BI Trend Monitor 2020

The world's largest survey of BI trends

BARC Research Study

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Foreword

Companies are in the midst of many profound changes: The amount of data available and the speed of producing new data has been increasing rapidly for years, and business models as well as process improvements increasingly rely on data and analytics. Against this backdrop, a key challenge is emerging: the efficient and, at the same time, innovative use of data is only possible when capabilities for - and the operationalization of - both analytics and data management are ensured. Many companies are already reaching their limits with a 'the more data the better' approach and cannot fully leverage the benefits they expect due to a lack of data quality or analytical skills. In addition, there has been an increased focus on data protection since the GDPR came into effect in 2018. Amid a huge flood of information, companies will have to find ways to handle data in a way that not only complies with legal requirements, but also helps to improve processes and make day-to-day business easier.

This year we asked 2,865 users, consultants and vendors for their views on the most important BI trends. The BARC BI Trend Monitor 2020 illustrates which trends are currently regarded as important in addressing these challenges by a broad group of BI and analytics professionals. Their responses provide a comprehensive picture of regional, company and industry specific differences and offer up-to-the-minute insights into developments in the BI market. Our long-term comparisons also show how trends have developed, making it possible to separate hype from stable trends.

Dr. Carsten Bange

Würzburg, Germany, November 2019

Management Summary

The market for BI and data management is constantly changing. As an industry analyst, we frequently highlight and predict important topics that have an impact on the agendas of organizations and the people within them.

For this study we took a unique approach to identifying trends: we asked over 2,800 users, consultants and vendors for their views on the most important BI trends, delivering an up-to-date perspective on regional, company and industry specific differences and providing comprehensive insights on the BI market. We have condensed the main findings of this study into six hot spots in order to contextualize the most striking differences and continuous trends.

Result area 1 | Top trending topics

Data quality and master data management has been ranked as the most important trend three years in a row now. The stability of this trend shows the relevance of having good quality data to be significantly higher than other trend topics with a much broader presence in the media. It also reflects the fact that many organizations place high emphasis on their master data and data quality management because they have not reached their goals yet. This trend is a long-term mission that will remain very important and also refers to the equally stable significance of data governance, which is ranked in fourth position again this year.

While data discovery and data visualization remain as the second most important trend, self-service BI - which was ranked third last year – has dropped to fifth place. Establishing a data-driven culture has overtaken self-service BI, making it the third most important trend.

All top trends represent the key message that managing and leveraging data in organizations needs to combine organizational and technological elements.

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*. However, their perception of some trends is fairly similar (e.g., data warehouse modernization and self-service BI).

Conversely, best-in-class companies and laggards do not agree on the importance of establishing a data-driven culture. Laggards place much less emphasis on this trend. It could be argued that laggards might not be aware of the benefits or might not have access to adequate resources in order to begin the data-driven transformation of their company. However, best-in-class companies' emphasis on a data-driven culture is especially high. Compared to the average of 6.7/10, best-in-class companies rated this trend at 7.8/10.

* 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

In general, vendors, consultants and users have quite a similar view of the importance of BI trends. However, perceptions differ when it comes to real-time analytics and data preparation for business users, which are seen as considerably more important by users and vendors than by consultants. However, users and vendors do not agree when it comes to the relevance of the cloud for data and analytics. Like last year, this is a trend that vendors attach great importance to whereas users seem less enthusiastic. The opposite effect can be observed in relation to data warehouse modernization, which is a trend that users are more likely to rate as important. This is also true of establishing a data-driven culture. As a very organizational topic, it is understandable that this should be closer to the hearts of users than software providers.

Result area 4 | Industry comparison

There are some trends that are considered important consistently across all industries. This especially applies to data governance and establishing a data-driven culture. Nevertheless, the manufacturing sector rates most BI trends as rather less important than other industries while the telecommunications industry attaches greater importance to most trends.

Most industries present a mixed view. For example, the public sector attaches great importance to data governance but deems cloud for data and analytics to be almost irrelevant.

These industry-specific differences indicate which trends are prioritized, either because they facilitate day-to-day business in these sectors or because they add value over and beyond that. This might also explain the finding that the two relatively new topics – process mining and data catalogs – are considered unimportant by all industries.

Result area 5 | Global differences

Observing BI trends from a geographical perspective shows a greater tendency in South America to assess trends as important. In comparison, most trends are generally rated as less important in Europe. North America and Asia Pacific have a rather mixed view on BI trends. This is especially interesting regarding Asia Pacific, which in recent years attached greater importance to all trends and seems now to have become more conservative in its view. Following the massive development in this region over the last couple of years, some trends that were put into practice might already have failed to generate practical value, hence becoming less interesting. Alternatively, some trends have worked so well that they are now prioritized.

Other than for Asia Pacific, the rather conservative view is typical for Europe and can be further examined by looking more closely at the regions within Europe (see Hot Spot 6).

Result area 6 | Europe

The importance of BI trends is perceived quite differently across European countries. Eastern Europe in particular places greater importance on most BI trends than the other European regions. Conversely, the German-speaking region (Germany, Austria and Switzerland; collectively known as DACH) and France put much less importance on most trends. The only exceptions in the DACH region are big data analytics and self-service BI: both trends are rated as relatively important compared to the rating of other European regions. The trend that is valued the most in the DACH region is master data/data quality management.

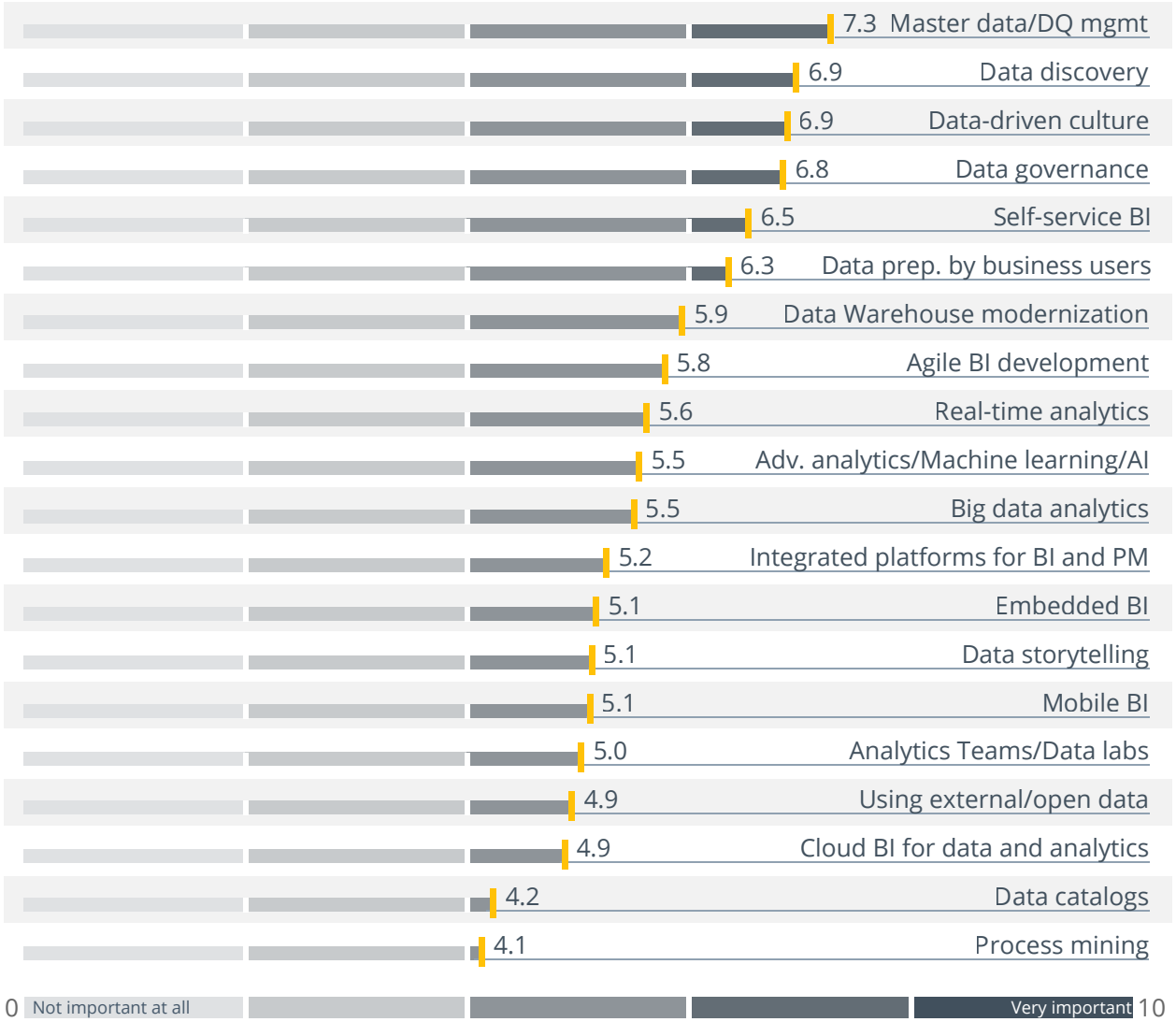
Overall, the European perception reflects the overall assessment of the top trends with master data/data quality management, data discovery/visualization, data governance and establishing a data-driven culture as the most important BI trends.

Survey Results

BI Trends Overview

Data quality/master data management, data discovery/visualization and data-driven culture are the top trends.

Importance of BI trends from “not important at all“ (0) to “very important“ (10)



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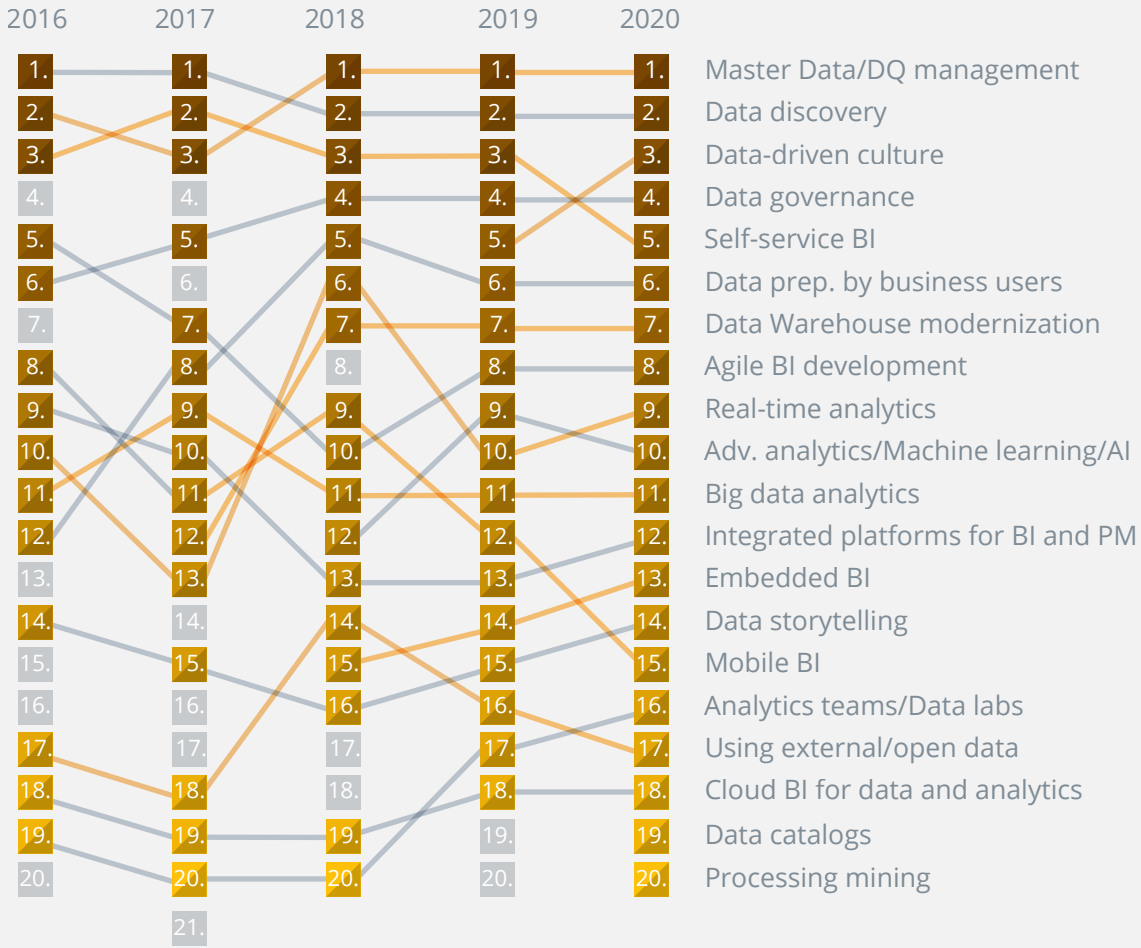
BARC Viewpoint

We asked users, consultants and software vendors of BI and data management technology to give their personal rating of the importance of twenty trending topics that we presented to them. While the two most important trends remained the same as last year with master data and data quality management in first position and data discovery in second, third spot is now occupied by establishing a data-driven culture. This trend, which was newly introduced last year and went straight into fifth place in the rankings, is seen as even more important this year. Self-service BI, on the other hand, went down to fifth place this year whereas data governance remains in fourth.

All in all, these five top trends represent the foundation for organizations to manage their own data and make use of it. Furthermore, it demonstrates that organizations are aware of the relevance of high quality data and its effective use. These trends stand for underlying structures being changed: Organizations want to go beyond the collection of as much data as possible and actively use data to improve their business decisions. This is also supported by data warehouse modernization, which is once again in seventh place this year.

BI Trends Development

Development of rankings of BI trends



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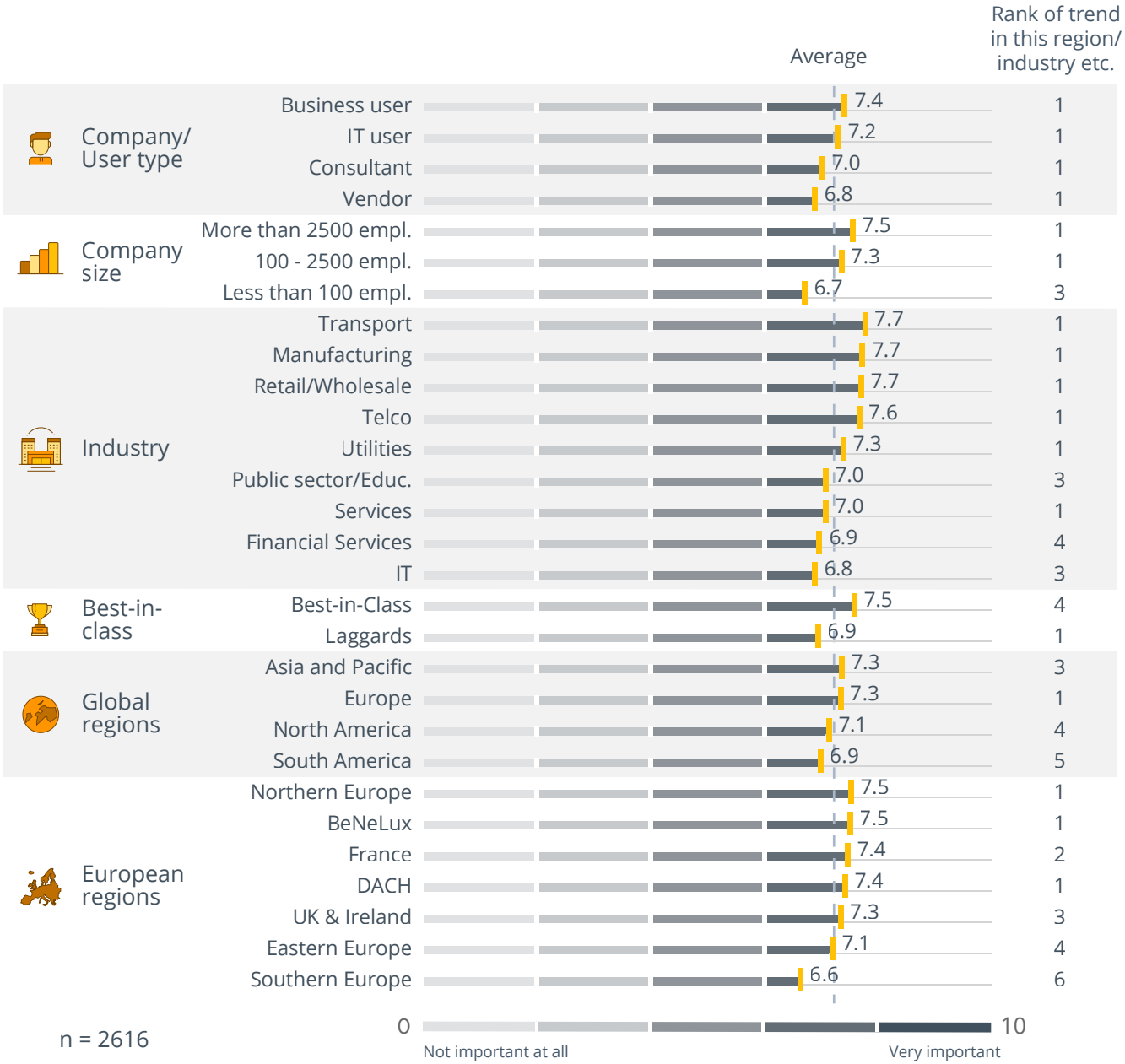
BARC | Viewpoint

Some trends have slightly increased in importance since last year (e.g., real-time analytics and integrated platforms for BI and PM). However, they all climbed just one rank with the exception of establishing a data-driven culture, which jumped two places. Therefore, no huge shift can be observed in terms of upward trends. The opposite is the case for downward trends: Mobile BI fell from twelfth to fifteenth place this year, continuing its downward trend that started in 2017. It seems as if the mobile application of BI functions is not seen as important anymore, either because it is available now or because requirements have shifted. Advanced analytics/machine learning/AI is ranked one place lower than last year (down from 9 to 10). More important than the difference of one rank however is the tendency behind this slight downward trend: In 2018, many hopes were based on new tools using machine learning and artificial intelligence so this topic might have been expected to rise. However, even if we refer to it as a stagnation in perceived importance rather than a "real" downward trend, this result is surprising.

Master Data/Data Quality Management

Master Data Management is a major trend in the transport and manufacturing sectors, but less important in Southern Europe.



BARC | Viewpoint

The importance of data quality and master data management can be explained very simply: people can only make the right decisions based on correct data. Decision-making processes and operational actions depend on reliable data. Through their aggregation mechanisms, BI reports and analyses can help to reveal data quality issues.

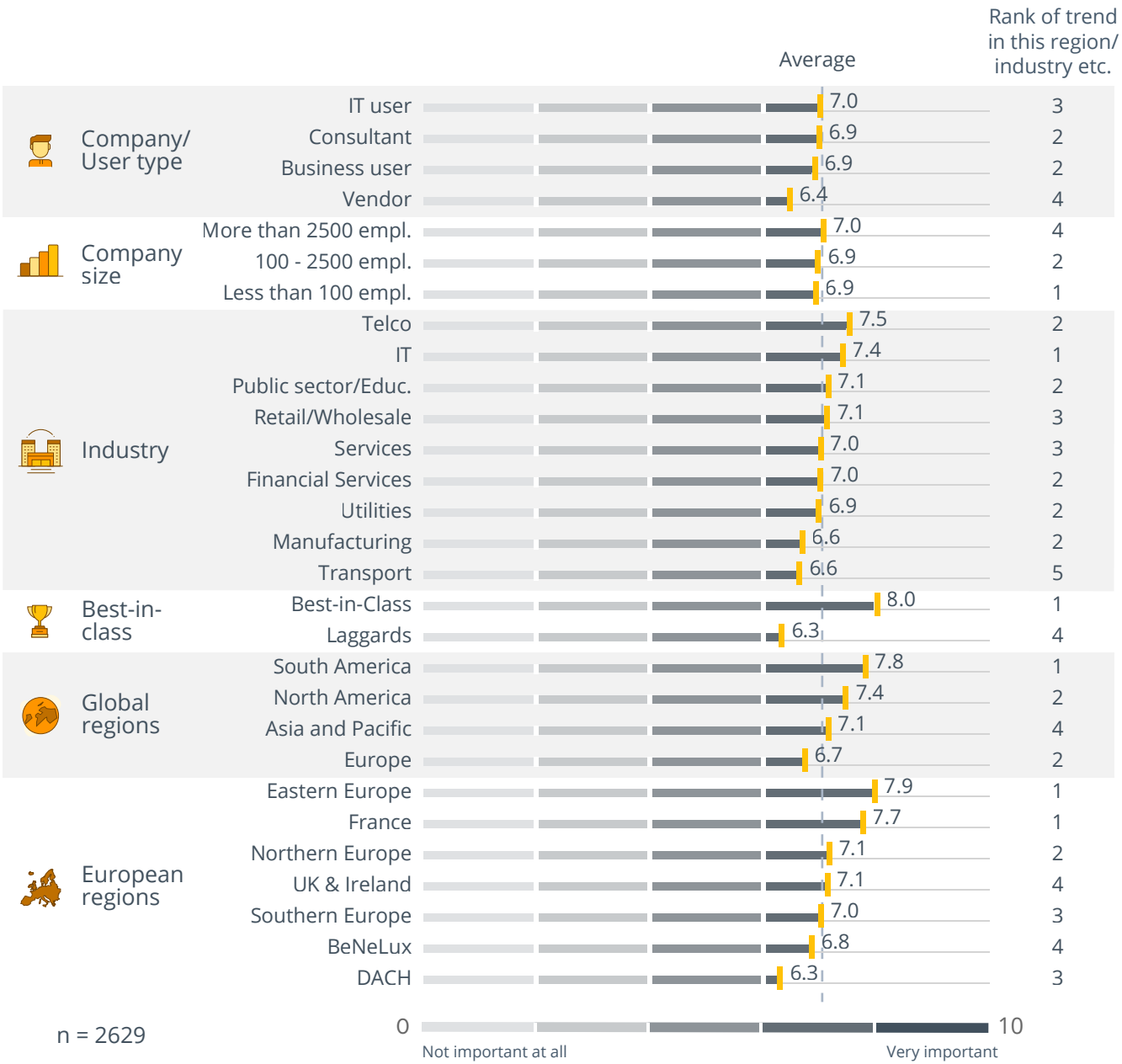
The goal of master data management is to bring together and exchange master data such as customer, supplier or product master data across multiple systems. Aside from a "master" ERP system, many companies also work with other CRM or SCM systems, use web services, or need to merge systems following corporate 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 and produce high quality data to make new services and products possible. The critical success factors for sustainable high data quality are defined roles and responsibilities, quality assurance processes and the continuous monitoring of the quality of a company's data.

Data Discovery/Visualization

Best-in-class companies value data discovery much more than laggards do.



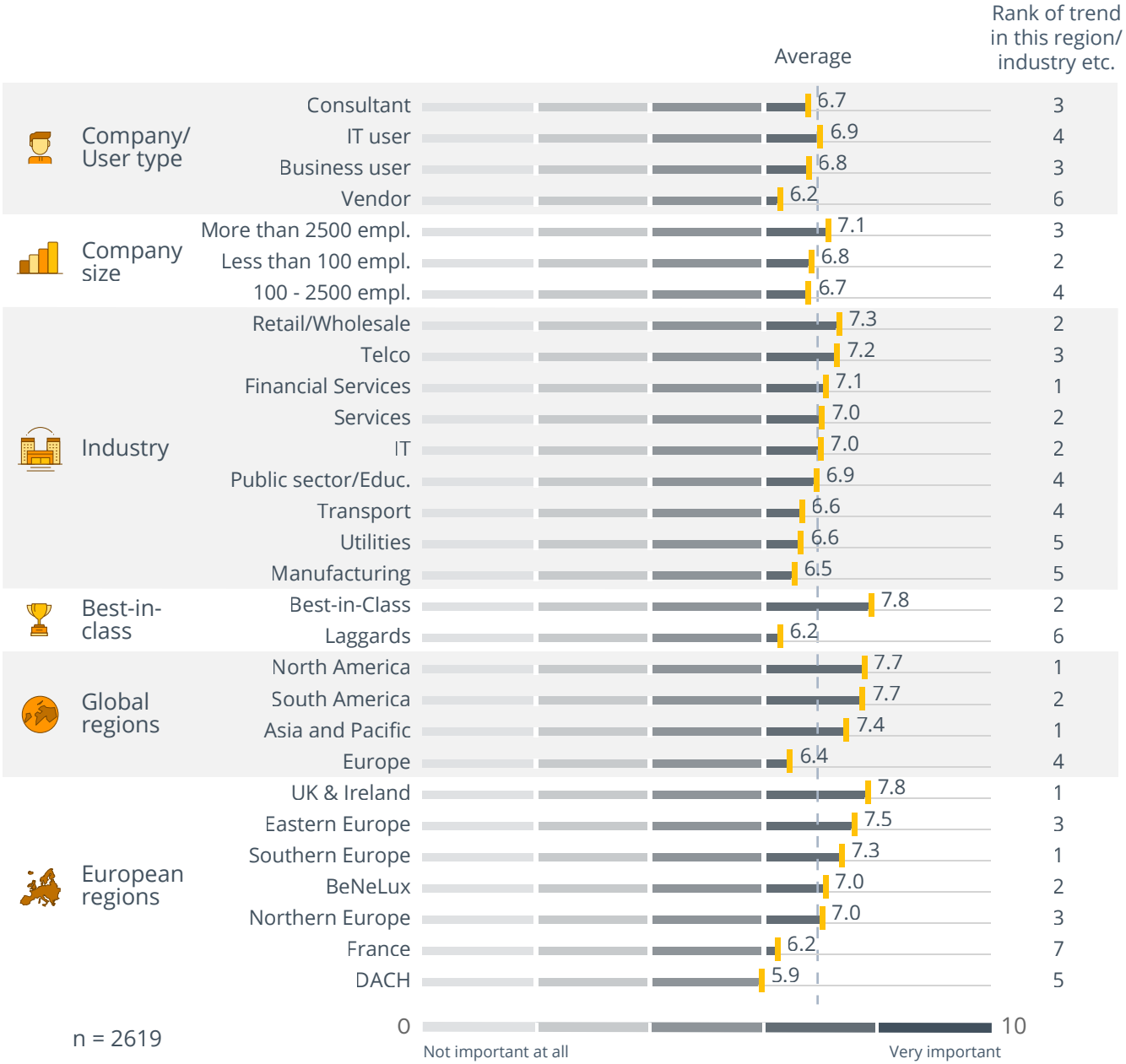
BARC Viewpoint

Data discovery is the business user driven process of discovering patterns and outliers in data. At least three functional areas are required to efficiently and effectively identify patterns and outliers in an iterative approach. Business users must be well equipped with data preparation features to connect to a wide range of sources, clean, enrich and shape data to publish data sets for analytics. These data sets are explored by visual analysis or sifted by guided advanced analytics to reliably identify relevant patterns.

Data discovery is currently evolving along two axes to increase efficiency and quality. Improving user guidance and automation is at the top of the agenda for most vendors. Machine learning is increasingly leveraged to guide business analysts and automate tasks through all steps from preparation to visualization. New concepts for organization and search such as data catalogs and NLQ aim to offer additional support for power users. Additionally, data discovery functions are increasingly being built into analytics and BI platforms so findings can be connected and harmonized throughout the enterprise.

Data-Driven Culture

Data-driven culture is most relevant within best-in-class companies and in the UK & Ireland, and least relevant in the DACH region.

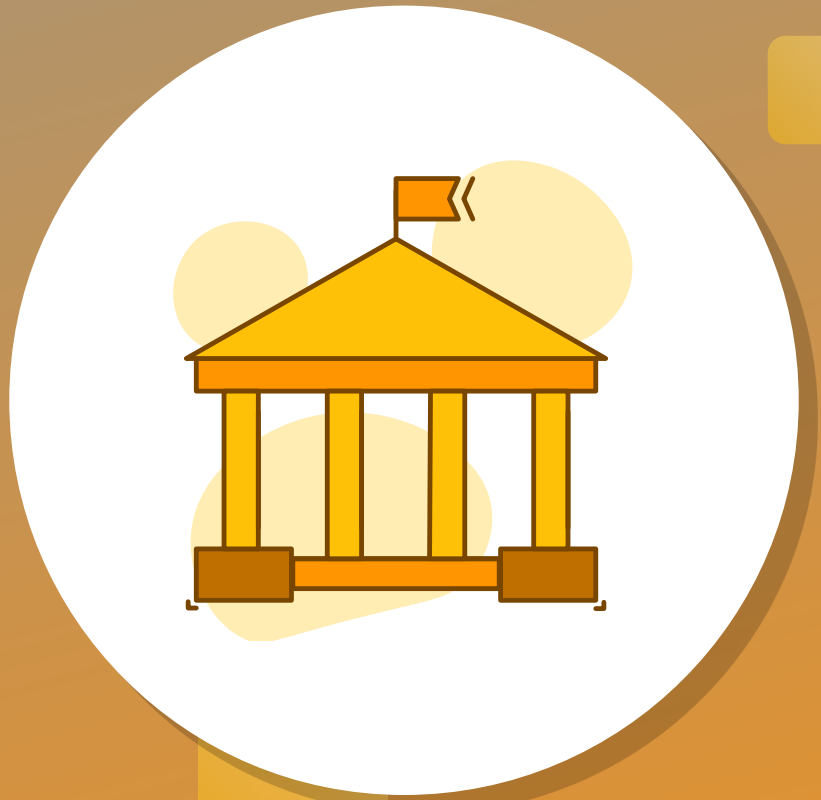


BARC Viewpoint

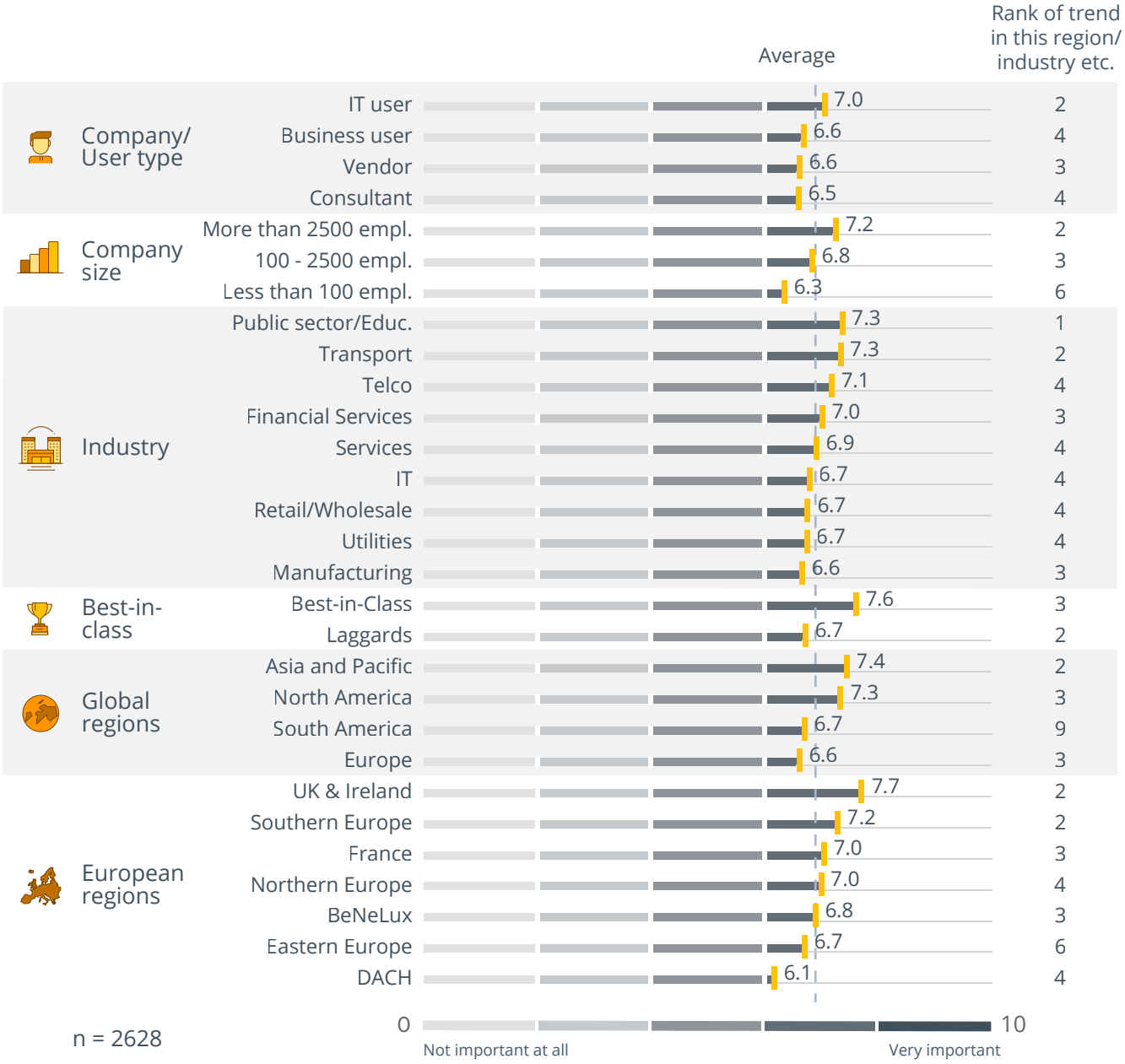
One of the biggest shifts in today's business world is the transformation from isolated and project-oriented data usage to a completely data-driven enterprise. 'Data-driven' in this context means that all decisions and processes within a business are based on data. This concerns simple key figures like revenue or profit, but also results from advanced analytics models. Moreover, both quantitative and qualitative data can be used to support the decision-making process. While companies have always been interested in their numbers, the extent of data use is exercised at a higher level within a data-driven culture. The main aim is to replace managers' gut feelings with data-derived facts and to empower all employees to actively use data to enhance their daily work. The goal is to fully utilize a company's potential by making decisions more successful, initiatives more effective and competitive advantages more striking.

However, a data-driven culture should not be interpreted as blindly following numbers. Key focus areas should be to enhance data interpretation skills and critical thinking. This enables businesses not only to base their decisions on reliable data, but also to know when it is better not to do so.

Data Governance



Very important in UK & Ireland. Less important in the DACH region and within small companies.



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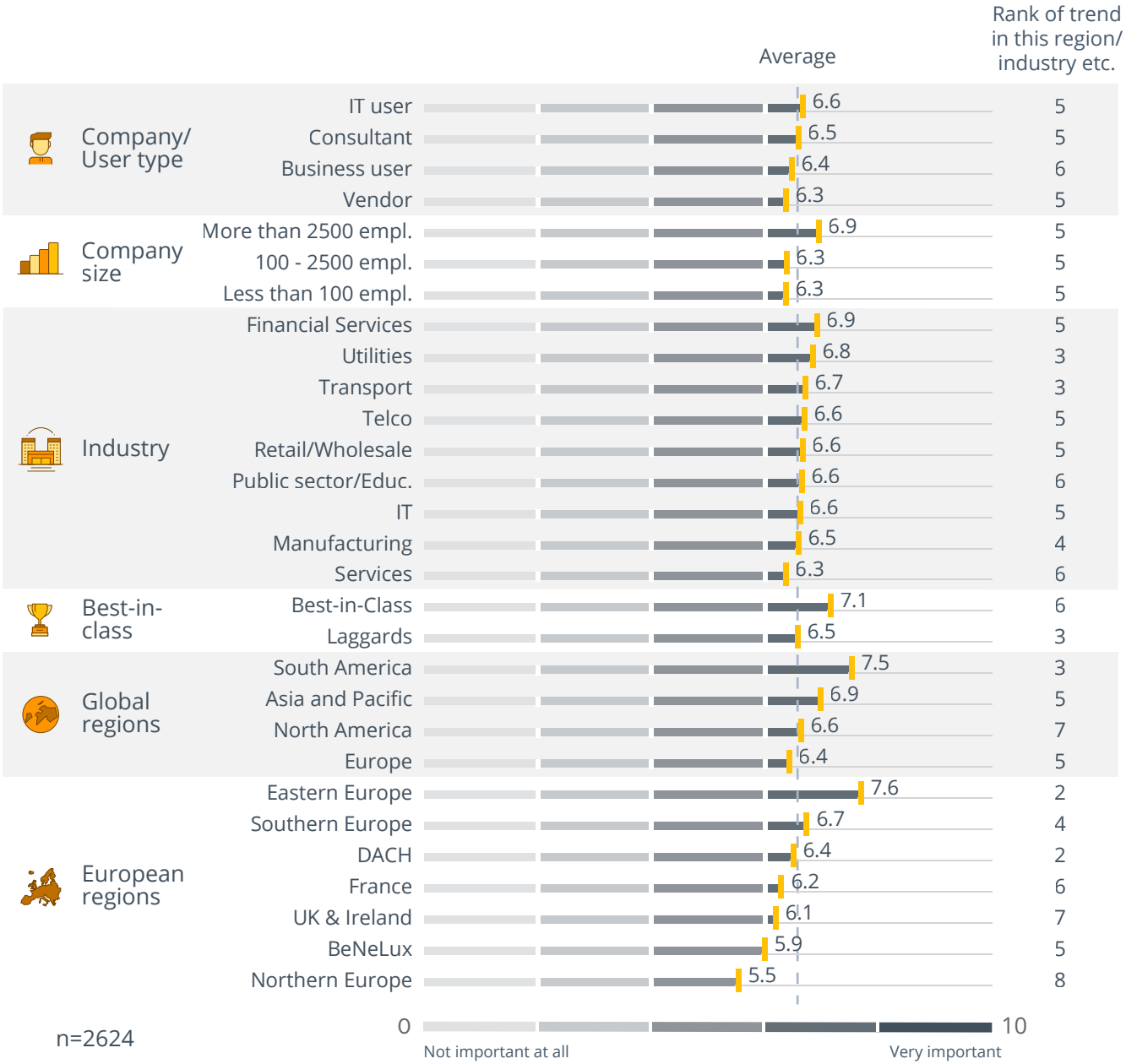
BARC Viewpoint

Unlike BI governance, which centers on preparing and presenting data for business management systems, data governance focuses on the data in all systems that are dealing with data. Because business and technical responsibilities are traditionally covered on a per system level, this overarching view of data needs to be specifically addressed, preferably by a central body within the organization. This ensures broader thinking in terms of knowledge, organization and technology.

Data governance is needed as the steering mechanism for data strategy. 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 to promote business efficiency and innovation. Data governance is required to implement a 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.

Self-Service BI

Self-service BI is especially popular in Eastern Europe, but less popular in Northern Europe and BeNeLux.



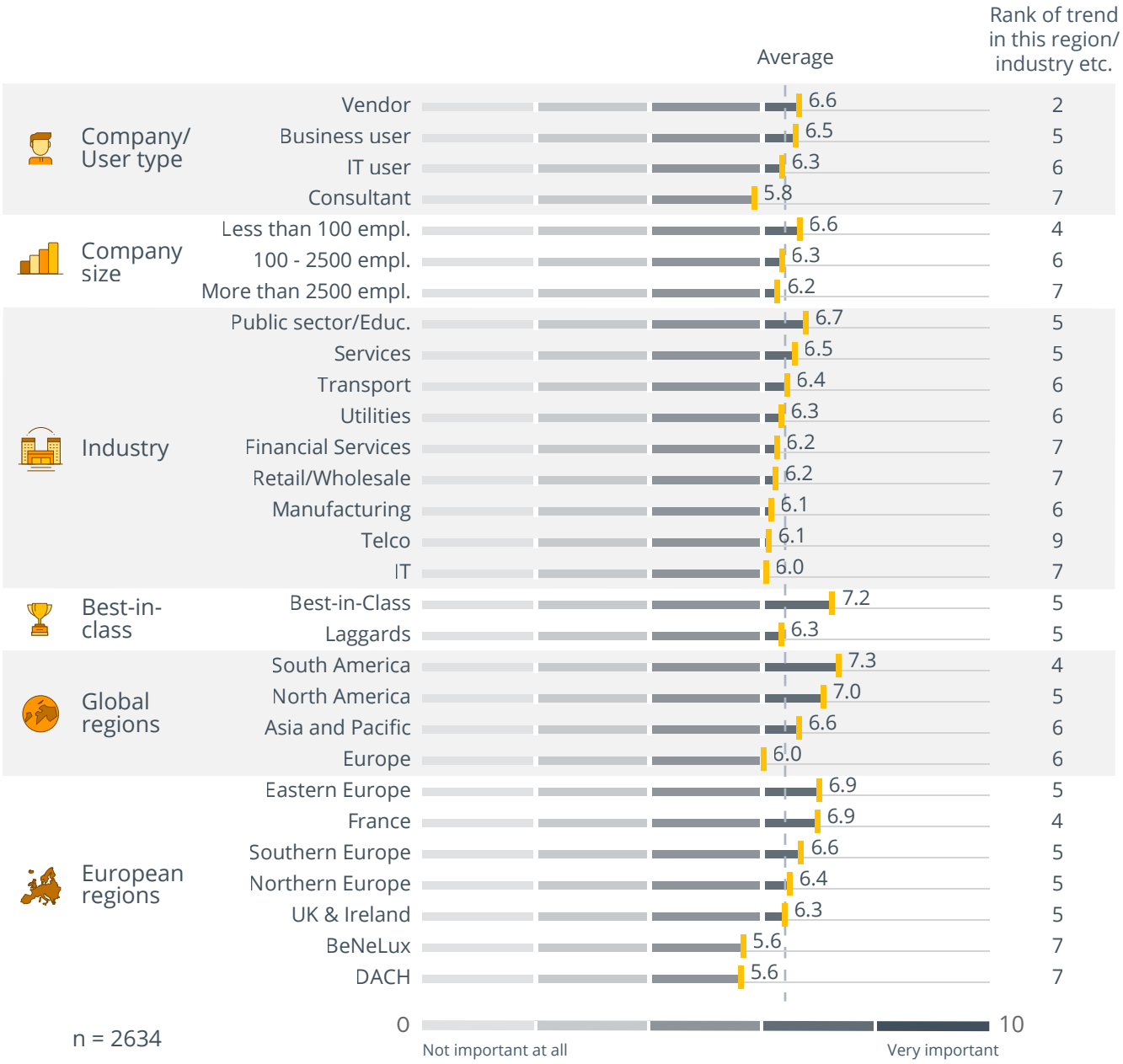
BARC | Viewpoint

Self-service BI has been on the wish lists of many organizations for years and remains a high priority according to our survey findings. This continuously high demand underlines the importance of equipping modern analytical landscapes accordingly. But a shift has taken place. Companies today no longer solely focus on providing self-service capabilities to users to serve their departmental requirements, they want to democratize data access while ensuring consistent and high-quality data and results.

Self-service BI promises quicker and more efficiently prepared dashboards and reports by empowering the business users involved to gain insights from data and make better informed decisions. The number of implementations that allow business users to build their own content is increasing. Not all business users actively take part in creating analytics and BI content. Companies understand that self-service BI complements serviced or 'silver-service' BI, which is used for critical enterprise-wide content, but does not make it redundant. It is important to find the appropriate balance between service and self-service for all users and use cases.

Data Preparation by Business Users

South American companies place the most value on data preparation, DACH and the BeNeLux countries much less so.



BARC Viewpoint

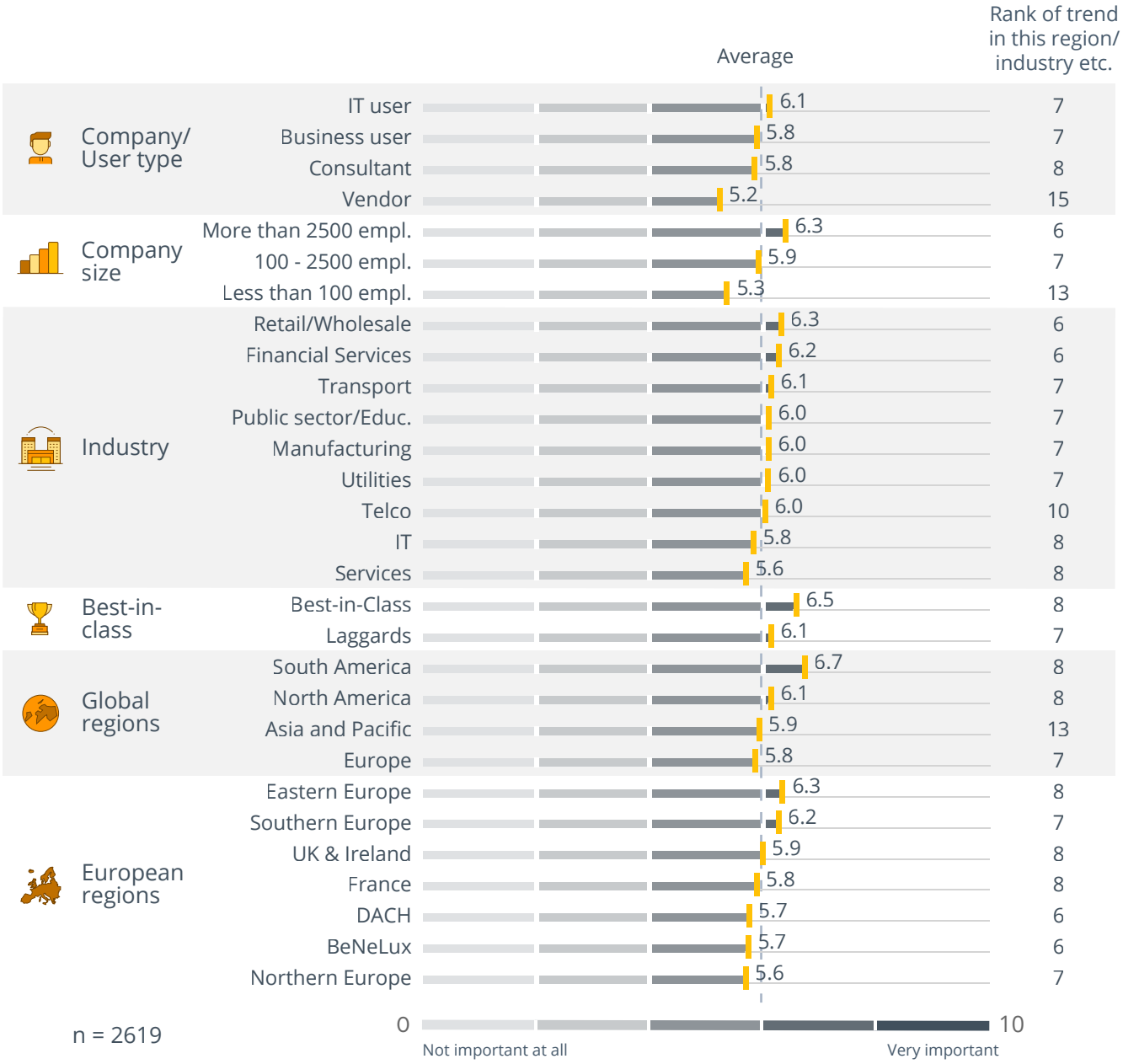
Data preparation describes the process of cleaning, structuring and enriching data by business users for use in analytics. The goal of data preparation is to build valuable assets from raw data to help answer concrete business questions though analytics.

Achieving efficient and agile data preparation is of utmost importance in today's volatile economy. It is key to increase the ability to leverage enterprise and external data to inform decisions and to monetize data to reduce costs or increase revenues. The enduring importance of data preparation shows that this task is increasingly shifting from IT to business users.

To ensure high efficiency and quality without sacrificing agility, it is vital to establish collaboration between development resources in IT and the business users involved. Easy-to-use and intuitive tools with sophisticated user guidance and automation powered by machine learning are vital to infuse efficiency and quality into data preparation efforts. Governing distributed data preparation assets cannot by overvalued. Data catalogs serve as inventories and ensure access to and reuse of data. Beyond technology, collaboration must be promoted to benefit from democratized access to data.

Data Warehouse Modernization

Data warehouse modernization is prominent in South America, but less important for vendors and small companies.

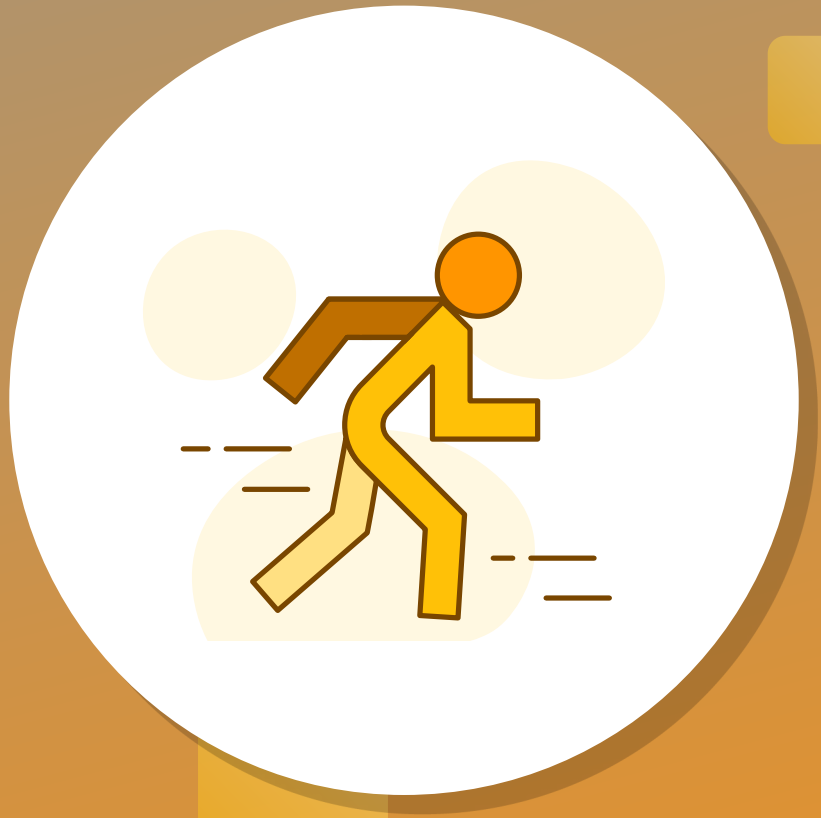


BARC Viewpoint

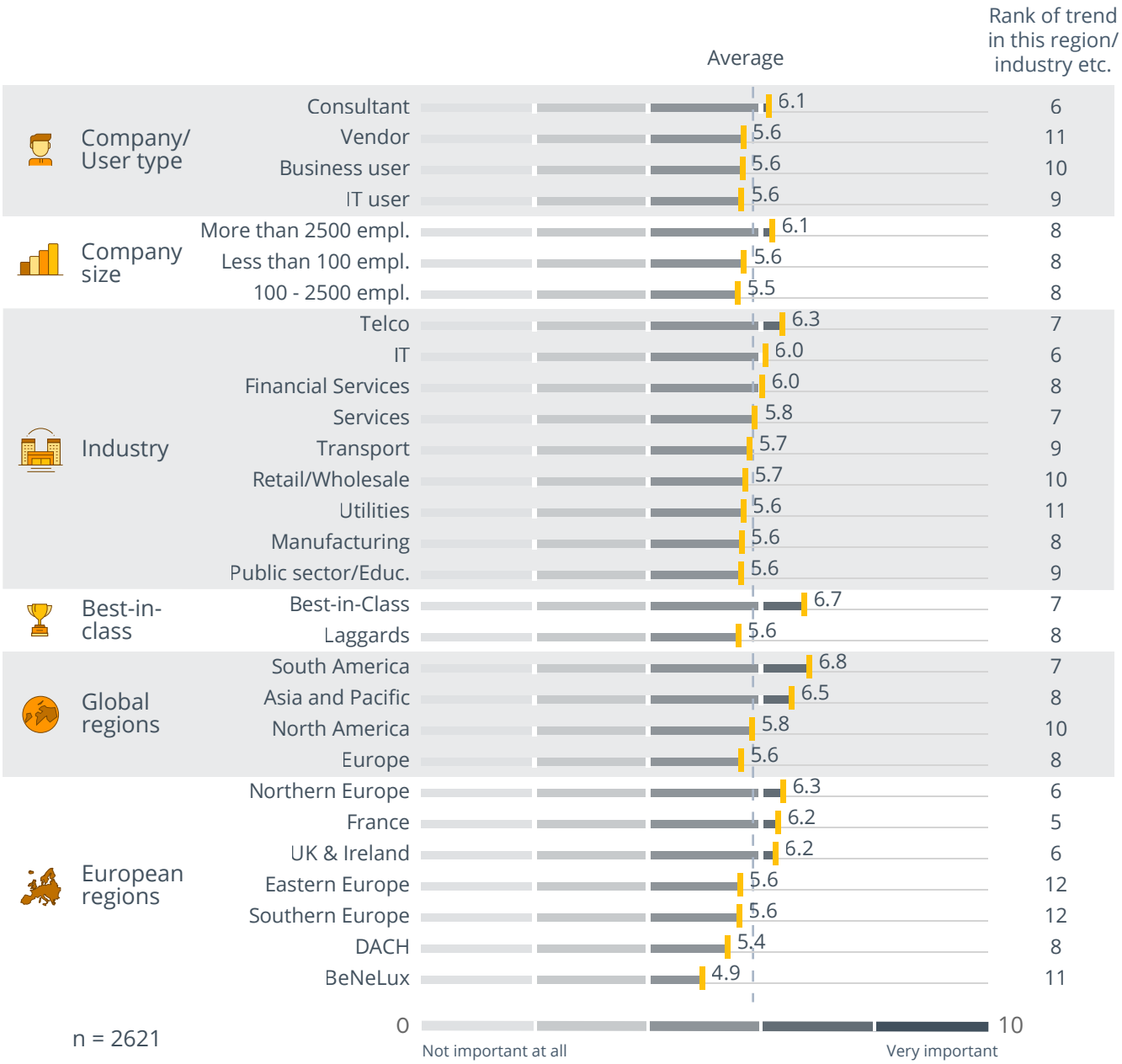
Older data warehouse landscapes have become too complex to support agile development, or too expensive to have their functionality extended to accommodate modern analytics requirements. Furthermore, the type of implementation for which many data warehouse landscapes were originally designed and optimized 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 methodologies, architectural approaches and utilizing other technical options such as in-memory, cloud storage and data warehouse automation tools. IT must be prepared for fast-changing analytical requirements, and they must also compete against new and cheaper implementation options from external service providers. Collaborative approaches are needed to cover the increasing expectations of the business to pull maximum business value from data. It is now time to assess historically grown data warehouses against present demands and evaluate how updated hardware and technology could make life easier.

Agile BI Development



South America leads the way. This trend is much less important in BeNeLux countries and the DACH region.



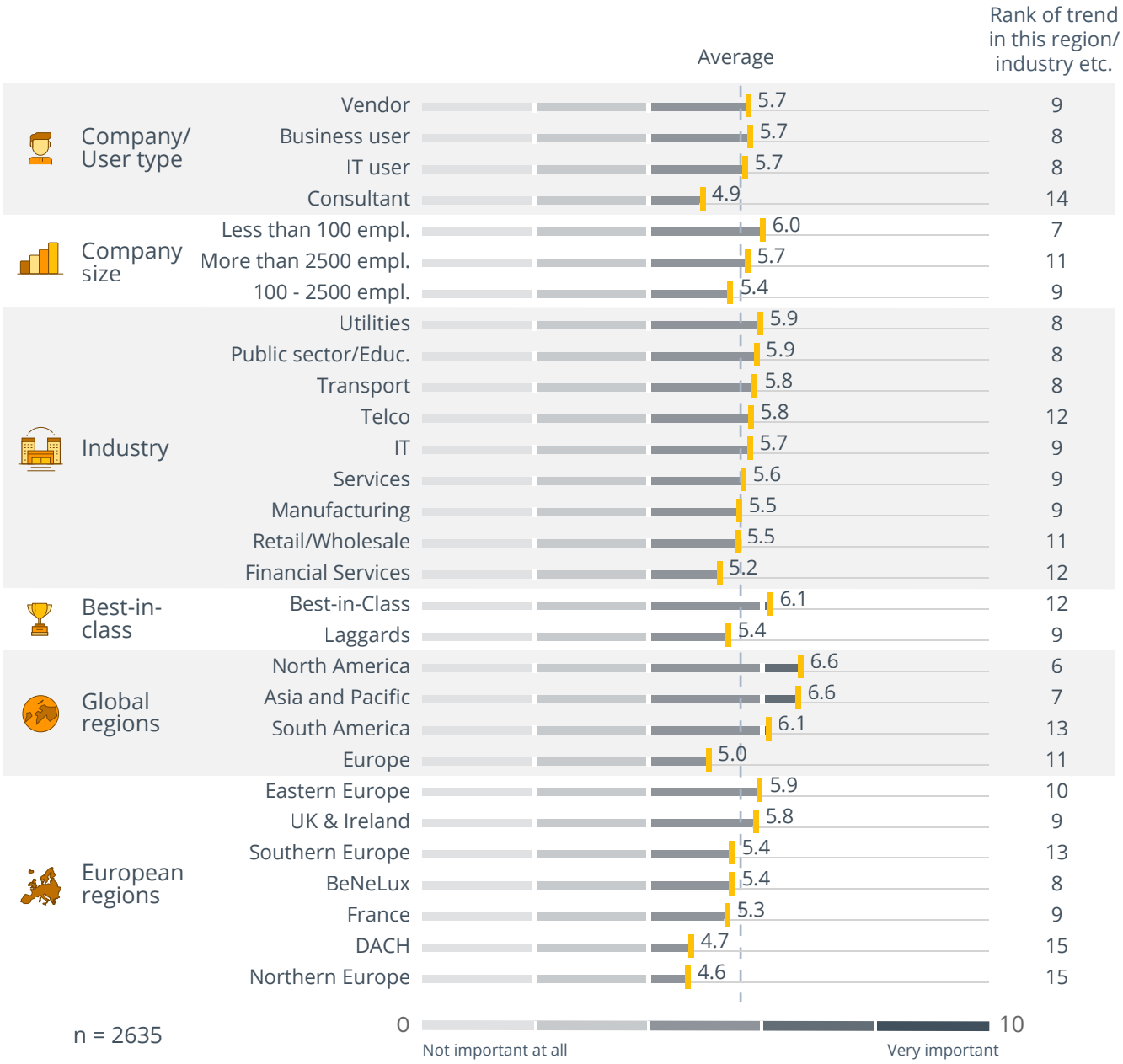
BARC Viewpoint

The term "agile" has increasingly been adopted in the context of business intelligence in recent years. Originally referring to a software development methodology, the "agile" moniker is now often used as a requirement when developing new data models, reports, dashboards or visualizations within a user-centric system designed for data-driven insights. Arguably, most users requesting "agile BI" use this term to express their expectation that older, historically grown BI systems and BI organizations quickly support changes to business processes in a balancing act between "self-service" and standardized projected development.

Agile BI requires organizations to adopt an iterative development approach with close collaboration between business and IT. Many companies are not set up organizationally for this approach, however, and some changes to organizational structures may be required. The BI and analytics system architecture must be able to deliver metadata-based changed components and services as lean increments through standardized continuous delivery pipelines. Ideally, the agile BI development approach is also supported by agile project management, which iteratively manages planning, requirements collection and development, but also automated testing. Just-in-time business information modeling combined with agile technology for model-driven generation accelerate "time to market".

Real-Time Analytics

North America and Asia & Pacific value real-time analytics very highly. Northern Europe and DACH see it as less relevant.



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BARC Viewpoint

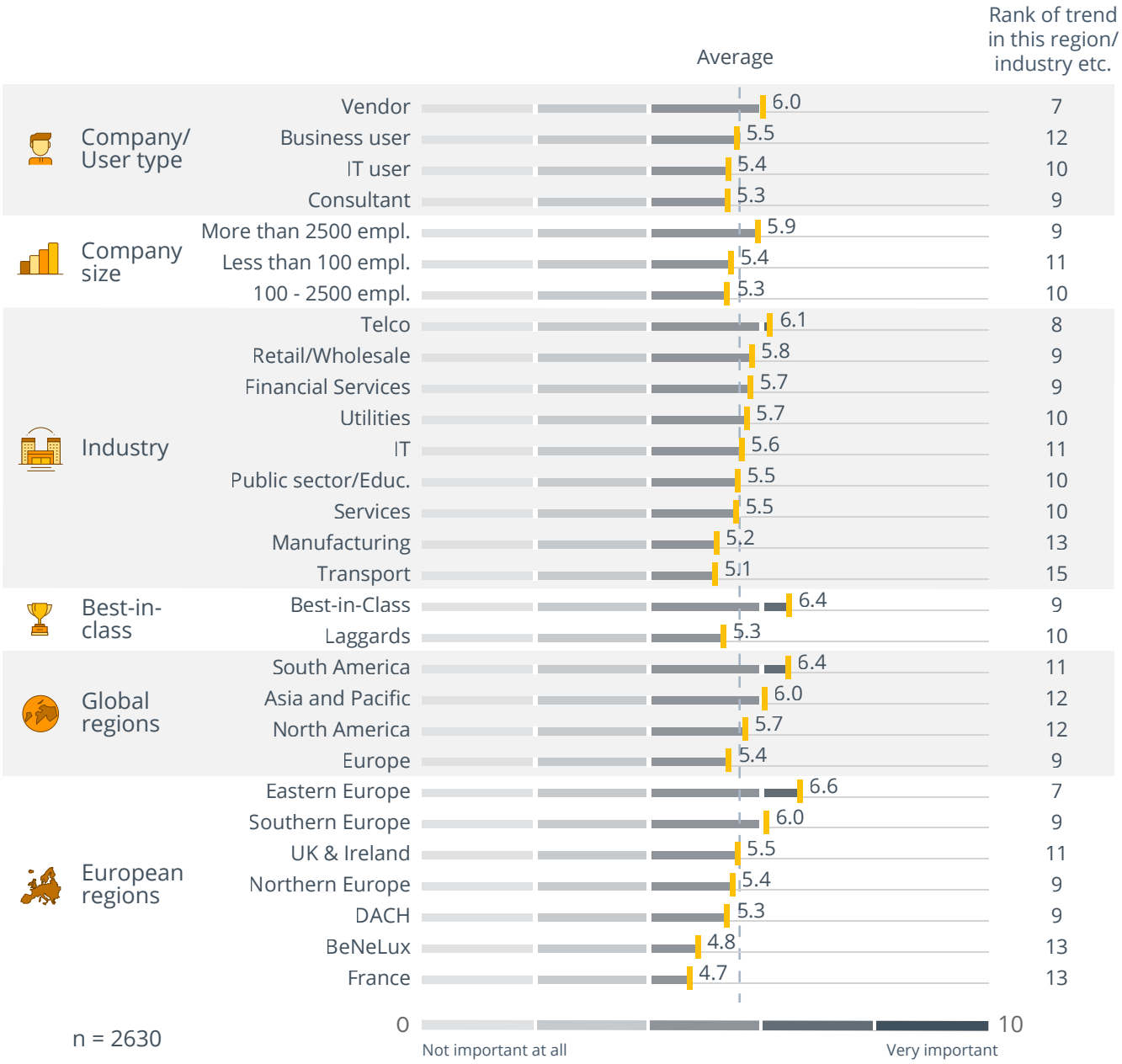
Faster reporting and analysis of data, not only in terms of query performance (which is still one of the biggest problems users experience with their BI tools), is a challenge in many companies. There is an increasing need to make data from transactional systems available immediately to support faster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

Advanced Analytics/ Machine Learning/AI

Advanced Analytics is very popular in Eastern Europe. Its relevance is much lower in France and BeNeLux.



BARC Viewpoint

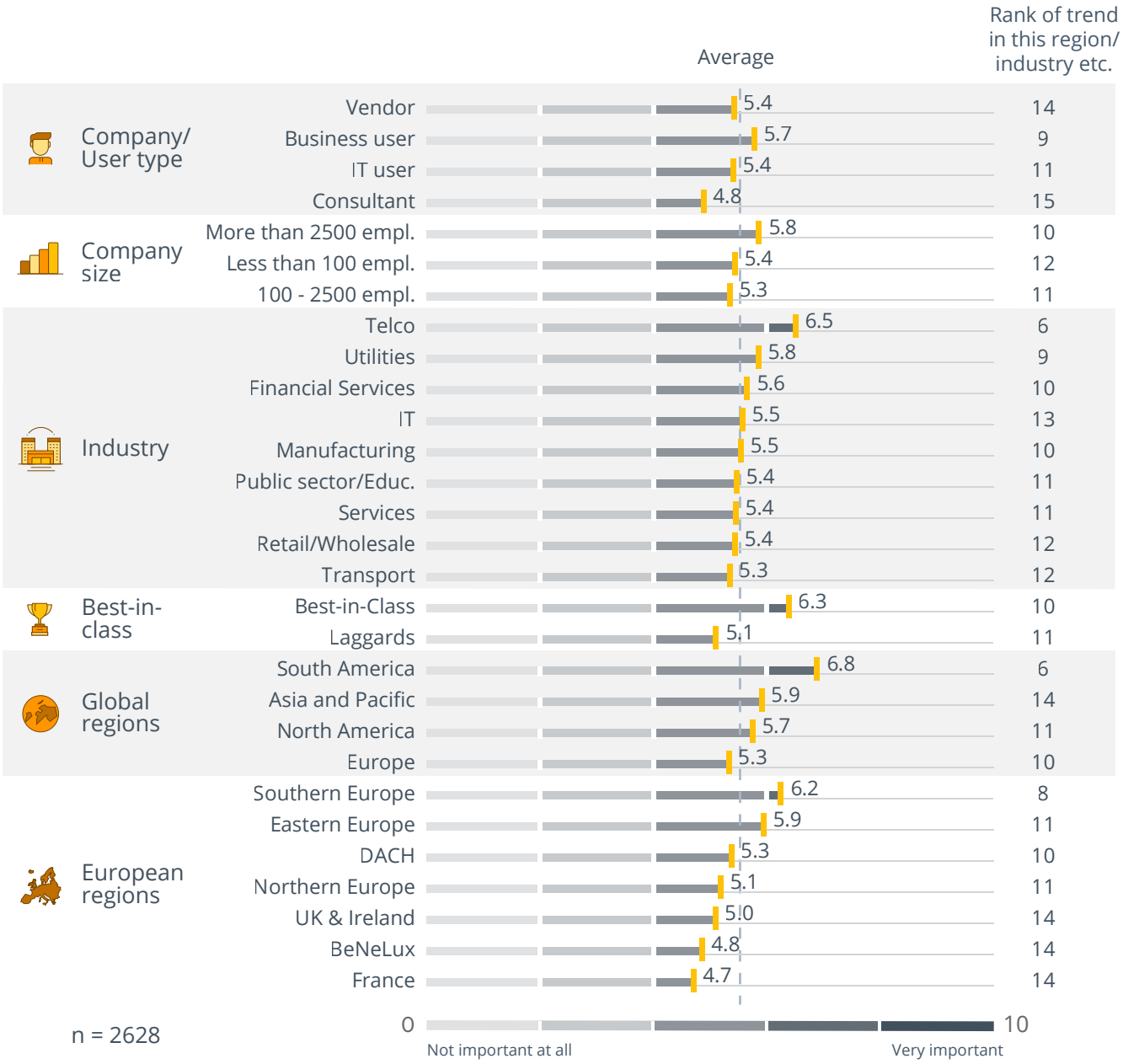
Advanced analytics and machine learning are important trends among BI decision-makers for 2020. Advanced analytics goes beyond mathematical calculations such as sums and averages. It uses mathematical and statistical formulas and algorithms in order to generate new information, identify patterns and dependencies, and 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 advanced analytics and machine learning also means changes for line of business and 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 on from experimentation into more practical, day-to-day use cases. The operationalization of use cases is one of the major challenges here. Besides organizational challenges, considerations of bias in algorithmic decision-making and ethical standards for such solutions are gaining in importance.

Big Data Analytics

Very important in South America. Less important in France and for consultants.



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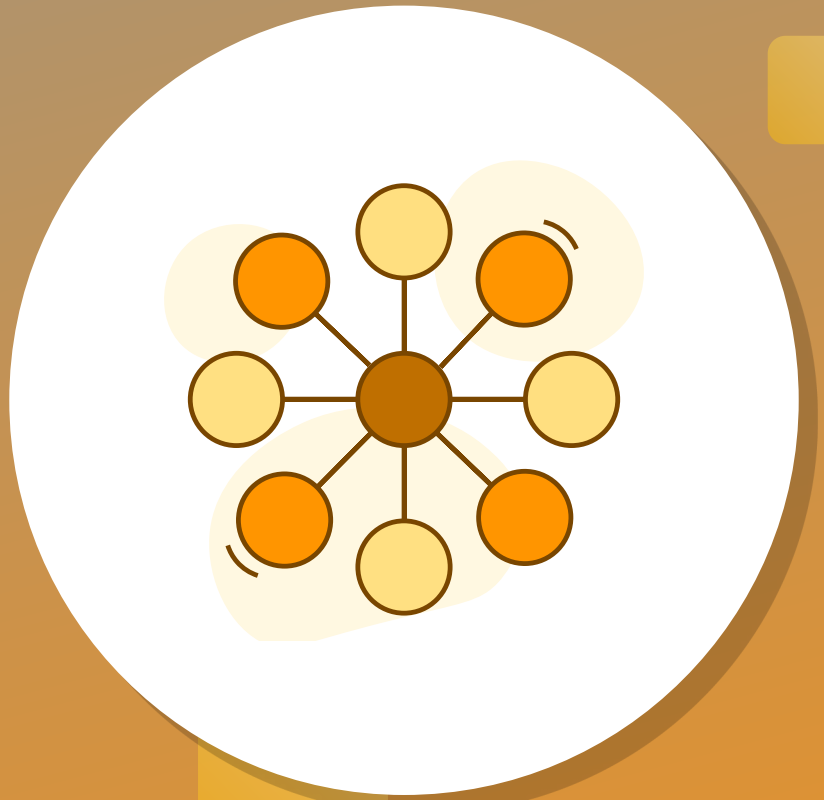
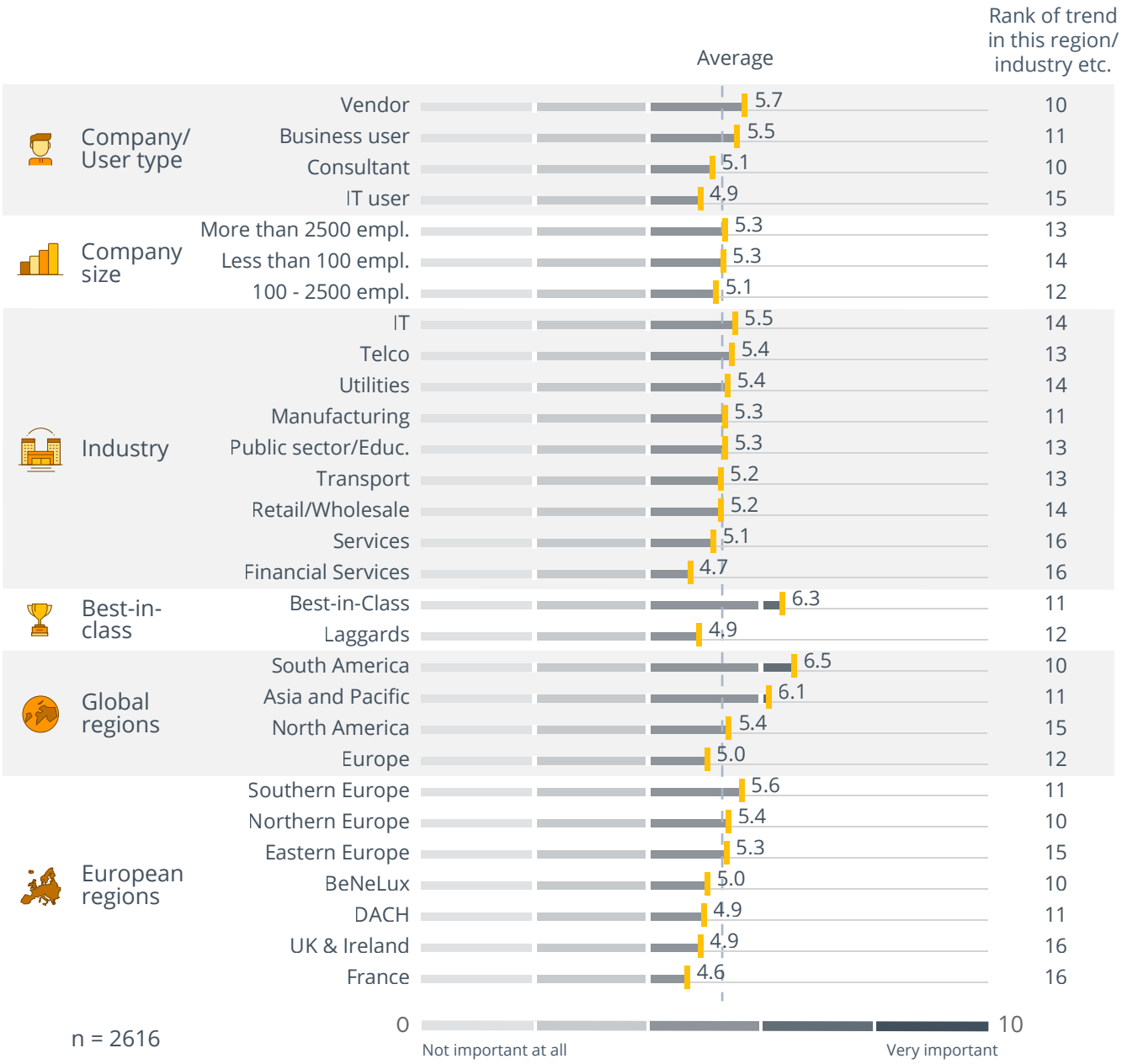
BARC Viewpoint

While big data has become an omnipresent term in recent years, and the hype surrounding it seems to have already peaked, the value it can generate is yet to be fully explored. Many organizations are still in the process of finding ways to make big data usable and profitable. In this context, big data analytics comes into play by providing the means to analyze data sets from various internal and external sources including sensor/IoT, geolocation and clickstream data. Almost every device or platform generating data can be used to identify patterns and derive added value through effectively combined information. Big data analytics is used to support decision-making and process optimization. Therefore, it is applied at both an operational and strategic level. In that sense, effectiveness in data usage becomes increasingly important: The challenge is no longer how to get hold of data, but how to effectively use the massive amounts of data produced every day in order to develop new products, reduce costs and make better decisions.

Integrated Platforms for BI and Performance Management (PM)



South America on top of the list for integrated platforms. France and financial services companies are less sold on the trend.



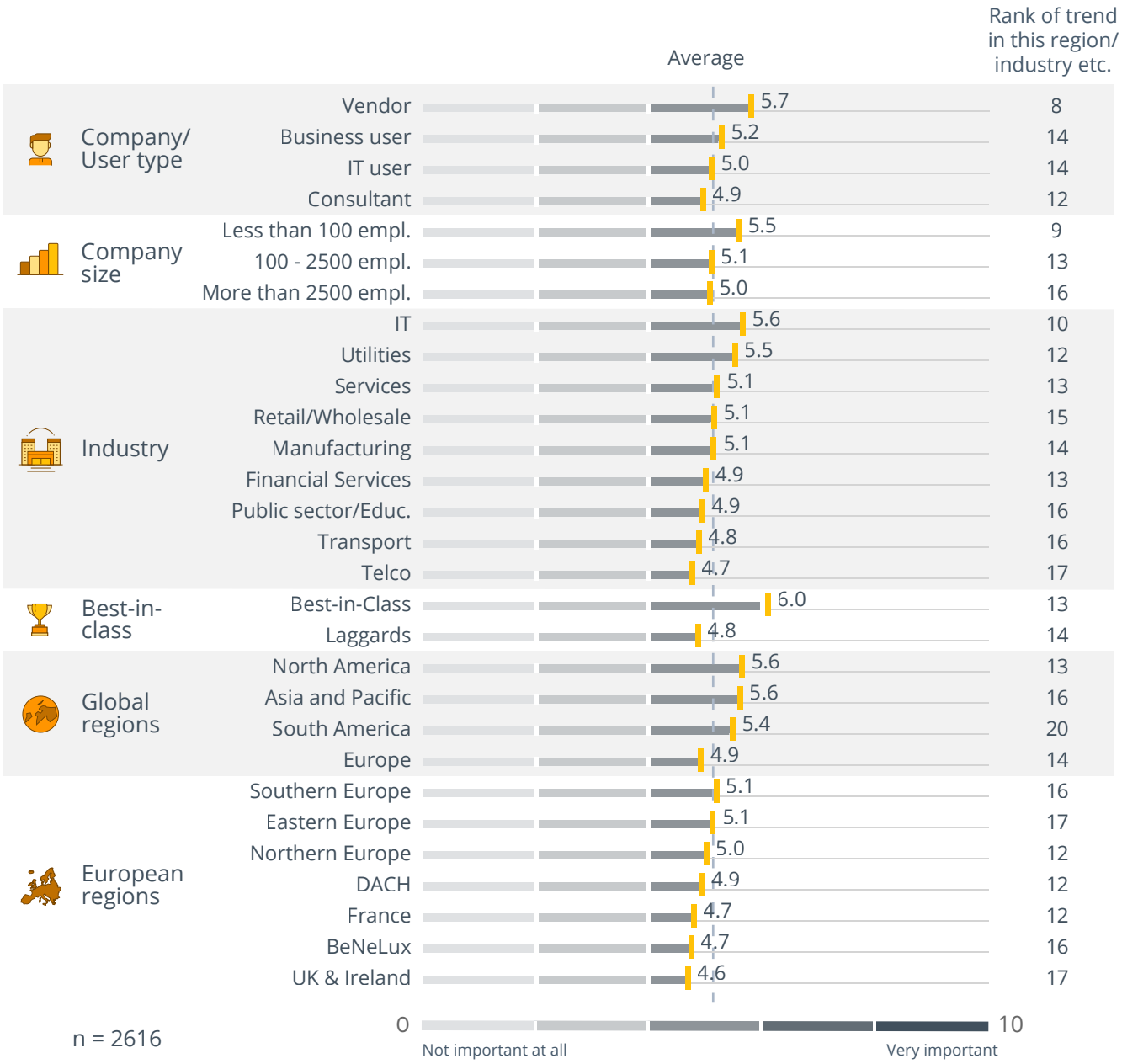
BARC Viewpoint

Decision-making in an increasingly complex and volatile world needs transparent plans and data analyses. Therefore, the seamless integration of performance management (particularly planning) and analytics functionality is beneficial to support decision-making processes optimally. Best-in-class companies and users know that there can be no transparent decision-making without supporting functionality for planning, reporting (e.g., results reports), analysis (e.g., analyses of planned and actual values) and dashboarding (e.g., monitoring). Having all these options in one common and integrated platform is a decisive factor for sustained success when integrating analytics and performance management. Consequently, this integration has been one of the most stable and relevant trends in the market for years.

Integrated platforms for analytics and performance management are equally relevant for all user types, company sizes and industries. Best-in-class companies in particular have invested heavily in integrating analytics and performance management processes as well as specialist software solutions and the benefits from this effort have been empirically proven. Supporting analytics and performance management on an integrated data platform with an integrated tool is a goal worth investing in.

Embedded BI

Best-in-class companies are much more aware of the value of embedded BI than laggards. The UK & Ireland are the most reserved.

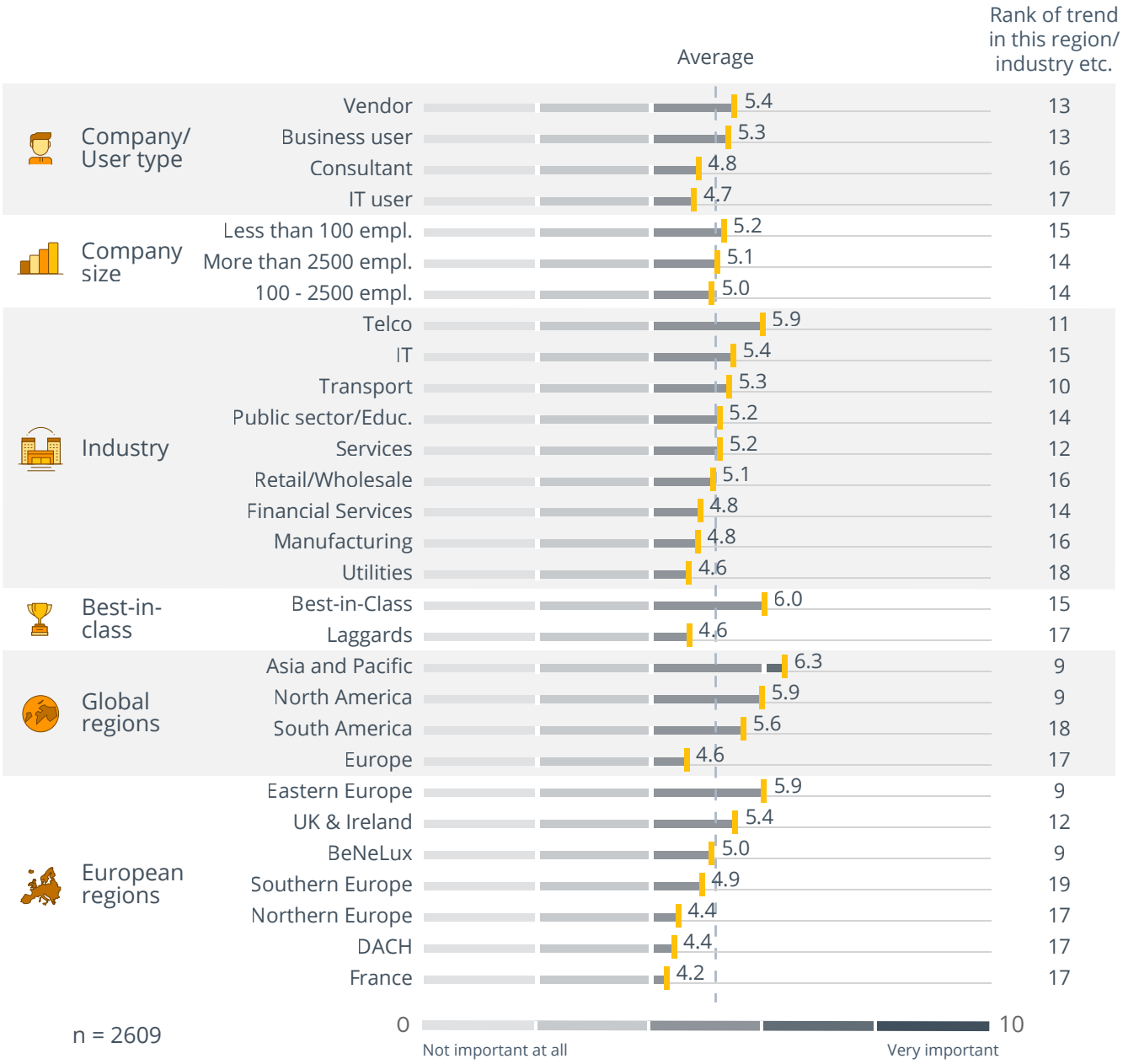


BARC Viewpoint

Embedding intelligence in operational applications is growing steadily in popularity. From dashboards to prediction and optimization models, users can access complementary functions directly in their specific operational processes and act on the findings – closing the classic management loop from information to action at an operational level. Embedded BI and analytics enables users to derive information rapidly by themselves without having to involve the IT department or supervisors. In effect, many more people gain access to information and BI capabilities, making BI more pervasive or "democratic". Besides, it even allows for automated processes where no active user request is needed to initiate data analysis. However, this operationalization of BI and analytics implies various challenges. For example, separating the responsibilities of the BI and application teams, delimiting operational BI from classic BI and data warehouses, or deciding whether to "make or buy" embedded functions. Also, the broad approach of automating decisions through embedded models and rules brings about completely new possibilities and challenges. For example, the change in role of the human being from decision-maker to creator and supervisor of decision-making models.

Data Storytelling

A big gap exists between best-in-class companies and laggards as well as between Asia & Pacific and Europe.



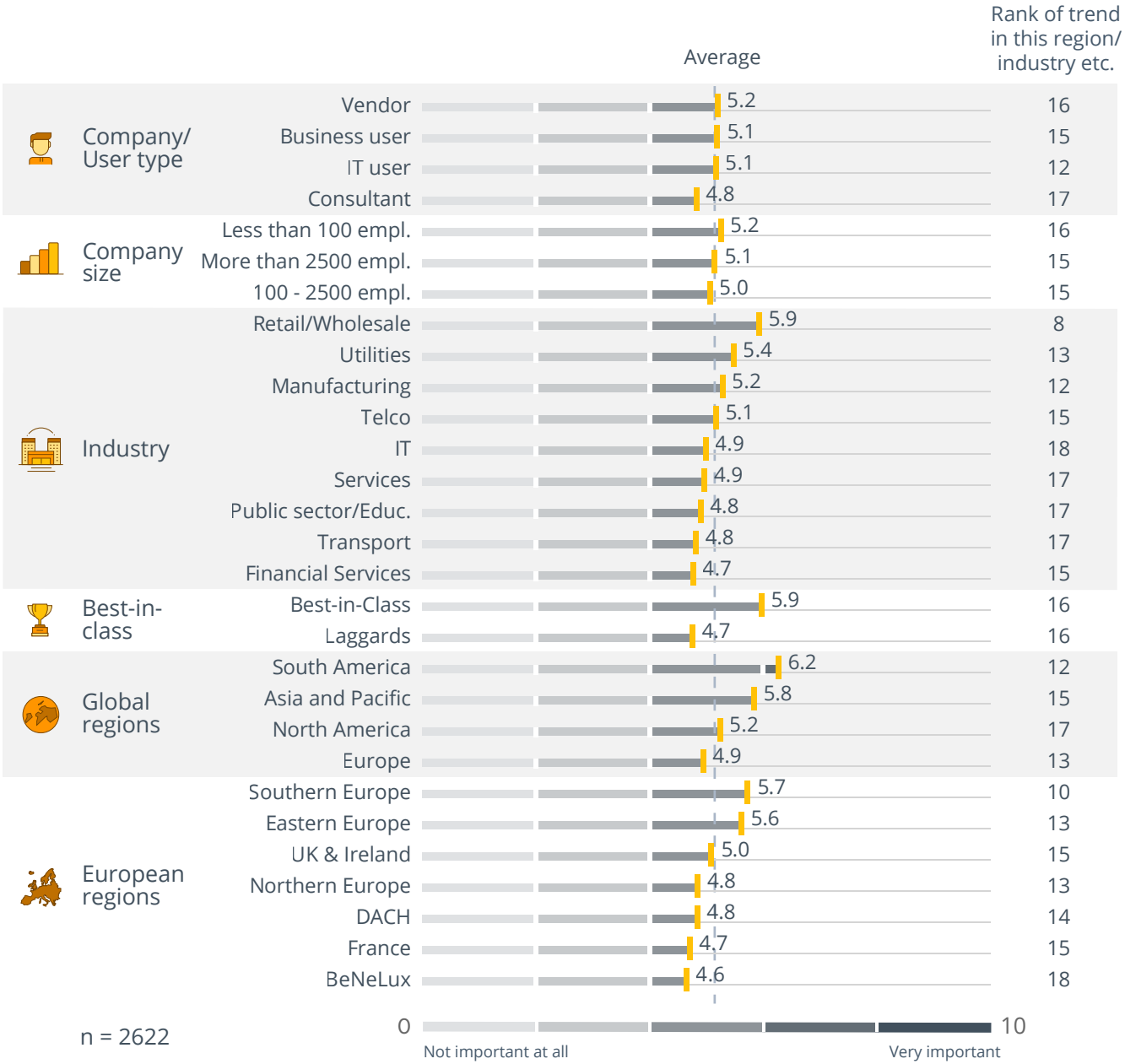
BARC Viewpoint

Data relies on you to give it a voice, and data storytelling is a way of helping to explain the meaning of analysis results and insights gained. Data stories supplement and build on components of visual analyses, standardized reports and dashboards such as graphs and tables. They are modified, annotated and compiled into a narrative to form the supporting evidence for a well-founded call to action. Stories have a greater emotional impact on us than bare numbers, so the communication of insights and messages can no longer solely rely on reports. Engaging and inspiring stories drive action based on solid data.

Analytics and BI tools are the major gateways to corporate information treasures. Interactively presenting information and stories in these tools allows for high efficiency and helps to ensure data quality as well as a high level of trust through end-to-end traceability. This enables interaction with data, drilling and analyzing details without switching tools or making manual adjustments. Interactive analytical storytelling enhances the credibility of stories and allows executives to gain further insights that are cumbersome to glean from static, predefined analyses.

Mobile BI

South America and retail/wholesale regard mobile BI as very important. BeNeLux is some way behind.



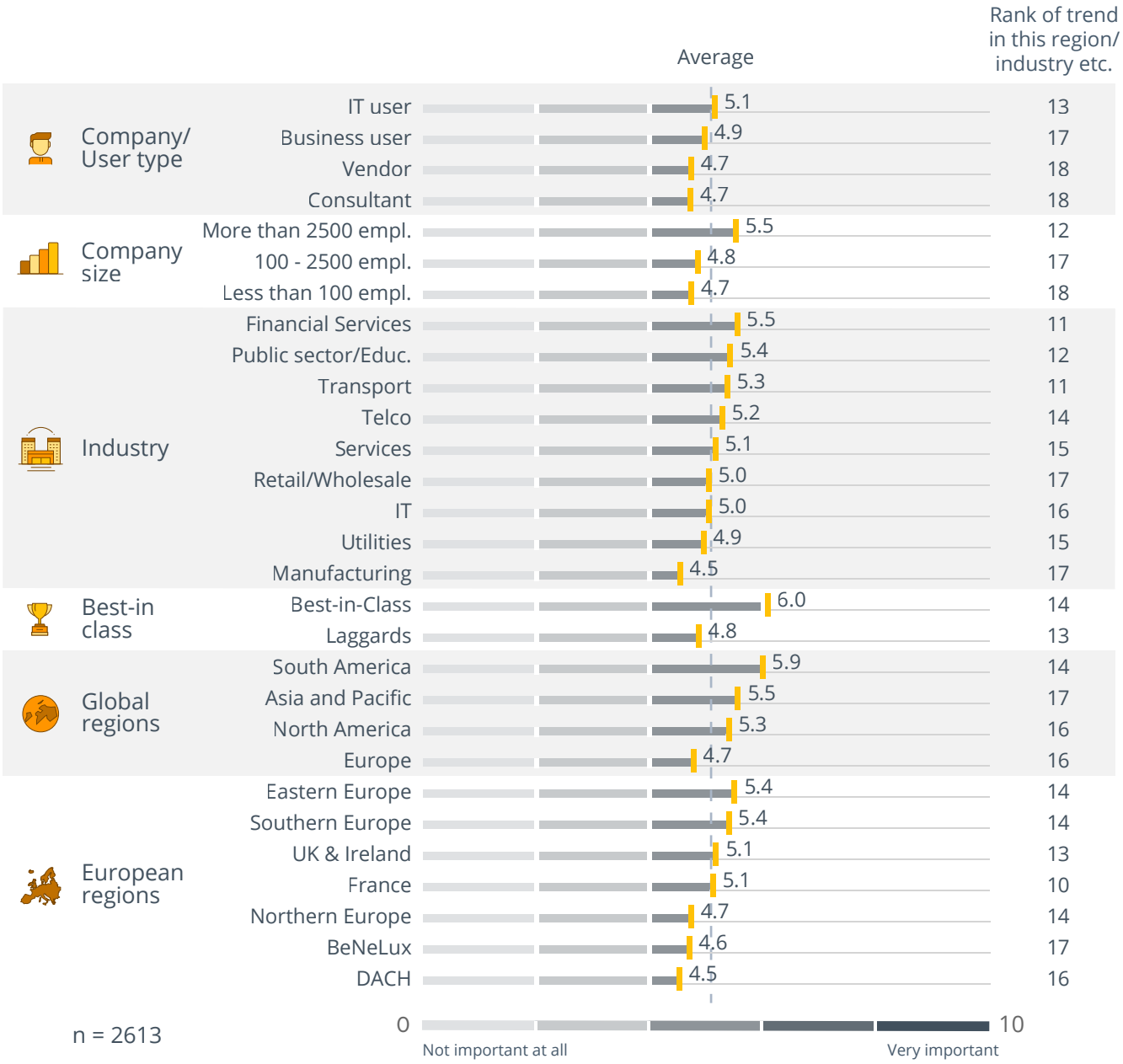
BARC Viewpoint

Mobile BI – driven by the success of mobile devices – was considered by many as a big wave in BI and analytics in the beginning of 2010s. Many BI vendors developed native apps to provide analytics on mobile devices. However, adoption was very slow and there was a degree of disillusion in the market. Our survey results show that mobile BI usage has grown by only 20 percent in the last 8 years. Currently not even a third of the companies surveyed use mobile BI.

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 dashboard to a mobile environment does not fulfill the requirements of all different types of users. There is great potential for mobile BI to support operational processes while simultaneously increasing the penetration of BI within organizations. Therefore, it is not surprising to see the retail, utilities and manufacturing industries using data on mobile devices more frequently than others.

Analytic Teams/Data Labs

Analytics teams are prominent in South America, but less relevant to organizations in the DACH region and the manufacturing sector.



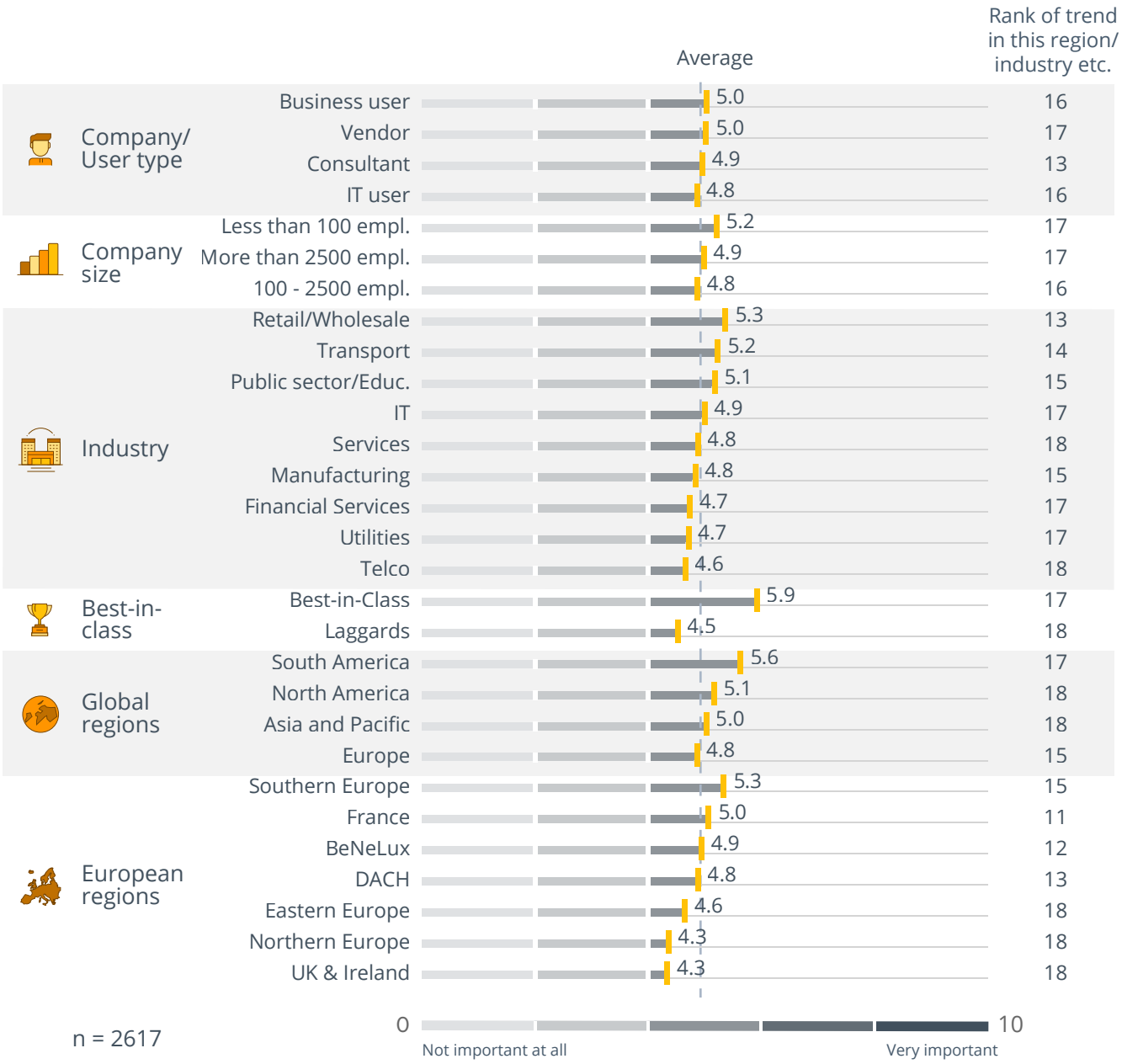
BARC Viewpoint

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 designed to conduct data science in an organization. They offer a space for design thinking and experimentation, aside from established processes in the organization. Data labs require investment 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. However, generally the importance assigned to data labs is much lower compared to advanced analytics and machine learning. Labs require considerable investment in terms of staff and infrastructure and not many companies choose to set up data labs to conduct data science. Integrating data labs and analytics teams poses new challenges and requires revised organizational approaches to link data labs, IT departments and business units. Many companies therefore integrate data scientists into IT or line of business. This has many advantages, especially for the operationalization of analytics solutions.

Using External/Open Data

Especially relevant in best-in-class companies, but not so much in the UK & Ireland and Northern Europe.



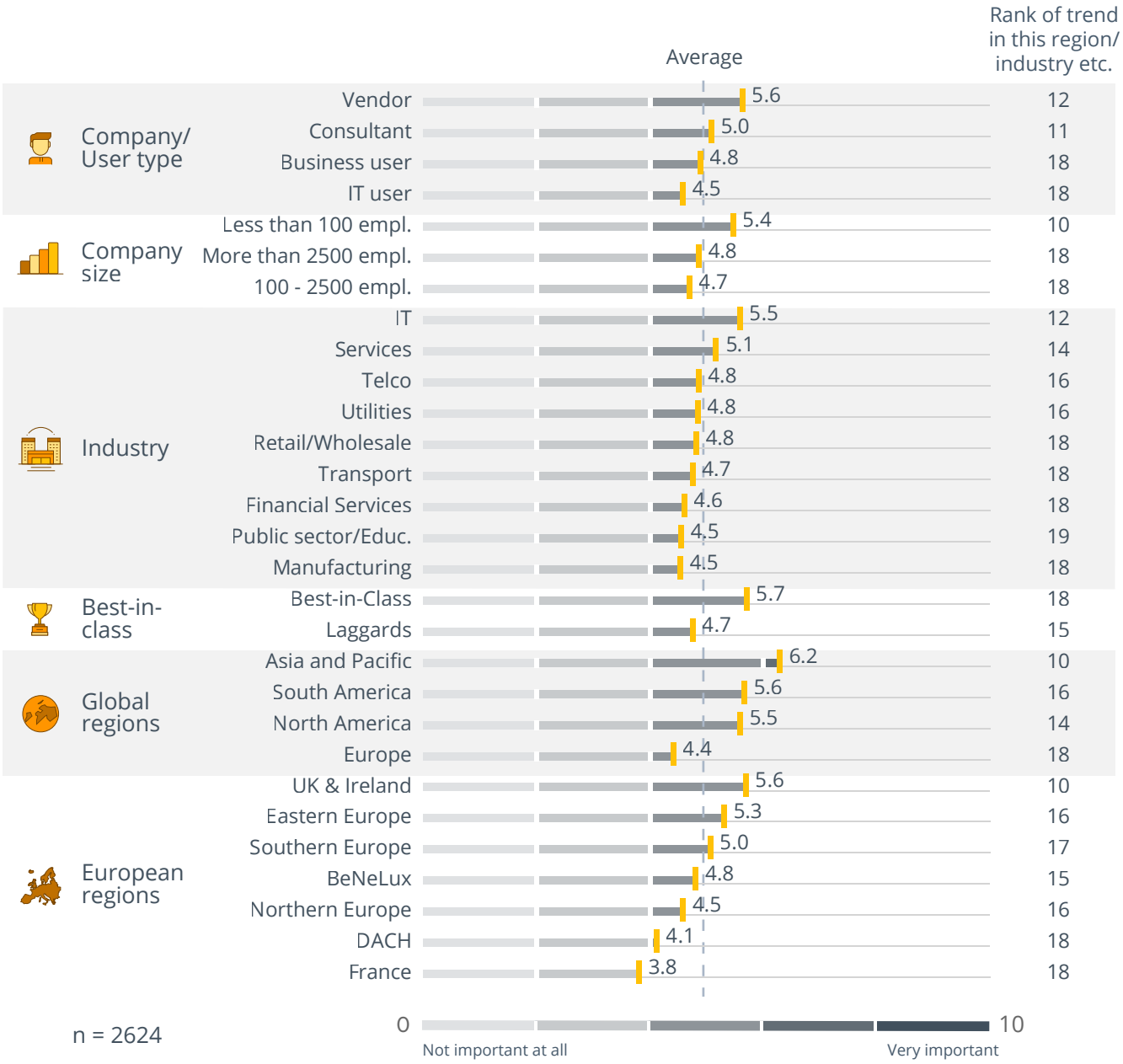
BARC | Viewpoint

It is no secret that data is becoming increasingly important to companies. Its value continues to rise as more ways to analyze it emerge. The use of external data to enrich companies' own data goes 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, meteorological, geographical and demographic data, and even analytical findings. Companies can purchase these and many other types of data for their own analysis from BI generalists, specialist service providers and data trade platforms. Open data is used to build business models around targeted analysis.

The use of external data spans all company sizes but there are industries that rely more heavily on it. The transport and services industries attach the highest importance to external data – economic development statistics for medium-term developments, weather data for short-term developments and spatial data to optimize routing are just a few examples of the resources used. Manufacturing relies little on external data and telecommunications companies actually generate and sell data for use by others.

Cloud BI

Most relevant in Asia & Pacific. Less popular in Europe, especially in France.



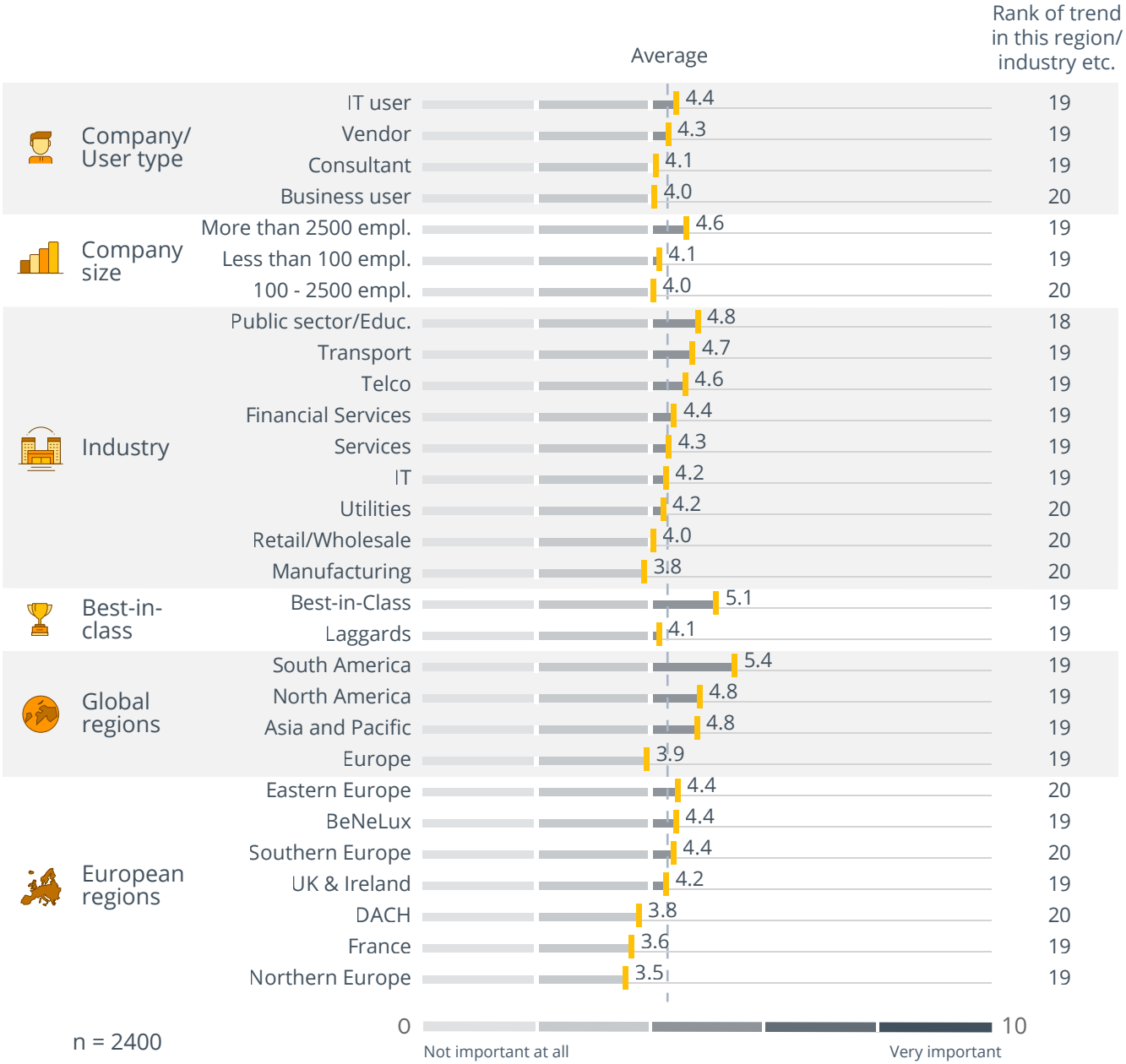
BARC Viewpoint

The global trend of running applications in a cloud environment started to branch out into the analytics domain about ten or twelve years ago. Start-ups were founded to disrupt the established vendors with a platform- or software-as-a-service business model. The incumbent vendors, who typically generated their revenues from on-premises implementations, followed suit and now nearly every analytics, CPM and data management vendor offers a cloud-based solution.

Cloud analytics and data management now have very similar functional capabilities to their corresponding on-premises products. Licensing is often based on a rental or pay-per-use model which reduces the one-off investment. However, the adoption rate for cloud analytics and data management deployments is still rising very slowly. It is not the attractiveness of the platform that deters organizations from moving their analytics landscapes into the cloud. Instead, there are many contributing factors: legal, security and privacy concerns, a shortage of best practice advice on how to build hybrid or multi-cloud architectures, a lack of trust in the vendors, and the desire to keep company data under the control of the IT. However, the overarching issue is that analytics 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 affinity than those with all their data on premises.

Data Catalogs

Data catalogs are most important in the South America and least relevant in Northern Europe and France.



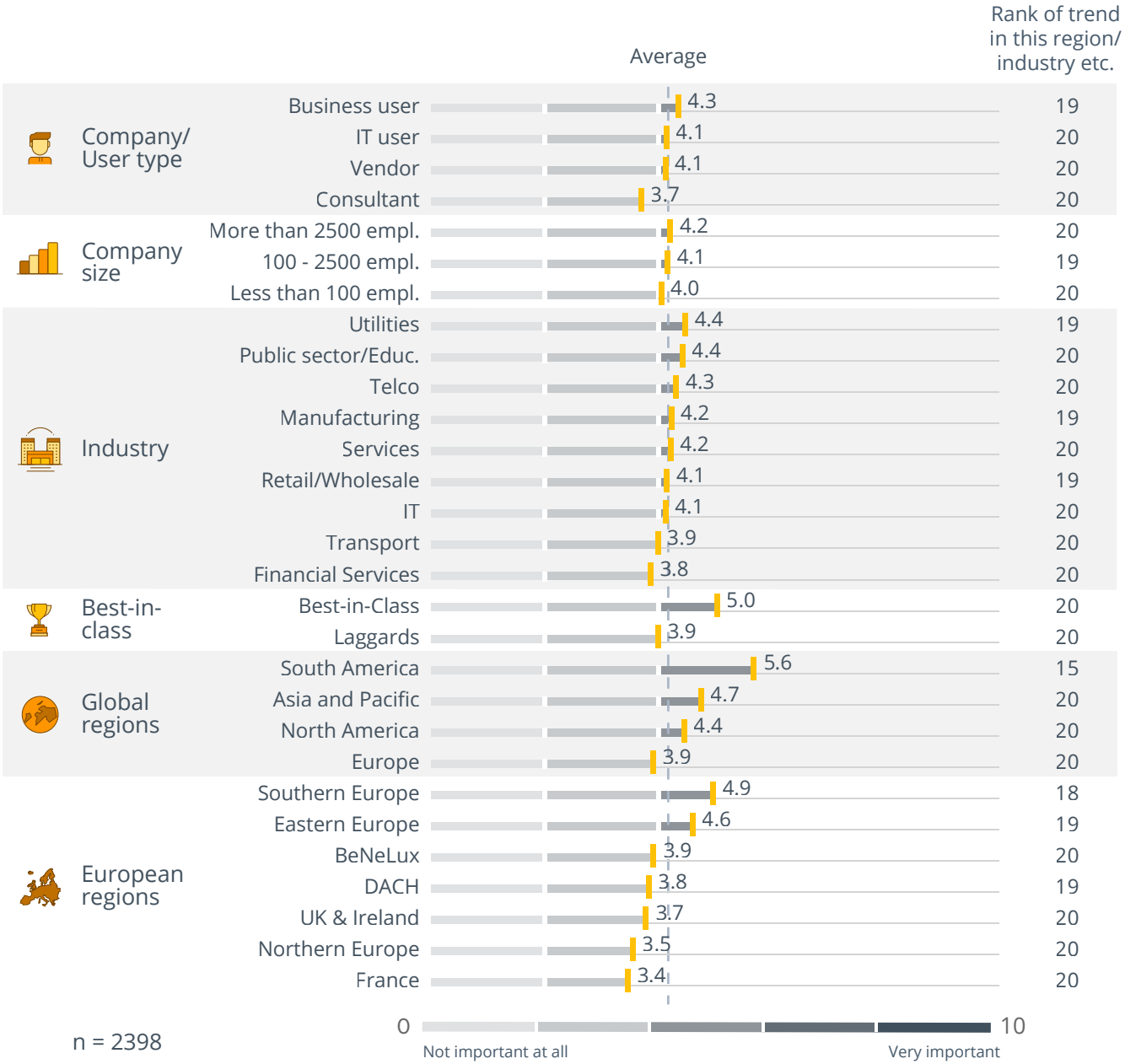
BARC Viewpoint

Data is essential for BI and analytics and thus also for expanding a company's ability to respond to change through digitalization. However, the ability to use data is no small matter. Unsufficient data hinders the BI and analytics process and impairs value creation from data. The desire for a central data store can therefore be great, but also very complex to implement.

Currently, the solution to these challenges is seen in the deployment of a data catalog. Data catalogs are designed to register, catalog and link data in order to make it findable and usable for "everyone". This helps to fulfill regulatory as well as business requirements. This is possible by describing data objects and their relationships with metadata without having to physically integrate data. The use of a data catalog, however, requires a different way of thinking and an awareness that data catalogs must be actively maintained. Technology can assist this process with connectors to different types of sources, workflows, UIs and collaboration functions as well as lineage analysis and cross references.

Process Mining

Process mining is a minor trend across all categories.



BARC | Viewpoint

Although research into process mining began around the year 2000, this analytics discipline has only recently been attracting more interest.

Process mining reconstructs business process flows using operational log files from IT systems to create a basis for their analysis. Process mining software offers functions to extract process information from individual IT systems, to combine the data about the individual steps of the processes, and to visualize the actual process flows in their entirety. In addition, systems for process mining offer functions for interactive analysis by users.

Process mining has nothing to do with 'data mining'. If the core of data mining is the use of complicated advanced statistical methods, the basis of process mining is the presentation of process information, where basic arithmetic operations such as summation and averaging are sufficient. Thus, the typical users of process mining technologies are not data scientists, but rather process managers and users in business units.

We see an increasing interest in looking at the potential of process mining. Companies are aware that they can use it to recognize and solve problems in processes - overlong durations, loops, unwanted process variants - in order to work faster, more reliably and more cost-effectively.

Recommendations

BI/analytics 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. After all, data and analytics 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, making data discovery, self-service BI and data integration capabilities available while putting a high priority on data quality and master data management in an accompanying data governance effort.

#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 and the success of digitalization also depends on an openness and culture to embrace new use cases for data and analytics. However, people with the necessary skills and mindsets can and should not only be sourced outside of the organization. Given all the exciting developments in the field of data and analytics as well as the rising strategic importance of data literacy, companies need to invest in the skills required to leverage data, technology and analytics.

#3 | Pay attention to data governance

Organizations seem to be aware that the best looking dashboards or statistical models are worth nothing if the data represented 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 governance concepts such as data ownership and stewardship processes are just one example of this.

#4 | Implement data governance

Enabling your business user community through self-service BI and possibilities for reporting, analysis, 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 introduce a trusted and accepted governance of data and analytics.

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#5 | Modernize your information architecture

Organizations should review their existing information architecture to ensure it can support the level of agility required, handle large volumes of poly-structured data (also in real time where needed) 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. Data warehouse modernization is obviously an important trend. Despite all the hype around new topics such as big data, data lakes and advanced analytics, the harmonized and quality-assured data foundation data warehouses bring is still required but, in many cases, the technology and processes need to be modernized.

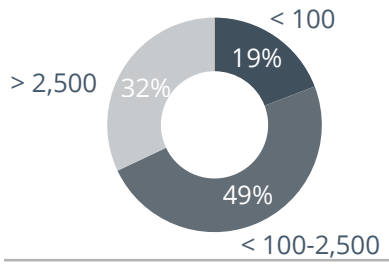
#6 | Be aware of the challenges of self-service BI

BI leaders need to understand the various data analysis requirements in their organizations and the possibilities and approaches offered by modern tools. Self-service has a different set of requirements per user group. Introducing 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.

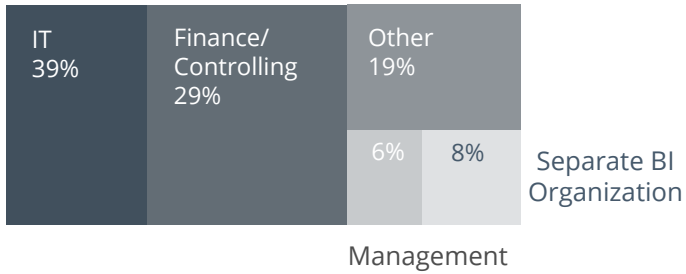
#7 | Get ready for a data-driven culture

Establishing a data-driven culture requires the encouragement of critical thinking as well as being willing to hand responsibility for data to business users. Organizations have to be aware that an in-depth cultural change is time consuming and will probably face resistance. Support from facilitators such as external consultants and internal champions can help in the tasks of setting up a roadmap, facilitating change and a shift of mindset, as well as defining a data architecture and corresponding tools that foster data-driven processes.

Number of employees

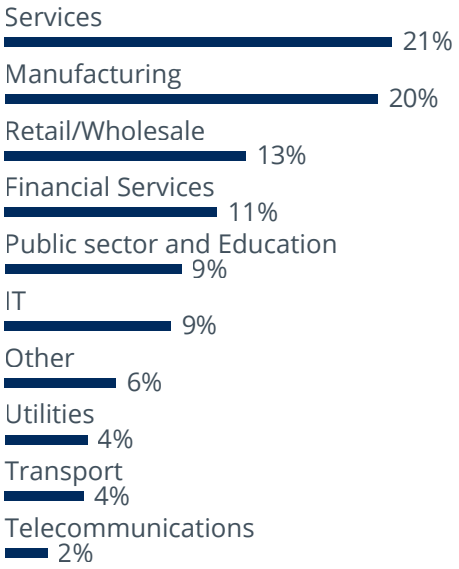


Department

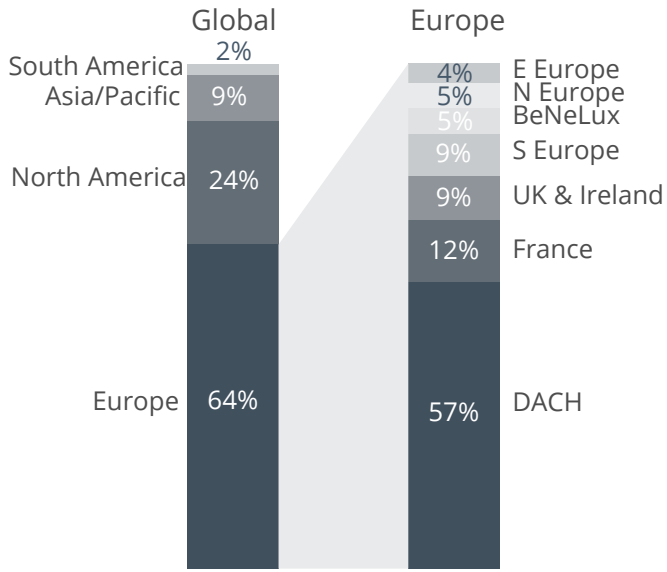


Company type

Industry



Region



Information on the survey

The data used in the BI Trend Monitor 2020 was sourced from an online user survey conducted worldwide in the summer of 2019. BARC promoted this survey on websites, at events and in email newsletters. After data cleansing, a total of 2,865 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. Laggards represent the lowest 10 percent.

BARC Company Profile

BARC – Business Application Research Center

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. Neutrality and competency are the two cornerstones of BARC's approach to consulting. 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.

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.

For further information see:
www.barc-research.com

Other Surveys

The BI Survey 19 is the world's largest annual survey of BI users. Based on a sample of over 3,000 survey responses, The BI Survey 19 offers an unsurpassed level of user feedback on 36 leading BI solutions. To see the results go to https://bi-survey.com

The BARC survey 'The Future of Reporting' investigates how and why companies should modernize their reporting and is based on a survey of 600 participants from 58 countries across a range of industries. Download here.

The Planning Survey 19 is BARC's major annual survey of planning software users. With feedback from over 1,600 respondents, twenty-two market-leading planning products are evaluated and compared in detail. Find out more at https://bi-survey.com

Cubeware

www.cubeware.com

Since 1997, Cubeware has helped businesses of all kinds with integrated solutions for business intelligence and performance management to turn data into information, gain knowledge, and enable that knowledge to make the right decisions at the right time! Throughout the company. Across all departments. For all employees. Purposeful. Inexpensive. Fast. The Cubeware Solutions Platform offers analysis, dashboarding, planning and reporting integrated from a single source. That is its claim. Why should you be satisfied with less? More than 4,000 customers worldwide do not want to do without it.

The basis for your success

With the Cubeware Solutions Platform, you can easily access new sources of data, make your data comprehensive, analyze and visualize your operational business and financial processes, engage thousands of users in your corporate reporting and information processes, and simulate and plan your next steps. So that you can concentrate on the essentials at the end of the day: your business success!

What makes Cubeware's solutions stand out

The hallmarks of Cubeware's solutions are their economic benefits for the user company, their transparency and predictability in the sense of investment reliability and their value-creating contribution to the income statement.

Technologically

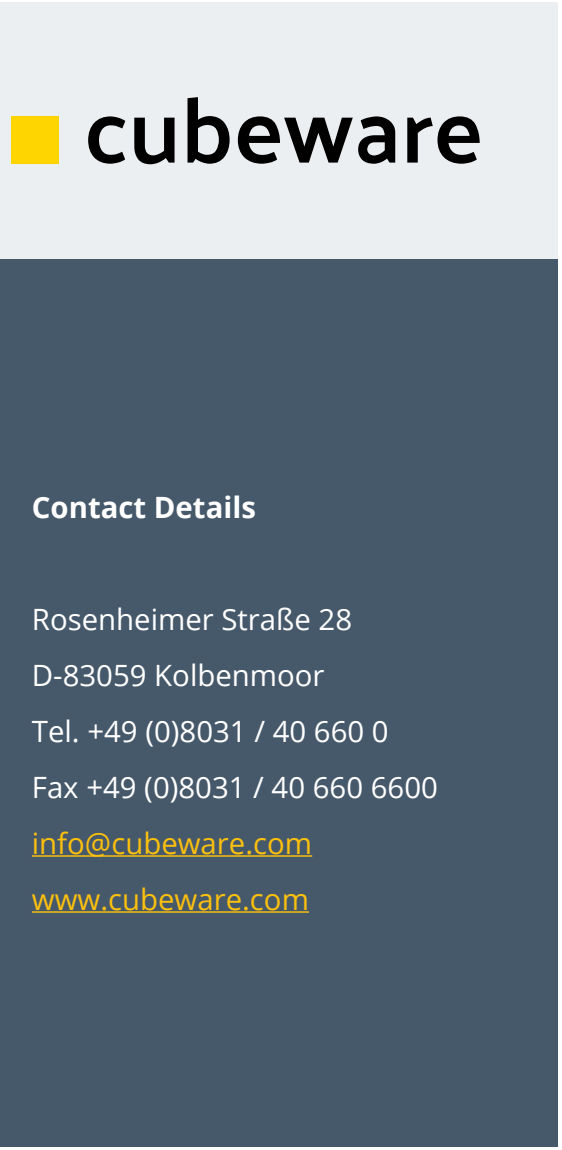
Cubeware offers an integrated, intuitively usable software platform to suit your application. It not only encompasses individual aspects of fact-based decision-making processes, but also holistically addresses them. Ranging from data management and data modelling through to analysis, planning and company-wide reporting, the platform provides solutions to the information requirements of modern companies. It integrates all internal and external stakeholders according to their tasks and roles.

Technically

Cubeware and its certified partners form an active ecosystem, which possesses specialist, sector and subject experts from virtually all departments. As a result of this, Cubeware's service portfolio ranges from implementation and training through to project management and support in production operation. The whole of Cubeware's consultancy service takes place at eye-level and provides new thought-provoking impulses for information and decision-making processes.

Commercially

Cubeware offers a flexible and scalable licence and price model that is elastically adaptable to the circumstances of individual companies. This allows companies to act as cost-sensitively as possible at any time – irrespective of organisational structures and business models.



Information Builders

www.informationbuilders.com

Information Builders provides a cloud-based, end-to-end data and analytics platform as a service. It ensures that your data is integrated and business-ready and delivers actionable analytics and business intelligence.

The key is scale.
We scale the number of data types you can use and the volumes you integrate and use. Cloud-native, big data, message formats, APIs, noSQL, relational, legacy – in the cloud or on-prem – are all core to what we do.

We scale the number of people you can reach. Our average deployments are double the industry average, which is a powerful driver of ROI. Many platforms support analysts and data scientists, but ours also supports non-technical users, including employees, customers, partners, and citizens. Customers use our technology to reach outside of their firewalls to tens of thousands, and in some cases millions, of users.

Finally, because we can reach so many people in so many ways, we scale this single platform out to more use cases than any other vendor. Whether embedding analytics into operational applications, getting the entire C-suite on the same page with trusted data and dashboards, or creating customer-facing applications, our ability to use more data for more use cases enables more and better outcomes.

One platform. More data. More people. More use cases.

Key technologies of our platform include data integration, data quality, MDM, dashboards, reporting, and analytics, all running platform-as-a-service (PaaS) or on premises. We're a key enabler of cloud, multi-cloud, on-prem, and hybrid data and analytics scenarios. We can create a foundation of business-ready data and layer BI and analytics on top of it – but we're problem solvers and team players, too, so mix and match the data management and analytics capabilities you need.
Information Builders provides data and analytics at scale. Learn more at informationbuilders.com.

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MicroStrategy

www.microstrategy.com

MicroStrategy (Nasdaq: MSTR) is a leading global software and services provider for enterprise analytics and mobile business intelligence. Our goal is to help companies transform into an Intelligent Enterprise™. With the MicroStrategy Analytics and Mobility platform, businesses can gain trusted insights – turning any moment into a business breakthrough! Discover the next generation of enterprise intelligence! The MicroStrategy 2019 ™ enterprise platform enables analytics functionality to be deployed locally or on distributed private and public cloud platforms for a variety of users across the enterprise.

For business and IT Users

MicroStrategy meets the needs of business and IT alike. Users get quick answers – even with big data analysis – and create meaningful visualizations easily and quickly. This ensures a company-wide "single source of truth". Business users create analyzes much easier and faster. They leverage different data sources and merge them into effective and interactive visualizations. By drag and drop, users create engaging dashboards they can share with colleagues across the enterprise in one click. Users present their data reliably and trustingly – from personal data to big data, as part of a flexible, fast and cost-effective deployment, anywhere, anytime, on-premise or in the MicroStrategy Secure Cloud.

MicroStrategy Cloud Platform

The MicroStrategy Cloud Platform delivers everything you need to deploy secure, scalable, flexible, and extensible cloud solutions that meet the business and IT needs of your entire organization.The rapid deployment of the MicroStrategy platform to Amazon Web Services (AWS) and Azure also simplifies and accelerates the launch of fully configured Analytics, Mobility, and HyperIntelligence projects. Administrators can manage their environments in AWS or Azure with a single console and effortlessly start, pause, reconfigure and shut down projects as needed.

Innovative features: HyperIntelligence, Federated Analytics, Transformational Mobility

HyperIntelligence™, a new category of analytics, delivers "zero-click" insights. HyperIntelligence Cards let Google Chrome users hover over highlighted words in web pages and other browser-based applications to instantly see relevant and contextual information. HyperIntelligence also provides APIs for developing and deploying AI applications that deliver zero-click information in the form of voice assistants, image recognition software, and GPS applications.

Federated Analytics allows analysts and data scientists to get trusted analytics in the form of dossiers, dashboards, forecast models, project performance reports, financial reports, and billing data. Analysts accessing data with Excel, Power BI, Qlik, or Tableau, and data scientists working with RStudio or Jupyter Notebook can now be more productive with the MicroStrategy 2019 – a trusted, scalable and linked analytics platform.

Transformational Mobility provides analytics application to the increasingly mobile workforce and includes tools that help businesses effortlessly deliver mobile productivity apps for a variety of roles and functions. For application development, mobile dossiers, code-free drag-and-drop and XCode or JavaScript can be used.

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TARGIT

www.targit.com

TARGIT is a privately-owned software provider founded in 1986, with headquarters in Aalborg, Denmark. The company has more than 6,800 customers, mainly in Europe and North America, while one-third are distributed worldwide.
TARGIT serves well companies of all sizes requiring an all-integrated BI platform with vertical content. TARGIT Decision Suite offers integrated data discovery/self-service analysis, ad hoc reporting and dashboards with capabilities for batch reporting, mobility, slideshows and data mashups.

Latest Product Release

Now we support a range of innovative features including natural language queries, alerts and notifications, an in-memory data mashup tool, and support for creating custom visualizations. With updates to security and authentication options, along with a radical new way of embedding the platform into other business applications, TARGIT has made it easy to add contextual and actionable BI into user workflow. Through its newly released document model, TARGIT has introduced a low-maintenance way to design content and make it available across all devices and output types.

Vertical Solutions

TARGIT continues to expand particularly among Microsoft Dynamics customers. The company offers several vertical solutions mainly for heavy machinery, manufacturing and retail, while niche solutions for airports, waste management, fleet management, medical billing, fashion design and apparel are showing traction as well. Providing not only a BI solution but also deep knowledge in the software industry remains a strong focus of the vendor as it continues to add more verticals and predefined content to its portfolio.

What's Coming Next

For several years the vendor has invested heavily in modernizing its solution. They began to reduce the solution's Microsoft dependency by enabling customers to access additional data sources other than Microsoft SQL Server. Through the introduction of its in-memory database and data integration tool some years ago, TARGIT's customer base now has a much more diverse IT landscape.
TARGIT has only been offered as a hosted/on-premise solution but is now seeing a transition of customers to their new cloud solutions that offer both cloud-to-cloud and cloud-to-on-premise access to data.

TARGIT®
courage to act

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Unit4 Prevero

www.unit4.com/cp/prevero

Unit4 Prevero provides Corporate Performance Management (CPM) and Business Intelligence (BI) solutions for planning, budgeting, forecasting, data analysis, dashboarding and reporting.
At organisations large, small, and in-between, we help finance teams improve decision-making and control.

Unit4 Prevero solutions cover

- financial and operational planning,
- project planning,
- HR planning,
- strategy planning,
- risk planning and
- financial consolidation.

Unit4 Prevero provides everything you need to transform disparate sources of financial data into actionable business intelligence. An extensive library of template-driven content makes it easy for power-users and end-users to create bespoke analyses, reports, charts, and simulation models for particular sectors or specialist fields with speed and agility.

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- surface risks and opportunities with predictive analytics,
- enhance budgeting with visualisations, and
- track relevant KPIs quickly on dashboards using live data.

Headquartered in Munich with offices in Europe, Asia and the USA, our extensive network of international partners serves over 4,500 customers worldwide. Customers include Ricola, Villeroy & Boch, Tchibo, NSG Pilkington, ABB, Go Compare, Innogy, Migros Aare, Carglass, Galliford Try, Swiss Life and Thyssen Krupp. Since 2016 we have been part of Unit4, a global leader in enterprise applications for service organisations. For more than 20 years we've been driven by one aim: to deliver solutions that provide key insights and help take the finance teams to the next level. Shorter cycles, lower TCO, better decision-making – Unit4 Prevero helps finance work smarter, with more confidence and less risk. You spend more time executing business strategies that improve financial results, less time toiling on routine, manual tasks.

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