Building a Data Analytics Solution

Whitepaper

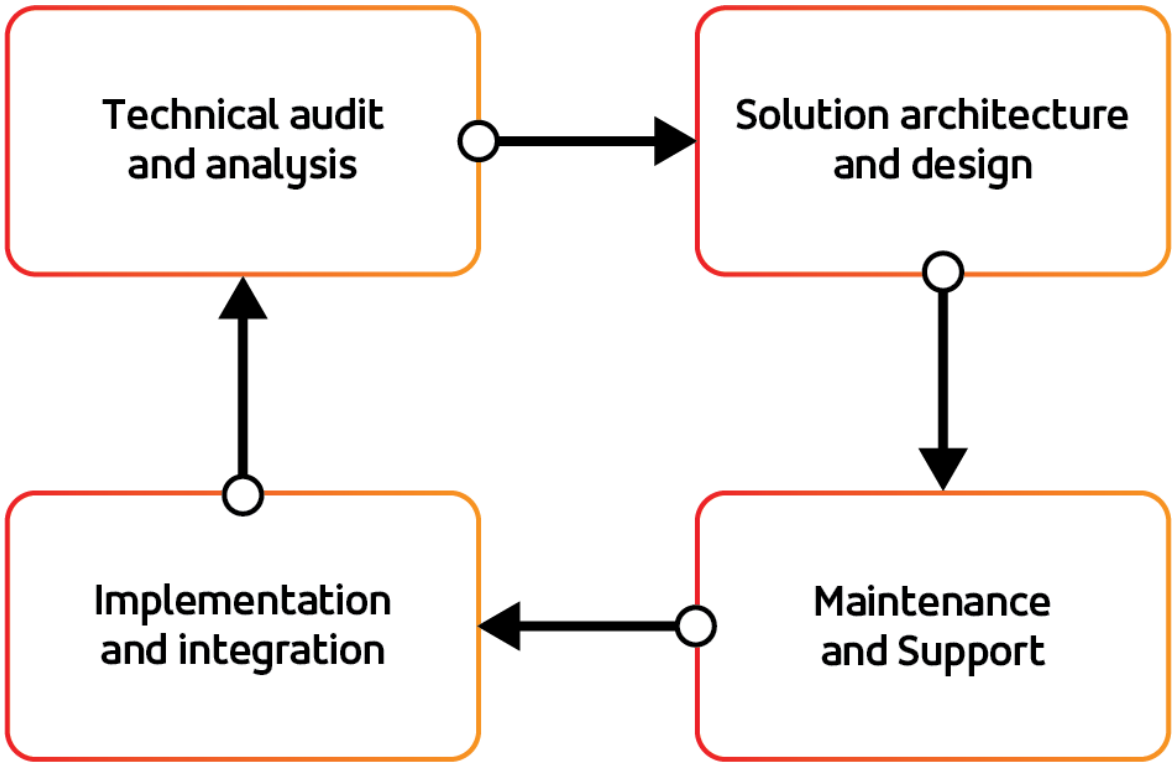
accedia

OVERVIEW

Ongoing digitization has created vast streams of data, forcing businesses to become more data-driven than ever before. Data flows through the enterprises from multiple external and internal sources, such as CRM, billing, and accounting systems, sales, trends, and opportunity reports. And as progressive companies bring more and more data insights into their customers' world, there is an increasing pressure for your company to do the same.

Thanks to technological advancements in data analytics, companies in all types of industries can become data driven. Read this e-book to discover the four stages of implementing a data analytics solution with best practices to guide you on the way.

THE 4 STAGES OF BUILDING A DATA ANALYTICS SOLUTION



There is no one way to implement a complex data analytics system. Each system is unique and should be designed and implemented to best suit the needs of your organization. However, there are a few things that you can keep in mind during the development lifecycle of your platform. You need to take into consideration the changes that might occur inside your organization due to market dynamics. Will your architecture handle a large influx of data? How easy would it be to add additional sources to extract different insights? Once extracted, will you be able to trust your data and be sure that the correct information is being sent to the analytics department? These are just some of the questions that you need to ask when designing, implementing, and maintaining a data analytics solution. Therefore, this section provides some good practices that can help you reduce time and resources throughout the implementation journey. While no paradigm will fit all systems, try to think about these when working on yours and see if they are applicable for you.

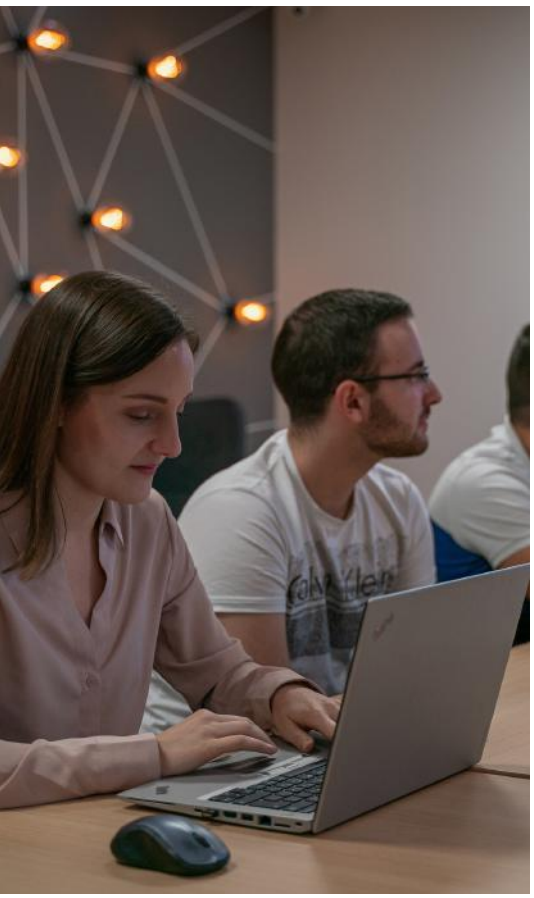
TECHNICAL AUDIT & ANALYSIS

People are generating 2.5 quintillion bytes of data each day.

- IBM

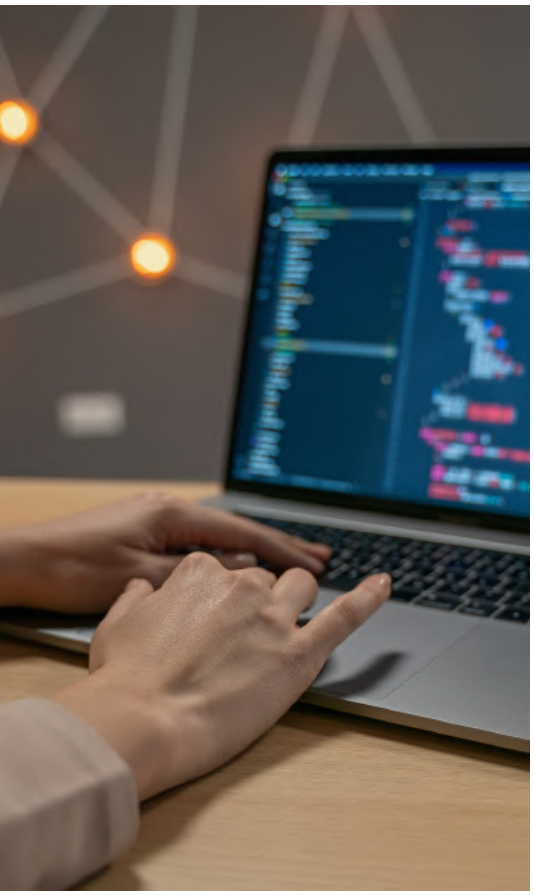
To ensure that the technical aspects of the project implementation meet the business needs, the first step we take is performing a technical audit.

The existing technological ecosystem of the organization is evaluated to understand where and how the new solution will fit in. This way, the new solution will be an extension and improvement upon what is already there and not a burden and just another new thing that the users must get used to. This includes analyzing your enterprise current capabilities and defining future goals to make recommendations for Data Analytics and BI reporting tools, technology and architecture.



GET KEY STAKEHOLDERS INVOLVED

Let's begin with the basics. To start utilizing data analytics in your organization, first and foremost spend time with all stakeholders and understand their perspective. Often, different stakeholders might require different objectives to be fulfilled. Understanding the perspective of various stakeholders helps you outline any differences at the start. Mutual understanding is vital here because employees of various departments will be involved in data processing and data management. You will have to define the scope of the audit together, set KPIs, and organize required specialists to launch your data analytics initiative.



GET HELP FOR THE EVALUATION

If you don't have enough in-house resources to perform a thorough software audit, consider getting some professional help from the outside. The right partner can help you assess all the risks and vulnerabilities and reach a solution that meets all of your needs.

DOCUMENT YOUR STRATEGY

Once you have a team and you've considered the data sources required for your specific problem, you can start developing a Data Analytics strategy. You can document your strategy using traditional strategic documents such as a product roadmap. Your Data Analytics strategy may include various components depending on your industry, company size, competition, and business model.

SOLUTION ARCHITECTURE & DESIGN

Nearly 90% of all data has been created in the last two years.

- Baseline

Armed with the knowledge from the audit, the architecture and design phase can begin. This stage includes architecting a conceptual infrastructure of your enterprise data flows to support data quality, data integration, data migration, and system collaboration. As already mentioned in that section, the architecture process should be a joined effort of the business and IT. This way it can be ensured that the right technology choices will be made and will fully fulfil the business needs. Here is also where technology purchase and cost estimations are planned, so the most suitable technologies are used for the optimal price.

DESIGN WITH SCALABILITY IN MIND

Can your system handle an influx in traffic, without needing to scale? If the answer is yes, then chances are you are doing something wrong and have probably purchased a surplus of resources, that are currently not used. This is where scalability comes into play. A scalable architecture is one where resource usage should increase with load, where the load can be measured in a different way depending on the system and the business (user traffic, data volumes, etc..). Once the resources are no longer needed, this cost-effective architecture will scale back.

If your architecture cannot scale up easily, it might not be prepared to handle your future business needs. If your business grows, the chances are the data volumes will not stay the same. If your architecture is not adept enough to manage the increase in volumes, it might also not be able to process all data. This will defy the whole purpose of the platform as you will not be able to gain any data insights which to put in practice. When you are developing the system, consider the future challenges and needs it might be faced with and be sure to adapt it to them.

DESIGN WITH COLLABORATION IN MIND

The collaboration between different teams is vital. An organization cannot become data-driven if teams do not communicate with each other, and this process can be challenging. Often, business department thinks that IT has too many complex processes and does not understand that results need to be quickly visible. IT, on the other hand, thinks that the business does not understand the priorities in terms of data management. The key is for these groups to consider and understand each other's perspective so they can move forward effectively. That can be done through effective communication. Only when all teams in an organization understand each other's responsibilities and the common goal they are working towards, the project can move forward efficiently.

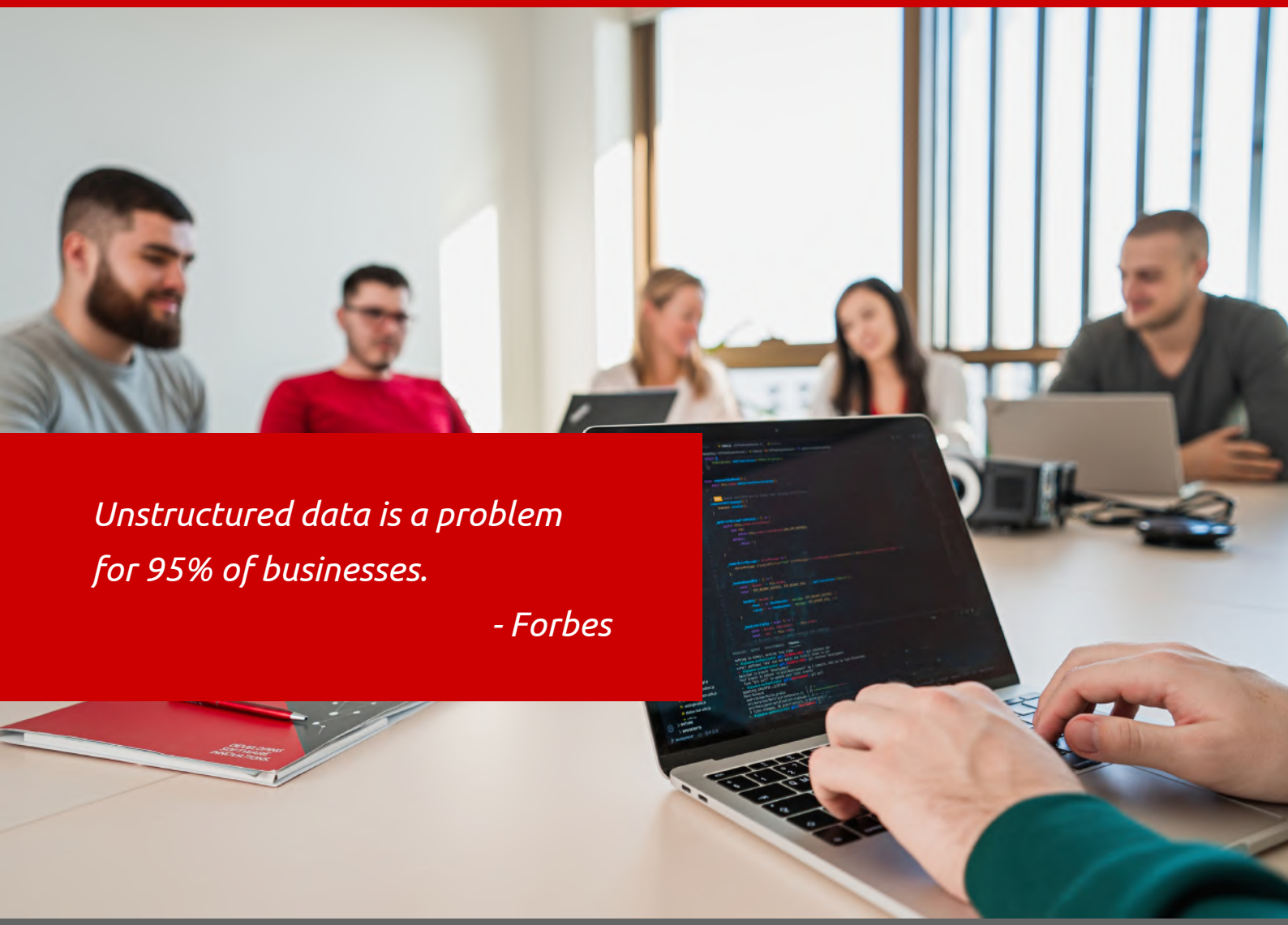
MAKE DATA ACCESSIBLE AND TRUSTWORTHY

If an organization is going to break down departmental barriers and make data a corporate asset, data accessibility and quality are critical. Although many will need access to data, different personas will have different roles in its handling. For example, a data engineer might be responsible for assembling data and preparing it for analysis. If data scientist might build a predictive model using it. A best practice is to unify the data in some way and to utilize common vocabularies, which will assure that all parties are on the same page.

PROVIDE THE TOOLS EVERYONE NEEDS TO BE ABLE TO WORK WITH THE DATA

Many of these tools have advanced analytics functionalities, such as machine learning, built into them and are designed to work across the analytics life cycle - from data collection and profiling to monitoring advanced analytics models in production. You need to evaluate such tools and design your system to include them and allow everyone in your organization to work with the collected data.

IMPLEMENTATION & INTEGRATION



Unstructured data is a problem for 95% of businesses.

- Forbes

This is the stage where the new solution is being developed. This is also where integration with the existing organization software ecosystem is made. Here is when a good technical audit and solution design start paying off. Knowing exactly how the new analytics system should fit in the existing technological landscape of the organization and what is needed to fulfil the business needs will endure smooth development and integration process and can save massive amount of time for the developers to clarify requirements. Once this stage is completed, the new solution should be in operation, and the organization can benefit from the newly gained insights knowledge.

CREATE A PROOF OF CONCEPT THAT IS ROBUST AND SIMPLE

In analytics, promising ideas greatly outnumber the practical ones. Often, it is not until companies have proof of concept into production that the difference becomes clear. A good example is when one large insurer held an internal hackathon and crowned its winner's solution — an elegant improvement of an online process — only to scrap the idea because it seemed to require costly changes to underlying systems. Rejecting good ideas in this way can be demoralizing for organizations. A better approach is to engineer proof of concept which concept is production viability. You can start by building something that is industrial grade but trivially simple, and later increase the level of sophistication.

IMPLEMENT DATA GOVERNANCE STRATEGY

Even the smallest organizations need to make sure that people and processes are in place to maintain consistent data quality procedures, as well as regulatory compliance. A key goal here is to avoid duplication of effort within your business. You cannot afford to have different departments using different tools and strategies or silos of data that do not talk to each other. This affects your external brand, as well as your internal costs because customers increasingly expect to have a seamless experience across your entire service portfolio.

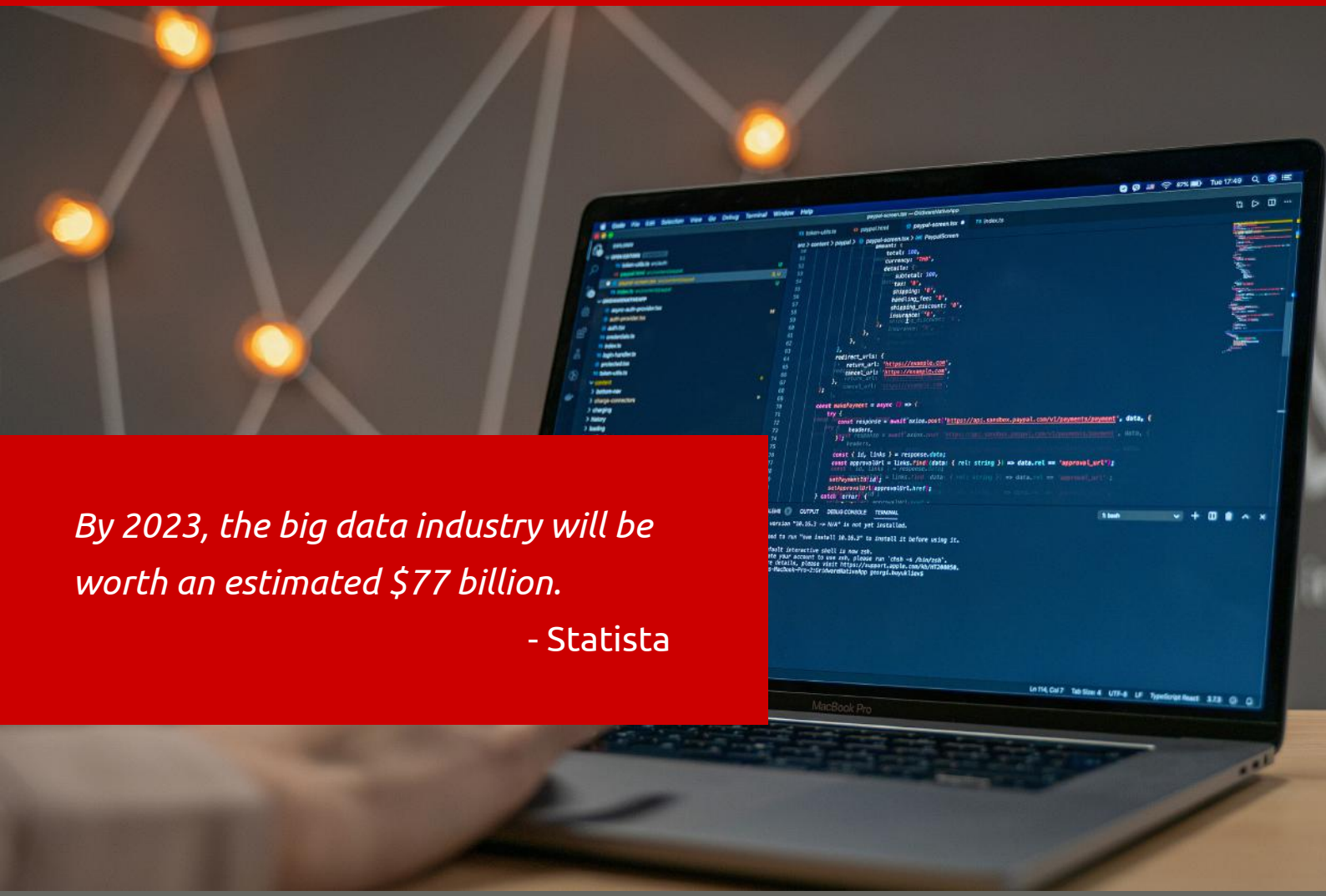
IMPLEMENT AN API INTEGRATION STRATEGY

It is critical to have a solution that can be integrated into your current automation environment instead of relying on standalone capabilities for such tasks as data validation and verification. We are in the middle of an API revolution where cloud-based tools link your CRM, marketing automation, or other platforms to tools, such as USPS databases, geolocation, lead validation, and much more. Using an API strategy lets you engineer these tools directly into your data flow at the time of data entry or use.

IMPLEMENT DATA QUALITY STRATEGY

If the last few years are any indication, we should expect an even greater focus on data privacy and security. More regulations are likely to come into. At the same time, the availability of better tools and more data means that the value and revenue potential of your data assets will also continue to increase. Only by implementing data quality best practices will your business succeed in our constantly evolving business environment.

MAINTENANCE & SUPPORT



By 2023, the big data industry will be worth an estimated $77 billion.

- Statista

This phase covers the post-release operations and includes maintaining the performance of your enterprise systems through monitoring to diagnose and address emerging slowdowns and failures timely. Every system needs support, and a complex data analytics system is no exception. The dedicated team, whether it's external or internal for the organization, is tasked with monitoring the system operations and ensuring that data will be delivered to the interested parties in a usable state and in a timely manner. As the organization grows, new analytical needs might arise. You might get new sources of data, face ever-increasing volumes of information, or shift your business goals. This requires for the system to change - adding new functionalities, extending the existing architecture, or eventually rewriting it entirely. This is a natural process, and, therefore, we take the continuous implementation approach. When a new need arises, you need to go back to the audit phase with the difference that this time it will also include the product of the last iteration of the process.

PROVIDE SPECIALIZED TRAINING

Many companies make big investments in training, only for employees to rapidly forget what they have learned after some time of it staying dormant or not being used in the right way. Thus, it is more effective to familiarize the team with specialized analytical concepts and tools before having them master coding skills.

DO NOT IGNORE DATA SCIENTISTS

The role of a data scientist is often ignored by companies, resulting in a rift in the knowledge transfer between them and the rest of the departments. This way, analytics is challenged and the business misses opportunities dependent on data insights.

FIX DATA ACCESS ISSUES TIMELY

One of the most common complaints is that people in different roles and departments in a company struggle to obtain even the most basic data. Curiously, this situation persists despite efforts to democratize access to data within the enterprise. Without information, analysts cannot do a great deal of analysis, and it is impossible for a data-driven culture to take root, let alone flourish.

GET USED TO EXPLAINING ANALYTICAL CHOICES

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TECHNOLOGIES THAT ENABLE DATA ANALYTICS

As it has been already stated, the choice of technology is an essential part of the design and architecture process. The selected tools need to respond to the business needs. Therefore, at that stage it is very important to spend time gaining a deep understanding of these needs and also the business rules that exist in your organization. The result should be a set of technologies and tools that are well-integrated in a system to fulfil business needs, not the other way around. If the people who use the system must adapt to tool limitations, the choices made at the design stage were obviously not the best ones. This is not an easy task as there is no perfect tool. When making up your mind you need to consider the advantages and disadvantages of every tool, see the situations and workflows it is most useful for and only then select those that fit your organization's practices, rules, and needs the most.

Here are some of the key technologies and platforms we use to enable data analytics:

CONCLUSION

Becoming a data-driven organization is now within reach of every company. Cloud solutions have made access to data analytics platforms much easier. Therefore, when implemented correctly, a data analytics solution provides valuable business intelligence on your processes and opens new opportunities.

It enables companies to go straight for what works, leaving guesswork out of the equation and allowing businesses to nurture customers with more precision. It helps stay ahead of threats to keep their customer, employee, and company information safe, a particularly important consideration for today's cybersecurity environment. Internally, the use of data helps rid companies of dated processes which may have negative impacts on efficiency in business operations.

From IT to human resources, data analytics is becoming increasingly vital for its business impacts that enable companies to make informed, cogent decisions to drive productivity and profitability.

With years-long experience in developing custom data analytics solutions, Accedia helps companies consolidate and maintain consistent data across the board, implement reliable reporting and predictive analysis, eliminate time-consuming and error-prone data manipulation activities, and more.

READY TO EMBARK ON THE DATA ANALYTICS JOURNEY?

ABOUT ACCEDIA

Accedia is a professional IT services company, specializing in Technology Consulting, Software Development and IT Operations Management. Founded in 2012 in Sofia, Bulgaria, Accedia has become one of the fastest-growing technology companies in EMEA, according to Deloitte and Financial Times.

Accedia works with clients in more than 19 countries on 5 continents – from America to Japan, from Finland to South Africa and Australia. The company is a partner of choice for software engineering and consultancy for startups, SMEs and large enterprises in Finance, Manufacturing and Energy.

The team helps solve technology challenges and maximize digital opportunities by delivering:

- Engaging customer experiences for Web and Mobile,
- Sustainable transformation with Cloud applications,
- Increased effectiveness with Intelligent Automation and Data Analytics,
- New products and services leveraging Machine Learning and AI.

What makes Accedia stand out is the dedication to quality software that delivers practical business value. By endorsing agility and collaboration, learning continuously, and nurturing a growth mindset, the team crafts solutions with true professionalism.