Data, BI & Analytics Trend Monitor 2021

The world's largest survey of data, BI and analytics trends

BARC Research Study

BARC

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Foreword

Foreword

2020 has been a time of fundamental change in many organizations. The COVID-19 pandemic has had a massive impact on the economy and many companies have had to restructure their work. For some, this situation meant shifting their workplace from the office to their homes. For others who could not work from home, the workplace had to be made safer. It is hard to imagine an area that was not in some way affected by the economic, social and individual consequences of this global pandemic. BI, analytics and data management are no exception. We have observed this year that hyped topics such as artificial intelligence (AI) and machine learning (ML) have receded into the background in the face of the crisis. Instead, companies have focused more on basic operations and processes. However, most trends are rather stable which shows us that, even in times of transition, companies' focus does not shift in a drastic way.

The BARC Data, BI and Analytics Trend Monitor 2021 shows which topics companies currently rely on and which areas are less important. We asked 2,259 users, consultants and vendors for their opinion on the most important BI and analytics trends. Their answers provide a holistic understanding of regional, company and industry-specific differences and offer state-of-the-art insights into developments in the BI, analytics and data management market. Our longitudinal analysis also reveals how trends have developed, making it possible to separate hype from stable trends.

Dr. Carsten Bange

Würzburg, Germany, November 2020

Management Summary

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 2,200 users, consultants and vendors for their views on the most important BI, analytics and data management trends, delivering an up-to-date perspective on regional, company and industry-specific differences and providing comprehensive insights on the BI, analytics and data management market. We have condensed the main findings of this study into six result areas in order to contextualize the most striking contrasts and continuous trends.

Result area 1 | Top trending topics

Data quality and master data management has been ranked as the most important trend for four 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 is also linked to the equally stable significance of data governance, which is ranked in fourth position again this year. Data discovery and data visualization remains the second most important trend and is therefore equally as stable as establishing a data-driven culture in third place, where it was also positioned last year. All the top trends represent the key message that managing and leveraging data in organizations needs to combine organizational and technological elements. They have been consistently stable over the years, which reflects the fact that these trends act as a solid foundation on which most companies are keen to put great emphasis.

Result area 2 | Best-in-class companies

Best-in-class companies attach greater importance to all trends than organizations that see themselves as laggards. However, their perception of some trends is fairly similar (e.g., data warehouse modernization and embedded BI and analytics).

One thing best-in-class companies and laggards do not agree on is the importance of data governance and establishing a data-driven culture. Laggards place much less emphasis on these trends. For both data governance and data-driven culture, it is hard to define and measure their actual output in terms of value for the company. So, it might be that laggard companies are having a hard time establishing those concepts to begin with and prefer to concentrate on areas where they already have a foot in the door. However, it could also be argued that laggards might not be aware of the benefits or might not have access to adequate resources. Best-in-class companies, on the other hand, place an especially strong emphasis on these topics. In this case, the opposite might be true: the benefits of a data-driven culture and data governance are undisputed and there is access to adequate resources in order to execute a company-wide roll out in these areas.

Result area 3 | Vendors vs. users

In general, vendors, consultants and users have quite a similar view of the importance of trends. However, perceptions differ when it comes to real-time analytics and data preparation by 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. This also applies in the case of augmented analytics, where the view of vendors and users clearly differs. However, augmented analytics is a relatively new sphere for many companies. It may therefore become more important for users in the future. The opposite effect can be observed in relation to analytics teams / data labs, which is a trend that users are more likely to rate as important compared to vendors. As a rather 'organizational' topic, it is understandable that it should be closer to the hearts of users than software providers.

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Result area 4 | Industry comparison

There are some trends that are consistently considered important across all industries. This especially applies to master data/data quality management as well as data discovery/visualization. Meanwhile, other trends are perceived as less important across all industries, such as IoT data and analytics and also augmented analytics. Nevertheless, the manufacturing sector pays less attention to most trends than other industries while the telecommunications industry attaches greater importance to the majority of trends.

Most industries present a mixed view. For example, the IT sector attaches great importance to data discovery and real-time analytics but sees data catalogs as less significant.

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.

Result area 5 | Global differences

Observing trends from a geographical perspective shows a greater tendency in the APAC region to assess trends as important. In comparison, most trends are generally rated as less important in Europe. This rather conservative view is typical for Europe and can be further examined by looking more closely at the regions within Europe (see result area 6). North America and South America have a rather mixed view on trends. While master data/data quality management is perceived as important, IoT data & analytics is consistently deemed as rather irrelevant across all regions. However, when it comes to alerting, APAC and North America attach greater importance to this topic than Europe and South America. This finding perfectly illustrates the fact that priorities vary from region to region. In particular, new trends are perceived with varying degrees of enthusiasm.

Result area 6 | Europe

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

All in all, 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. This is a consistent finding over recent years and it shows that handling and leveraging data is hugely important regardless of region.

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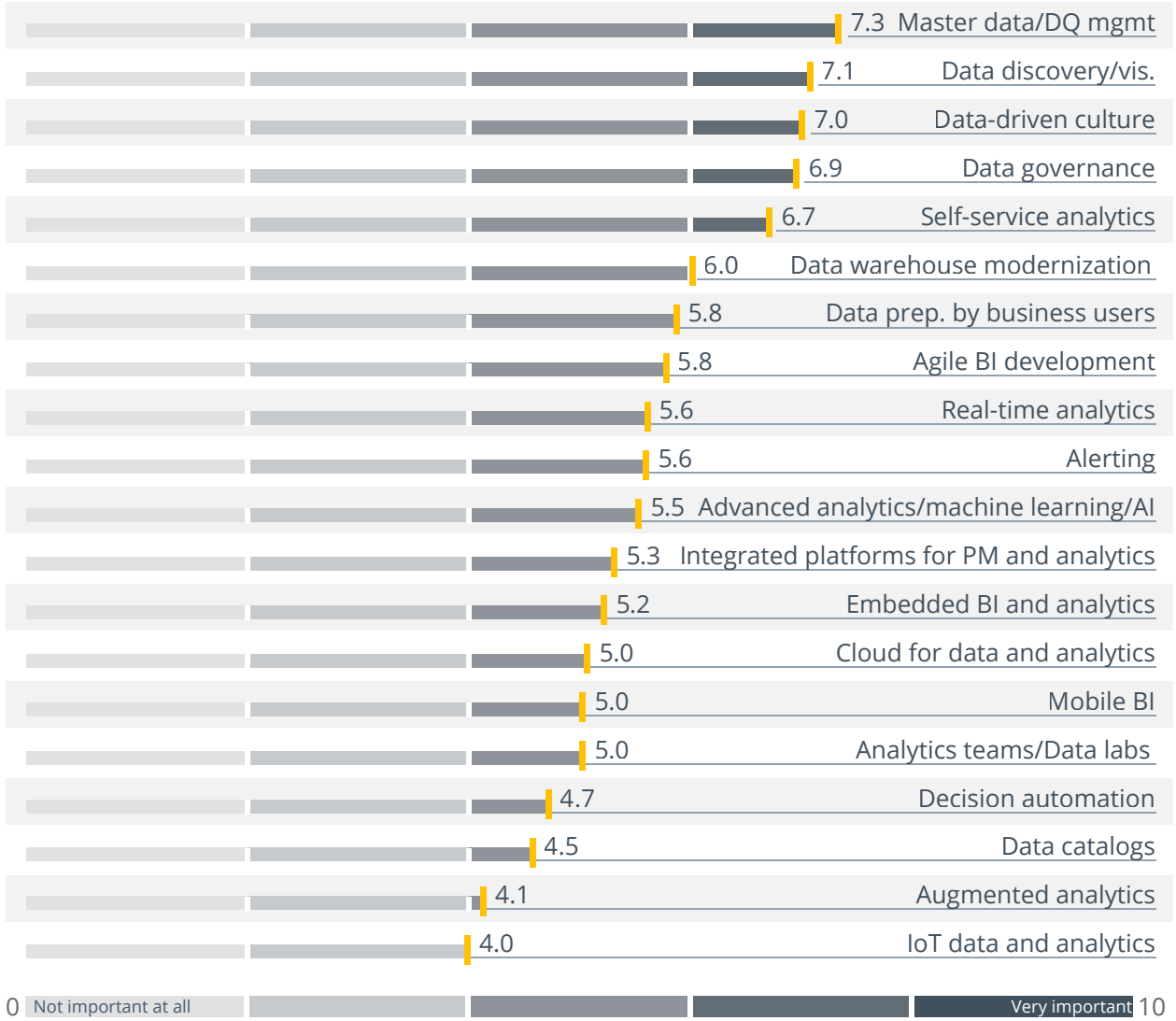
Survey Results

BI Trends Overview

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

Importance of Data, BI and Analytics 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. Master data and data quality management in first position and data discovery in second are evergreens that have been in these top positions for four years in a row now. Many companies see these two trends as important and their significance transcends individual regions and industry sectors. Establishing a data-driven culture is a trend that was newly introduced to the BARC BI Trend Monitor two years ago. Starting from rank five in the first edition, it made its way up to rank three last year where it remains this year. Data governance and self-service BI (ranked four and five respectively) have been equally consistent trends, but self-service had occupied a higher position before data-driven culture was introduced.

All in all, these top five trends represent the foundation for organizations to manage their own data and make good use of it. Furthermore, they demonstrate that organizations are aware of the relevance of high quality data and its effective use. 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 moved up one place to sixth position this year.

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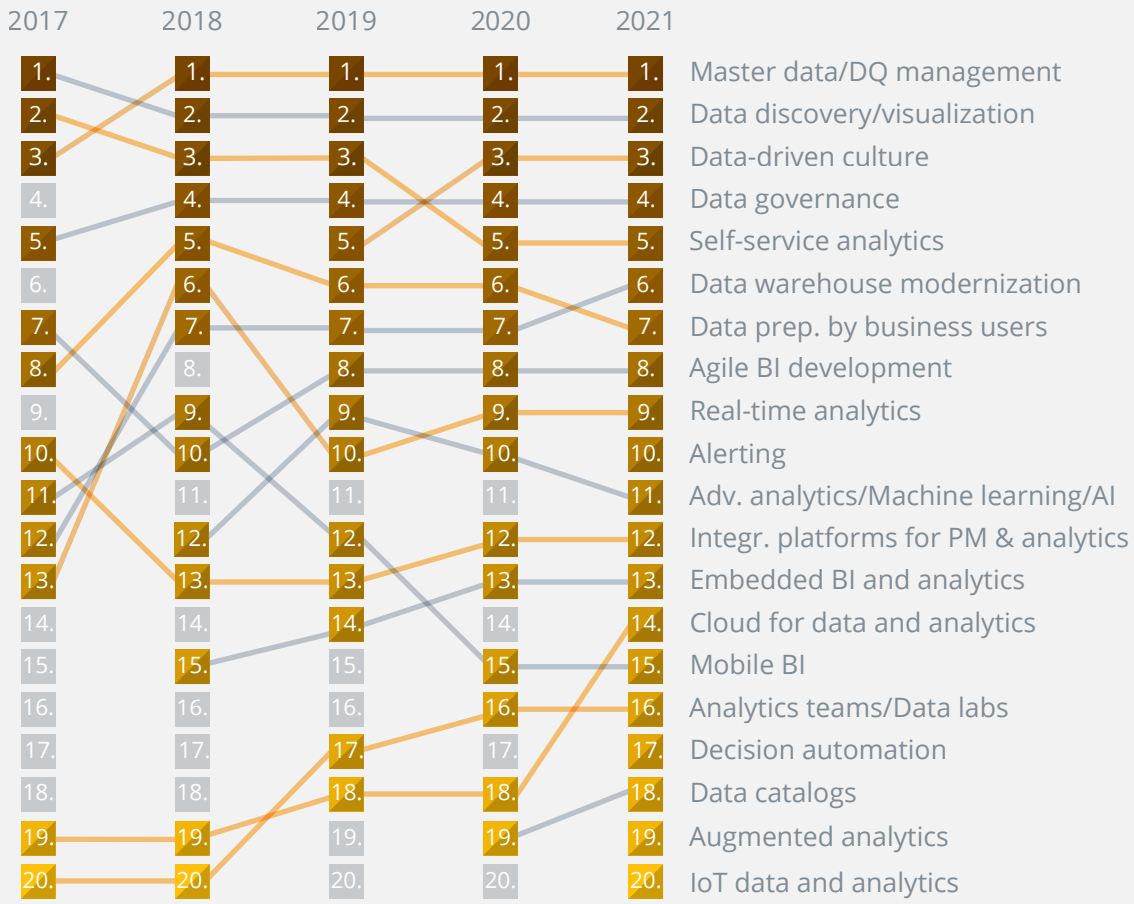
BI Trends Development

Development of rankings of Data, BI and Analytics trends



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BARC | Viewpoint

Some trends have slightly increased in importance since last year (e.g., data catalogs). However, most have stayed the same or just changed one rank. The only exception is cloud for data & analytics which was in 18th spot for two years before moving up to 14th this year. This can be explained by the increasing interest in cloud BI. The idea of using a cloud environment to run BI and analytics is no longer merely promoted by software vendors but is transitioning from theory into practice. Even though adoption is developing slowly, the upward trend of the cloud tells us that companies are becoming increasingly familiar with using cloud, or at least hybrid, solutions.

There are also no major shifts in the downward trends. Data preparation by business users dropped from rank six to rank seven due to data warehouse modernization becoming more important. Advanced analytics/machine learning and AI also fell one place to rank eleven. In this case, a continuous downward trend can be observed over the last three years. Companies are struggling to adapt machine learning mechanisms when the foundation – good quality and accessible data – has not quite been achieved yet. Most companies seem to be going back to the roots and concentrating on the basics of using and managing their data before they shift their priorities on to advanced methods.

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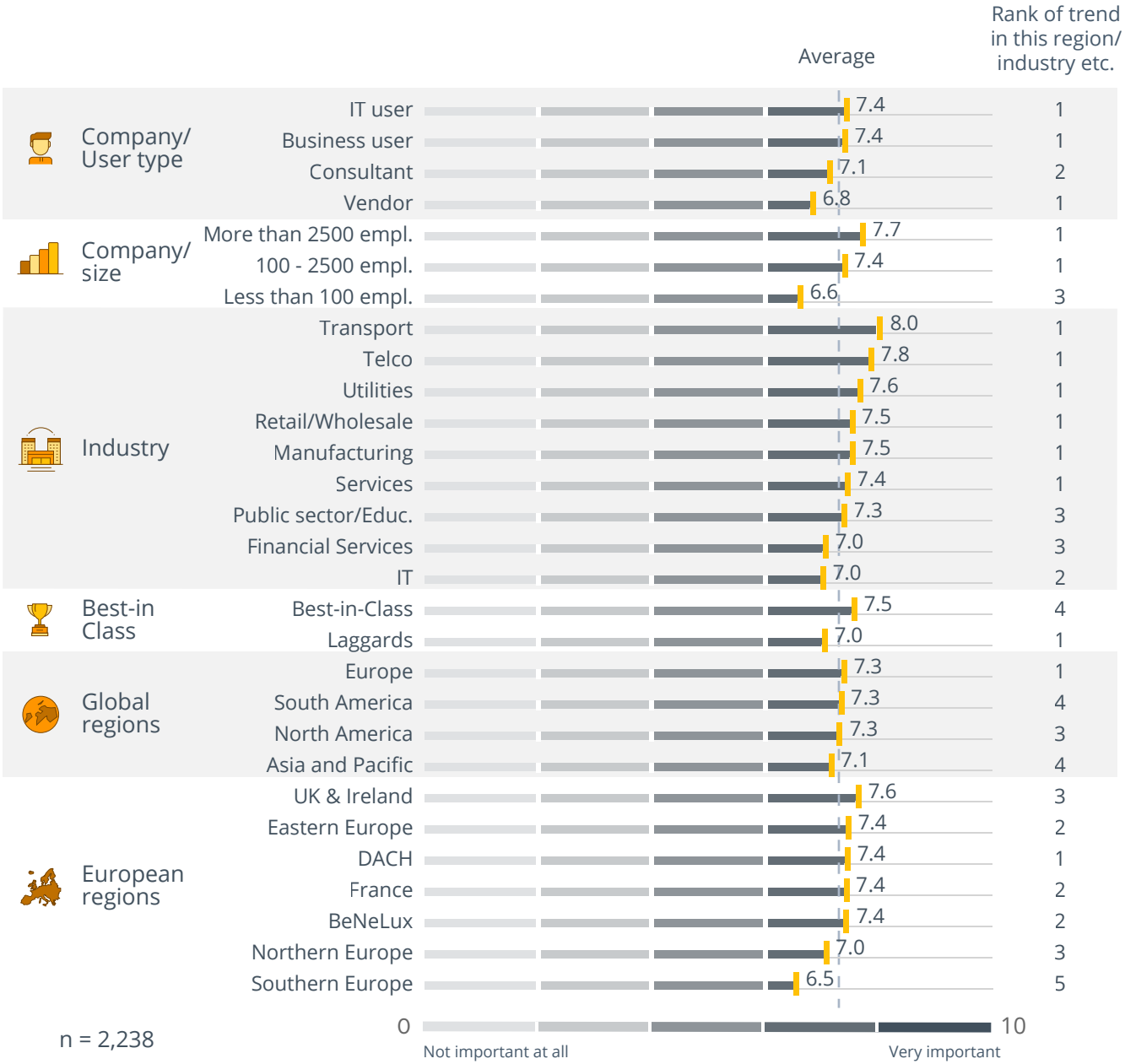
Master Data/Data Quality Management

Transport sector and large companies value master data management very highly. Southern Europe sees it as less relevant.



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BARC Viewpoint

The importance of data quality and master data management can be explained very simply: Correct decisions can only be made on the basis of reliable, consistent data. Models can only make accurate predictions if they are trained and supplied with correct data.

Master data provides the structure to understand and use data. It is only through master data that transactional data, IoT data and clickstreams get their meaning and context. Harmonized master data is critical to the uniform understanding of data and the interaction of company divisions as it helps to ensure consistent reporting and data-driven operations. 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.

There are proven concepts for increasing data quality and implementing master data management, but it is still a big challenge. The critical success factors for sustainable high data quality are defined roles and responsibilities, quality assurance processes, the continuous monitoring of the quality of a company's data and – most importantly – everyone's awareness and transparency regarding the impact of poor data quality.

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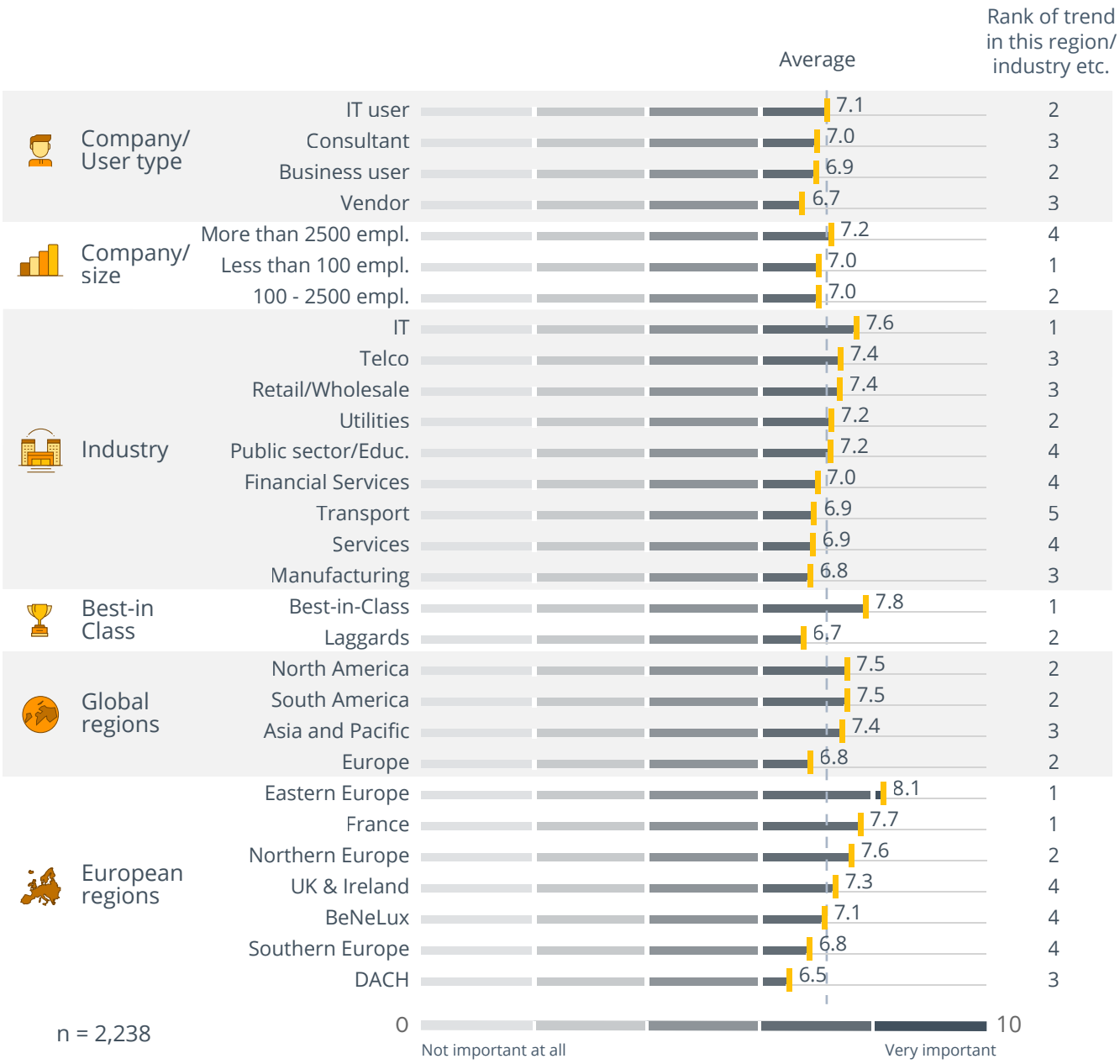
Data Discovery/Visualization

Data discovery is prominent in Eastern Europe and best-in-class companies, but less relevant to organizations in the DACH region.



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 identify patterns and outliers efficiently and effectively 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 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 users and automate tasks through all steps from preparation to visualization. Leading tools help users not only to answer their questions but they also provide hints and explanations (NLG) for questions beyond that. Providing data discovery at scale based on a governed platform to allow business users to build on each other's assets is also fueling innovation.

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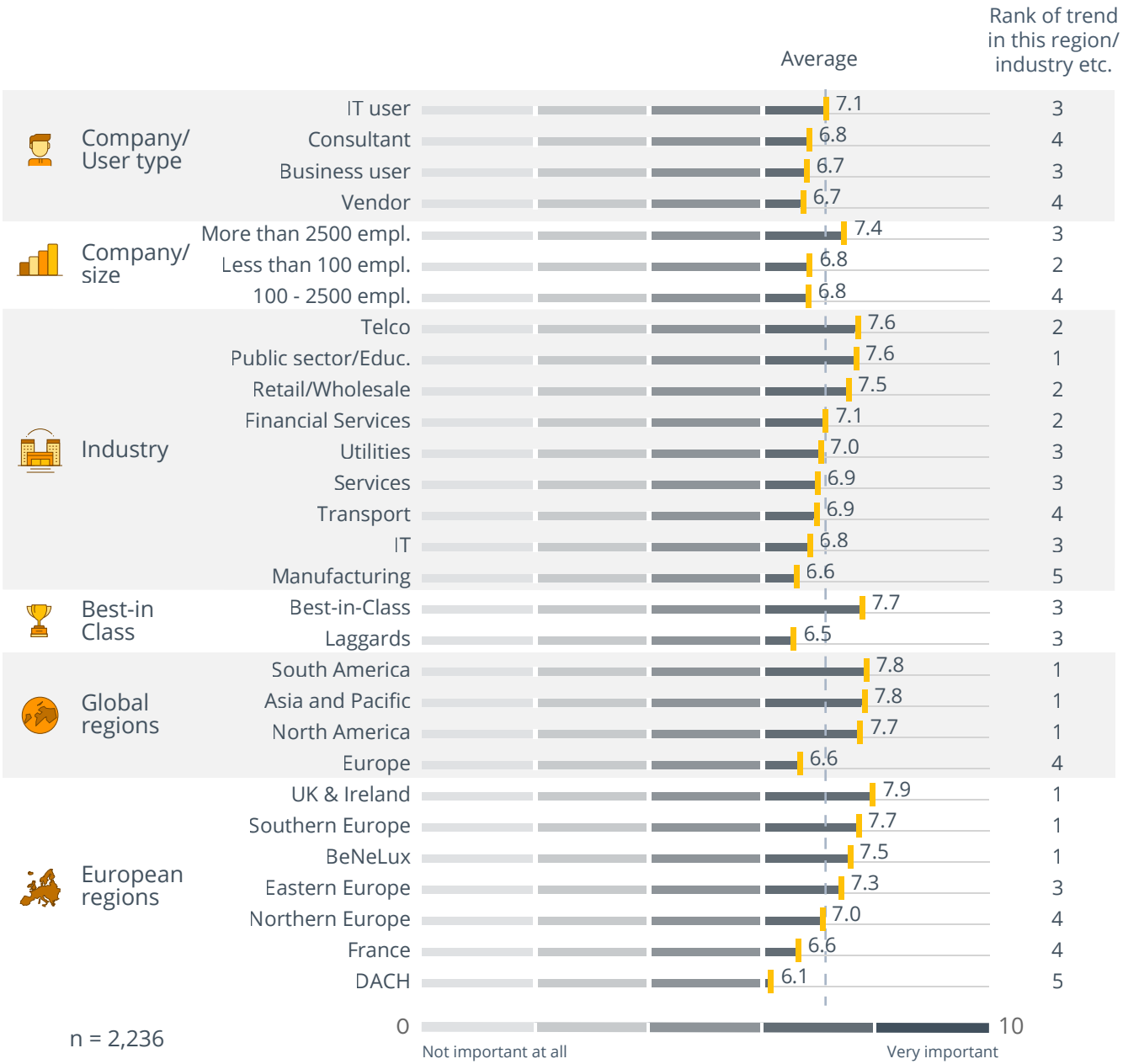
Data-Driven Culture

UK & Ireland and South America regard data-driven culture as very important. The DACH region is some way behind.



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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 as many decisions and processes within a business as possible are based on data. This concerns simple key figures such as revenue and profit, but also results from advanced analytics models. Moreover, both quantitative and qualitative data can be used to support the decision-making process, and decision-making on all levels – from operational to tactical and strategic – are affected. 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 data, but also to know when it is better not to do so.

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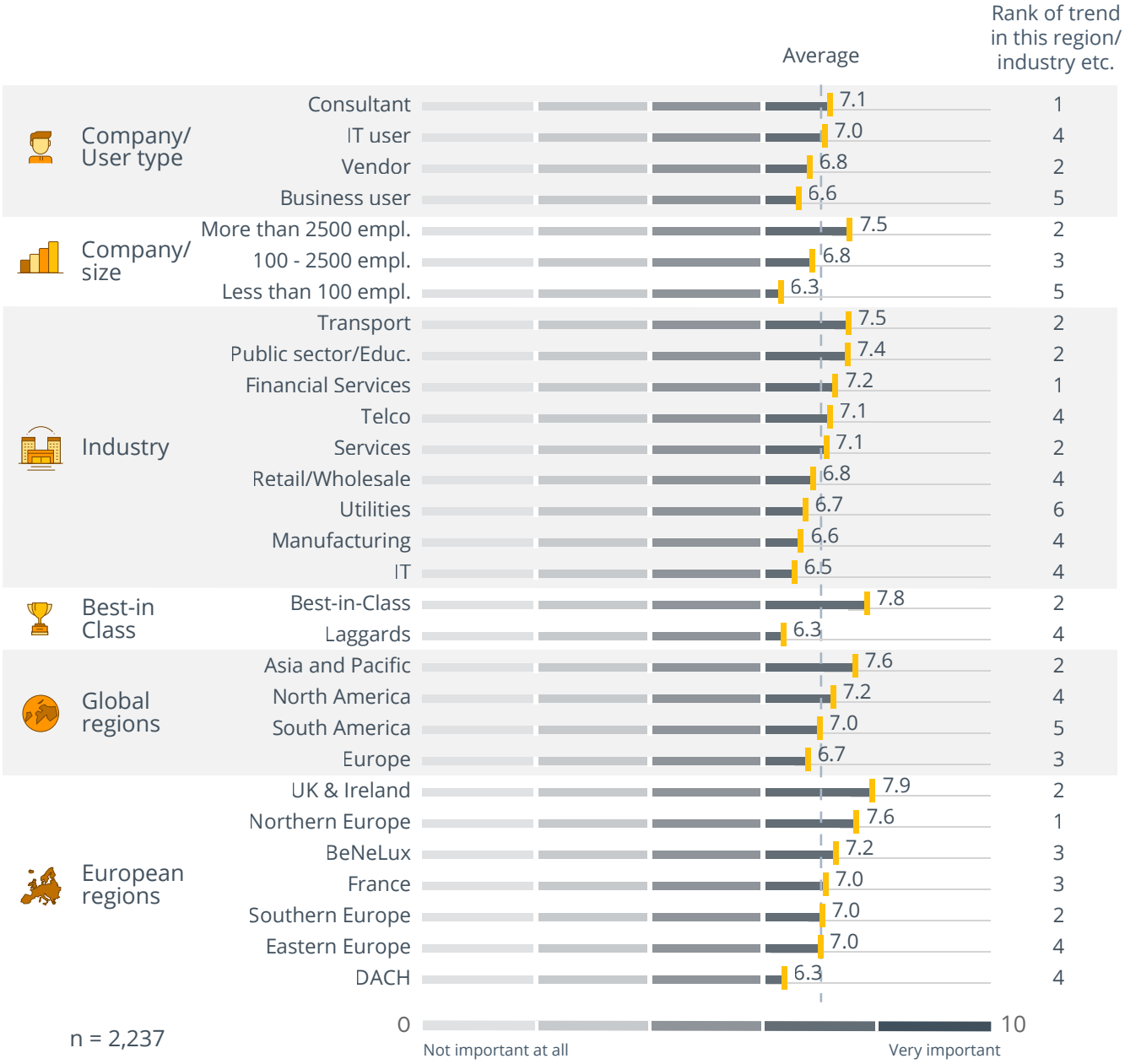
Data Governance

UK & Ireland leads the way. Data governance is much less important in small companies and for laggards.



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BARC | Viewpoint

Unlike BI or analytics governance, which center on preparing and presenting data for analytical use cases, 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. It enables the business to get value from data. 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.

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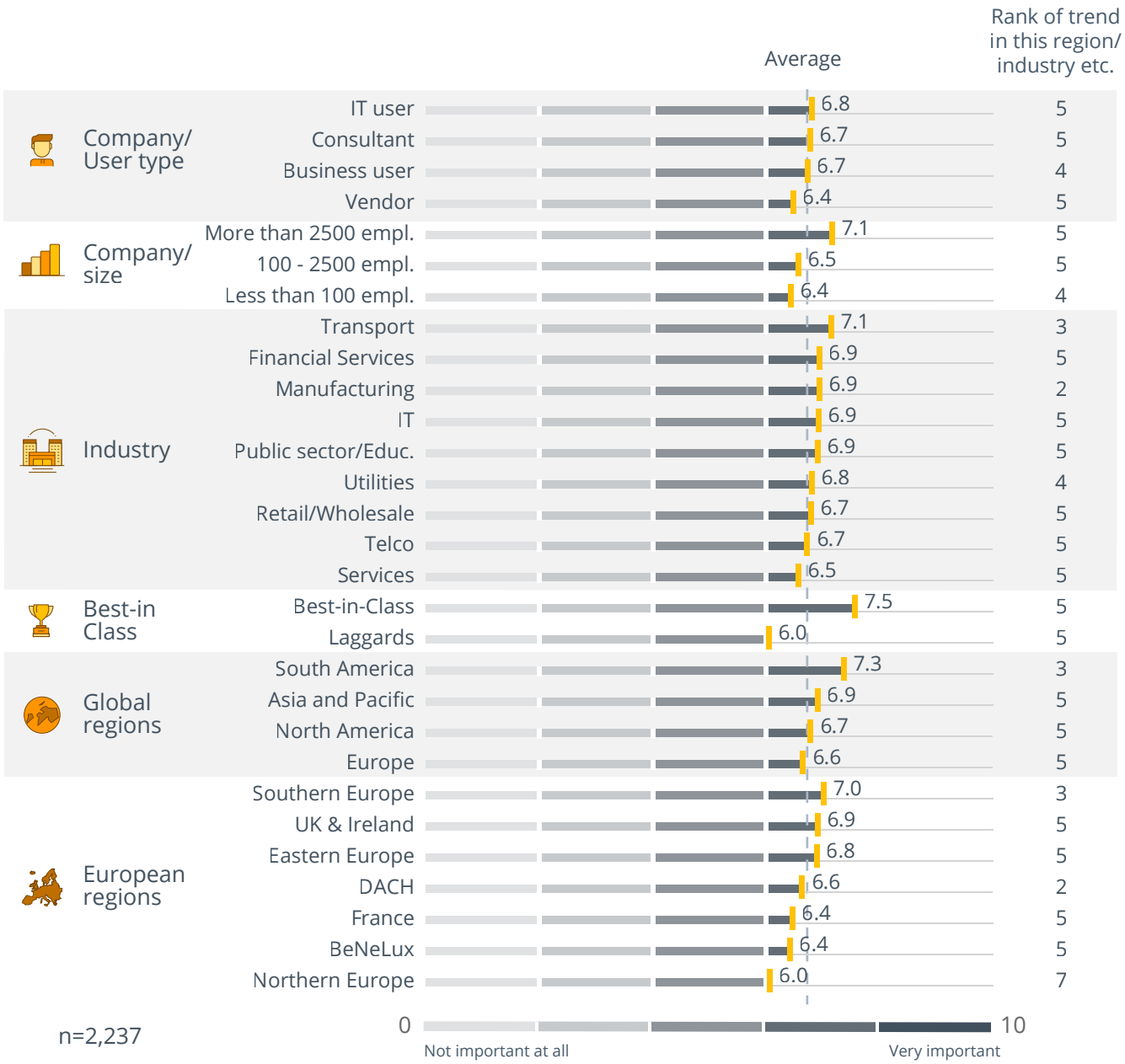
Self-Service Analytics

Especially relevant in best-in-class companies and South America, but not so much in Northern Europe.



BARC Viewpoint

Creating essential parts of analytics and BI content through self-service is part of almost every new implementation and remains a high priority. The continuously high demand for self-service 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 also want to democratize data access while ensuring efficient creation and consistent results.

Self-service analytics allows business users to self-reliantly answer urgent questions and inform decisions and decision-makers based on solid evidence. To do so, they communicate insights and results via quicker and more efficiently prepared dashboards and reports. The number of implementations that allow business users to build their own content, a prerequisite to democratizing data, is increasing. Not all business users create analytics and BI content. Companies need to understand that self-service does not mean that business users do not require IT or analytics and BI experts. They still play a major role in enhancing, monitoring and supporting successful analytics and BI environments.

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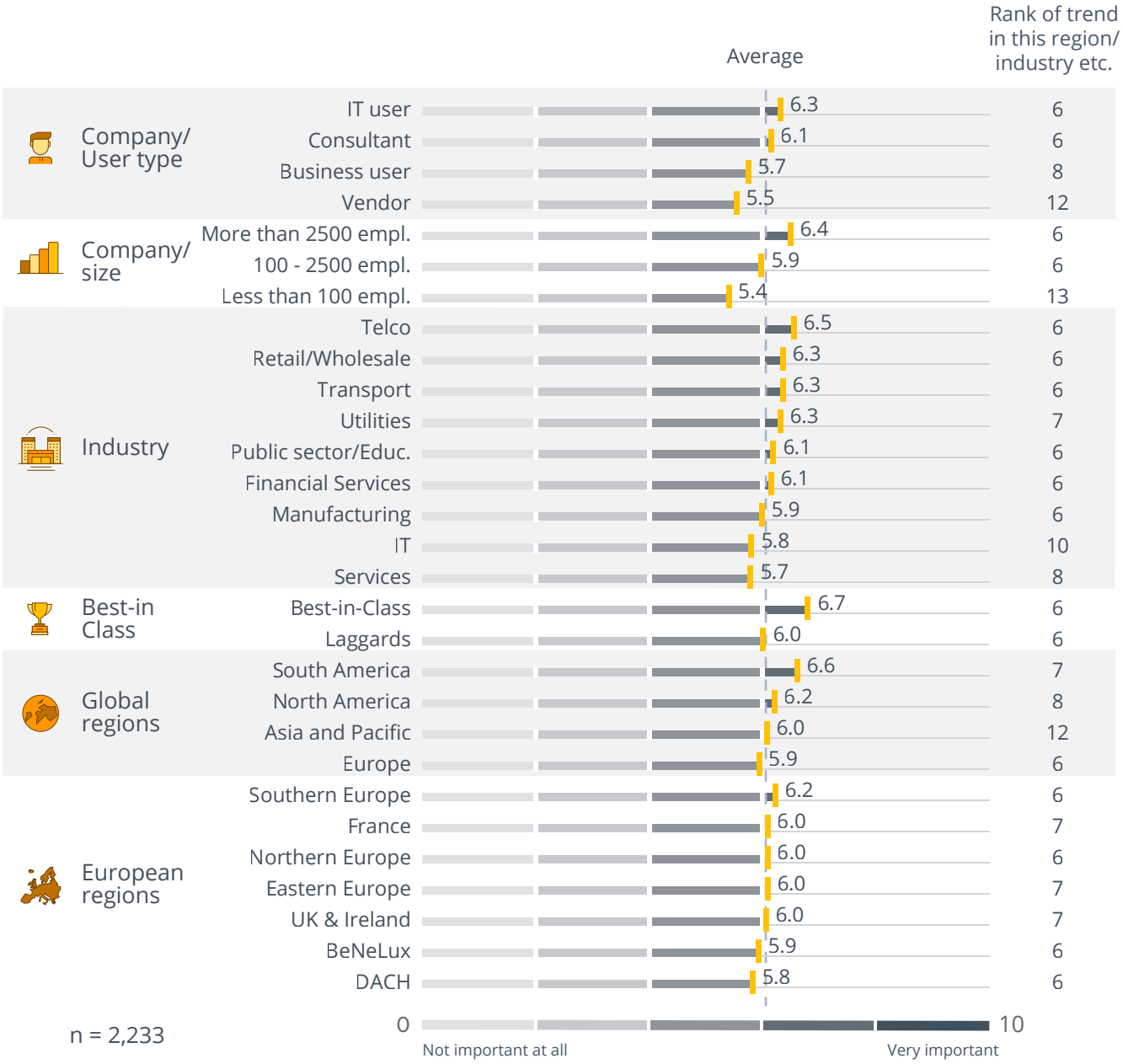
Data Warehouse Modernization



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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 data platforms and data warehouse automation tools. IT must be prepared for fast-changing analytical requirements, and 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.

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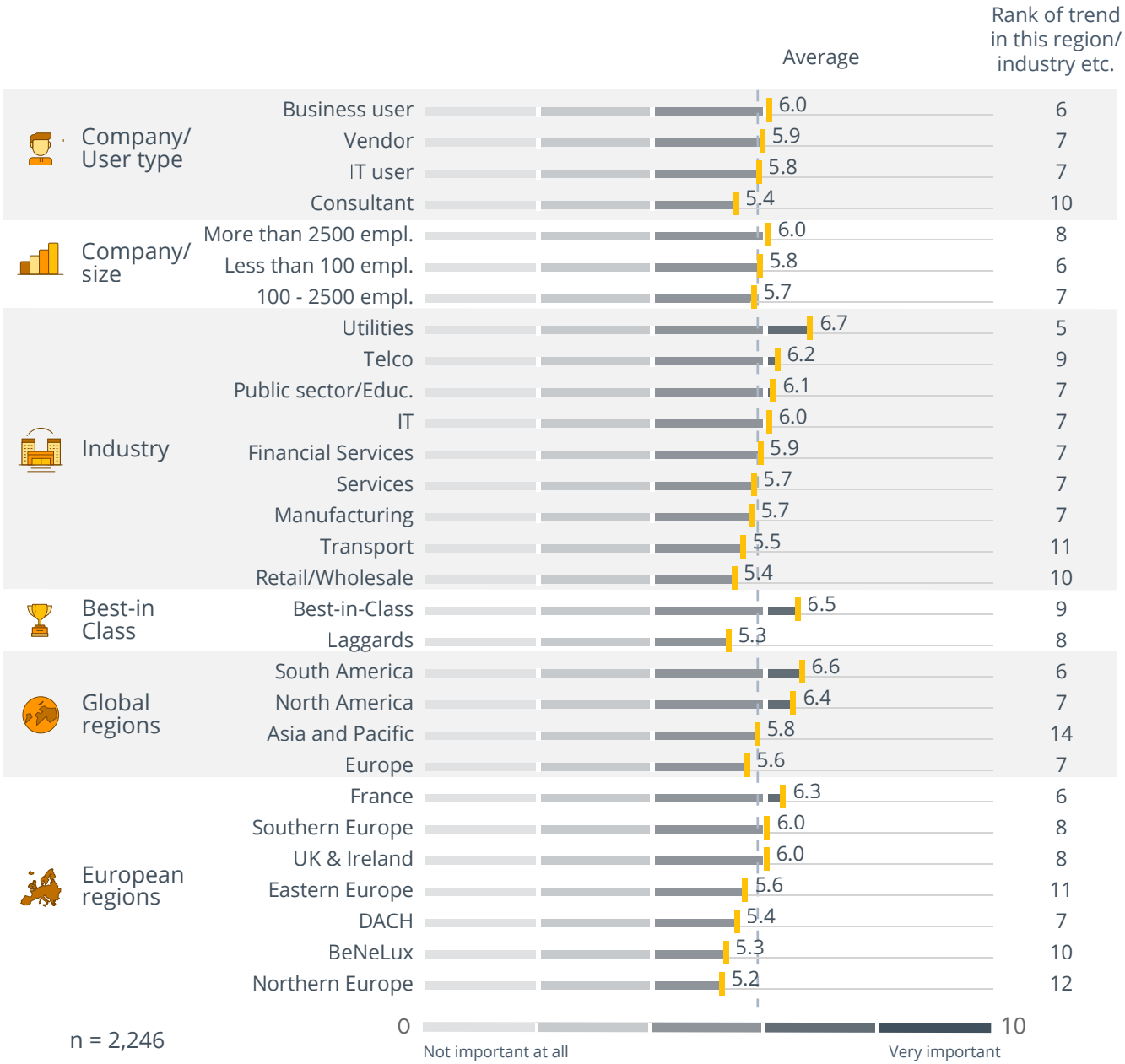
Data Preparation by Business Users

Utilities top of the list for data preparation. Northern Europe and laggards are less sold on the trend.



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BARC Viewpoint

Data preparation encompasses cleaning, structuring and enriching data for use in analytics. Its goal is to build valuable assets from raw data to help answer concrete business questions though analytics.

Achieving agile data preparation at scale is of utmost importance in today's volatile economy. It is key to leverage enterprise and external data to inform decisions, automate processes and monetize data.

Collaboration between development resources in IT and the business users involved is vital to ensure high efficiency and quality. The necessary agility is achieved by shifting the task of shaping and enriching data from IT to business users. Easy-to-use and intuitive tools with sophisticated user guidance and automation powered by machine learning are the foundation 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. Collaboration must be promoted to benefit from democratized access to data. Providing the required systems and tools is just the first step.

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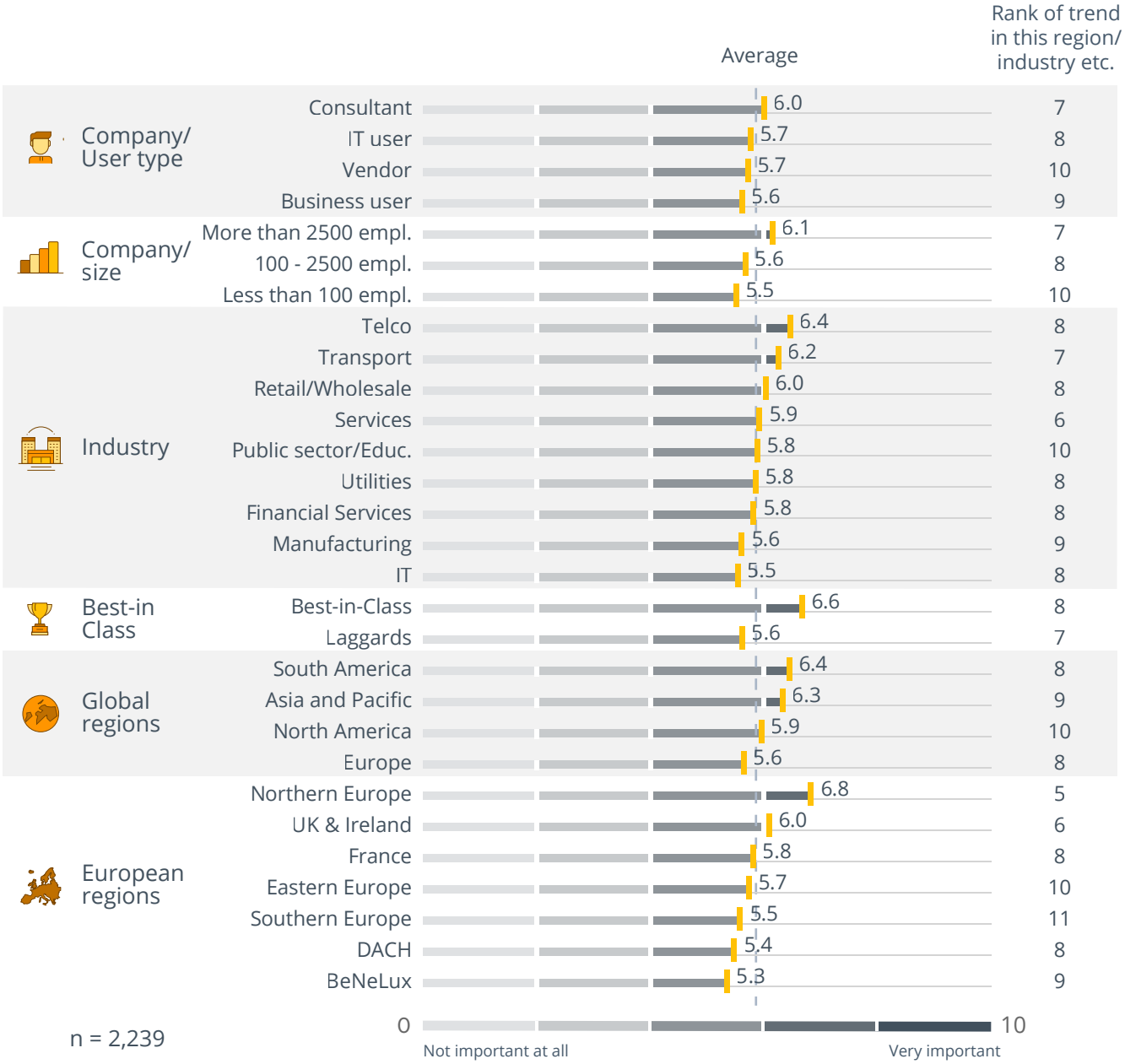
Agile BI Development

Agile BI development is prominent in Northern Europe, but less important in BeNeLux and the IT sector.



BARC Viewpoint

Agile BI development is a customer-centric approach to provide reliable information products and services to meet dynamic business demand. Business and IT experts work together to provide continuous improvements to information products. New dashboards, reports and KPIs are supplied using model-driven, metadata-generated data pipelines and other data warehouse automation concepts. Metrics monitor the quality and usage of the delivered products or artifacts. The DevOps approach brings a mindset and technical best practices to implement an automated continuous delivery pipeline enabling rapid change. DataOps aims to accelerate the provision of data and its use, to increase data quality, to automate data-driven processes and to make the value of "data as an asset" accountable. The main benefits of agile development are speed, adaptability and closer alignment between business and IT.

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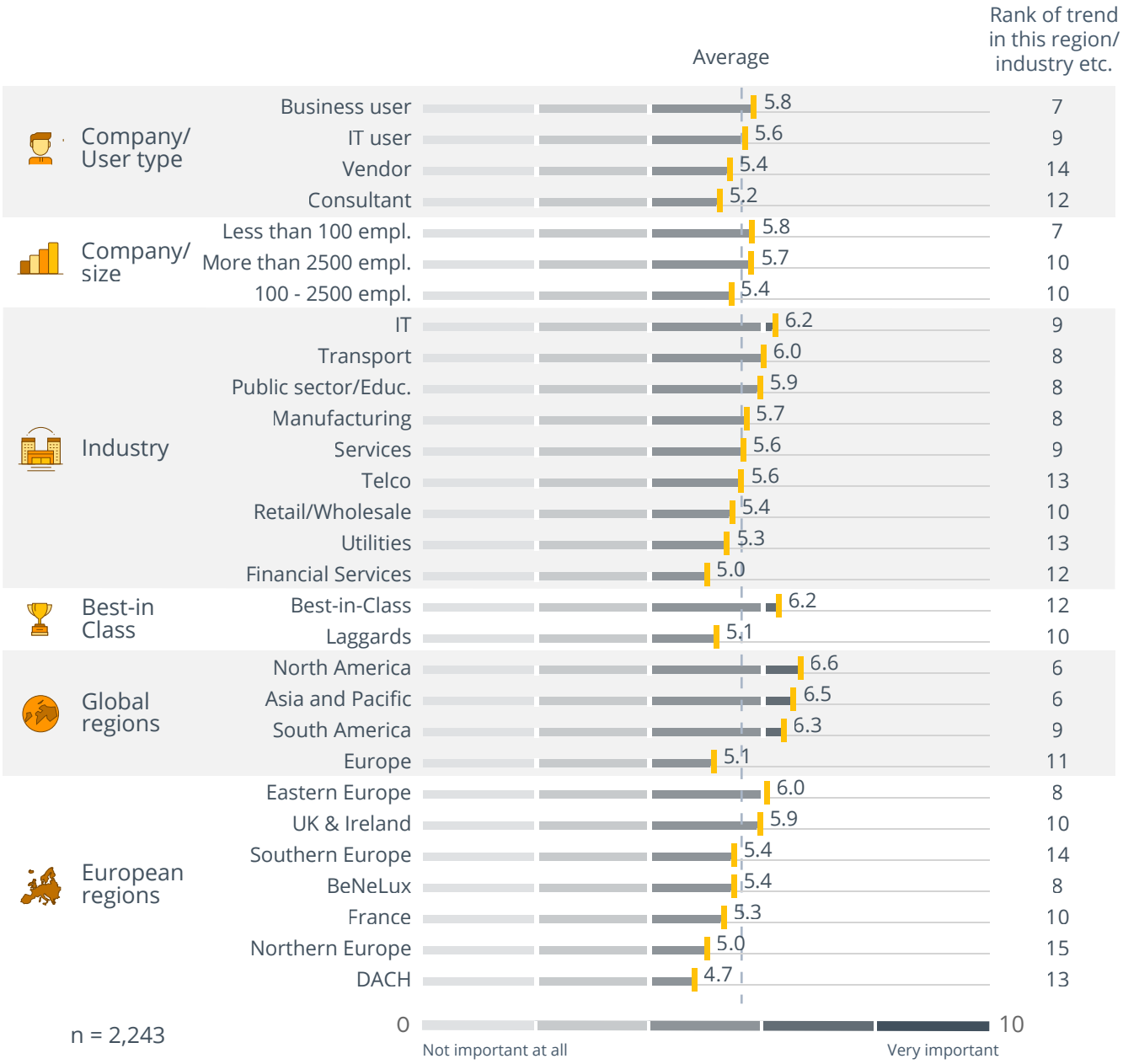
Real-Time Analytics

Real-time analytics is a major trend in North America, but less important in the DACH region and in financial services.



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.

Analytics 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 alerting (e.g., in an operational dashboard) or triggering pre-automated events (e.g., an algorithm detects certain problems during the manufacturing process of a given batch and recommends or automatically triggers counter-measures).

Like visual BI and predictive analytics, analytics with real-time data can complement an organization's existing analytics strategy to optimize certain business processes. As real-time analytics is nearly always tightly interwoven with a given business process, it is therefore even more important than in standard analytics projects to always have the entire process that is to be adapted and/or optimized in mind.

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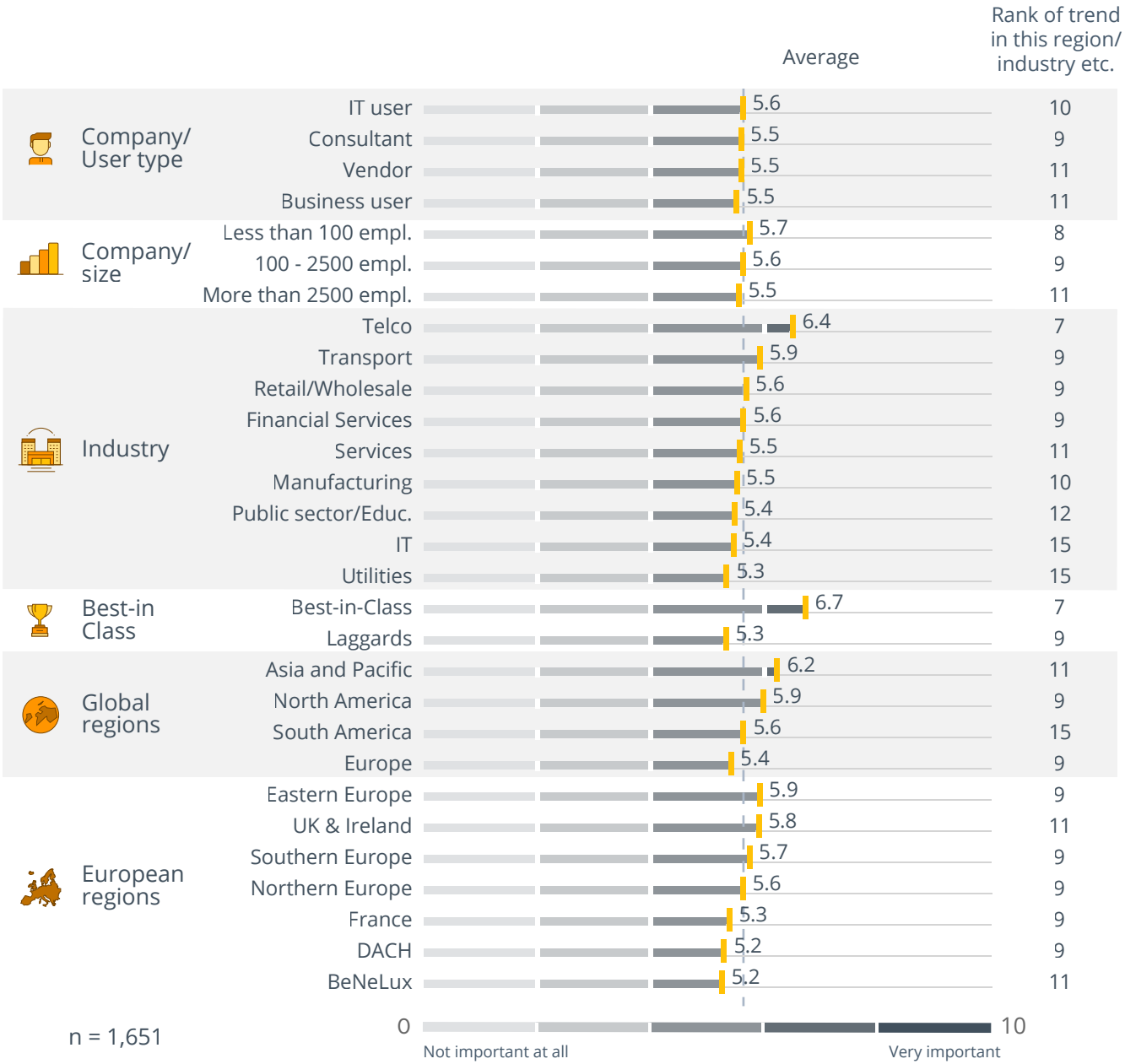
Alerting

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



BARC Viewpoint

Alerting is not a new feature in analytics and BI, but recently its application has changed significantly. Alerts always aimed to save time by focusing the attention of business users with notifications based on recent events. But approaches that required the upfront definition of what is deemed relevant, such as selecting KPIs and setting thresholds, failed to fully live up to their promise as they often did not grasp impactful changes.

More recently, powered by machine learning and brought to prominence by the discussion around augmented analytics, alerts have moved from upfront definition to machine-made recommendations infused by usage patterns. ML is employed in leading tools to focus the awareness of users on trends and outliers they were previously not looking for. Alerts can not only notify users of important changes, they can also trigger automated processes spanning multiple business applications. These alerts are often placed to detect events on real-time data streams. Here, the impact of analytics on business success and data monetization becomes obvious.

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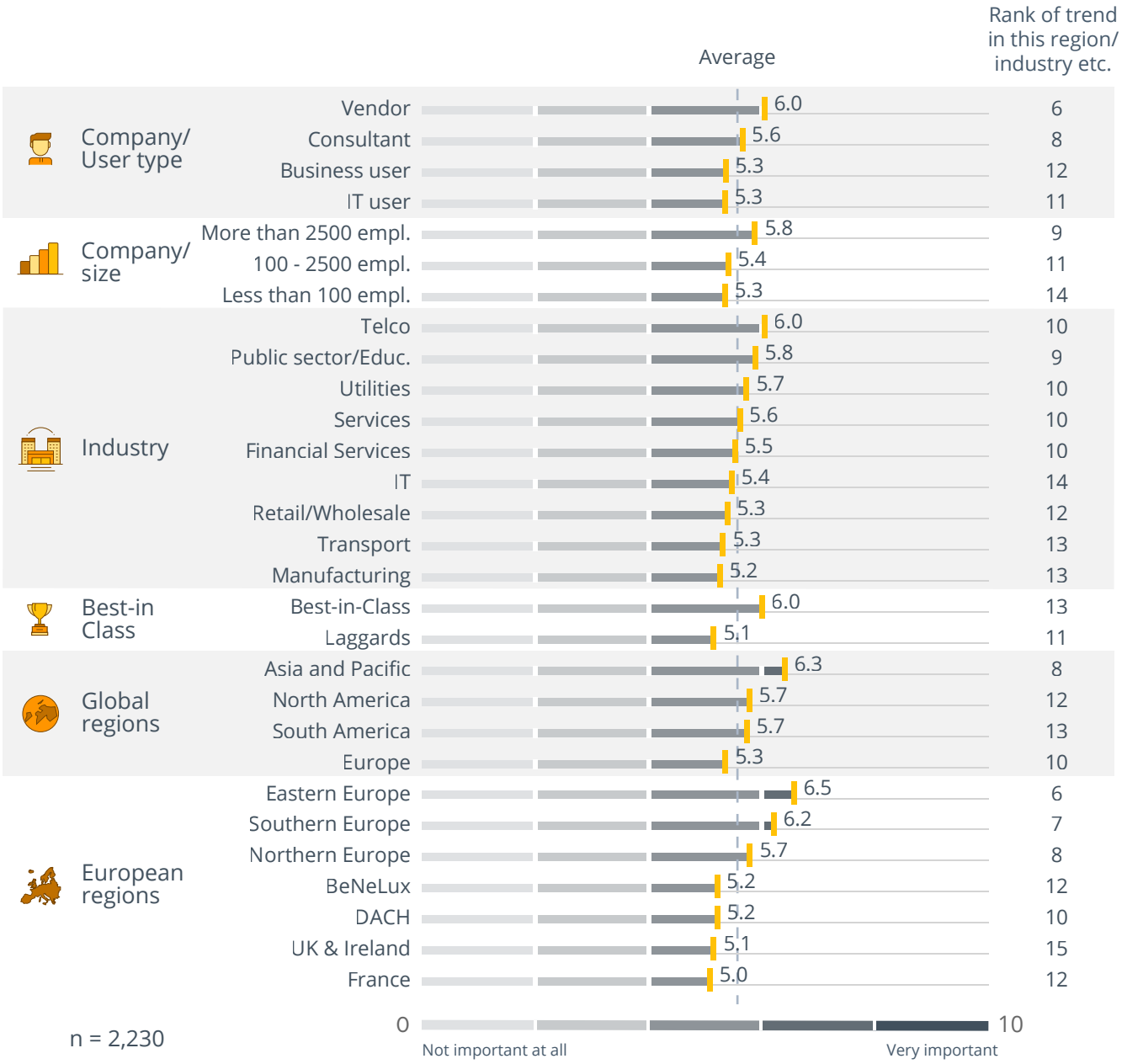
Advanced Analytics/ Machine Learning/AI

Companies in eastern Europe companies place the most value on advanced analytics, France and UK & Ireland much less so.



BARC Viewpoint

Advanced analytics, machine learning and AI are important trends among BI & analytics decision-makers for 2020.

Advanced analytics uses mathematical and statistical algorithms in order to generate new information, identify patterns and dependencies, and calculate forecasts. There is a major drive to completely automate specific decision processes with AI.

The number of possible use cases is immense, and ranges from conducting forecasts on income, prices, sales, or customer value to preventing contract cancellations, optimizing unplanned machine downtime, and many more besides.

Line of business and IT decision-makers and managers need to assess which use cases to tackle, 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. Many companies have now moved on from experimentation into actual deployment of AI. Here, new DevOps and MLOps-enabled products and cloud services have greatly reduced the complexity . Additionally, considerations of bias in algorithmic decision-making and ethical standards for such solutions are gaining in importance.

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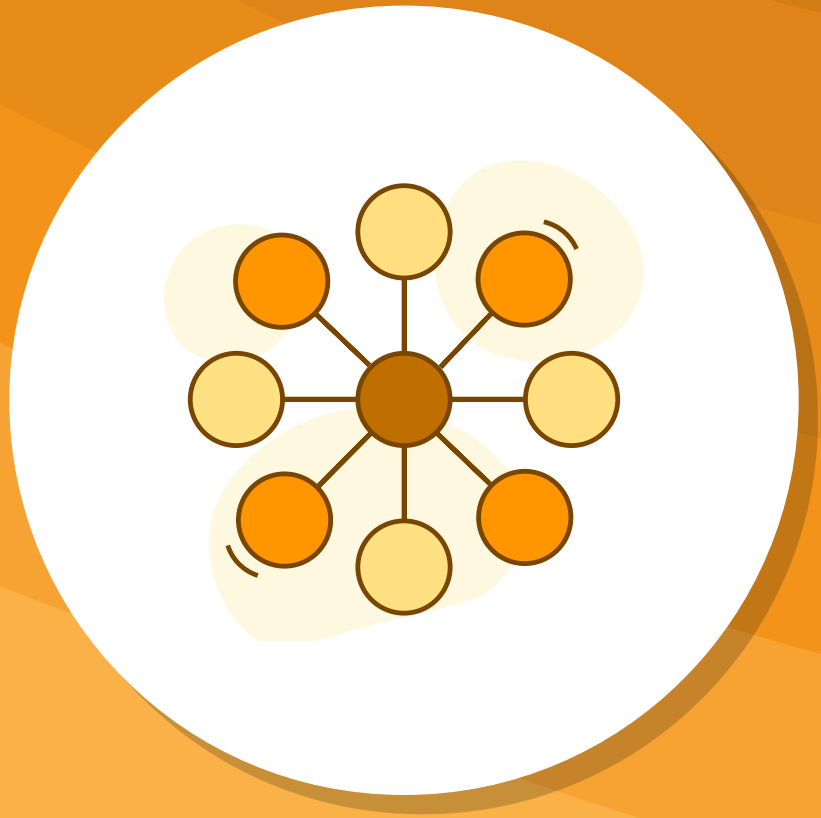
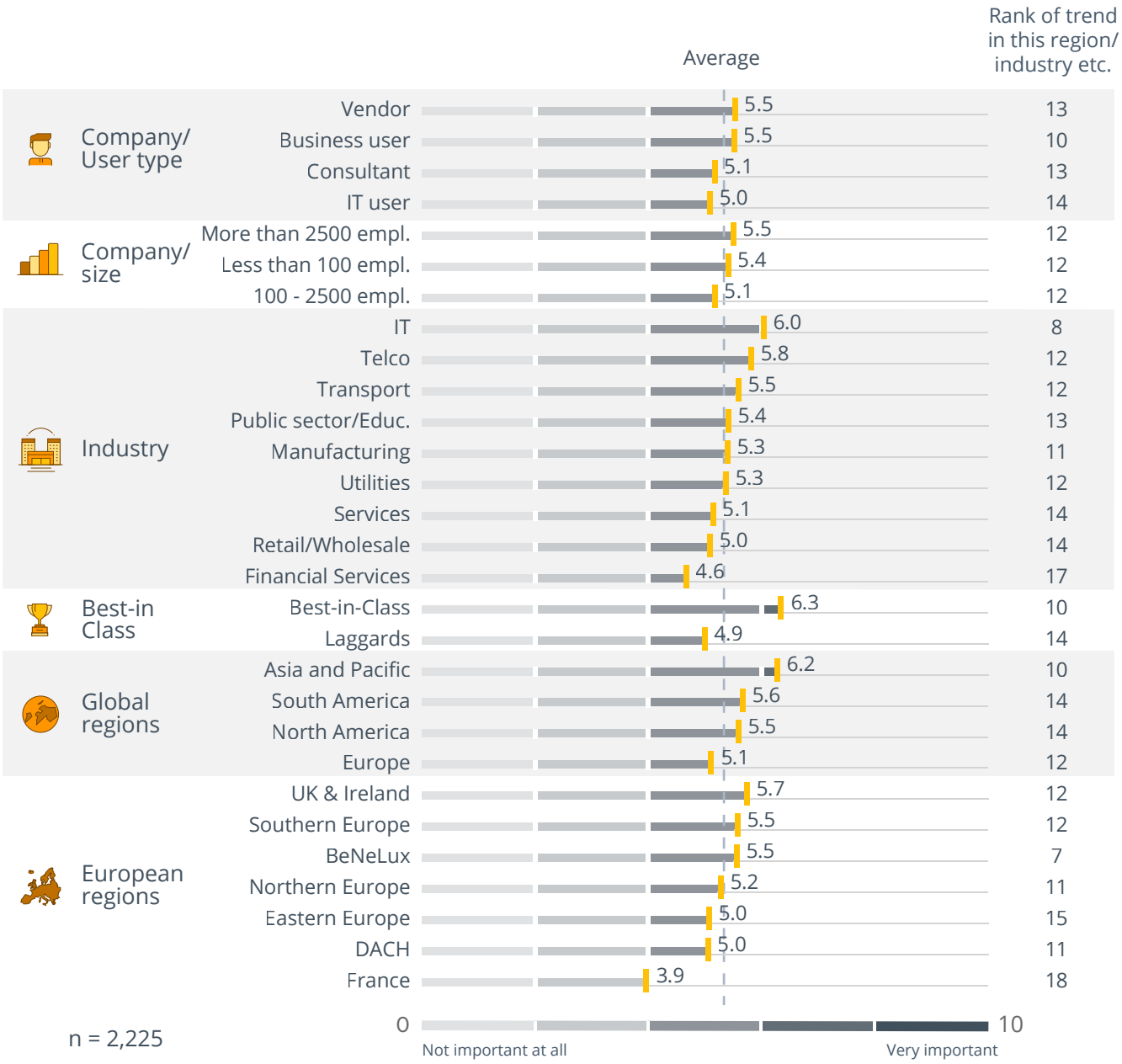
Integrated Platforms for Performance Management (PM) and Analytics



A big gap exists between best-in-class companies and laggards as well as between UK & Ireland and France.



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 performance management and analytics. Consequently, this integration has been one of the most stable and relevant trends in the market for years and software vendors equip their software tools with comprehensive functionality accordingly.

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

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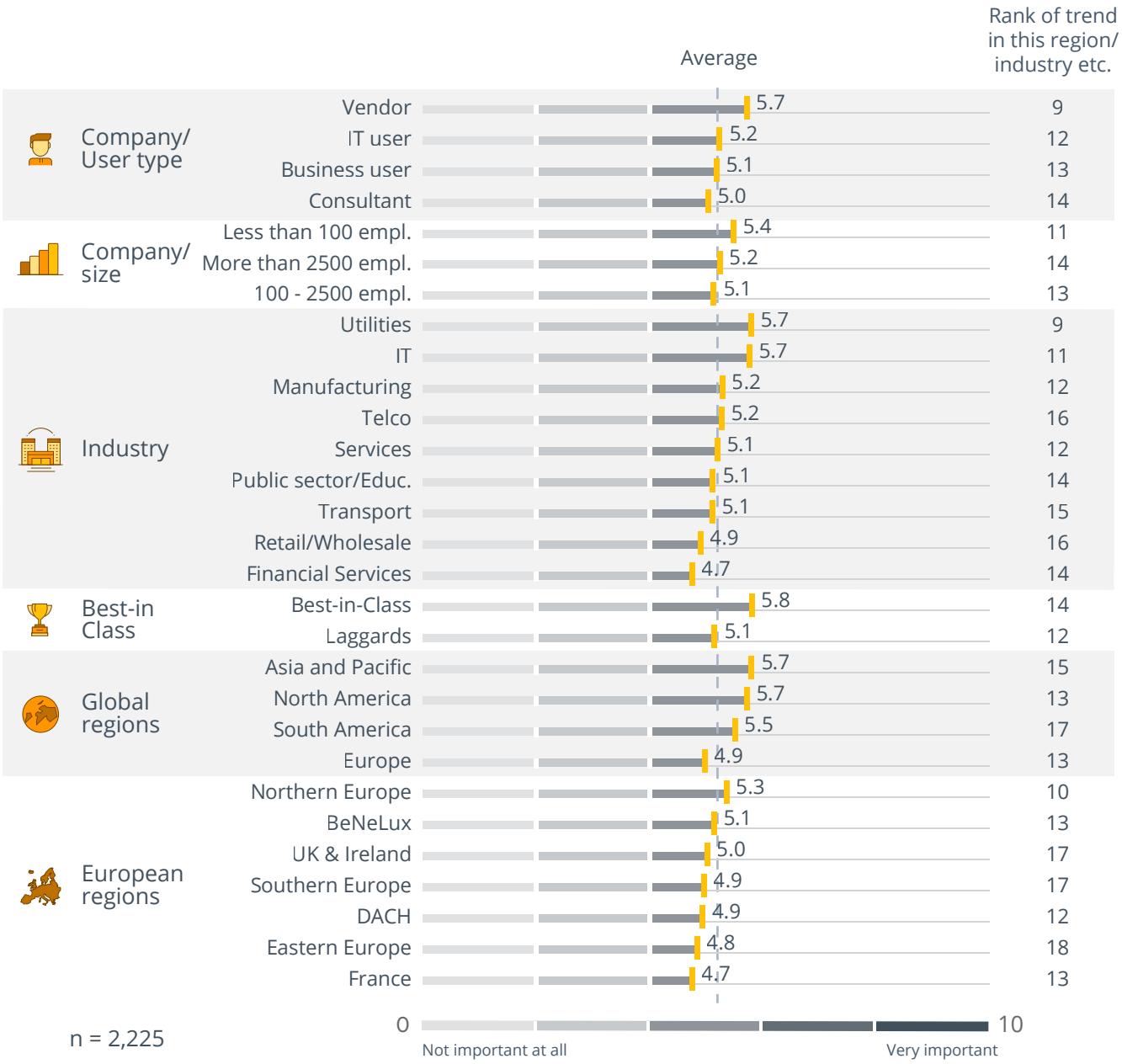
Embedded BI and Analytics

Embedded BI and analytics is most relevant within best-in-class companies, and least relevant in France and financial services.



BARC Viewpoint

Embedding intelligence in operational applications is growing steadily in popularity. From dashboards to prediction and optimization models, users get insights directly in their specific operational processes and can 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". It even allows for automated processes where no active user request is needed to initiate data analysis or actions based on data-driven decisions. However, this operationalization of BI and analytics implies various challenges. For example, clarifying the responsibilities of the BI/analytics and application teams, integrating operational BI in a holistic data and analytics strategy that also includes classic and explorative BI, and 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.

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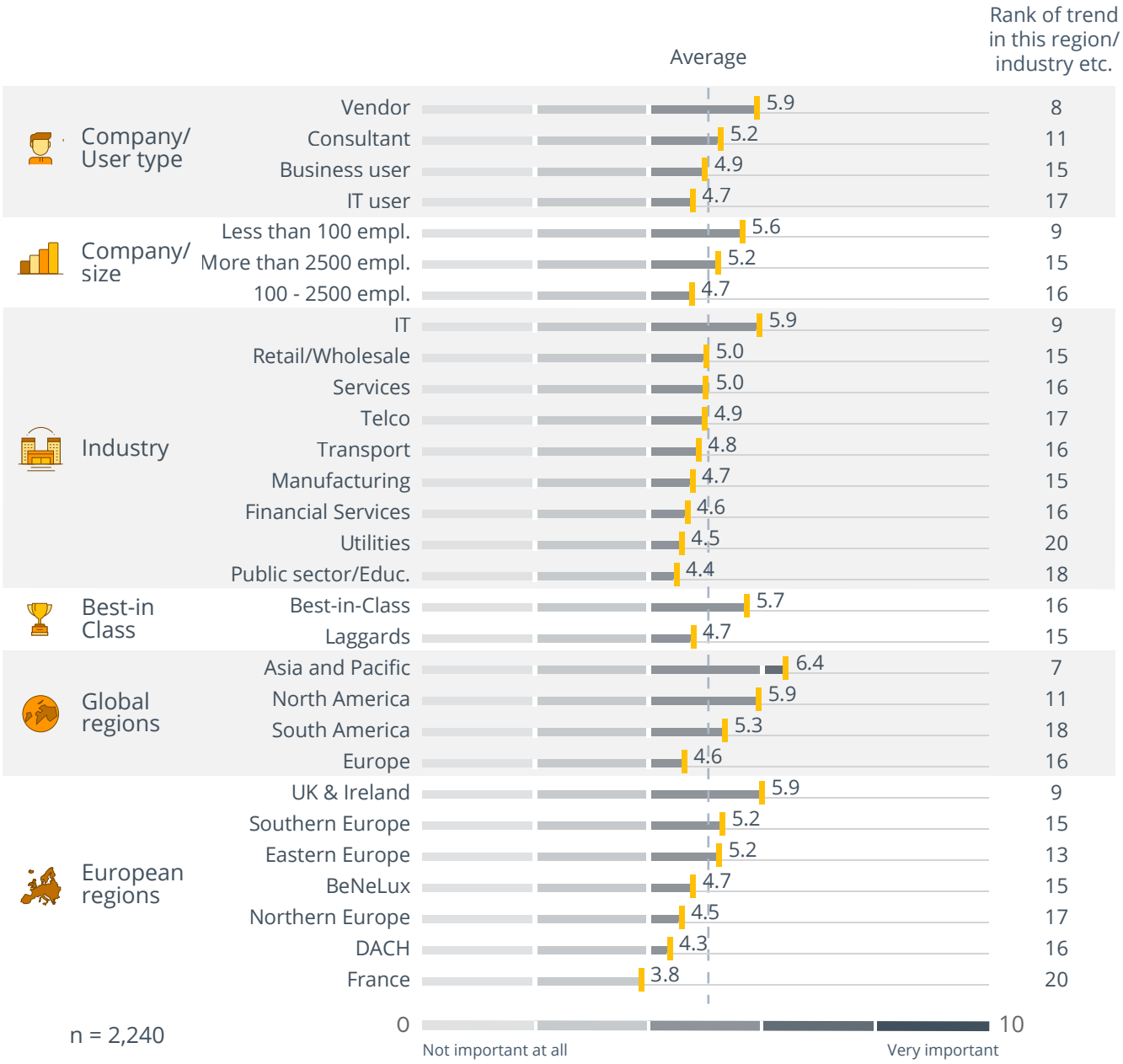
Cloud for Data and Analytics

Cloud for data and analytics is most relevant in Asia & Pacific. Less popular in Europe, especially in France.



n = 2,240

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 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.

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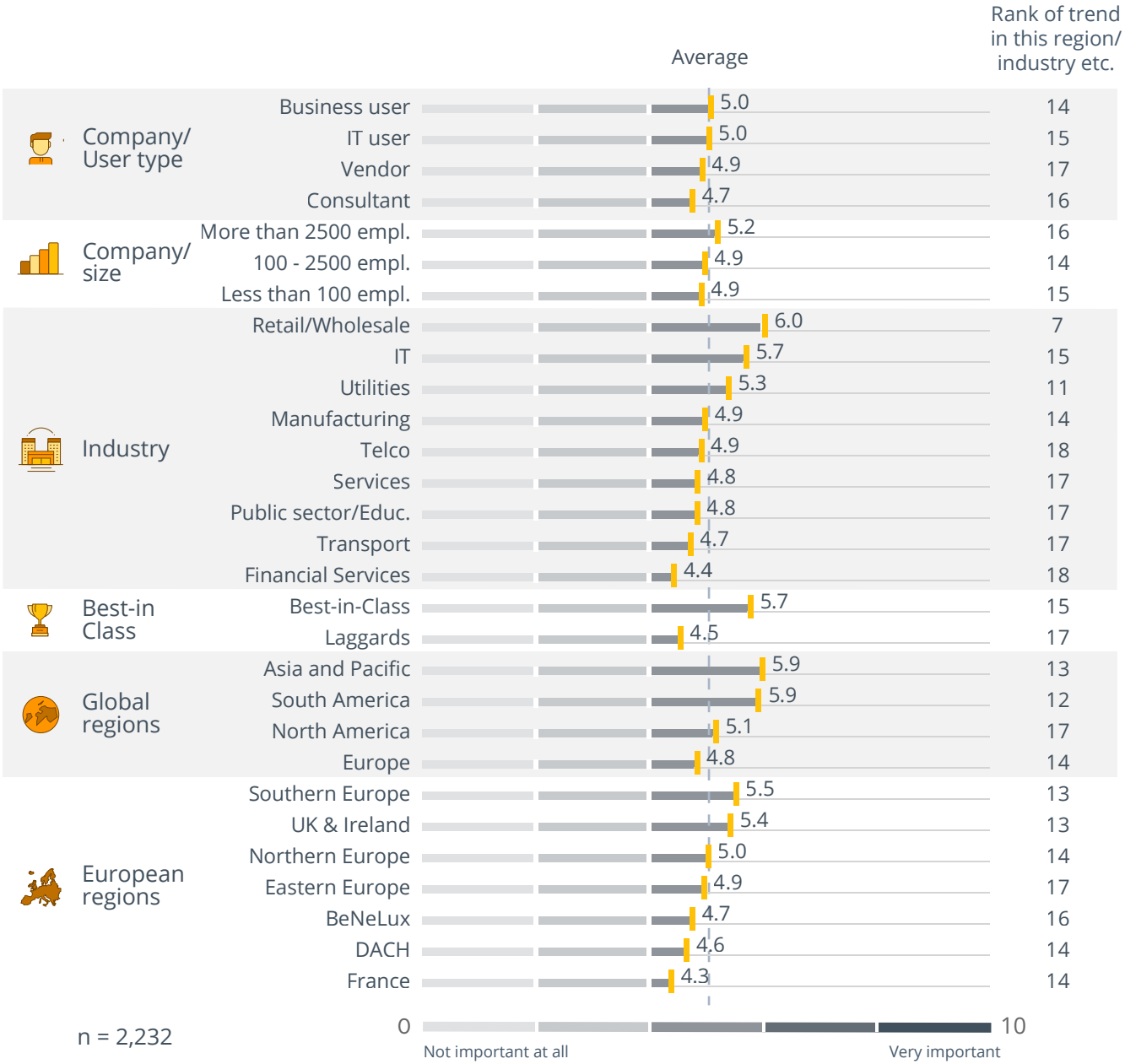
Mobile BI

Mobile BI is most important in the retail/wholesale sector and Asia & Pacific and least relevant in France.



BARC Viewpoint

Mobile BI – driven by the success of mobile devices – was considered by many as a big wave in BI and analytics around 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 grew very slowly and has in fact declined since peaking at 30 percent in 2018. Currently only 27 percent of the companies we surveyed use mobile BI. Another 18 percent tell us that they plan to use it in the next 12 months, but in practice only a fraction of them actually will.

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.

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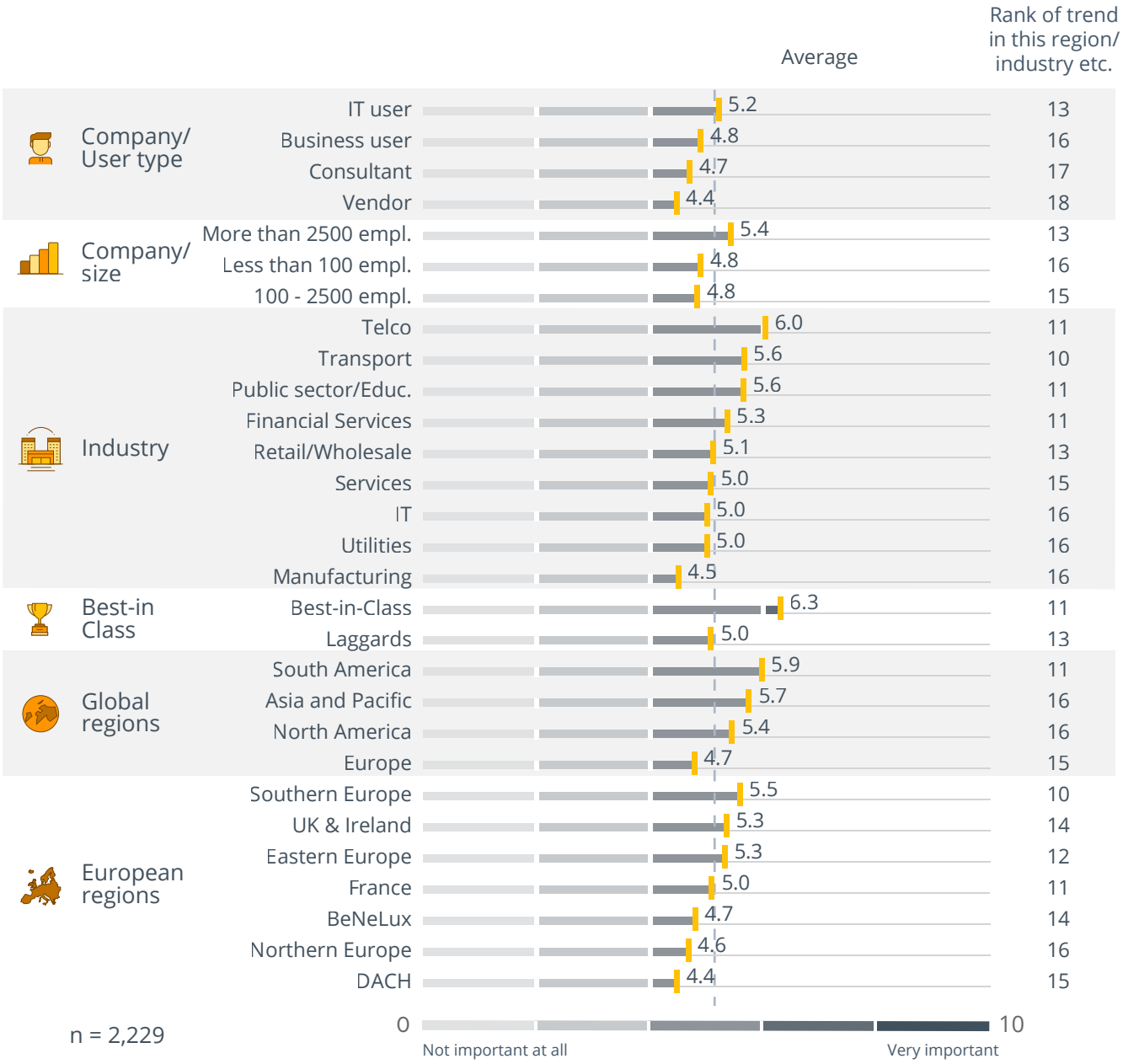
Analytic Teams/Data Labs

Best-in-class companies are much more aware of the value of analytics teams than laggards. Vendors are the less enthusiastic.



n = 2,229

BARC Viewpoint

Data science is the generic term for processes that generate knowledge out of data using methods from statistics, machine learning, artificial intelligence and operations research. Data labs are separate organizational units, specifically designed to conduct the first project steps in data science projects within the 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. Businesses in many different industries are adopting data science and data labs. The investment cost for data labs has decreased significantly over time as more software and cloud services providers have hit the market and general competition has increased. However, considerable investment in terms of staff is still required. 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.

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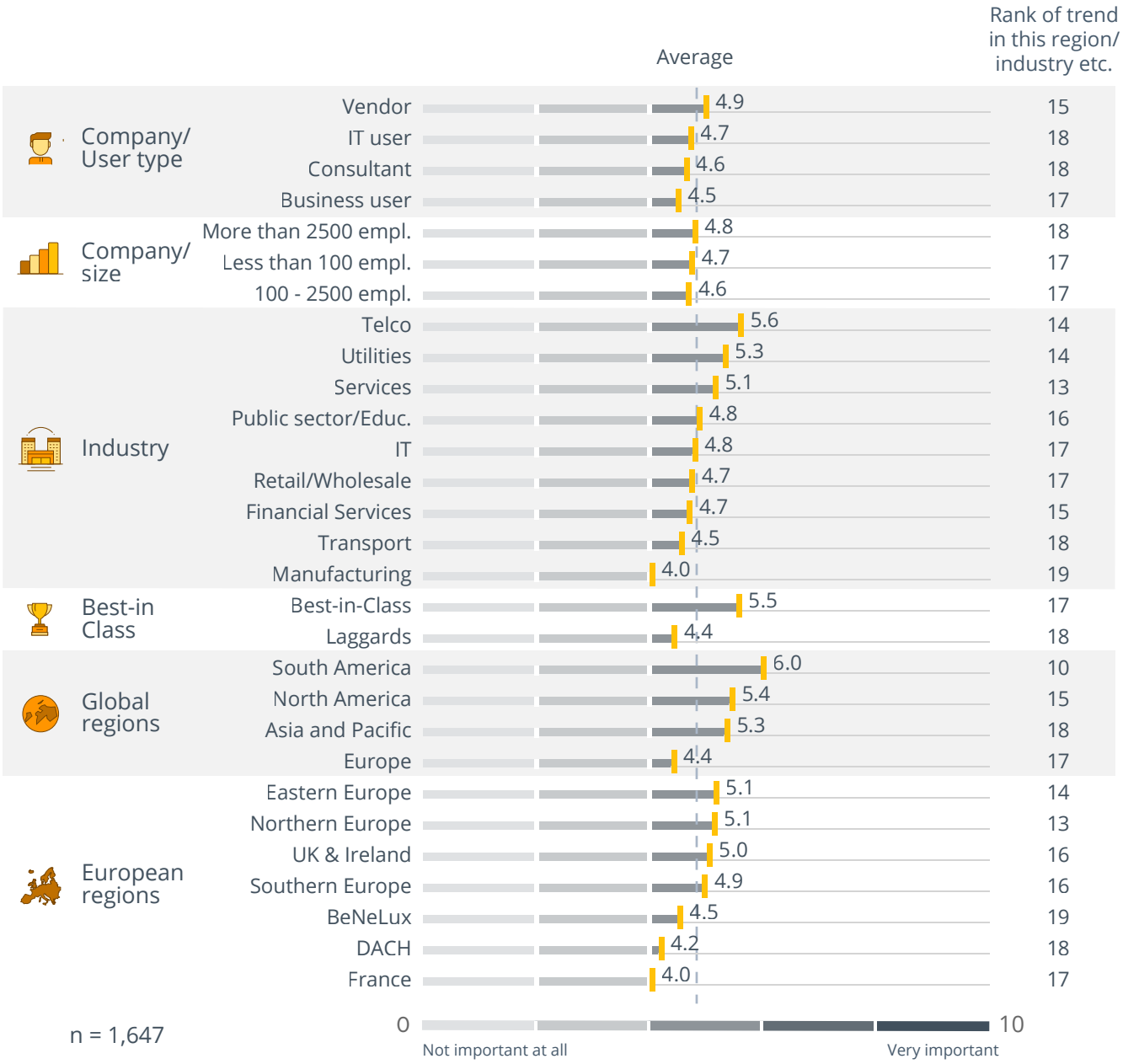
Decision Automation

Decision automation is very popular in South America. Its relevance is much lower in France and the manufacturing sector.



BARC Viewpoint

The primary goal of BI and analytics today is to enable decision-makers to make better informed decisions. However, the number of processes and decision-making situations in which a person should or can no longer be asked to make decisions is increasing. This is the case when a large number of decisions have to be made in a very short time, the amount of data to be processed for decisions is very high or the complexity of the correlations that influence a decision becomes too high for humans.

This naturally affects initially very simple operational decisions that have to be made within a clear framework of a few decision options. The basis for this is a set of rules or, increasingly, models that can be built up using statistical or machine learning methods.

Examples of automated decisions already exist today - in the detection of fraud in financial transaction data, dynamic pricing in online retail and in the scheduling of orders in service, production or logistics processes. In these examples, the shift of the human role from decision-maker to creator and supervisor of decision models has already happened.

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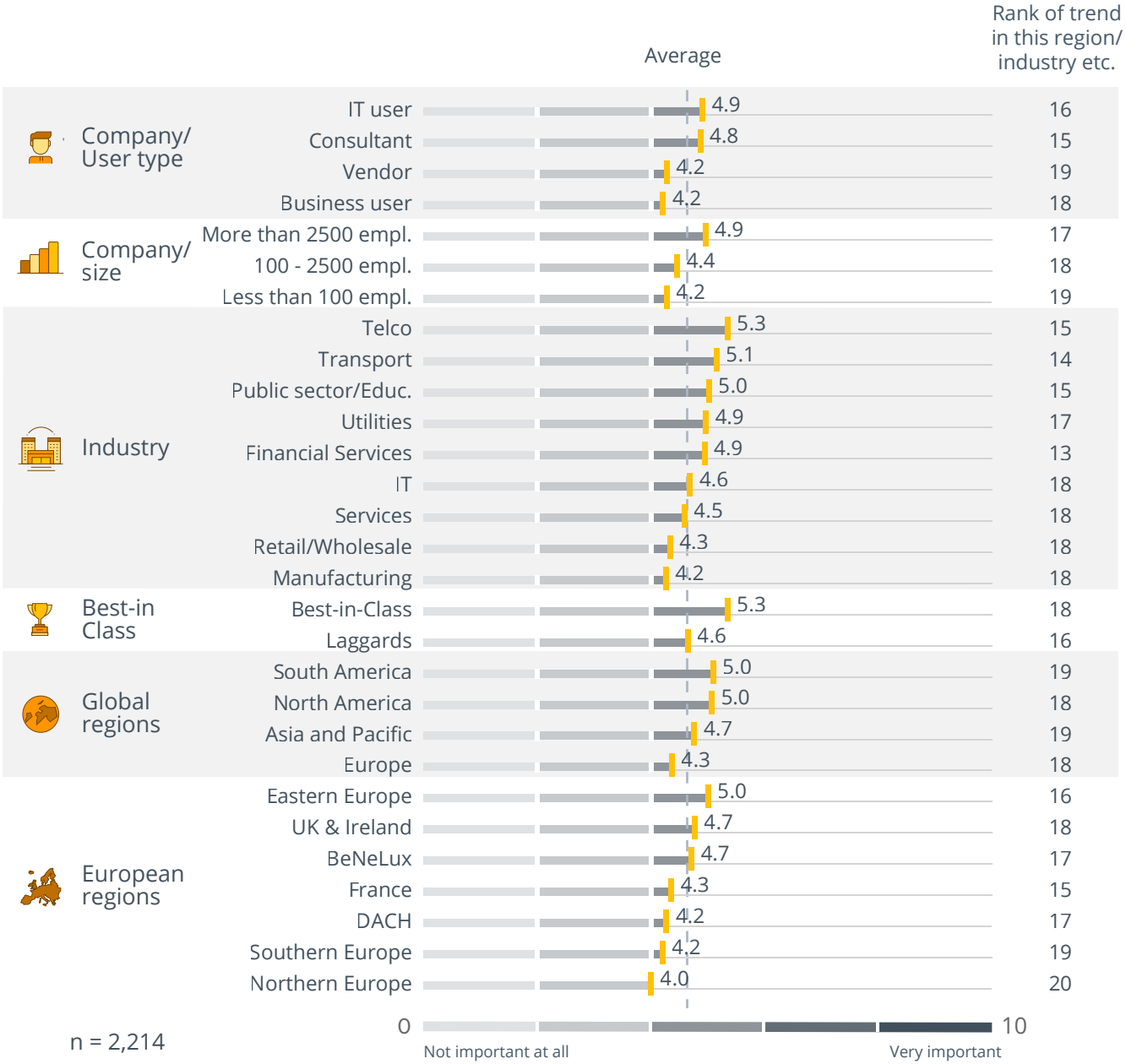
Data Catalogs

Data catalogs are especially popular in the telecommunications sector, but less so in Northern Europe and for business users.



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. Data that is incomplete, inaccurate or inaccessible 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.

A 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 to automate metadata ingestion and preparation. But building a data catalog and keeping it alive is much more of an organizational challenge.

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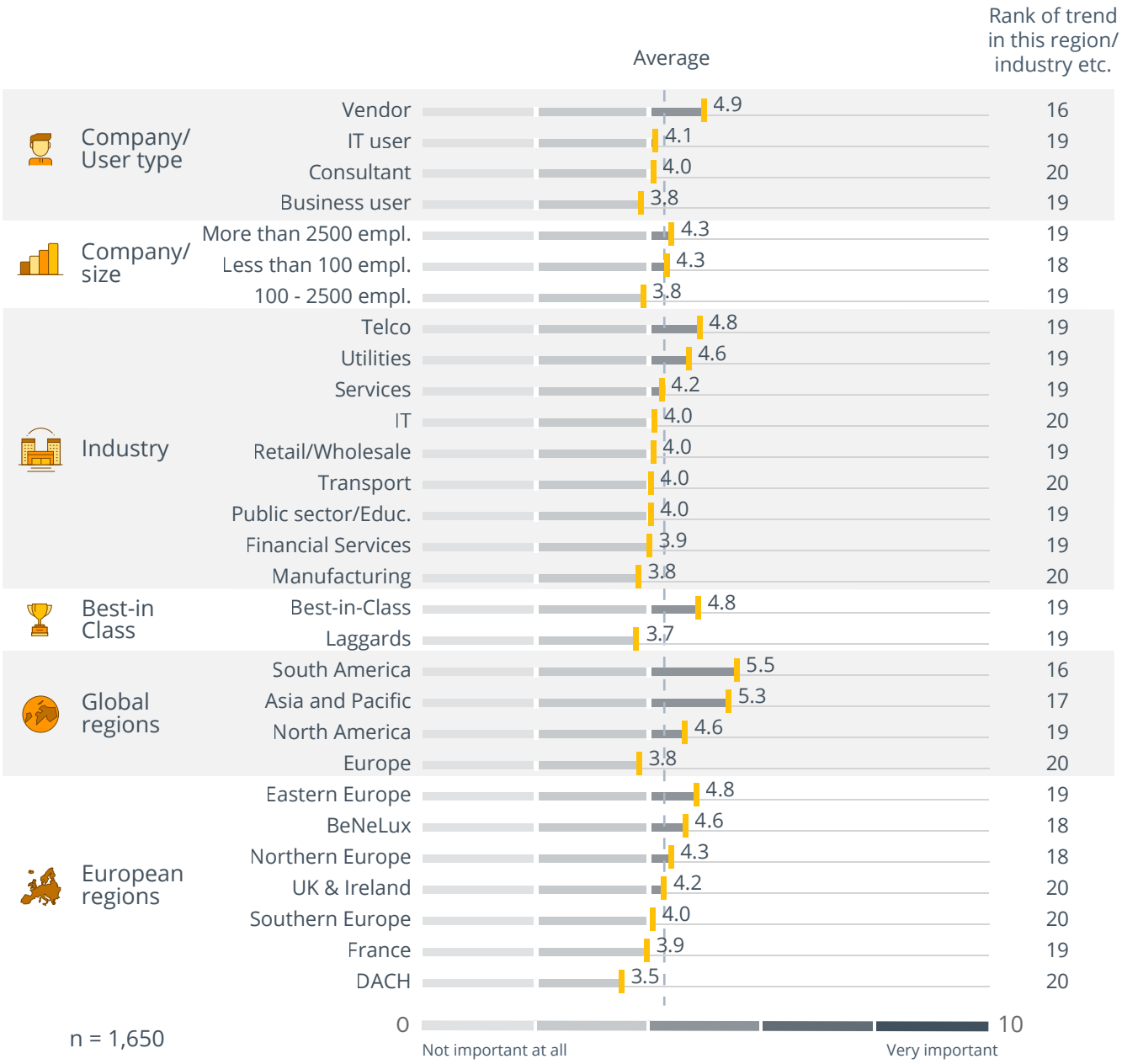
Augmented Analytics

Augmented analytics is a bigger trend in South America, but less relevant in the DACH region and for laggards.



BARC Viewpoint

Augmented analytics describes features that supplement human capabilities with machine learning to couple creative problem solving with unrivaled pattern recognition to get the best out of two worlds. This approach plays an increasingly important role in data preparation, visualization and discovery. The major goal is to make analytics and BI easier to use to lower the entry barrier for casual users and at the same time increase the efficiency and effectiveness of power users.

ML is leveraged in augmented analytics not only to identify correlations, clusters, outliers and trends in data. More users are attracted to use analytics by adding features such as natural language queries as they can get answers simply by searching data in a Google-like manner. Additionally, users are presented with automated insights that are explained in natural language too. Beyond democratizing access to valuable data sources, users are actively assisted when preparing data or creating visualizations. Leading tools recommend steps to 'heal' data quality issues or the best way to visualize data. While the use of augmented analytics is currently not extensive, the limited spread of the term is expected to reduce the number of positive responses.

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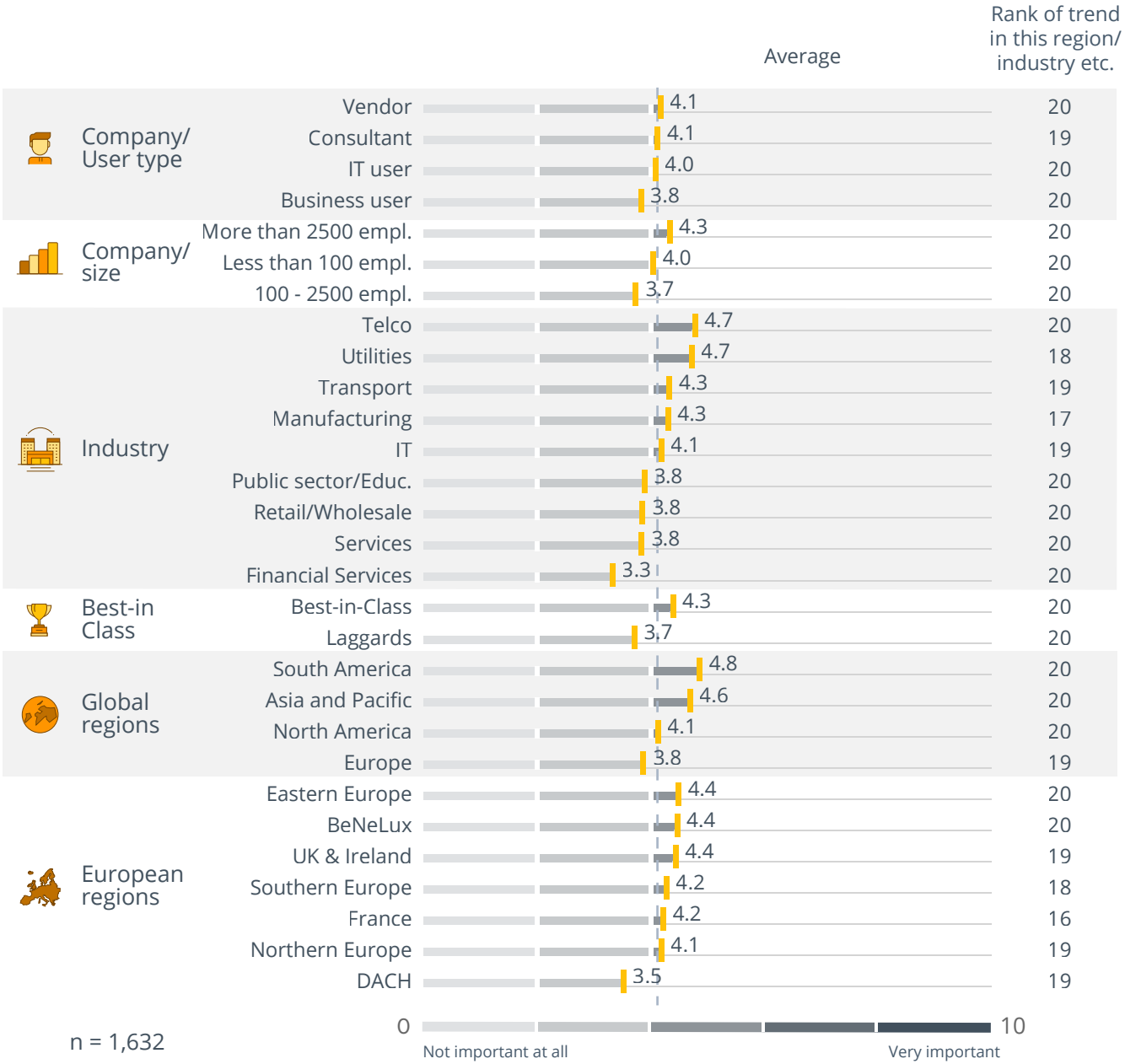
IoT Data and Analytics

IoT data and analytics is a minor trend across all categories, but especially for financial services.



BARC | Viewpoint

Internet of things analytics (IoT Analytics) is one of the most discussed IT trends at the moment. Companies are asking themselves how they can work with information generated by machines and transform it into valuable outcomes.

Modern IoT concepts and technologies allow companies to monitor all kinds of devices from machines and vehicles to wearables. They enable better management of operational processes through real-time data, as well as future improvements through predictions or data-driven business models. An increasing number of companies are now offering such services to their customers, thus expanding their service portfolios into new business areas.

The data being generated by sensors and sensor-enabled devices is different to the transactional data at the heart of most organizations. Depending on the use case, IoT data can be less structured and less processed, appear in high data volumes or be generated in real-time. The diversity of IoT data means that a new data architecture, tool set and processes are necessary to process, store and run effective analysis on that data.

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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 analytics 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 from 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 analytics 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 the trusted and accepted governance of data and analytics.

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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:

#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 analytics

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. 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.

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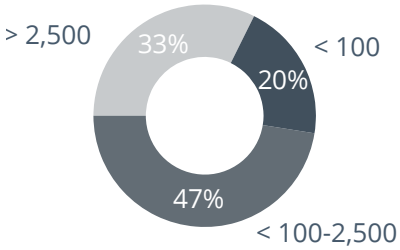
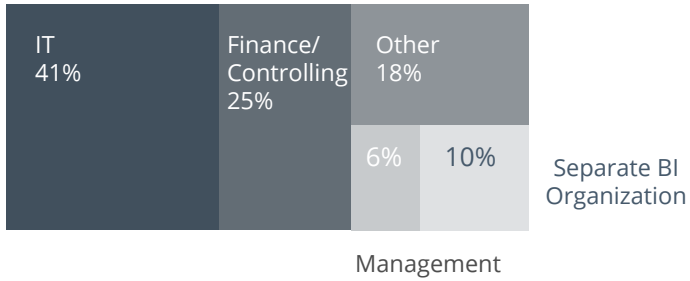
Number of employees

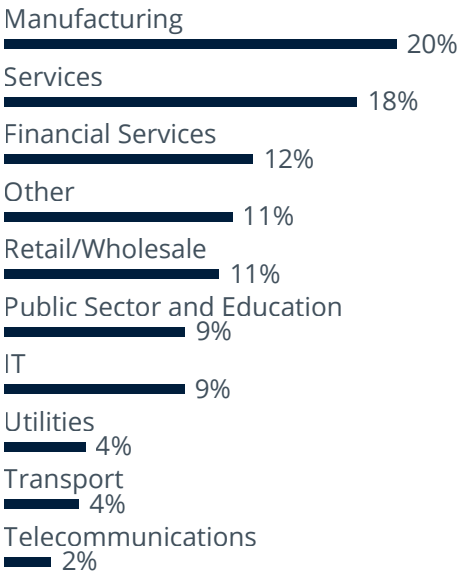


Department

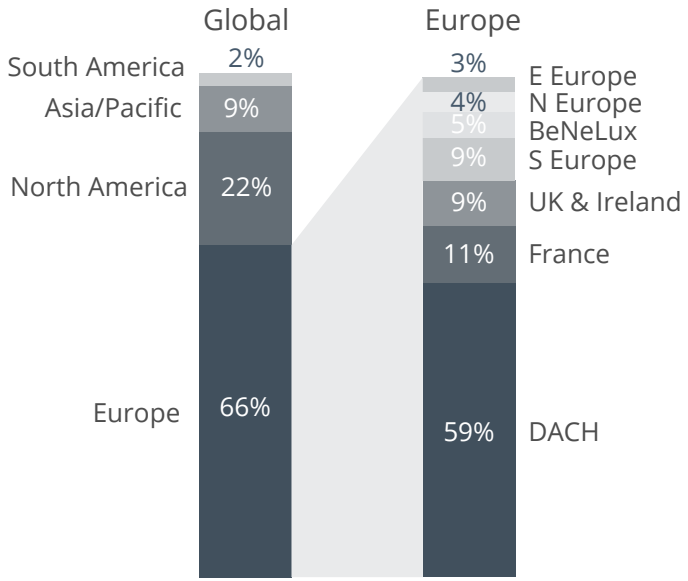


Company type

Industry



Region



Information on the survey

The data used in the Data, BI and Analytics Trend Monitor 2021 was sourced from an online user survey conducted worldwide in the summer of 2020. BARC promoted this survey on websites, at events and in email newsletters. After data cleansing, a total of 2,259 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.

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BARC Company Profile

BARC – Business Application Research Center

BARC (Business Application Research Center) is one of Europe's leading analyst firms for business software, focusing on the areas of data, business intelligence (BI) and analytics, enterprise content management (ECM), customer relationship management (CRM) and enterprise resource planning (ERP).

Our passion is to help organizations become a digital company of tomorrow. We do this by using technology to rethink the world, trusting data-based decisions and optimizing and digitalizing processes. It's about finding the right tools and using them in a way that gives your company the best possible advantage.

This unique blend of knowledge, exchange of information and independence distinguishes our services in the areas of research, events and consulting.

Research

BARC studies are based on internal market research, software tests and analyst opinion, giving you the security to make the right decisions. Our independent research brings market developments into clear focus, puts software and vendors through their paces and gives users a place to express their opinions.

Events

Decision-makers and IT industry leaders come together at BARC events. BARC seminars in small groups, online webinars and conferences with more than 1,000 participants annually all offer inspiration and interactivity. Through exchange with peers and an overview of current trends and market developments, you will receive new impetus to drive your business forward.

Consulting

In confidential expert workshops, coaching and in-house consultations, we transform the needs of your company into future-proof decisions. We provide you with successful, holistic concepts that enable you to use the right information correctly. Our project support covers all stages of the successful use of software.

Other Surveys

The BI & Analytics Survey 21 is the world's largest annual survey of BI/analytics users. Based on a sample of over 2,500 responses, The BI & Analytics Survey 21 offers an unsurpassed level of user feedback on 33 leading BI solutions. To see the results, visit: 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 20 is BARC's major annual survey of planning software users. With feedback from over 1,400 respondents, twenty-three market-leading planning products are evaluated and compared in detail. Find out more at https://bi-survey.com

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Alteryx

www.alteryx.com

A Leader In Analytic Process Automation

Companies of all sizes recognize the tremendous potential for data, but many struggle to turn it into actionable insights that improve business results. The legacy approach to analytics slows organizations down, requires costly software and too many specific tools used by too many uniquely skilled people.
Alteryx is a leader in Analytic Process Automation (APA). The Alteryx APA Platform™ unifies analytics, data science and business process automation in one easy-to-use platform to accelerate digital transformation. Every data worker, regardless of technical acumen, is empowered to be curious and solve problems. With our platform, they can find and understand what information is at their disposal, analyze data from more sources and easily deliver business insights.

Our award-winning end-to-end platform converges three key pillars of automation and digital transformation – data, processes and people – to enable the democratization of data, automation of business processes and the upskilling of people for quick wins and transformative outcomes. Instead of implementation to outcomes taking months or years, APA drives transformative outcomes in days or weeks. Users start with the business case and quickly create analytics, data science and process automation outcomes, without the requirements of a specialized skillset. The result is faster insights and business impact, fully automated business processes and the ability to rapidly upskill.

Every day, hundreds of businesses realize significant gains from the Alteryx APA platform. Thousands of customers around the world trust and depend on our platform. They include many of the world's largest and best-known brands, including Audi, Experian, McDonald's, Unilever, and Vodafone. Every day, they see the benefit of unified analytics and are realizing top-line growth optimization, bottom-line returns, efficiency gains and the perpetual upskilling of their modern workforces

alteryx

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Cubeware

www.cubeware.com

Founded in 1997, Cubeware GmbH is headquartered in Munich, Germany, and has additional offices throughout Europe. Cubeware is a leading provider of data analytics software, focusing on solutions for both SMEs and specialist departments in large companies. With an impressive client list including some of Europe's largest companies, Cubeware has a longstanding reputation as a reliable and effective data analytics provider. The Cubeware Solutions Platform C8 consists of a powerful ETL and data modelling tool, a tool for complex user management and a modern front end for analysing, visualising, planning and reporting. The portfolio is rounded off by a native app for iOS and Android, and a certified interface to SAP.

Cubeware products are easy to use, can be rapidly implemented, are highly scalable and can be customised to virtually any application. Companies as varied as Audi, Hapag-Lloyd, and Edeka use Cubeware solutions to optimise their business in countless ways. Cubeware can be seamlessly integrated into platforms from Infor, IBM, Microsoft, Oracle and SAP. Over 4,000 customers rely on Cubeware's BI expertise and its international partner network. The versatility and robustness of Cubewares solutions are well known throughout industry in the European space and beyond.

Cubeware is convinced that the solution-oriented, secure and responsible preparation and analysis of data and information is at the core of digital change, and will remain so in the future. Also, the ability to interrelate and analyse data represents the unifying factor of every economic activity, despite all the differences existing across companies and markets.

As one of the pioneers in business intelligence in the German-speaking world, it is Cubewares intention to continue to play an active role in the practical designing of the data and information processes of the future. With a global client base of over 4,000 customers Cubeware has a long standing reputation as a leader in the field of data analytics.

cubeware

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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 information-builders.com.

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MicroStrategy

www.microstrategy.com

MicroStrategy (Nasdaq: MSTR) is the largest independent publicly traded business intelligence company, with the leading enterprise analytics platform. Its vision is to enable Intelligence Everywhere™. MicroStrategy provides modern analytics on an open, comprehensive enterprise platform used by many of the world's most admired brands in the Fortune Global 500.

Optimized for cloud and on-premises deployments, the platform features HyperIntelligence®, a breakthrough technology that overlays actionable enterprise data on popular business applications to help users make smarter, faster decisions.

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TARGIT

www.targit.com

TARGIT is a privately-owned software provider founded in 1986 with its headquarters in Aalborg, Denmark. The company employs more than 85 people and has over 10.000 customers, most of whom are located in Europe and North America, while one-third are distributed across the rest of the world.

TARGIT is positioned for 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.

With the most recent 2021 release, TARGIT have continued to add to its capabilities for creating solutions that requires a minimum of resources to maintain. With its new Insights product TARGIT provide its customer with insights into usages of the BI environment and give customers an effective tool to mange both users and content.

Through a no footprint web client and integration with security providers, TARGIT has added to its capabilities for embedding into other applications and web portals. The newly introduced document model is intended to reduce the effort required to design content and make it available across all devices and output types.

Providing not only a BI solution but also knowledge about the software remains a strong focus of TARGIT. The company offers a multitude of vertical solutions. The most prominent are those for manufacturing and retail, while niche solutions for heavy machinery, waste management, fleet management, medical billing, fashion design and apparel are showing traction as well.

For several years, TARGIT has invested heavily in modernizing its solution. First, it began to reduce its Microsoft dependency by enabling customers to access data sources other than Microsoft SQL Server. Now an option to use its own in-memory database has been introduced along with support for additional data sources. Furthermore, TARGIT continues to work on optimizing its UI/UX experience to enable designers to create dashboards, analyses and reports that are ready for easy consumption on enterprise portals with better support for an improved cross-platform experience.

TARGIT®

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