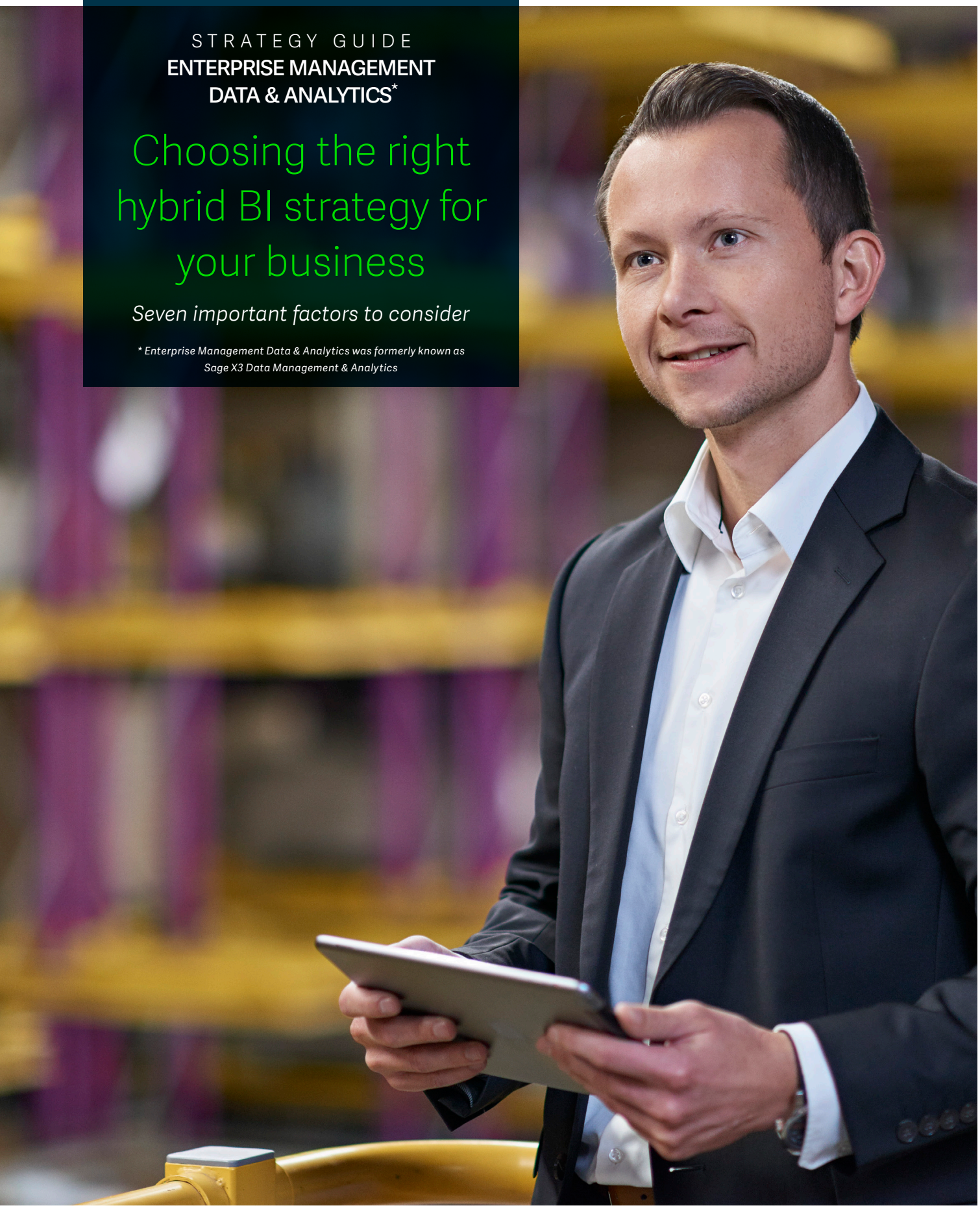
STRATEGY GUIDE

ENTERPRISE MANAGEMENT DATA & ANALYTICS*

Choosing the right hybrid BI strategy for your business

Seven important factors to consider

** Enterprise Management Data & Analytics was formerly known as Sage X3 Data Management & Analytics*



Aligning hybrid BI to business needs for greater success

The BI analyst, BARC, published research suggesting cloud BI adoption increased from 29% in 2013 to 43% in 2016. And the trend is expected to continue. 78% of respondents plan to increase the use of cloud BI and data management within the next year.[1]

Many organizations have existing on-premises Business Intelligence (BI) investments. For these businesses, it often makes sense to move certain elements of their BI infrastructure to the cloud gradually.

This hybrid approach, where some components of your BI infrastructure are on-premise and other components are housed in the cloud, is referred to as a hybrid BI approach. Many factors influence how, when, and what is moved to the cloud—such as application lifecycles, investment priorities, and infrastructure cost reduction targets. This staggered approach of updating elements of existing on-premises infrastructure with cloud deployments is a contributing factor to the current increase in hybrid cloud adoption. In fact, the research analyst Marketsandmarkets estimates the global hybrid cloud market will grow from $33.28 Billion in 2016 to $92 Billion by 2021.[2]

Arguably the most important factor driving hybrid BI should be the value the cloud brings to certain BI and data management services; creating the best-fit solution for businesses' BI needs. There's an evolution of the best-of-breed deployment model where implementers select the best solution for part of their architecture and then reuse it in secondary roles that emerge—even if such secondary functionality is less than optimal. Gartner calls this "best-fit-engineering."[3]

In best-fit-engineering, each technology is used for its most appropriate purpose and is therefore much more likely to provide the best value for a precise need. This is made increasingly possible by the flexibility that hybrid cloud deployments bring.

There is no one-size-fits-all when it comes to hybrid BI deployments. In fact, that is the beauty of hybrid BI. If done correctly, it can unlock information in a way that aligns most effectively to business objectives, current needs, and future needs.

Many factors coalesce to shape what a successful hybrid BI strategy for your business should look like.

We've identified the following list of seven fundamental considerations to ensure your hybrid BI deployment is based on sound business rationale and has the best chance of success. As hybrid BI is not one-size-fits-all, this list is not exhaustive. Rather, it's designed to provide a solid foundation on which to build a hybrid BI strategy that will help you achieve your business objectives.

Hybrid BI Deployment: On-premise and cloud data pass through a secure firewall combining with other (on premise or cloud) data sources

Seven important factors to consider when planning for hybrid BI

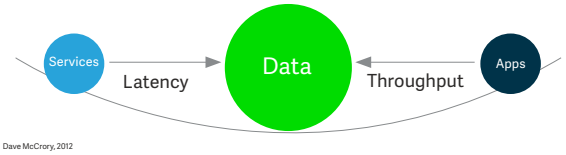
1. BI infrastructure performance

In terms of performance, there is one increasingly discussed topic that should be considered when planning a hybrid BI deployment. That is "Data Gravity," an analogy summed up by Dave McCrory, Chief Technology Officer of Basho Technology, in his Data Gravity blog:

"Consider data as if it were a planet or other object with sufficient mass. As data accumulates (builds mass) there is a greater likelihood that additional services and applications will be attracted to this data. This is the same effect gravity has on objects around a planet. As the mass or density increases, so does the strength of gravitational pull. As things get closer to the mass, they accelerate toward the mass at an increasingly faster velocity.

Services and applications can have their own gravity, but data is the most massive and dense, therefore it has the most gravity. What accelerates services and applications to each other and to data (the gravity)? Latency and throughput, which act as the accelerators in continuing a stronger and stronger reliance or pull on each other.

The diagram below shows the accelerant effect of latency and throughput, the assumption is that the closer you are (i.e. in the same facility) the higher the throughput and lower the latency to the data and the more reliant those applications and services will become on low latency and high throughput."



Dave McCrory, 2012

So, what does Data Gravity mean in terms of your hybrid BI strategy? By placing your data (warehouse, etc.) closest to where a workload is, you can reduce latency and increase throughput, thereby improving the performance of your BI infrastructure. The flexibility of hybrid BI makes this easier to achieve. Choosing the deployment methods and locality of elements of your infrastructure will help secure the highest possible performance in terms of latency and throughput.

2. Managing the risks associated with data

Data is an extremely sensitive commodity. The risk of its loss, temporary or permanent, or its theft should be a serious consideration when deciding how it is collected, stored, accessed, and managed as part of a hybrid BI deployment.

Data availability is key to business continuity, even more so when considering BI. How well-equipped your business is to mitigate data loss through infrastructure downtime, and its capability to restore it to as near as normal condition, should be a starting point when considering risk mitigation. If you feel confident that the business has invested enough in the technical infrastructure, processes, and expertise to ensure data availability is maintained, then an on-premise approach to storing data, functional elements, and infrastructure may be the preferred approach. This could be particularly true when overlaying risk considerations with cost and achieving a satisfactory ROI on the investment already made (cost is discussed further in point 4).

However, internal capabilities should always be benchmarked with best practices in the market. Feeling confident in your own IT infrastructure uptime and disaster recovery is one thing. Ensuring it is as high as it could be when compared to the market standards is another. It may be that your business could be receiving higher Service Level Agreements from third-party cloud service providers.

With the increasing threat of hostile players attempting to profit from vulnerable data, it is critical that security is on the agenda when planning hybrid BI. Your business' ability to store data safely is not the only security consideration. The landscape of your data, where it sits, and how it is accessed will also dictate the extent you need to go to ensure it's secure. For example, you may decide that certain data is most critical to business continuity and/or of the most sensitive nature and therefore needs to have the highest investment in data security applied to it. Whereas other data is of less critical importance and sensitivity, and can therefore be deprioritized.

Another security consideration is where your data is created, and how it's transferred from where it's stored to where it'll be processed. If data is being created in the Cloud, as an increasing proportion of business data is, then it may make more sense to store and access it there, too. This mitigates the risk of moving large volumes of data from the Cloud to on premises, or vice versa. Also, consider this in relation to Data Gravity and performance, as discussed above.

When deciding on data storage and application deployment, consider the nature of your data, its sensitivity and criticality to the business, where your data is created, and the risk of moving it from one place to another. Also, consider your business' ability to ensure data remains available to you and safe from cyber criminals. Compare this to the security that can be offered by cloud service providers and decide based on these factors how best to deploy your infrastructure and data as part of a hybrid BI deployment.

It's not only system downtime and data recovery that pose risks to data managed on premises. A recent study by Malwarebytes found that 39% of organizations surveyed have been impacted by a ransomware attack during the previous 12 months.[4]

3. Ensuring legal compliance

In a blog post from 2012, James Urquhart summarized how data law might impact a hybrid BI strategy: "If law will in fact have such an influence on cloud computing dynamics, it occurs to me that a new cost factor might outshine simple operations when it comes to choosing where to run systems; namely, legality itself. As businesses seek to optimize business processes to deliver the most competitive advantage at the lowest costs, it is quite likely that they will seek out ways to leverage legal loopholes around the world to get around barriers in any one country...

...So, run your registration process in the USA, your banking steps in Switzerland, and your gambling algorithms in the Bahamas. Or, market your childfocused alternative reality game in the US, but collect personal information exclusively on servers in Madagascar. It may still be technically illegal from a US perspective, but who do they prosecute?"

This hypothetical example demonstrates how a business can deploy hybrid infrastructure to optimize its business processes while remaining compliant with the laws of the country in which it operates (or in the case above, doesn't operate!).

Urquhart goes on to describe the link between data legislation and the concept of data gravity (as discussed in point 1):

"So, where does the law fit in? Well, if the law dictates where data can be placed, then the law dictates where that 'gravity' will reside, and therefore where workloads will be run to take advantage of that data. You can't place a workload in a U.S. data center that requires highly personalized data from the EU, or you are breaking the law. So, if you want to 'optimize' workload placement, EU law has dictated most of your options."

Understanding the legal landscape across the countries in which your business operates is an important data point in the development of a hybrid BI strategy.

Legal considerations are important (and complex) factors governing your deployment of cloud BI, as where your cloud service providers' data centers are located is just as relevant as where your on-premises data is housed.

The flexibility of a hybrid BI deployment can make compliance simpler and more cost effective, while also maintaining high system performance. A hybrid BI deployment makes it easier to store and process data in accordance with geographical legal requirements, and move other elements of infrastructure closer to ensure performance is optimized.

A hybrid BI deployment can open opportunities to deliver improved ROI from BI upgrades, or roll-outs.

4. Controlling total cost of ownership

If your business has an existing BI investment, as many considering hybrid deployments do, then supplementing it with further elements, or replacing elements of it, will need to provide sufficient return on investment (ROI) to be attractive to decision makers.

Again, it's the flexibility of hybrid BI that allows this. Referring to Gartner's concept of best-fit engineering[2], hybrid BI allows you to choose and deploy the best fit solution for your business situation, in the most cost-effective manner.

For example, what is the total cost of ownership (TCO) of storing your data and hosting applications on-premises in your own data center, including the human cost, utilities, etc.? How does this compare to the ongoing costs of moving to a cloud service provider? What is the value of each deployment and how does it meet your business needs? These questions need to be answered.

Moving data and BI workloads to the Cloud is no silver bullet when it comes to reducing the costs of maintaining IT infrastructure. As outlined in an article by Kristin Knapp on maximizing hybrid cloud benefits through resource cost management, a clear commercial plan and considerations of the amount of cloud computing resources required by what type of application needs to be carefully planned to ensure costs are budgeted and controlled.

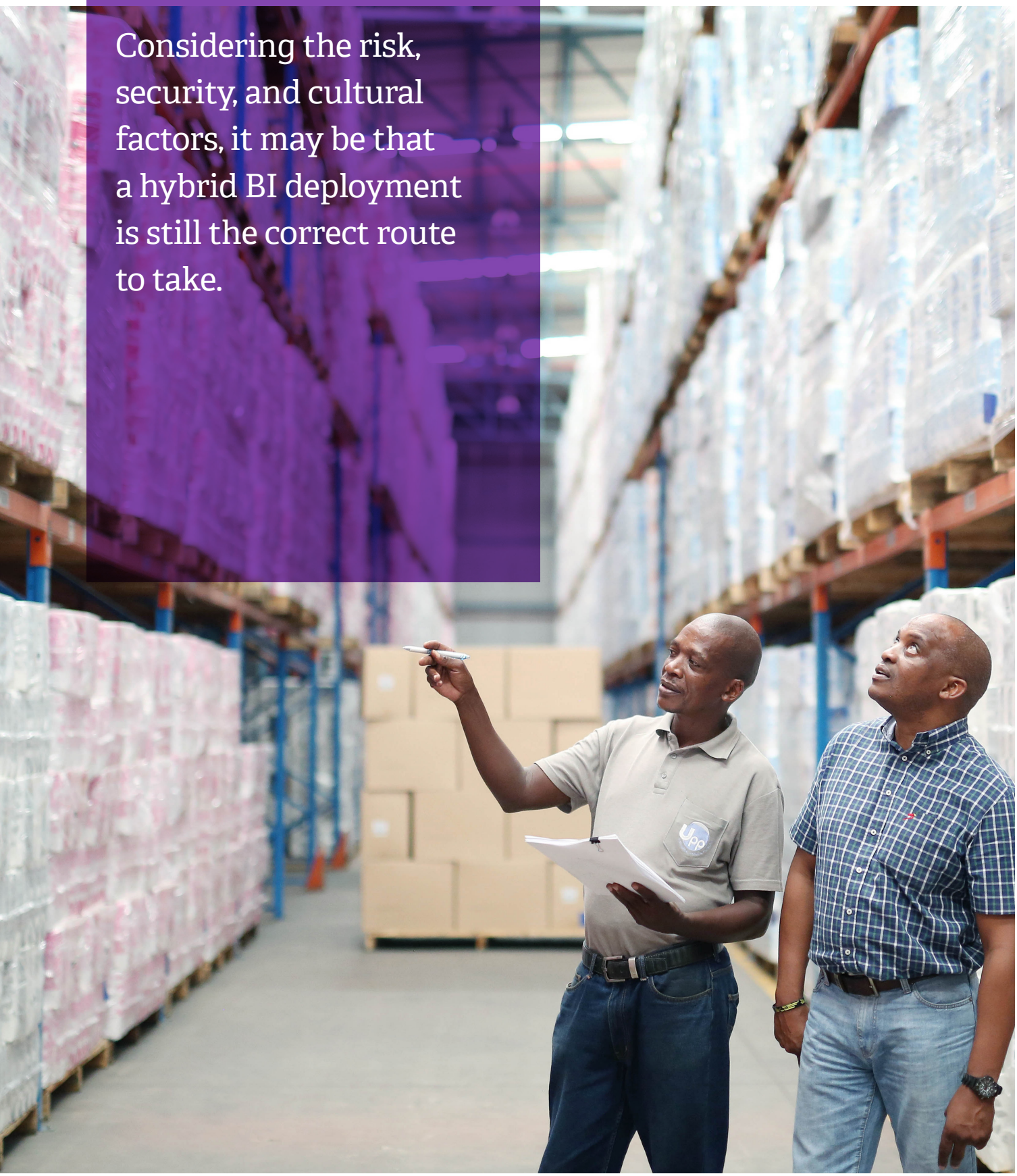
IT teams need to have a clear vision of their integration and applications architecture strategy, and how data will flow across this architecture. They also need to closely monitor the use of cloud infrastructure. Spinning-up and running resources in the cloud and not monitoring whether they're being utilized is a quick way to incur unnecessary costs.

However, cloud deployments do pose many opportunities for cost optimization. For example, say a company only operates in Germany and its employees work eight hours a day, and only need daily refreshes of their data. This organization might set up an up-time of 10 hours during the working day, and a downtime of 13 hours, with one hour spent on processing overnight. Thanks to cloud resource management automation, with a simple optimization, this organization could reduce on-premises infrastructure and maintenance costs by more than half by moving to the Cloud. The industry analyst, Jay Pultz, is quoted in an article by Stephen J. Bigelow as saying, "that cloud resources like Amazon Web Services EC2 server instances can reduce infrastructure and operations costs by 47% over three years".

As well as considering the best-fit-engineering benefits of hybrid BI, it's important to carefully budget the move to the Cloud. Ensuring TCO is kept as low as possible, and existing assets are appropriately leveraged before being replaced, will ensure hybrid BI projects meet the financial constraints placed on them. In many cases, hybrid BI deployments are often the preferred approach for businesses with existing infrastructure investments.

The flexibility to be able to replace and add components in the Cloud is attractive not only from a performance perspective, but from a financial one too. If managed correctly, there's an opportunity to drastically cut infrastructure costs through resource management automation and the economies of scale driven by multi-tenancy, etc. that allow cloud service providers to offer competitive pricing.

Considering the risk, security, and cultural factors, it may be that a hybrid BI deployment is still the correct route to take.



5. Aligning with current and future BI and IT strategy

A key factor in deciding how to deploy BI is determining where your business currently is on its journey toward leveraging insight from its data. Often, businesses with existing investments choose hybrid BI deployments to supplement and replace them.

If you're at the beginning of your BI journey, you may not be constrained by the financial, technical, and operational implications of replacing an existing BI infrastructure. However, this will not necessarily lead to a full cloud deployment.

Your business' current IT infrastructure status also factors into the equation. If the applications and database that produce and store the data that will be leveraged by a new BI investment is predominantly on premises, then this will likely result in a hybrid BI deployment, at least initally. The legal, risk, and performance implications outlined here should be considered when deciding if and how you move this data to the Cloud as part of a hybrid BI deployment.

If your business is already well on its way to the Cloud, then it may be that the applications and data sources the BI tool will extract data from are already cloud based. In theory, this means you can consider a full cloud BI deployment. However, legal, risk, and performance factors will influence the exact design your full cloud BI infrastructure will take. For example, if your data is produced in an application on Amazon Web Services (AWS) or Microsoft Azure, it might make sense to deploy your BI infrastructure there, too.

Where your business is on its journey to the Cloud and its current BI investment status should inform your approach to deploying BI. Having a clear and well-understood strategy for your business' journey to the Cloud will be necessary to ensure your BI deployment is aligned, best-fit, and future-proofed. This will help you achieve the best value and lowest TCO for your investment.

6. Meeting the demands of changing business models

With the world economy becoming increasingly digital, it's not just start-ups that are taking advantage of new technology. Bruno Berthon, managing director of Accenture Strategy said:

"The high growth rates of many digital companies can now be enjoyed by traditional industry incumbents using platform models to create an ecosystem of partners and customers."[5]

Regardless of whether your business was 'born' digital, or is harnessing the potential of digital platforms, there is a good chance that your business model will be impacted by some form of digital transformation. If not now, almost certainly in the future.

Becoming more digital often means leveraging cloud technology. In the case of businesses from traditional industries, this most likely means transitioning from on-premises technology, to cloud platforms to connect with customers and suppliers.

Your organization's current business model, how it will evolve, and to what extent it is or will be digital, should inform your hybrid BI strategy. Where is operational data created now, and where will it be created in the future? Are you producing more data in the Cloud through customer interactions via mobile? Are you leveraging the platform economy to move your business from analogue to digital?

If you see more data being created in the Cloud as your business becomes increasingly digital, or if your business is already digital-native, then it makes sense to deploy your BI workload in the Cloud. Not just from an infrastructure management perspective, but for performance reasons discussed earlier.

If your business is traditional in nature and is not likely to become digital, your data is not likely to be created in the Cloud, and you have no plans to move your existing infrastructure to the Cloud, then you have a choice to make. From a performance perspective, do you place the BI workload on premises, close to where the data it will be analyzing resides? Or do you use hybrid BI to start your business' journey to the Cloud?

Consider your organization's strategy and how this will impact the business model, how you transact with customers and suppliers, and how this will impact what data is created and where, now and in the future. Feed this analysis into your hybrid BI strategy to ensure the best fit for your business model now and into the future. Aligning the two will ensure the best results in terms of performance, cost, legal, and risk considerations.

Accenture forecasts that the global digital economy will grow by 28% from $19 billion in 2015 to $25 billion in 2020.

7. Managing cultural resistance to new technology

The overwhelming consensus is that we are on a journey to Cloud computing. The vast majority of analyst and research data points to this. The technology advances and the benefits of moving applications and infrastructure to the Cloud only seem to become more compelling.

However, just how compelling the cloud or hybrid BI is to your business also depends on the culture of the business and the views and beliefs of the people accountable for its technology.

It may be that your business is so reliant on existing, on premises infrastructure that the resistance and upheaval of even starting a journey to the Cloud outweighs the potential benefits. It may be that those accountable for making strategic technology investment decisions (not only those with technology-focused roles) are averse to moving infrastructure to the Cloud. It could be that they are used to dealing with on premises infrastructure behind their own firewall. It may also be that those responsible for the ongoing management of technology have no experience dealing with cloud infrastructure and are therefore naturally inclined to reject it as an option.

But the overwhelming evidence points to a tide of change that, although gradual, will continue.

In an article on Forbes.com, Steve Andriole shares his thoughts on business leaders who resist the Cloud and modern technical approaches. On infrastructure, he argues that: "While many CIOs and CTOs derive much of their corporate power from the management of the computing and communications infrastructure, it's way past time to share control with off-campus and off-shore infrastructure acquisition, deployment and support vendors. The good news is that computing and communications infrastructure has become commoditized and cost-effective. Multi-channel infrastructure strategy is now a core competency of all companies that need to support an increasingly mobile and distributed workforce. If your CIO, CTO or CISO insists that infrastructure should be home-schooled, it's time to find some new teachers and some good public or private clouds."

In terms of applications, Andriole goes on to say:

"If your CIO insists on maintaining—and even enhancing —legacy applications, you should find a new one. I realize there are always 'good' arguments for living in the past, but CIOs who fail to aggressively lead their companies out of Desert Legacy are failing their companies. They all know it's only a matter of time before the sand shifts and sinks under their feet."

While this view may seem extreme, it does focus on the fact that there is anti-Cloud sentiment in the decision-making units of some businesses—sometimes for the wrong reasons. Your own hybrid cloud strategy should not be shaped by personal or cultural resistance to new technology. If this is the sentiment in the business, then it's even more important to consider all the logical points here, including costs, performance, business model change, and risk, to decide on the best approach for your business' hybrid BI strategy. Make a logical, compelling argument for the investment it will require, based on the benefits and outcomes it will achieve.

Conclusion and advice

We recommend analyzing your business requirements in line with the seven points of this document to form the foundation for your hybrid BI strategy.

We suggest documenting your analysis in a report to support the process. It'll provide a useful reference throughout the many stages of deployment, providing focus on the decisions made and the reasons why.

Once you have a hybrid BI strategy, it's important to make sure the solutions you choose have the architectural flexibility to align with it. Depending on the requirements and objectives of your strategy, it will likely make sense to look for a BI vendor who has the ability to deploy specific elements of their solution either on-premises, in a private cloud, or on a true public cloud platform. The latter is especially important as a way of optimizing utilization and driving down the costs of cloud infrastructure.

Also consider the breadth of potential BI vendors' solutions. What elements of the BI 'stack' (the different components that constitute a BI solution e.g. visualization tool, data warehouse, analytics engine, and data management) do they provide? Be wary of vendors who state they offer a 'full stack', but do so by creating elements through manual, project-based work. This type of proprietary development can lead to problems in the future. What works now may not work tomorrow. And those involved in the detail of the specific work carried out now, may not be here tomorrow. This means added risk and extra costs that come with project-based work.

Due to the very nature of the Cloud (one-to-many), on-demand standardized technology has become the best-practice approach. If you are looking at a BI vendor to deliver an end-to-end, full-stack BI solution, then be sure to bear this in mind.

Key points

- Use the seven points as the foundation for a hybrid BI strategy document
- Look for a vendor with a solution that has the architectural flexibility to meet your objectives
- Choose a standardized approach to BI deployment, to mitigate risk and lower TCO
- Ensure any prospective BI vendor has a stable, secure, and efficient technology for moving data between on-premises and the Cloud

It's appropriate for a vendor to promote standardization and best practice through their solution. It will often lead to a lower TCO and quicker time to value from the investment. But this standardization must be paired with the flexibility to deploy the solution in a way that aligns to your hybrid BI strategy, not the vendor's strategy. Be sure to consider any prospective BI vendor's capability to deploy a solution in several combinations in a standardized way that minimizes project-based work, reduces risk, and ensures a low, predictable TCO.

If a hybrid BI deployment is right for your business, there's a good chance that at least some of your data sources will be on premises. If this is the case, a critically important element to consider is how the vendor proposes to move data securely and efficiently from on premises to the Cloud. Look for vendors that have a stable, standardized technology that simplifies access to data from multiple networks, firewalls, and realms, securely and efficiently. This will be integral to the success of your hybrid BI deployment, especially from a performance, cost, legal, and risk perspective.

References

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Further reading: https://blog.mccrory.me/

sage Enterprise Management Data & Analytics

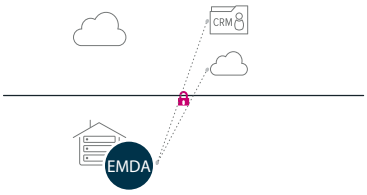
Enterprise Management Data & Analytics* (EMDA) makes it easier to get a consolidated view of financial and operational performance across multiple functions, operations, and businesses in an organization.

EMDA saves time and eliminates human error. It removes the need for manual data consolidation by automating and standardizing the collection, integration and analysis of data from multiple applications and data sources. Pre-packaged data models, connectors, and analytics for Enterprise Management** reduce technical effort and enable faster deployments, quicker time-to-value, and reduced cost and risk.

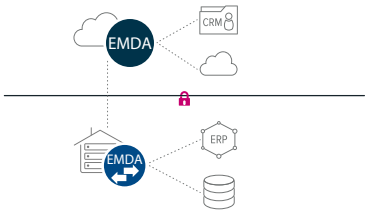
Architectural flexibility means any element of the solution (web application, data warehouse, multidimensional semantic layer) can be deployed, in any combination, on premises, on a public cloud platform (AWS or Microsoft Azure) using either services or virtualized environments, or on a private cloud. With flexibility also comes scalability and governance, thanks to built-in support for scaling the solution up and out based on business requirements.

The many hybrid deployment and architecture topologies that EMDA supports also enable data collection from any data source, anywhere. EMDA's data gateway provides simple access to on premises data sources from the Cloud, as the most common scenario, through a lightweight desktop app. It's an easier and more stable way to access data from across networks, firewalls, and realms.

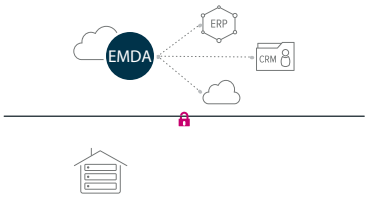
Enterprise Management Data & Analytics hybrid deployment



Cloud to Ground



Cloud Hybrid



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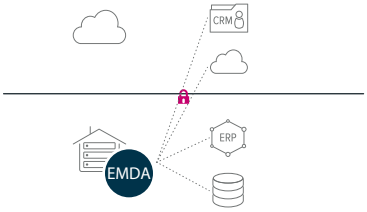
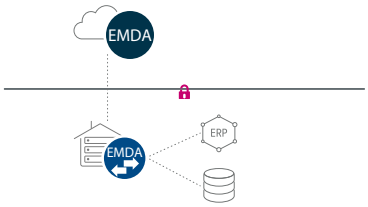
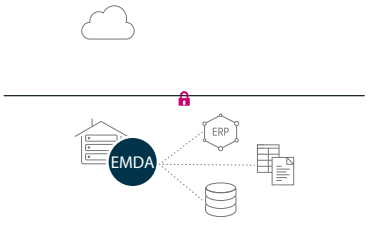


Ground Hybrid



Ground to Cloud



Ground to Ground

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