science
34		Integrated platforms for BI and PM	56		Hadoop
36		Mobile BI			



Data Discovery/ Visualization



Importance of Data Discovery/Visualization from "Not important at all" (0) to "Very important" (10)



Viewpoint

Visualization and explorative data analysis for business users (known as data discovery) have evolved into one of the most important trends in BI.

Once, tables filled with numbers and static charts were the most common form of providing information to BI users. But the large amount and increasing variety of data available today requires more efficient and user-oriented methods of presentation. Visualizations use our brains' pattern recognition capabilities to digest the most relevant information at a glance.

Interactive and new visualization types enable decision-makers to see, within an instant, major trends, as well as spot outliers. Some graphics such as scatterplots, tree maps and network diagrams are better suited to displaying large amounts of information. Furthermore, there's now a push for more simple and visually appealing interaction and navigation in data.

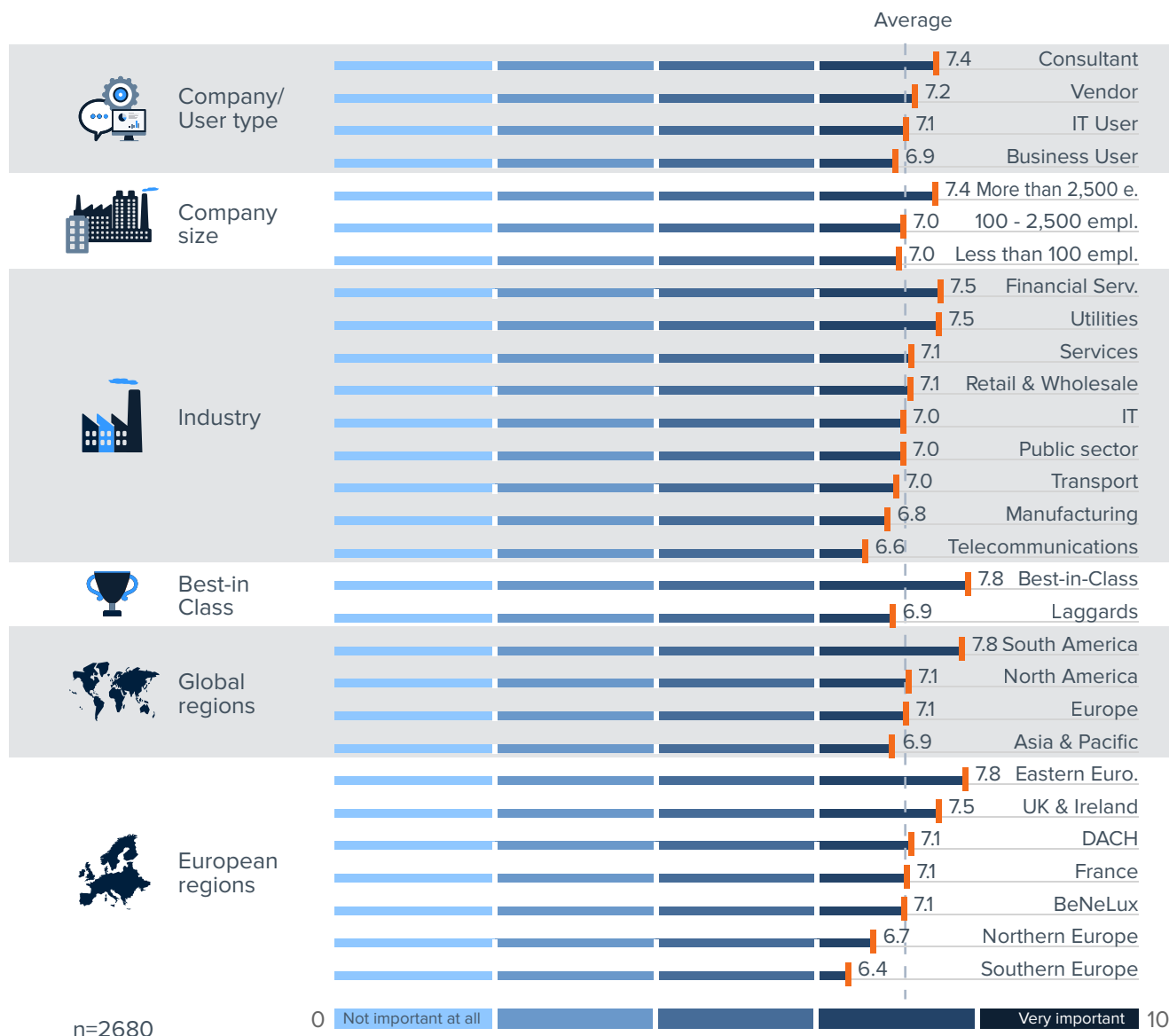
Data visualization and visual analysis specialists were the first to provide highly graphic, yet easy-to-use, interfaces to help business users dig deep into data. Data discovery in particular focuses strongly on providing intuitive solutions to business users so they can create their own data models and perhaps use predictive or data mining methods to analyze data. Interactive, explorative data usage and analysis is a key aspect of effective data discovery.



Self-Service BI



Importance of Self-Service BI from "Not important at all" (0) to "Very important" (10)



Viewpoint

Self-service BI has been on organizations' wish lists for a long time and data from this survey confirms that it is still a high priority, with ever-growing demand from business users for ad hoc reporting, analysis and flexibility.

Demand from departmental users for the provisioning of self-service capabilities and for data to be available anytime, anywhere and on any device is putting pressure on IT and BI organizations. As a result, there is a growing trend among enterprises to enable business users to build or design their own queries, reports, interfaces or even data models. Power users may even compile their own dashboards using layout components from different sources, adjusting and combining them for their personal needs.

This places additional strain on companies' BI organizations and BI governance as the responsibility for reporting becomes increasingly scattered. It is also a challenge for IT departments - who are in charge of operating the software tools, application servers and fulfilling data needs - as they have less control over users' behavior. Therefore, striking the right balance between flexibility and data governance is a crucial element in the success of self-service BI projects.



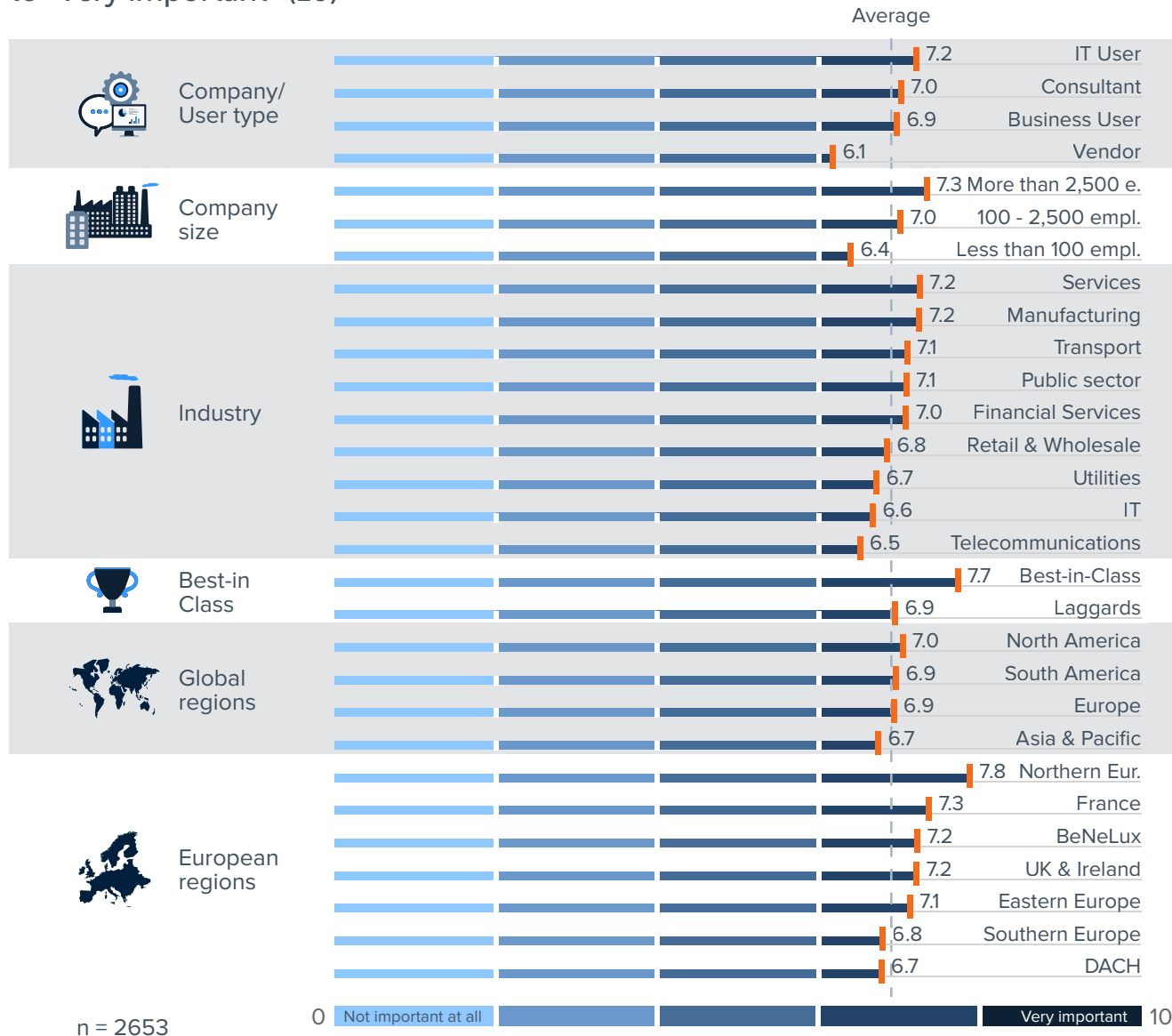
Master Data/Data Quality Management

Best-in-class, Northern Europe and IT users regard master data & data quality management as very important. Vendors see it as less relevant

Master Data/Data Quality Management



Importance of Master Data/Data Quality Management from “Not important at all” (0) to “Very important” (10)



Viewpoint

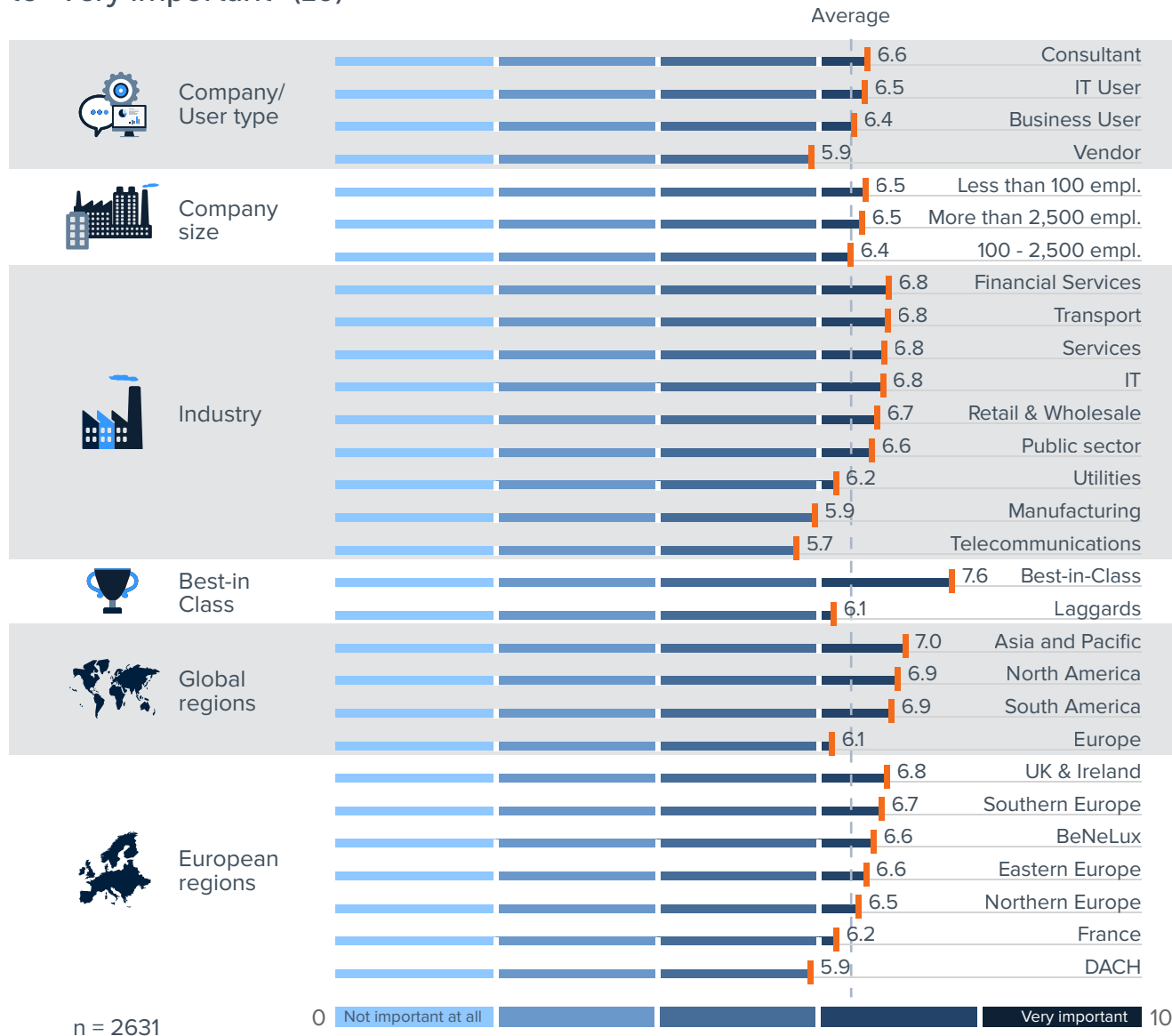
The importance of data quality and master data management can be explained very simply: people can only make the right decisions based on accurate data. Through their aggregation mechanisms, BI reports and analyses can help reveal data quality issues. Operational and decision-making processes also profit from high data quality.



The goal of master data management is to bring together and exchange master data such as customer, supplier or product master data across multiple systems. Aside from a “master” ERP system, many companies also work with other CRM or SCM systems, use Web services, or need to merge systems following corporate mergers, or to co-operate as partners effectively. There are proven concepts for increasing data quality and implementing master data management. One example is the Data Quality Cycle, which many software vendors have implemented in their tools.

In today’s digital age, in which data is increasingly emerging as a factor of production, there is a growing need to use or produce high quality data in new services and products. Defining roles and responsibilities as well as monitoring and optimizing quality assurance processes within a well-devised software solution for data quality and master data management are critical success factors.



Importance of Analytical Databases from "Not important at all" (0) to "Very important" (10)



Analytical databases are specialized databases optimized for analytics, for example, through data storage (column-based), hardware usage (in-memory), integrated functions (text analysis), architecture concepts or delivery terms (appliances). Their main benefits are faster query performance, better maintenance and scalability.

In-memory databases are becoming more affordable due to falling hardware prices and, with their high processing speed, these technologies can make the complex data architectures of existing data warehouse databases leaner, thereby adding flexibility to overall data management.

However, these databases alone are no guarantee of successful data management or a lean, high-performance data architecture. For instance, using an analytical database as a data mart to accelerate queries creates an additional level in the overall system. Analytical databases have enormous potential but need to be planned correctly in the overall analytics landscape.

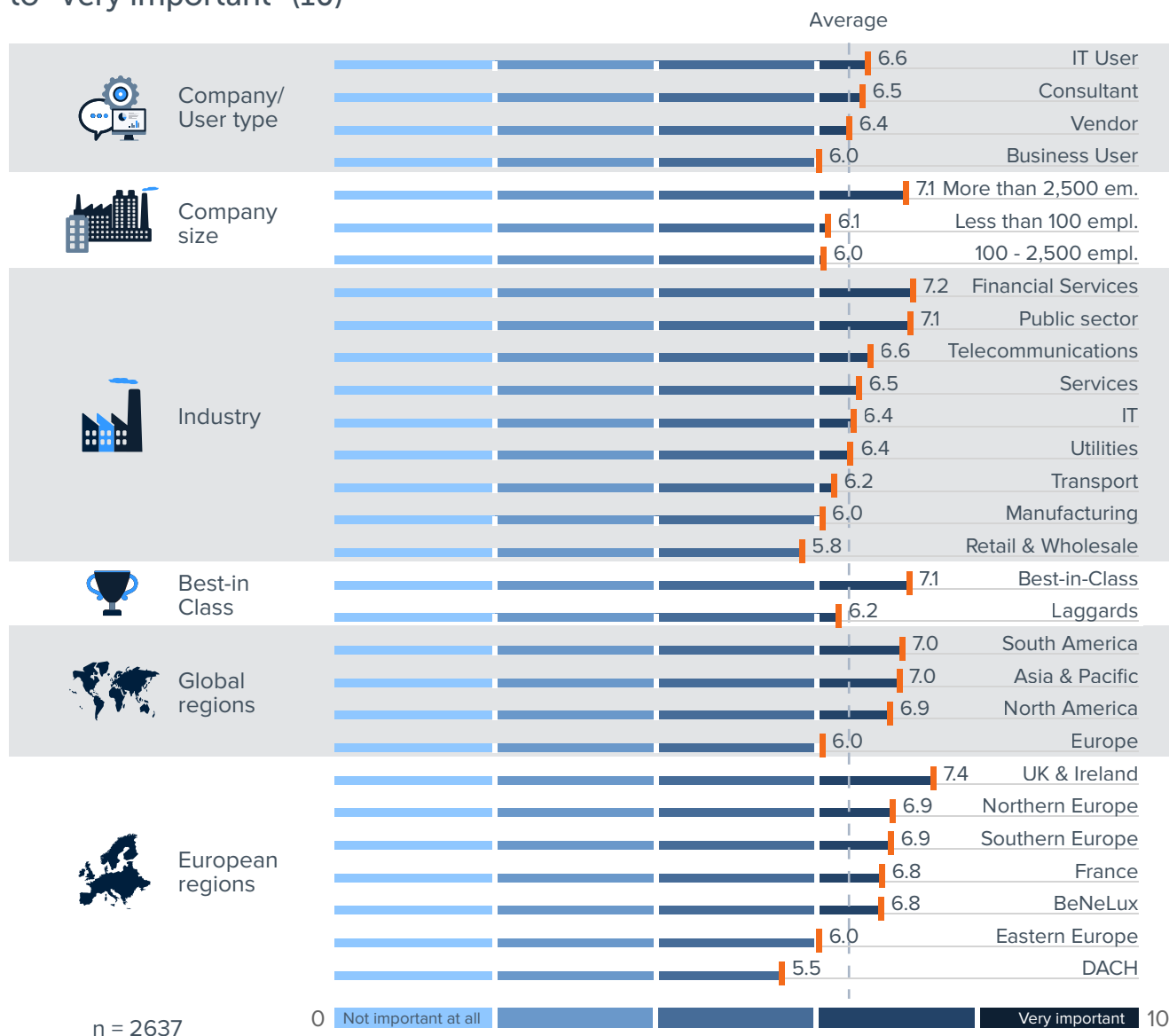




Data Governance

Most relevant in large enterprises and the UK & Ireland. Less popular with business users and mid-sized/smaller companies



Importance of Data Governance from "Not important at all" (0) to "Very important" (10)



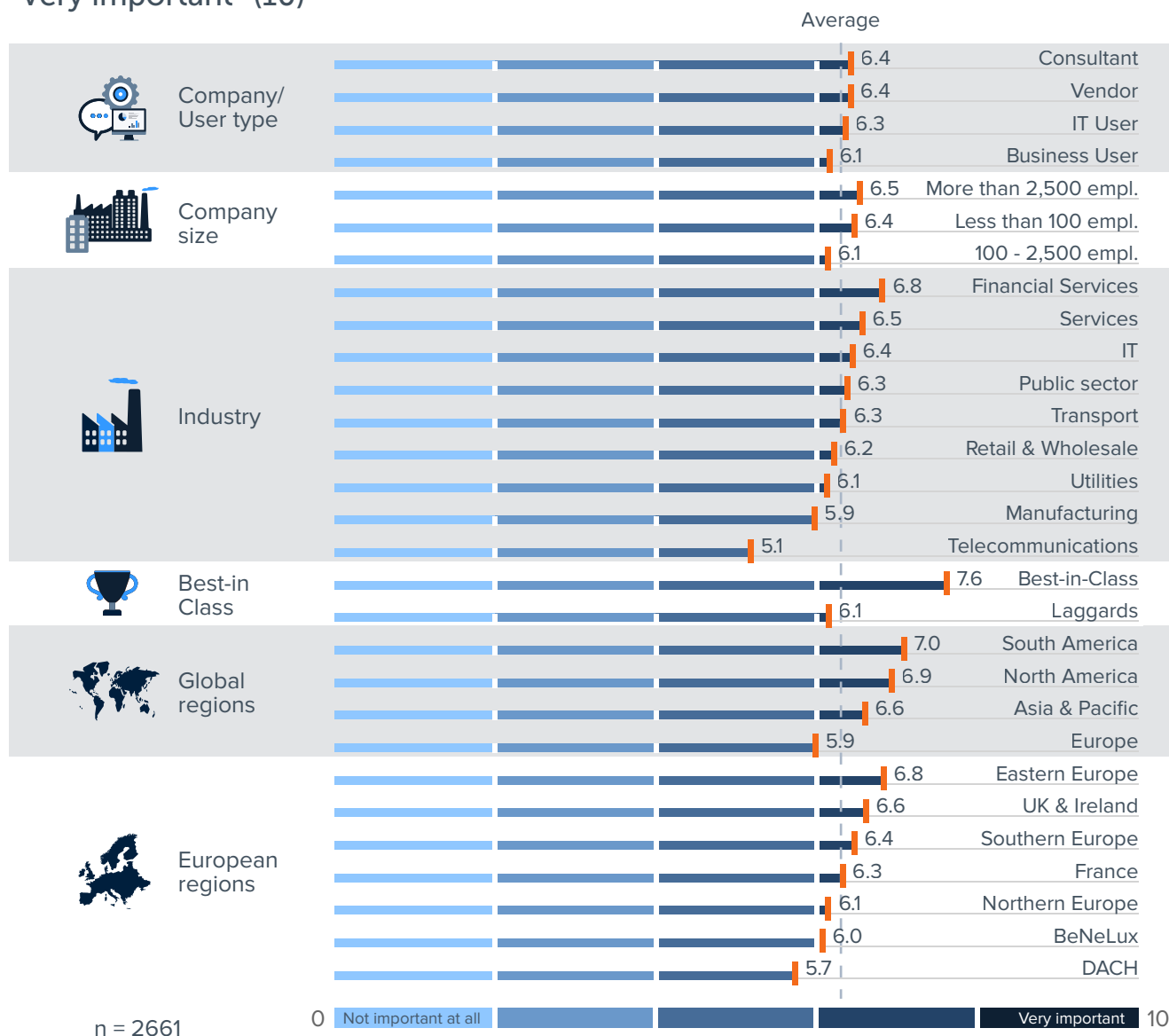



Unlike BI governance, which centers on analytics, data governance focuses on the data in analytics and operational systems. Data governance is essential for data-driven companies that are extending existing BI investments with exploratory and operational analytics. Governance must go beyond classic BI systems and, from a data perspective, incorporate operational systems. This ensures that companies can utilize new findings and modify processes directly, but also requires broader thinking in terms of knowledge, organization and technology.

A proper data strategy orchestrates how business strategy is translated into data and analytics. Data strategy manages the exploitation of data across all business processes in favor of business efficiency and innovation. Data governance is the steering mechanism needed to implement data strategy, including policies and frameworks to manage, monitor and protect data capital while taking people, processes and technologies into account. Establishing data governance is a long-term endeavor. Most of all, it requires a clear, conscious management decision on how to work with and use data.



Importance of Predictive Analytics/Data Mining from "Not important at all" (0) to "Very important" (10)



Viewpoint

Predictive analytics and data mining continue to gain in importance among BI decision-makers in 2017. Advanced analytics goes beyond mathematical calculations such as sums and averages. It uses mathematical and statistical formulas and algorithms in order to generate new information, identify patterns and dependencies, as well as calculate forecasts.

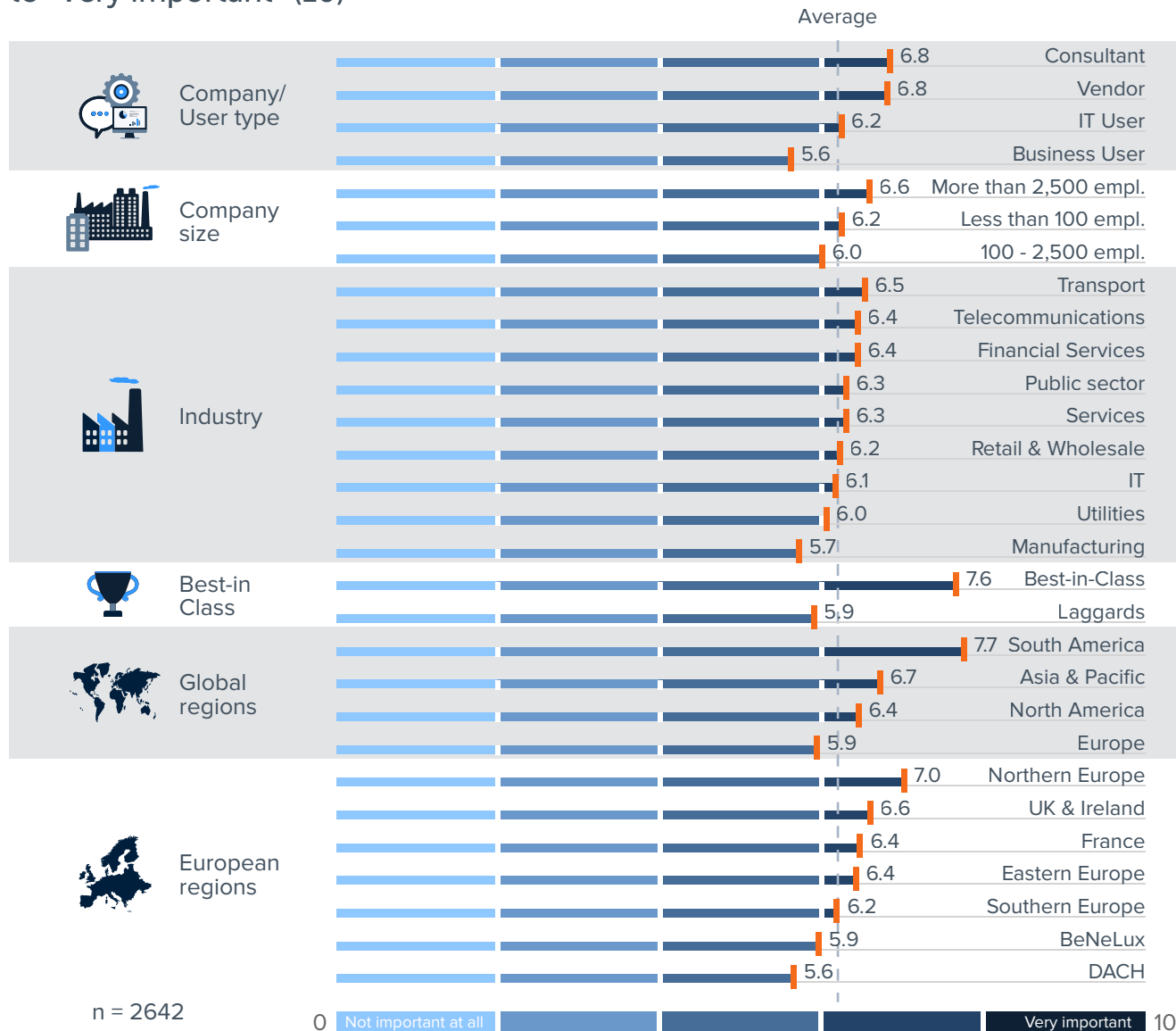
The number of possible use cases in this area is immense, and ranges from conducting forecasts on income, prices, sales, requirements or customer value to preventing contract cancellations, forecasting machine downtime, monitoring and evaluating social media, and predictive policing.

The expansion of predictive analytics and data mining also means changes for IT decision-makers and managers. They need to assess which use cases to tackle with advanced analytics, the level of priority advanced analytics should have in the company as a whole, which roles are required (and with which capabilities), and which technology fits best taking account of the IT landscape and intended users.

With the increasing use and maturity of advanced analytics, many companies have now moved past the experimentation phase into more practical, day-to-day use cases. The deployment of analytics solutions and operationalization of new findings and insights by creating new products and services brings fresh challenges that need to be addressed in both organizational and technological terms.



Importance of Agile BI development from "Not important at all" (0) to "Very important" (10)



Viewpoint

The term "agile" has increasingly been adopted in the context of business intelligence in recent years. Originally referring to a software development methodology, "agile development" is now also used as a requirement for the initial set up of - and subsequent changes to - reports, dashboards or visualizations. Arguably, most users requesting "agile BI" have very little understanding of the agile development methodology and use the term as a synonym for "fast implementation of changes", indicating a pressing need for faster development cycles and flexibility.

Agile BI requires organizations to adopt an iterative development approach. Instead of the traditional waterfall method, by which all requirements are gathered and documented before the development process starts, close collaboration between business and IT, using rapid prototyping, enables organizations to increase development speed while better responding to business needs. Many companies are not set up organizationally for this approach and need to apply changes in their organizational structures and processes. Ideally, the agile BI development approach is also supported by agile project management, by which planning, requirements collection, development, but also functional, regression and usability testing are managed in an iterative manner. An important aspect, and often considered a bottleneck, is the availability of business users to collaborate in the development process.

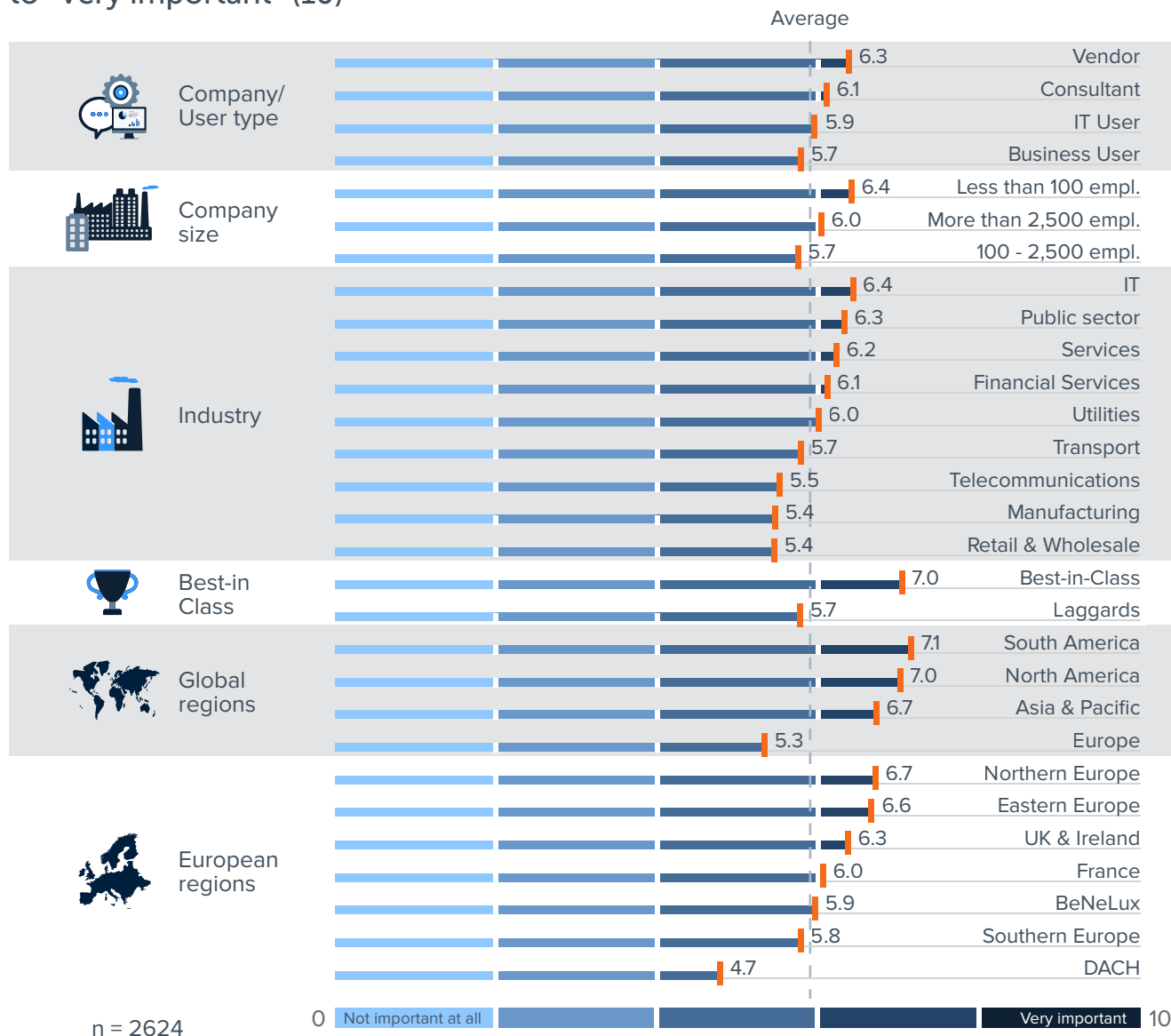


Data Integration for Business Users

North and South America place the most value on data integration for business users. The DACH region is a long way behind




Importance of Data Integration for Business Users from "Not important at all" (0) to "Very important" (10)



Viewpoint

Business users demand a fast and flexible analytical landscape from their IT departments. However, a lack of resources and complex, historically grown systems are common obstacles standing in the way of efficient and agile delivery. Smart data management is key for business success, especially in the field of digitalization where data and analytics have growing importance and influence on the business. Unfortunately, many companies are still learning this.

As a result, more and more data management tasks, primarily in the field of data integration, are being shifted from IT to business departments. Deployment scenarios for data preparation range from self-service BI tools directly accessing operational or analytical systems to specialized self-service data integration (DI) tools for supplying analytical models or explorative sandboxes with data. Self-service data integration tools enable business users to deploy and maintain sandboxes in a fast, flexible and self-reliant manner to use them for explorative analysis. The self-service trend in DI has already reached the market, forcing leading DI vendors to offer options and interfaces as well as governance frameworks for data integration by business users. In addition, BI vendors (specialists and BI generalists) are adding data preparation capabilities to their analysis and data discovery tools.

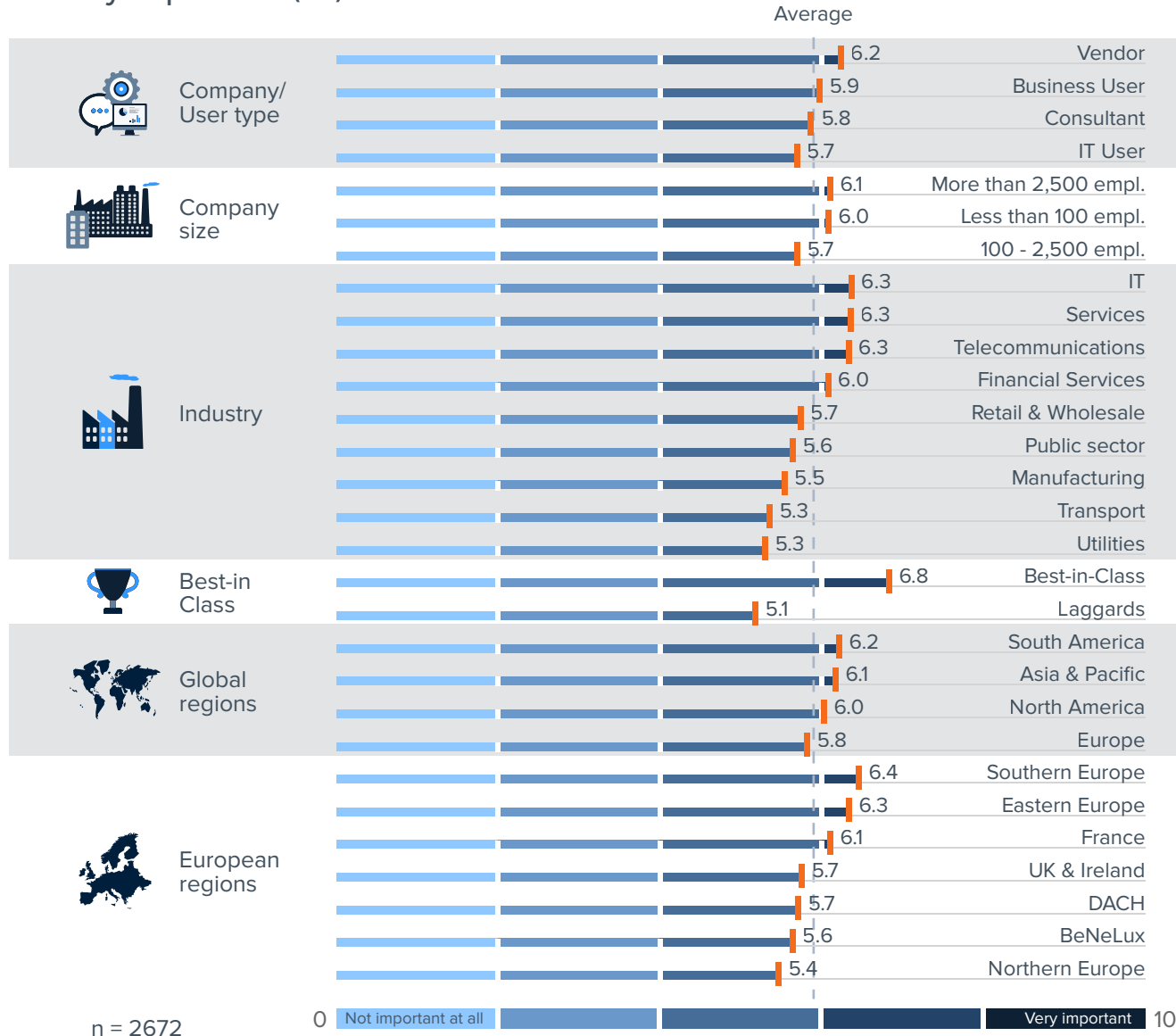


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Big Data Analytics



Importance of Big Data Analytics from "Not important at all" (0) to "Very important" (10)



Viewpoint

Big data analytics is one of the top requirements of businesses these days as they seek to use various internal, and increasingly external, data sources and data types for competitive advantage. One example is the widespread interest in capturing and drawing insights from data streaming from the Internet of Things, as well as social media, mobile devices and enterprise applications.

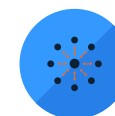
Deriving actionable insights from an expanding data universe supports not only operational but also strategic management decisions. There are plenty of good examples of organizations that could derive significant value from data by adding sensor, geolocation, behavior or social media data to their existing business intelligence and analytics environments.

Using big data is a core competency for companies wishing to develop into data-driven organizations, where data is viewed as an asset and an increasingly important production factor. Business processes and business models are adapted to the increasing value of data that can drive decisions and increase the efficiency and effectiveness of processes.

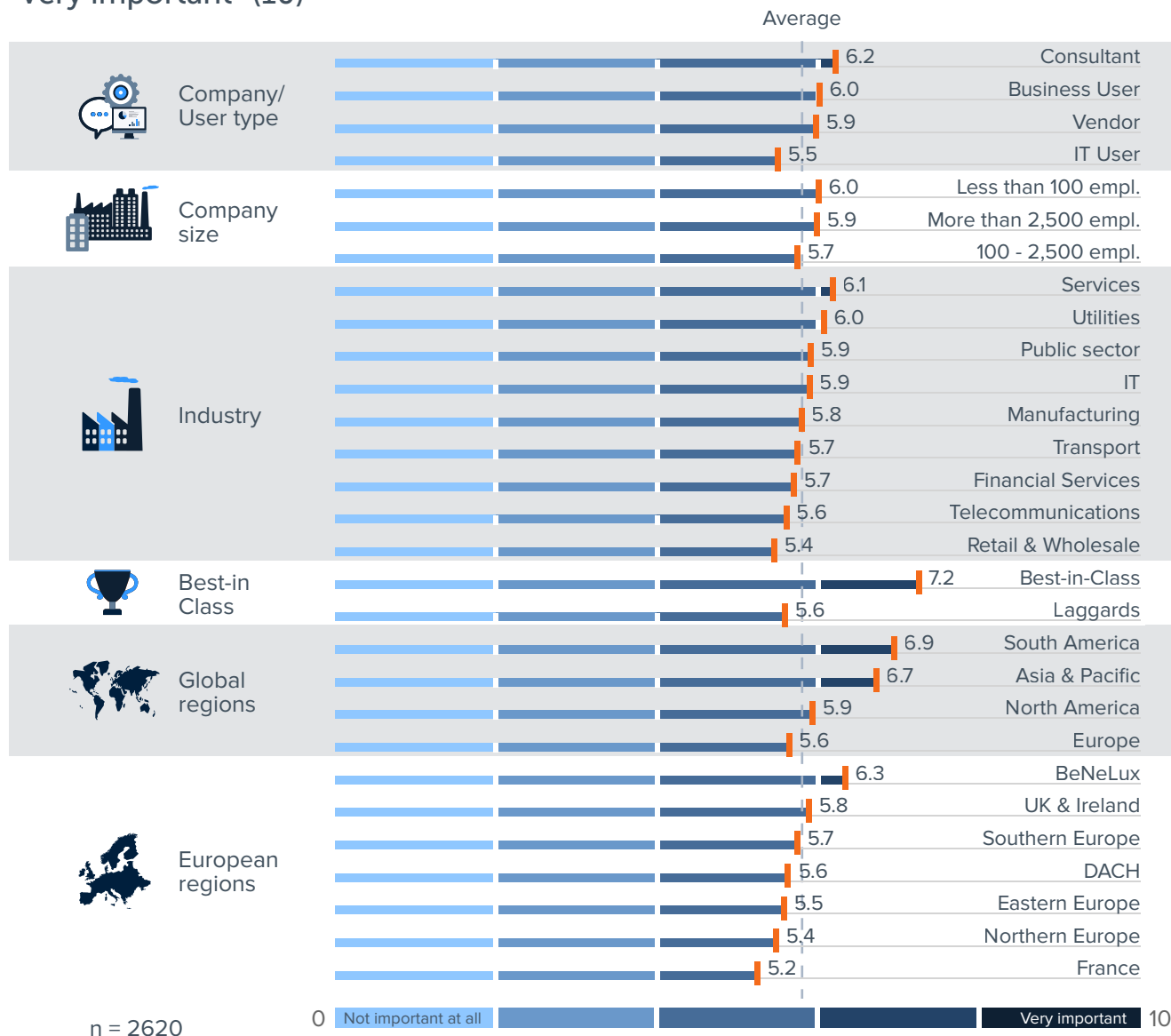


Integrated Platforms for BI and Performance Management (PM)

Best-in-class companies attach much more importance to an integrated platform for BI and PM than other companies



Importance of Integrated Platforms for BI and PM from "Not important at all" (0) to "Very important" (10)



Viewpoint

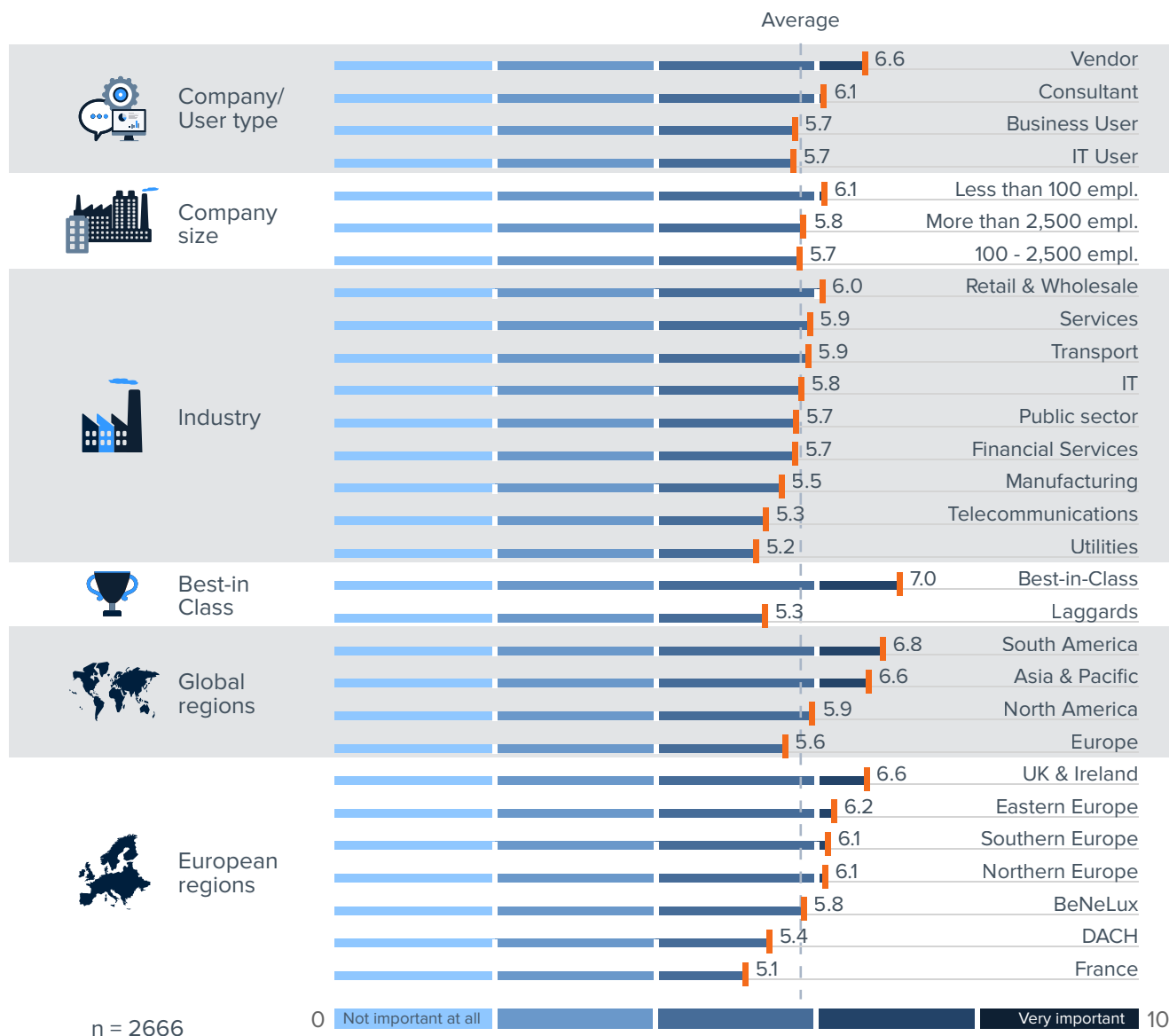
Integrated functionality for BI and performance management (especially planning) in one common platform has been one of the most stable and relevant trends in the market for years. Many companies and users know that there can be no planning without supporting functionality for reporting (e.g. results reports), advanced analysis (e.g. analyses of planned and actual values) and dashboarding (monitoring). The seamless integration of planning and BI functionality is essential to support planning processes optimally.

A decisive factor for sustained success when integrating BI and planning is the support of specialist software solutions. To avoid time-consuming and error-prone data transfer processes between software systems, an integrated database for actuals and plan data represented in a consistent data model forms the solid basis for integrated software solutions. The centrally harmonized master data provides a single, common data basis for BI and planning as well as other additional performance management processes.

Supporting BI and planning on an integrated data platform with an integrated tool is a goal worth investing in. A lack of coherence of data and functionality resulting from using multiple tools for BI and planning, and using Excel instead of specialized software tools for BI and planning, are frequently cited reasons for user dissatisfaction, inconsistencies or error susceptibility with BI and planning in today's companies.

Vendors see Mobile BI as much more important than business users do. France and the German-speaking region are less sold on the idea

Importance of Mobile BI from "Not important at all" (0) to "Very important" (10)



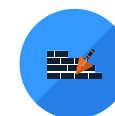
Viewpoint

Mobile BI – driven by the success of mobile devices – was considered by many as a big wave in BI and analytics a few years ago. Today there is a level of disillusion in the market and users attach much less importance to mobile BI. Our survey data shows that market penetration is growing relatively slowly: in 2016, 23 percent of BI users say that mobile BI is in use in their organization (up from 21 percent in 2015, 18 percent in 2014, and 16 percent in 2013 and 2012), while vendors and consultants still see it as an important trend and believe it to be more widespread. In our experience, the most successful mobile deployments are those in which a mobile strategy has already been devised and the needs of mobile workers are carefully addressed with the BI tool. So, for example, simply copying an existing (Web) dashboard to a mobile environment is not always a successful approach.

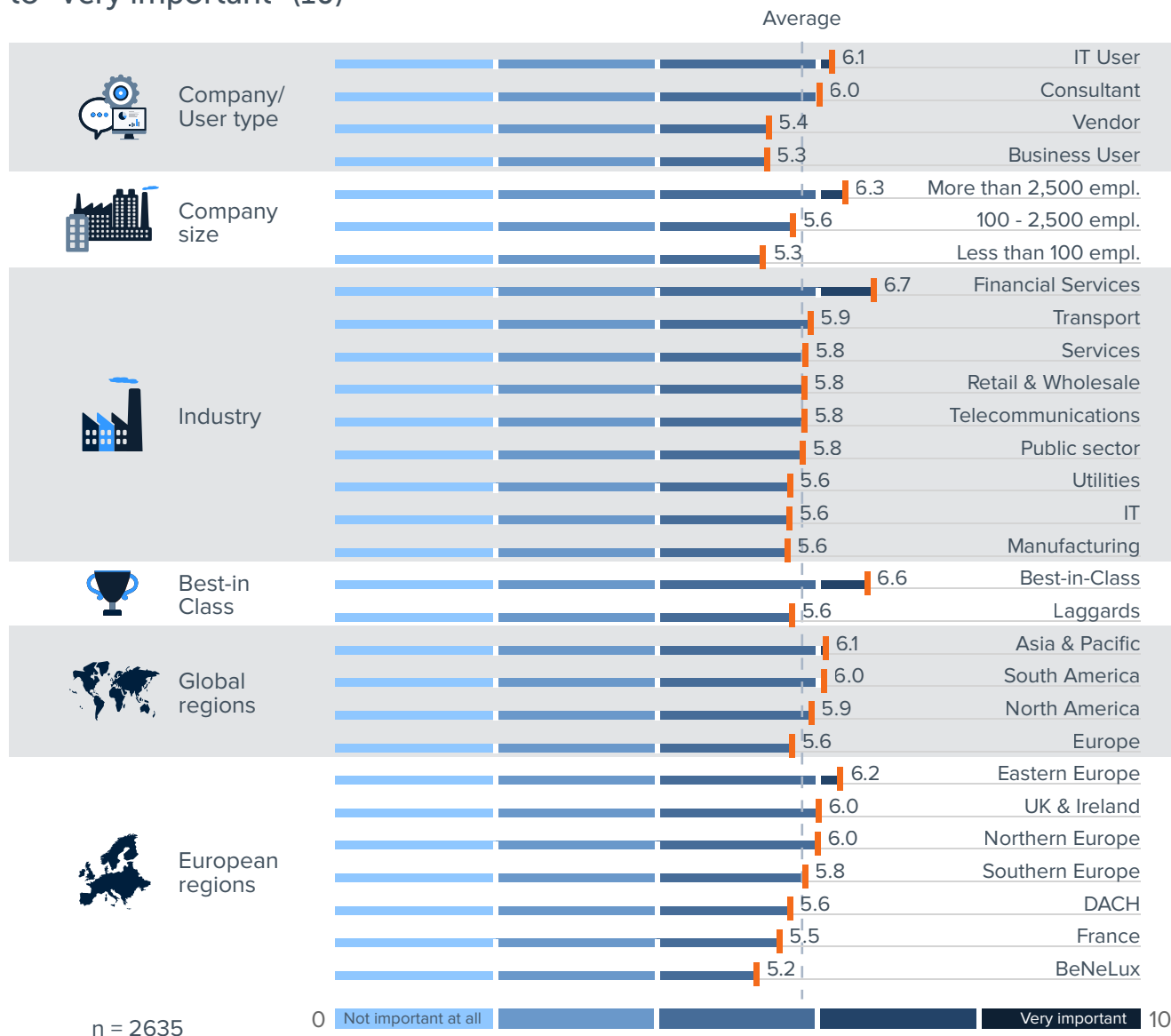
The integration of mobile BI functions into operational processes increases the penetration of BI within organizations and often brings benefits in the form of additional information. In turn, this enables businesses to develop new analysis use cases and allows them to react more quickly to a wider range of events. Almost all BI tools these days offer mobile support, and some even include offline mobile capabilities.

The graphic features a central white circle containing a dark blue brick wall with an orange trowel. This is surrounded by a dashed blue circle with various icons representing data, technology, and business processes. At the bottom, a grey banner contains the text 'Data Warehouse Modernization'.

Data Warehouse Modernization



Importance of Data Warehouse Modernization from "Not important at all" (0) to "Very important" (10)



Viewpoint

New analytical challenges, increasing data variety, rising data volumes, faster decision processes, process automation and decreasing hardware costs are all having major effects on how companies store their data. Firstly, older data warehouse landscapes have evolved to become too complex to support agile development, or too expensive to have their functionality extended to accommodate these modern analytics requirements. Furthermore, the type of implementation for which many data warehouse landscapes were originally designed and optimized does not cover the way analytics is currently moving forward in the direction of exploration and operational processing alongside classical BI requirements.

Now organizations are beginning to understand the new challenges and the potential of alternative architectural approaches or utilizing more hardware options like in-memory or popular (and cheap) off-the-shelf storage systems like Hadoop. IT departments have to prepare for faster, changing analytical requirements, and they must also compete against new and cheaper implementation options from external service providers. It's time to assess historically grown data warehouses against present requirements and evaluate how updated hardware and technology could make life easier.

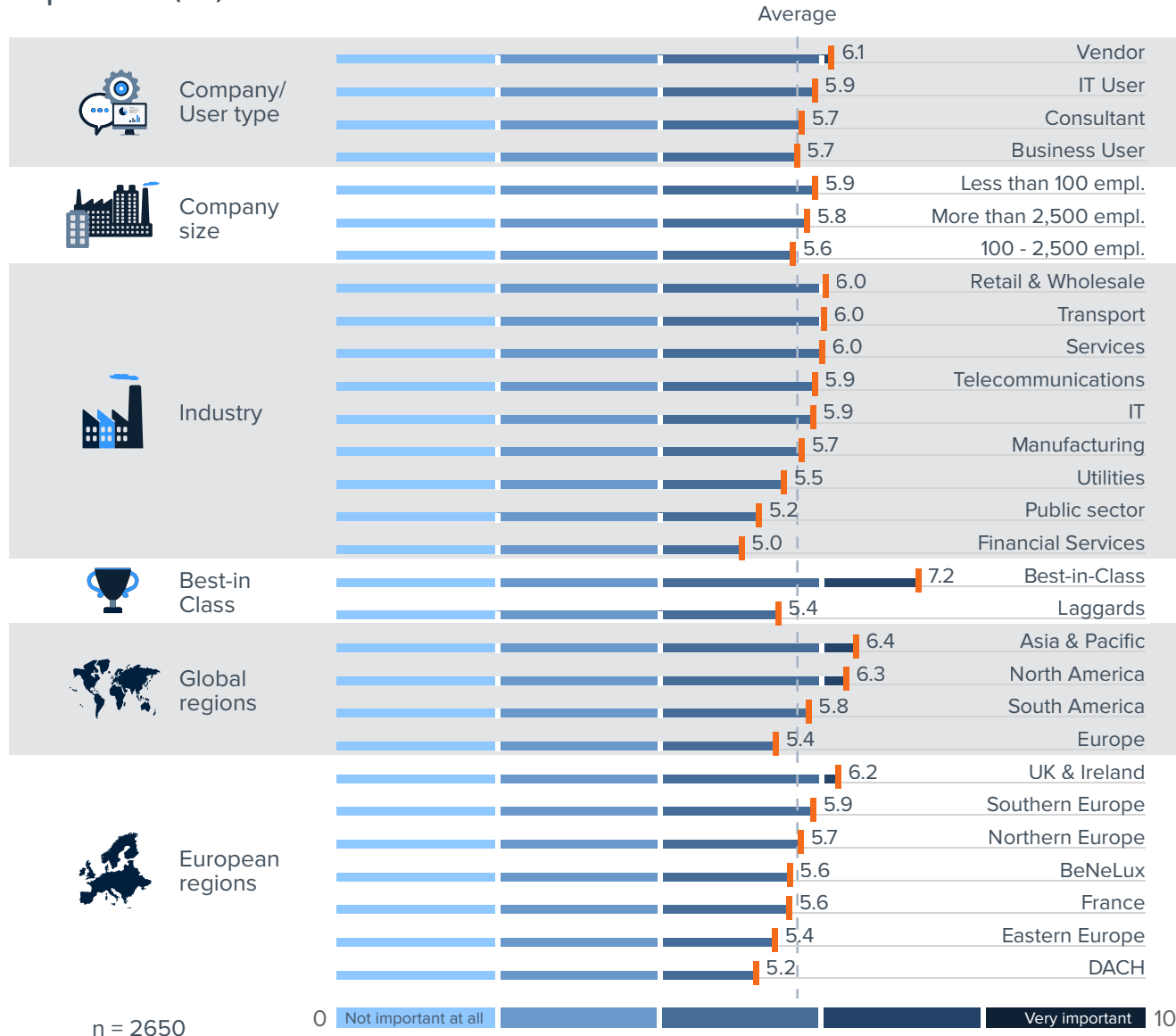
A central graphic featuring a computer monitor with a pie chart and a document icon, surrounded by various data-related icons like a magnifying glass, bar chart, and network diagram, all set against a dark blue background with a circular dashed line.

Real-Time Analytics

Real-time analytics is very popular in best-in-class companies. Its relevance is much lower in Europe, especially the DACH region



Importance of Real-Time Analytics from "Not important at all" (0) to "Very important" (10)



Viewpoint

Faster reporting and analysis of data, not only in terms of query performance (which is still one of the biggest problems users experience with their BI tools), is a challenge in many companies. There is an increasing need to make data from transactional systems available immediately to support faster and fact-based operational decision-making.

BI with real-time data refers to the near-immediate processing and provision of information about business operations in transactional systems (i.e. streaming). Real-time analytics is about catching events or other new data immediately after their occurrence and processing them for display (e.g. in an operational dashboard) or analysis. Constantly increasing amounts of data, high-performance computing time and pattern recognition of events (complex event processing) are just some of the challenges companies now face when focusing on BI with real-time data.

Like visual BI or predictive analytics, BI with real-time data can complement an organization's existing BI strategy to gain new insights into data with additional, valuable findings. An organization's decision-making culture, available skills and the identification and promotion of appropriate use cases are key aspects to consider when exploring a real-time analytics project.



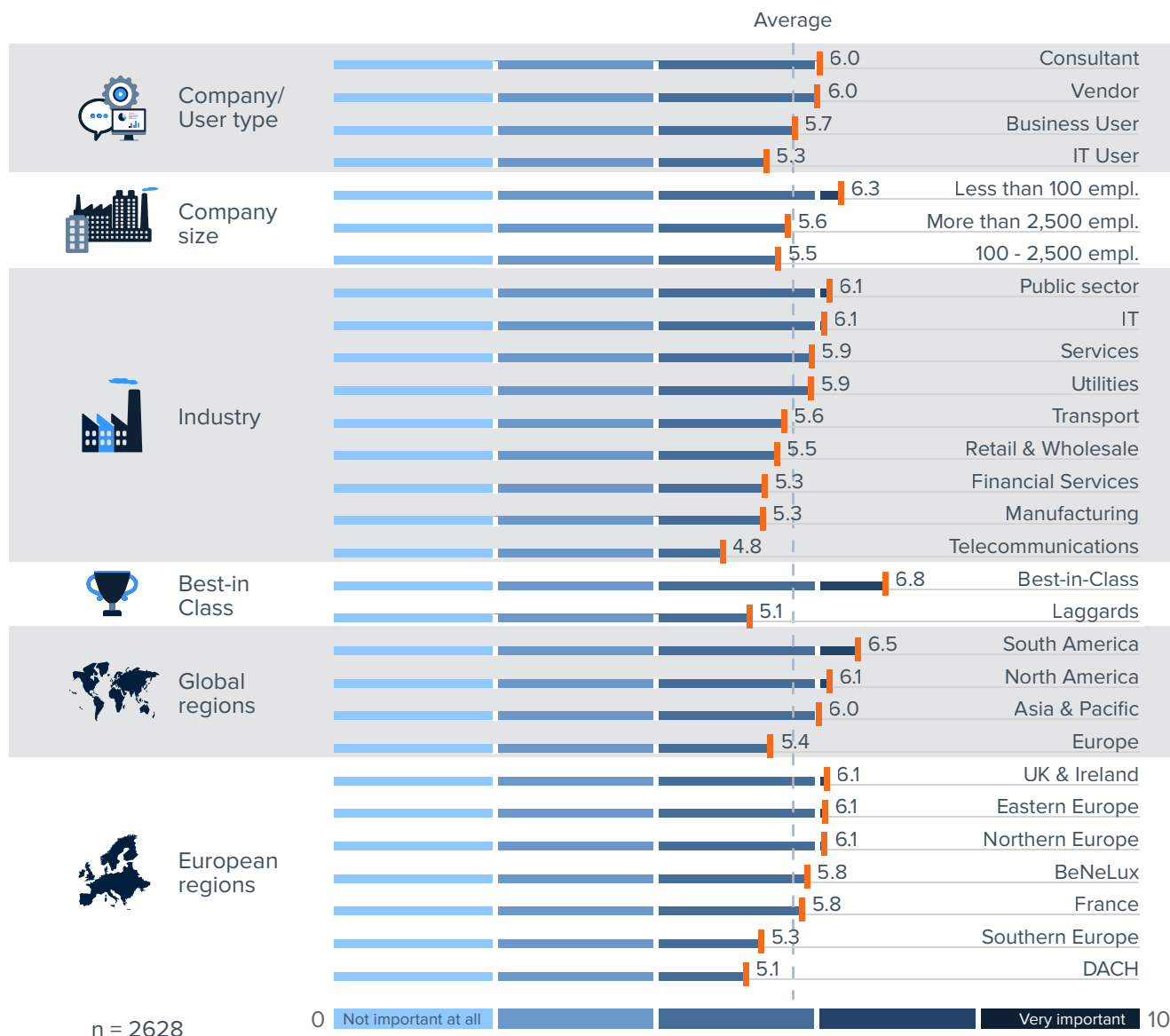
Collaboration



Very important in best-in-class companies. Less important in Southern Europe, the DACH region & the telecom sector



Importance of Collaboration from "Not important at all" (0) to "Very important" (10)



Collaboration is not a new trend in business intelligence. However we still see many vendors pushing this topic in the BI area (i.e. dashboards, reporting and analysis), providing functionality for commenting, chats and threads. In the last two years, data storytelling has also emerged as a new, more collaborative publication format for BI content within BI solutions, instead of using PowerPoint for example.

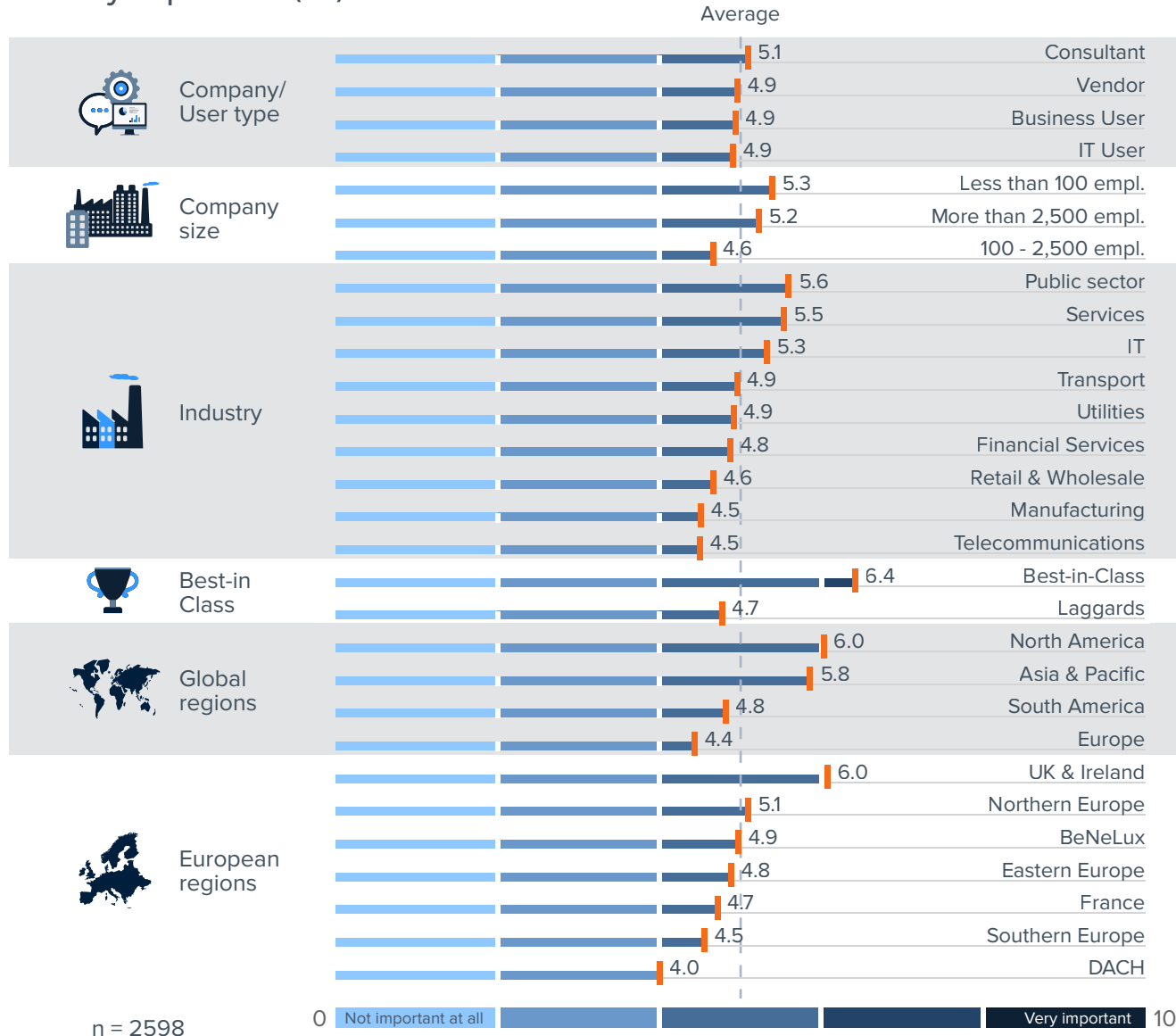
On the customer side, we are seeing a downward momentum for collaborative BI. We do not see customers intensively using collaborative BI solutions to collaborate on KPIs, reports and corporate numbers. One reason for this is that only 13 percent of employees are BI users according to this year's BI Survey results. Exporting content to PDF, Excel and other file formats, sending content via email, publishing to corporate portals and integrating BI content in other corporate solutions are therefore more practical and popular features with customers.

A graphic illustration on a dark blue background. At the center is a large white circle containing a stylized icon of two people, one larger than the other, with an orange arrow pointing to the right. This central circle is surrounded by a dashed white line. Along this dashed line are several smaller blue circles, each containing a white icon representing different data-related concepts: a microscope, a person running, a target, a brick wall, a 3D bar chart, a person pointing, a hand gesture, a pair of scissors, a smartphone, a document, a cloud, a building, a globe, a network diagram, a magnifying glass, a test tube, and a person with a magnifying glass. Below the central circle is a wide, light gray horizontal banner with the text "Data Storytelling" in white, bold, sans-serif font.

Data Storytelling



Importance of Data Storytelling from "Not important at all" (0) to "Very important" (10)



Viewpoint

Data relies on us to give it a voice. Data storytelling has emerged as a sophisticated method of explaining the meaning of data and insights gained from analytics to foster action in the right direction. Today BI and analytics tools are the dominant source of information in corporations. Meaning is applied to data through BI tools and presenting information in a tightly integrated manner allows for high efficiency and helps to ensure data quality and a high level of trust.

Furthermore, preparing and presenting stories within an integrated tool enables interaction (drilling down for details) with data. This interactive analytical storytelling enhances the credibility of stories and allows executives to gain further insights that might have been more difficult to glean from static, prepared analysis.

Data stories supplement and usually build on components of standardized reports and dashboards. These components (e.g. graphs and tables) are compiled, modified, annotated and highlighted to form the supporting evidence for a story and help the audience to understand the importance of a call to action.

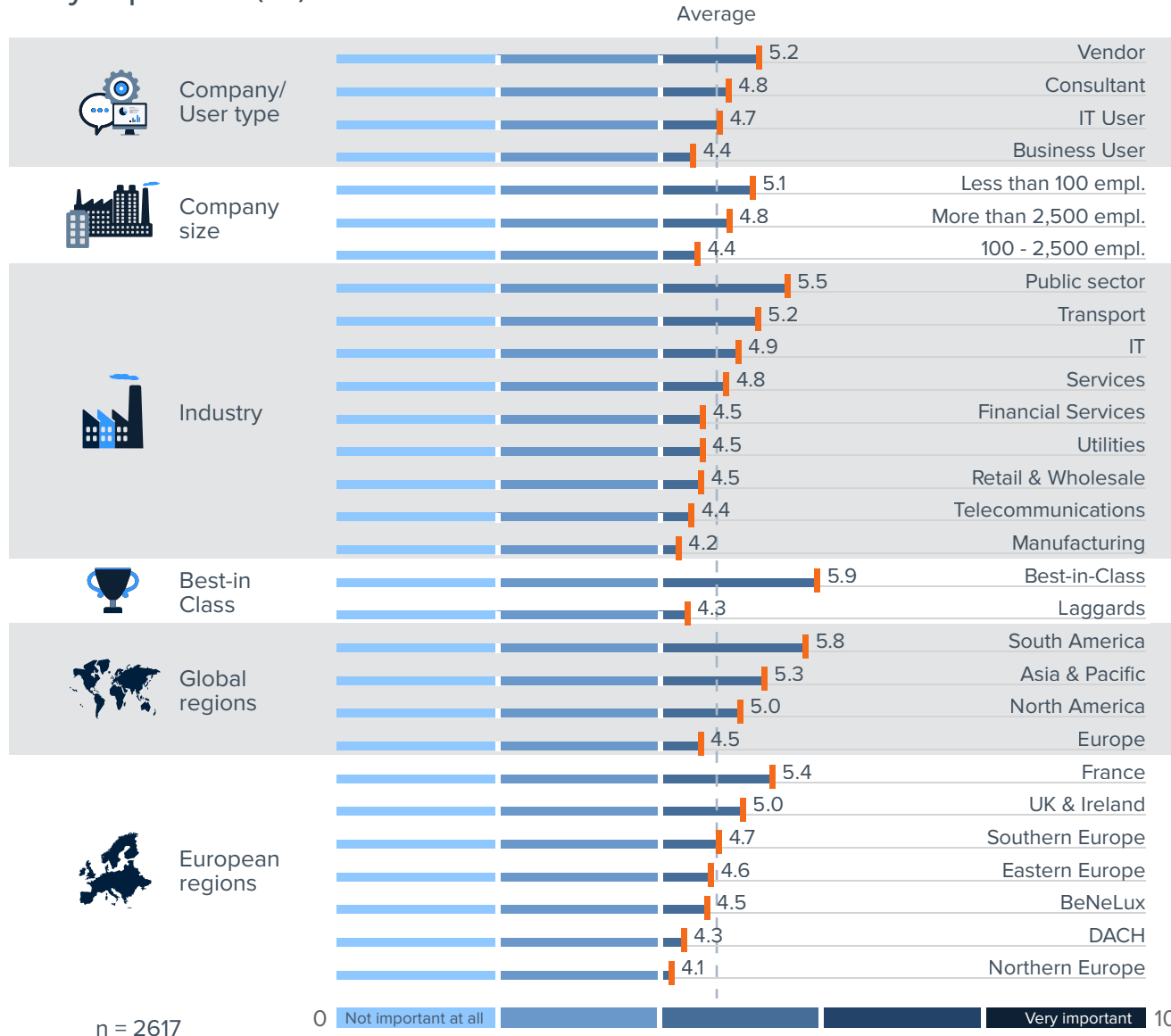
In the age of digitalization, acting on insights from data is key to staying ahead of the competition. Neuroscience shows that stories have a much greater impact on us than bare numbers. The communication of insights and messages can no longer solely rely on reports. It takes engaging and inspiring stories to drive action.



Spatial/Location Intelligence

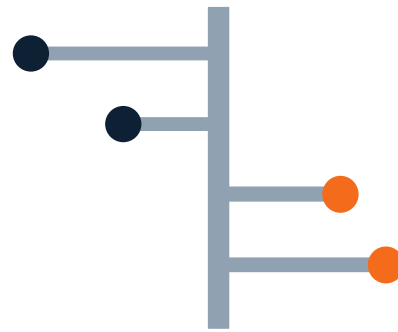


Importance of Spatial/Location Intelligence from "Not important at all" (0) to "Very important" (10)



Spatial/location intelligence has been around for a long time, albeit as something of a niche area, often performed using specialist tools that have little or no integration with reporting, dashboarding and analysis solutions. Given that almost every data set includes some kind of geographical information (e.g. city, zip code, longitude, latitude), this approach seems rather shortsighted. However, with the recent trend for visualization and data discovery, there is a renewed growth in demand for geo-visualization and analysis, whereby solutions that represent data in a visual manner are able to plot data on maps or other objects to provide additional insights.

Software providers have taken various approaches to providing location intelligence, ranging from simple pins of longitude and latitude points on a map to specialized geo data warehouses and calculation of shapes, distances and so on. The latter is often provided via specialized solutions whereas most BI vendors offer the former. However, more and more BI vendors are introducing at least basic support for different map layers, which brings additional capabilities for displaying more information on maps.

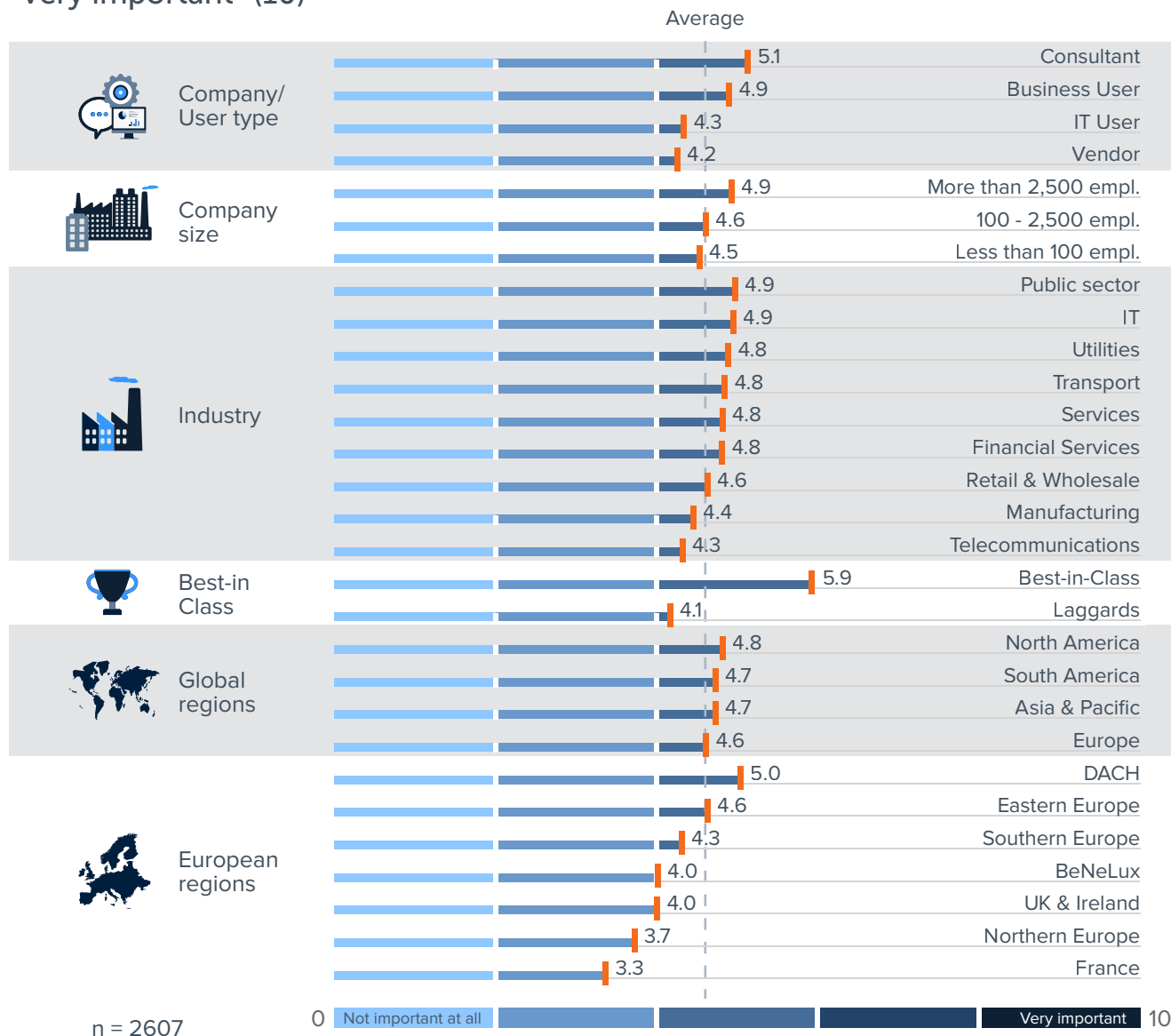


ISO

Visual Design Standards



Importance of Visual Design Standards from “Not important at all” (0) to “Very important” (10)



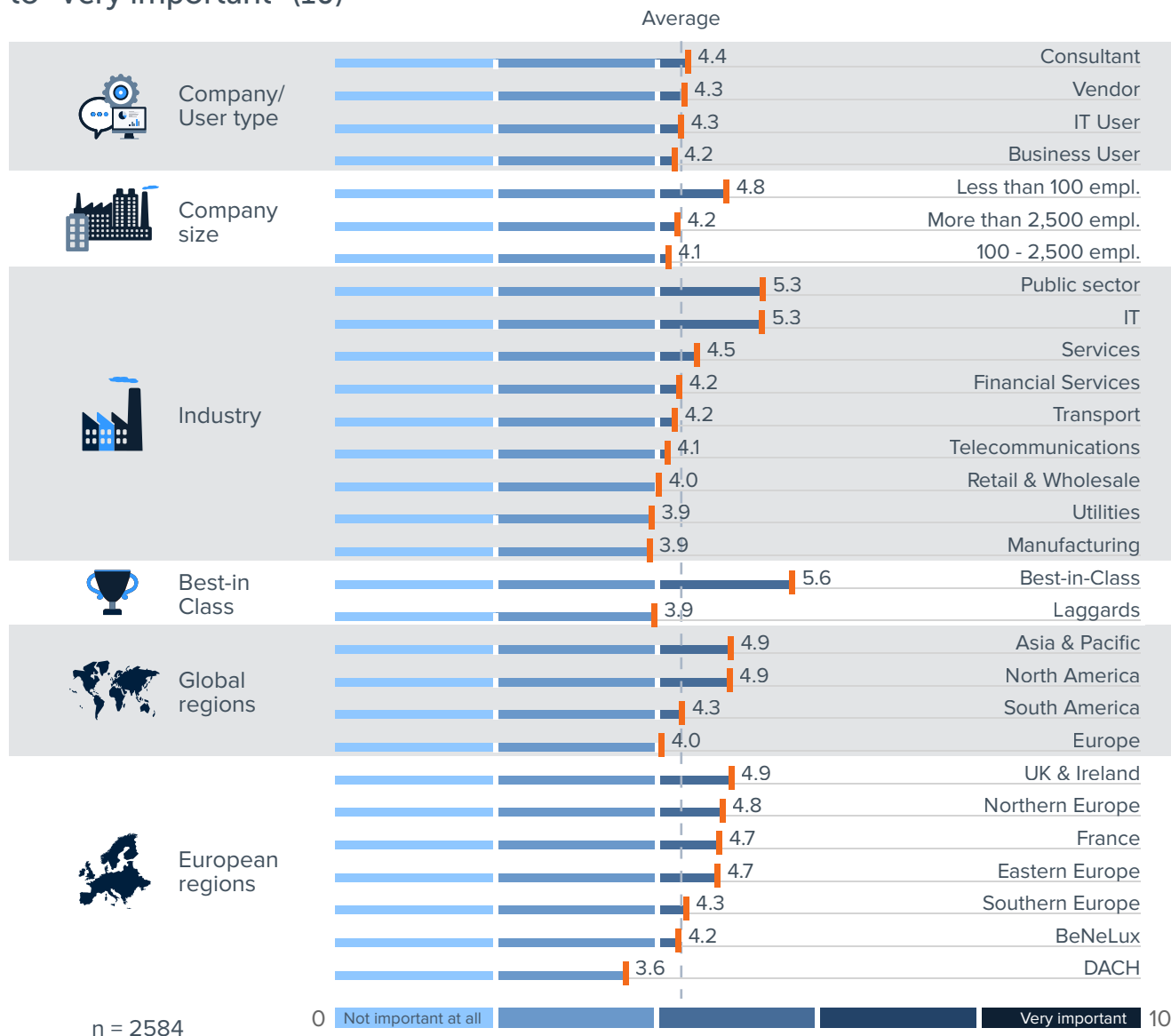
“Visual design standards” describes the practice of presenting relevant information in a way that it can be understood in an effective and efficient manner. This involves the deployment of a common ‘visual language’ (usually called notation guideline) for reports, dashboards and presentations throughout a department or organization with established formatting rules and design standards.

Authorities such as Stephen Few and Edward Tufte in North America, and Prof. Dr. Rolf Hichert in Germany, are among the most influential thought leaders in this area and the rules they have defined often form the basis of corporate visual design standards and vendor development strategies alike.

Due to the growing need to analyze huge amounts of data in order to stay competitive and to provide the results in the most direct fashion, the trend for visual design standards has come to establish itself in the last three years and is gaining in importance, especially in the German-speaking region. In our experience, support for visual design standards is increasingly seen as a KO criterion for BI vendors in software selection processes.



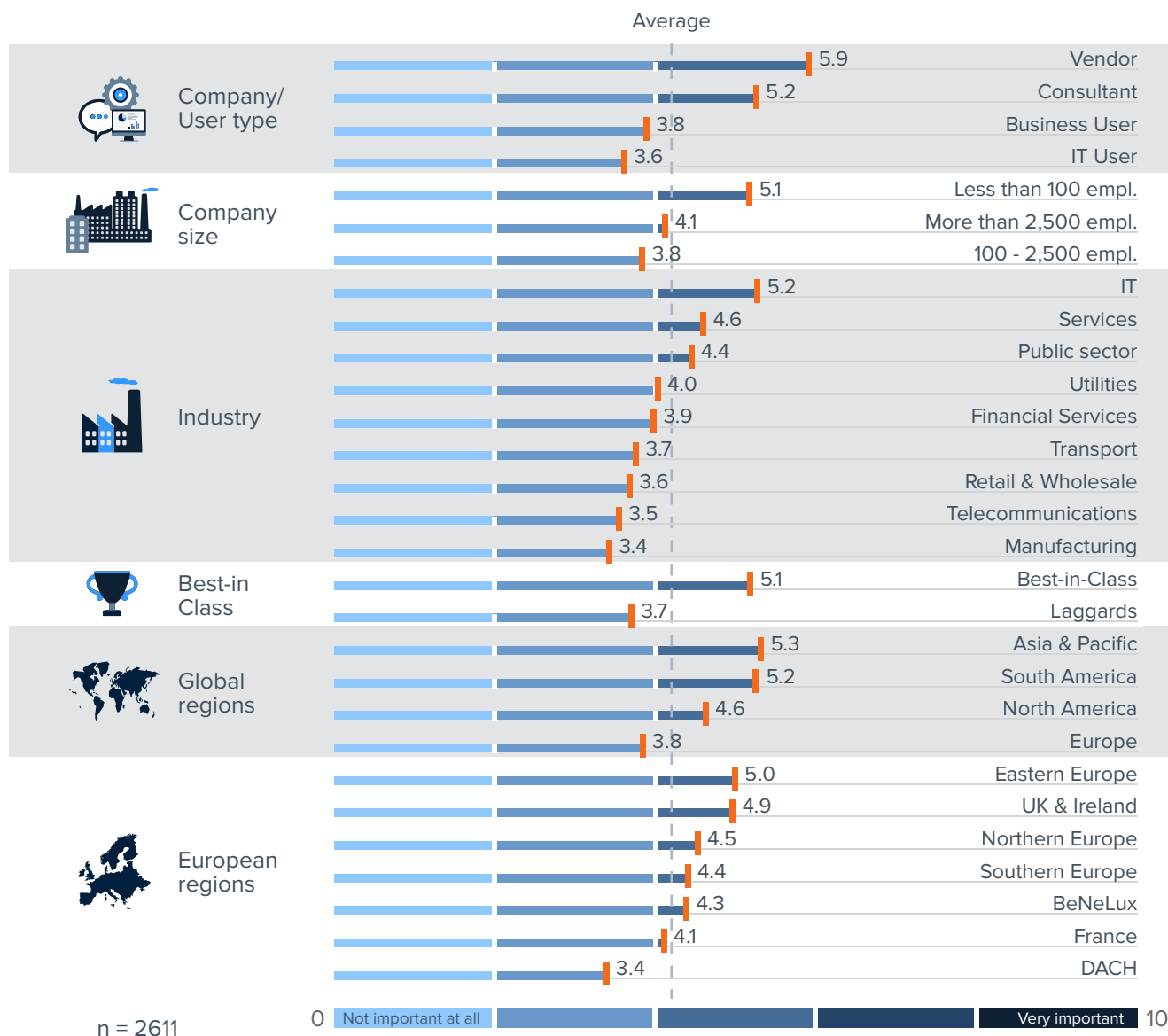
Importance of Data as a Product/Open data from "Not important at all" (0) to "Very important" (10)



It is no secret that data is growing in importance to companies. Expectations around data and analysis are also growing and, with that, awareness of the value of data is heightened. Whether it is used for optimizing existing processes or as a basis for innovative, new business ideas, data is available in a variety of formats from internal and external sources that go far beyond the purchase of address data.

Data has established itself as a product and extends analyses with targeted insights from social media, customer, market, weather, geographical and demographical data, and even analytical findings. Companies can purchase these and many other types of data for their own analysis from BI generalists, specialized service providers or data trade platforms. A new development is emerging for consumers as well: targeted sales of their own data.

Importance of Cloud BI from "Not important at all" (0) to "Very important" (10)



Viewpoint

The global trend of running applications in a cloud environment started to branch out into the business intelligence and analytics domain about ten years ago. Start-ups were founded to disrupt the established BI vendors with the software-as-a-service business model, by which organizations source their reports and dashboards from a hosted infrastructure. The incumbent vendors – who typically generated their revenues from on-premise implementations – eventually followed suit and now virtually every BI vendor offers a cloud-based BI solution.

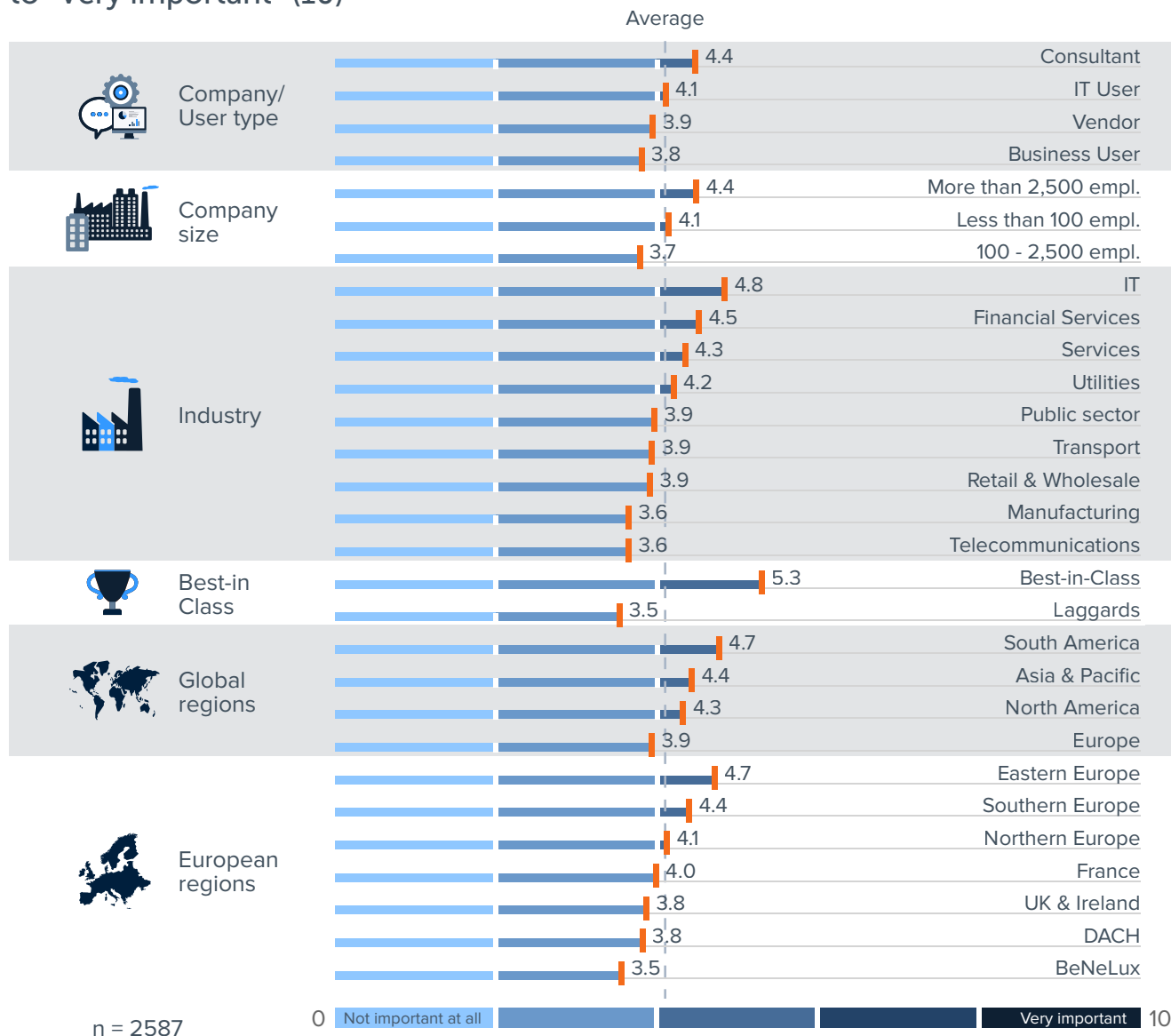
Although cloud BI has very similar functional capabilities to corresponding on-premise products, often offers competitive pricing, and reduces the burden on local IT departments, the adoption rate for cloud BI deployments is rising but very slowly. It is not the attractiveness of the platform that deters organizations from moving their BI landscapes into the cloud, but legal, security and privacy concerns, a lack of trust in the vendors or their viability, and the desire to keep company data under their own control. However, the overarching issue is that BI leaders prefer to bring the analytics to the data, and not the other way around. As such, organizations with much of their data already in the cloud show a much higher cloud BI affinity than those with all their data on premise.



Data Labs/Science



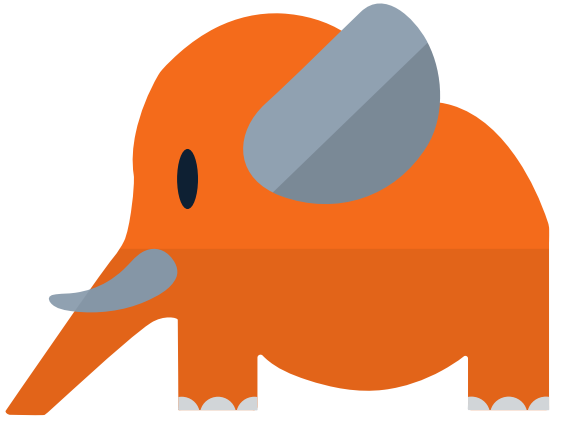
Importance of Data Labs/Science from "Not important at all" (0) to "Very important" (10)



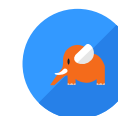
Viewpoint

Data science is the generic term for processes that generate knowledge out of data using methods from statistics, machine learning and operations research. Data labs are separate business units, specifically targeted to start data science in an organization. They offer a space for design thinking and experimentation, aside from established processes in an organization. Data labs require investments in personnel as well as new technologies to store, process and analyze data.

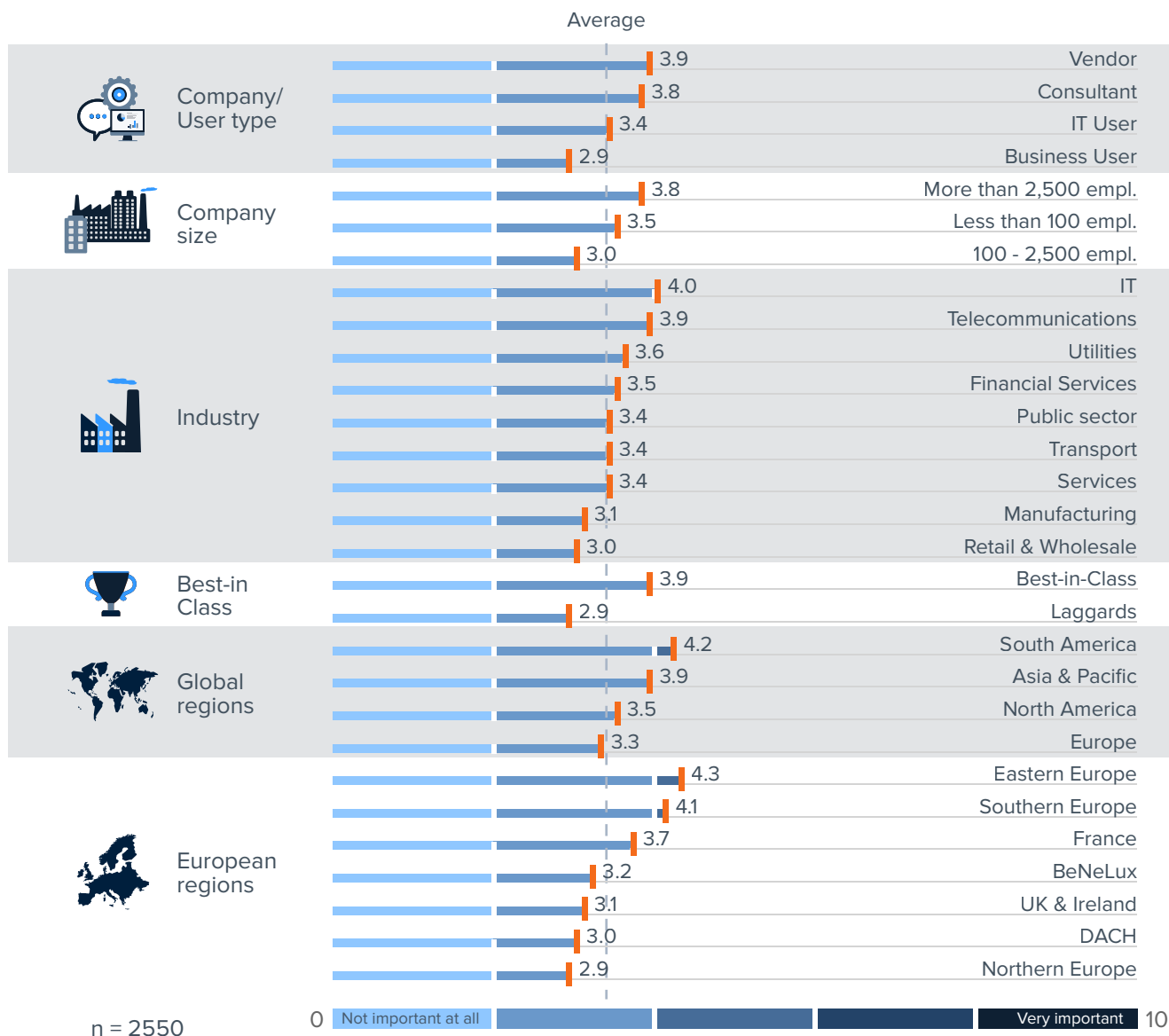
Against that backdrop, it is not surprising that data science and data labs are of increasing importance for larger companies. The IT and the financial industries are the most likely sectors to adopt data science and data labs. The financial industry, in particular, has a long track record of using data analytics methods. As analytics gains in maturity, the deployment and productivity of such solutions become more important – tasks that are not typically related to data labs. This poses new challenges for software solutions providers and requires revised organizational approaches to link data labs, IT departments and business units.





Hadoop



Importance of Hadoop from "Not important at all" (0) to "Very important" (10)



The open source Hadoop framework, widely recognized by the cute little yellow elephant icon, is currently the highest-profile enabler for big data. It is a top-level project conducted by the Apache Software Foundation using a parallel Java development framework to build and run scalable, parallel applications for analytics within batch and online processing. It includes countless components for data management and the access and analysis of poly-structured data to build any application that can be imagined. More and more companies are using Hadoop as a building block for their analytical landscapes to support specialized use cases.

As the BARC Hadoop Survey 2016 shows, Hadoop is mainly used as a data archive for large data volumes or as a runtime environment for data ingestion, preparation and exploration. But a number of challenges still remain around the little elephant, mainly concerning usage and usability, maintenance and operations, and the limited availability of expertise to unleash its overall potential. These challenges open the market for players like distributors and software vendors to fill the gap.



Recommendations



BI and data management have been among the most important IT-related topics in the business world for a long time. The high importance rating of many of the trends covered in this report also supports this observation. And

with digitalization as a primary strategic initiative for many companies, analyzing and managing data has become even more vital - trends like big data, predictive analytics and data as a product are at the core of the digitalization

of processes and business models. Based on our survey findings, we have six recommendations on how best to embrace the trends described in this study:

#1 | Venture into trending topics

The best-in-class companies in this study show that there are substantial benefits to be attained from adopting BI trends. Start with pilot projects that can show the value of new approaches to BI and data. If possible, try piloting use cases that incorporate different departments and processes. Also, addressing several trends at the same time in combined initiatives can be useful, for example, storing (structured) big data in an analytical database to enable data discovery and predictive analytics.

#2 | Train your staff

Start training your existing staff while scouring the labor market for technical and analytical expertise. New technologies and applications require specific resources and know-how. But in many organizations, budgets for these are inadequate and people with the necessary skills are hard to find. Given all the exciting developments in the various fields of IT, organizations often cannot keep up with the skills required to leverage all the interesting new products and services.

#3 | Pay attention to data quality

Organizations seem to be aware that the best looking dashboard is worth nothing if the data shown is flawed. Business intelligence does not make a lot of sense without comprehensive data integration and data quality initiatives, but these have to be backed up with the right level of attention, resources and funding. Organizational backing of data quality by implementing data ownership and stewardship processes is also vital.

#4 | Be aware of the challenges of SSBI

Enabling your business user community through 'self-service BI' and possibilities for data discovery and visualization is a good idea, as long as there is an agreed data and tool governance framework. Ideally, IT departments or BI units should align very closely with key and power users across the organization to support the creation of a governed BI system.

#5 | Review your information architecture

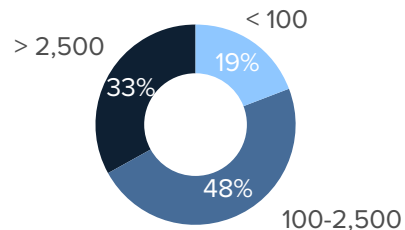
IT organizations should review their existing information architecture to ensure it can support the level of agility required, handle large volumes of poly-structured data and support rapidly growing demand for big data and advanced analytics. It can also be a good idea to create a data lab adjacent to the BI factory to better support explorative approaches to BI with data discovery or predictive analytics.

#6 | Understand data analysis requirements

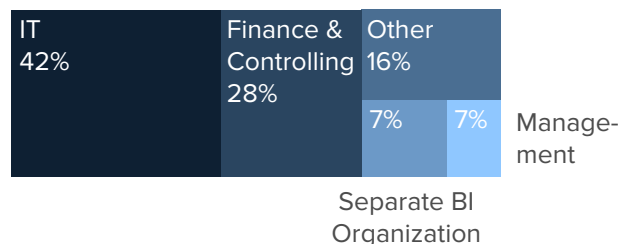
BI leaders need to understand the different data analysis requirements in their organizations and the possibilities and approaches modern tools encompass. Set-based, visual, real-time and predictive analytics are not separate, but rather complementary capabilities that are becoming increasingly important. The decision-making culture of your organization, the available skills, and the identification and promotion of use cases for more data analysis are all key aspects to consider.



Number of employees



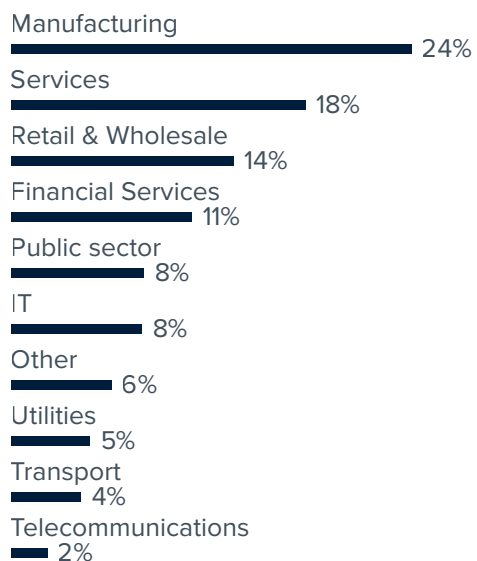
Department



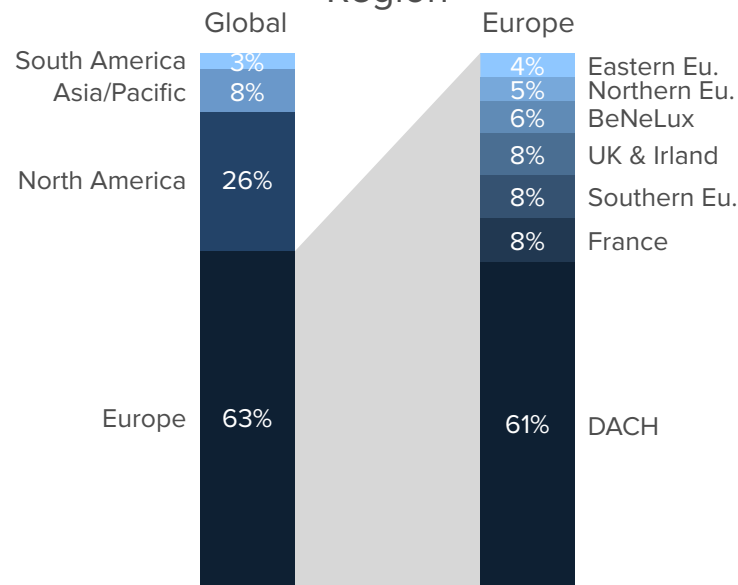
Company type



Industry



Region



Information on the survey

The data used in the BI Trend Monitor 2017 was sourced from an online user survey conducted worldwide in the summer of 2016. BARC promoted this survey on Web sites, at events and in email newsletters. After data cleansing, a total of 2,772 survey responses remained. Respondents came from a wide range of industries, countries, professional backgrounds, company types and sizes.

Participants were asked to rate each trend on a scale from “Very important” (10) to “Not important at all” (0). We use a weighted scoring system (from 10 to 0), to derive a composite score for each of the trends based on their level of importance. It is a dimensionless number with an arbitrary value, but as long as the weighting system remains constant it can be used for comparisons between segments of the sample, such as the sample for industries or regions, to name just two.

Best-in-Class companies comprise the top 10 percent in terms of achievement of specific BI-related business benefits (e.g. “Faster reporting, analysis or planning” and “Increased competitive advantage”) in this survey. Lag-gards represent the lowest 10 percent.



BARC

Company Profile

BARC is a leading enterprise software industry analyst and consulting firm delivering information to more than 1,000 customers each year. Major companies, government agencies and financial institutions rely on BARC's expertise in software selection, consulting and IT strategy projects.

For over twenty years, BARC has specialized in core research areas including Data Management (DM), Business Intelligence (BI), Customer Relationship Management (CRM) and Enterprise Content Management (ECM).

BARC's expertise is underpinned by a continuous program of market research, analysis and a series of product comparison studies to maintain a detailed and up-to-date understanding of the most important software vendors and products, as well as the latest market trends and developments.

BARC research focuses on helping companies find the right software solutions to align with their business goals. It includes evaluations of the leading vendors and products using methodologies that enable our clients to easily draw comparisons and reach a software selection decision with confidence. BARC also publishes insights into market trends and developments, and dispenses proven best practice advice.

BARC consulting can help you find the most reliable and cost effective products to meet your specific requirements, guaranteeing a fast return on your investment. BARC also offers technical architecture reviews and coaching and advice on developing a software strategy for your organization, as well as helping software vendors with their product and market strategy. Neutrality and competency are the two cornerstones of BARC's approach to consulting.

BARC organizes regular conferences and seminars on Business Intelligence, Enterprise Content Management and Customer Relationship Management software. Vendors and IT decision-makers meet to discuss the latest product updates and market trends, and take advantage of valuable networking opportunities.

Along with CXP and Pierre Audoin Consultants (PAC), BARC forms part of the CXP Group – the leading European IT research and consulting firm with 140 staff in eight countries including the UK, France, Germany, Austria and Switzerland. CXP and PAC complement BARC's expertise in software markets with their extensive knowledge of technology for IT Service Management, HR and ERP.

Other Surveys

BARC research reports bring transparency to the market



The Planning Survey 16 examines the global planning software market. Detailed product comparisons between 13 leading tools are based on a sample of over 1,200 survey responses from planning professionals.



The BARC **Big Data Use Cases** Survey explores the usage of big data in companies worldwide. 559 business and IT decision-makers completed the survey in the first quarter of 2015.



The BI Survey 16 is the world's largest annual survey of BI users. Based on a sample of over 3,000 survey responses, The BI Survey 16 offers an unsurpassed level of user feedback on 37 leading BI solutions.

To see the results go to:

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