
White Paper

# Checklist For Achieving BI Agility: How To Create An Agile BI Environment

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## About WiseAnalytics

WiseAnalytics is a boutique analyst firm that conducts research and provides advisory services focusing on business intelligence for mid-market organizations. Founded in October 2007, WiseAnalytics is a privately run organization that focuses on market research to identify industry trends, adoption of technologies and solutions, and the fit of vendor products within the business intelligence market, and consulting and advisory services for organizations looking to implement business intelligence solutions, including data warehousing, dashboards, and analytics.

## The Road to BI Agility

Many organizations struggle to get the most out of their Business Intelligence (BI) investments. Large data warehouse infrastructures and static reports can sometimes hinder organizations from adopting an agile approach because of the robust architecture that already exists. The reality though, is that in order to compete on even footing with competitors, a more agile approach to BI is required. Agile BI is the glue that helps organizations achieve this. Agile BI can be defined as the acceleration of time it takes to deliver BI value.[1] Essentially this means developing the solutions, platforms, and BI access points that ensure broader flexibility, the ability to meet changing needs, and that support broader self-service and data discovery access points. Businesses need to see what is happening as it occurs, understand the opportunities and challenges that exist, mitigate risk, and implement decisions that support strategic and tactical goals. All of this requires a strong data management infrastructure to support diverse BI needs.

The truth about agility is that it can only be achieved by taking a variety of considerations into account and making sure that the data management side supports these considerations. This way, analytics can be built and delivered in a way that satisfies these requirements. In some cases, organizations make the mistake of thinking that agile is synonymous with data discovery and self-service. There is definitely an overlap to some extent, but the reality is that data discovery and self-service BI models cover how organizations interact with analytics and the level of flexibility that exists. Agility, on the other hand, extends beyond this to take into account the supporting infrastructure and how everything is managed, from the technology itself, to the governance required to ensure responsibility is assumed for relevant data and business processes.

The transition from one form of BI to another and the expansion of BI use requires a level of understanding of what currently exists within the organization, the people and processes that it rely on, and how to leverage the new infrastructure to design the types of analytics required that support an agile workplace. This paper provides organizations with an understanding of what true BI agility means while providing a supporting checklist to guide businesses looking at transitioning from a traditional BI environment towards one that is driven by Agile BI. The checklist can also be used as a guideline when identifying the qualifying factors for implementing an agile BI approach.

## Agile BI Checklist

Understanding what agility means for a specific organization is a good first start when evaluating the gaps that exist between what currently exists and the desired goals. After all, agile BI won't look the same in every organization. Different businesses face separate challenges. The following checklist items represent the general requirements that need to be addressed within any agile BI initiative. The starting points and outcomes might differ, but the process to get there should be similar.

The following areas are broken down into three sections to address technology, analytics, and the maintenance of these solutions and architectures. Each area will provide guidelines that should be followed or at least addressed to make sure that no gaps exist when transitioning towards an agile BI environment.

[1] TDWI adapted definition

## Platform and Data

The platform represents the backbone of any agile BI environment. Decisions are made through easy to use and flexibly designed systems, but the only way to access the right information to support these requirements is to make sure that the platform is designed to address the business challenges being faced. This requires a strong and potentially diverse information architecture as well as access to the right data. Therefore, understanding how data warehousing, data, types of deployment and support are required to ensure agile access.

### Real-Time Data Warehousing, Flexible Delivery, and Design Requirements

Part of the reason organizations are looking to transition towards a more agile workplace is that traditional BI provides limited visibility into operations. Trends identification and static analytics only get a manager or business analyst so far when trying to understand where something went wrong and how to make it right. Agility requires near real-time or real-time data warehousing capabilities to ensure that updated information can be continuously provided to those who require it. This may include a BI overhaul, or the ability to expand upon what currently exists by leveraging a new product or a new version of the current solution to make sure that the data infrastructure can support the changing needs of the business.

The real challenge is that there is no one right solution for every organization. Where one will look at data virtualization, another might consider an analytical database that can provide data access to address very specific business challenges. This is why flexible delivery is so important. Organizations need to understand their business and system requirements to identify the proper delivery method. This can include cloud, mobile, and other access points. Providing a variety of data access points gives users more flexibility in the way they interact with BI, making its use more agile.

### Accessing Disparate Information Assets and Leveraging Operational Data Sources for Increased Agility

Not only is real-time access to data an important consideration depending on business needs, but accessing transactional and operational information assets are essential. Part of any information management platform is the ability to access the right information when needed. This “right” information can include anything from customer accounts, product management and quality control, to geospatial, supplier data, and information stored within social media sites. All of this information needs to be validated, consolidated, and stored in a way that can be accessed when needed. Analyzing operations helps decision makers gain better visibility into what is happening on an intra-daily basis, making it possible to tackle challenges head on and identify potential opportunities more quickly creating true agility.

### Looking at the Importance of Cloud for Flexible Data Management

Because of the fact that many organizations have invested a lot of time and money to create their BI infrastructures, the idea of making changes when the current solution works may not be appealing or even feasible. Enter the cloud. The use of the cloud for data management has never been more popular. With the advent of Big Data and the need to manage and store disparate and complex data sources, organizations are considering more creative ways to address their information related challenges. Whether public, private, or by adopting a hybrid approach, moving data

to the cloud or developing a separate platform for broader analytics can give organizations a way to manage their current BI initiatives while still being able to take advantage of an agile approach.

Organizations should consider cloud BI for their agile environments because of the added flexibility it provides. Flexibility in data storage, pricing, access, and usage over time provides a good starting point when organizations need to interact with broader data assets both internal and external to the organization. This way, information can feed agile BI dashboards and analytics while leaving the traditional BI infrastructure in place, letting the organization access their regular analytics while exploring information further using a cloud access point for data.

## Support for Change Over Time and Design Flexibility

Once the platform is identified and the proper data stored, the next step to creating an agile BI environment is to ensure flexibility of design over time. Since the amount of flexibility will be defined based on the platform choice, organizations need to identify how much flexibility they require and the specific capabilities included within their platform choice so that they select a platform that supports their needs. Therefore, these requirements need to be a part of the overall software and hardware choices when evaluating an agile environment.

The reality is that in today's marketplace needs constantly change. There are new products, new customers, external market considerations, government regulations, and new management just to name a few. The implications of continuous change in relation to implementing an agile BI framework are that this platform and environment need to support continuous change over time. New data needs to be added at will. Changes in what type of data is accessed and how it needs to be analyzed should happen easily. The implications of not having this are the same as the traditional arguments and dissatisfaction with IT management of BI environments. These include having to wait for months before changes are updated, not having control over information access, and limitations in design.

The ability to account for slowly changing dimensions, add new data sources, apply new business rules or change existing ones are essential to maintain agility within the organization. Within a traditional BI environment this may be possible to some extent. To truly achieve agility, design flexibility needs to be considered at each step. This means evaluating all of the areas within the organization that require analytics and identifying what the current requirements are, what is static, and what has potential for change.

## Integration and Management of Disparate Data Types, Both Internal and External to the Organization

Although data has been discussed, the reality is that more and more types of data are making its way into the organization's information management infrastructure. Some of these sources include Big Data Platforms, cloud-based solutions, social networking data, etc. This not only leads to an increase in data levels, but the complexities and types of data being leveraged as well. Understanding that information needs to be delivered in a certain way and at a specific time is only part of agile deployments. Understanding how to integrate various data assets and manage that data through data quality, SLAs (service level agreements), and over time as it gets more complicated is the real challenge to making the organization more agile from a data perspective. And the sad reality is that each solution will have its own way of handling these complexities, and not all provide the same access to disparate data sources.

Processes need to be put into place to address these challenges. This means looking beyond the technology and towards the people who will be managing it. Identifying responsibilities, procedures, and contingencies are all areas

that support the management of disparate data types, while at the same time ensuring the platform can support the integration and consolidation of required data sources. Therefore, only a mix of processes and management at the business level combined with support for the management of diverse data sources will enable successful information management at this level.

## Interactivity and Analytics

The real test of BI agility is how people use it. The level of interactivity and ease of use provide the basis for an agile BI environment. The reality is that even if a strong information architecture is created, if organizations are not able to leverage that data and provide it in an easily digestible way to their employees, then its value will remain limited. This shows that the key test of an agile BI solution is how it is consumed. The level of exploration available and access to information when needed in the format required marks the success of the overall solution.

Achieving this level of success requires asking the right business questions, looking at self-service interactions, evaluating information access points, enabling autonomy, and looking more broadly at how data discovery is applied within the organization. These facets provide the basis of how organizations leverage their technology and develop solutions that make it easy for business users to access information assets in a way that is directly tied to better decision making and proactivity.

### Understanding How to Ask the Right Questions

Asking questions is the starting point of any BI project. Understanding the business challenges being faced and how to overcome them requires the ability to identify the right questions about information gaps, performance inadequacies, and how to identify why goals are not being met or how to improve. Within traditional BI environments, solutions need to be developed with these types of pre-defined questions in mind. Organizations need to have a strong understanding of where their performance gaps lie and what they need to know. Newer styles of data exploration are different. They provide business users with the flexibility they require to delve into data and ask the questions that are relevant without having a pre-defined drill path. The importance of this is that fact that it's impossible to know what the next challenge will be once the first one is solved.

Therefore, questions asked will be different each time a person interacts with the solution. In essence, BI agility requires the ability to interact with information in a way that promotes asking questions. For instance, being able to drill down on data to identify the cause and effect of a performance gap, or the ability to see correlations between disparate data sets. These are just a few examples but highlight the point that a variety of analytics and types of visualizations are required to make it easy for BI users to identify what is occurring within the organization. This is where traditional BI falls short – the ability to only ask pre-defined questions or drill through to pre-defined data access points limits the ability to be proactive. This type of question asking is reactive in nature because a decision maker is only able to ask questions based on what has been asked in the past, limiting the types of insights that can be made.

Building an agile platform requires taking all of this into account. Understanding how asking the right questions link to the technology that is supporting an agile BI environment means creating a solution that offers enough flexibility so that users can access the right types of information when they need it. In some cases, this might include providing a blank slate where business users can create their own experiences based on their needs, while in other cases, this needs a more guided approach. This requires a strong link between developing a platform that supports flexible

data access and an end user experience that allows for the ability to think outside the box and follow data paths to identify potential issues and follow through with adding related or unrelated questions.

## Evaluating Self-Service Interactivity by Matching Technology Use to Differing User Needs

The experience of the individual user is one of the key aspects of a successful agile BI deployment. Because users with different perspectives and varying comfort levels with technology exist, it becomes important to develop an agile BI environment that can be applied to multiple types of users by meeting their analytical needs. This requires matching technology use to the user.

The term self-service is used synonymously with easy to use, intuitive, and interactive BI interactions. Mostly in the form of dashboards, the concept of self-service has come about to address the needs of the 80% of employees that would benefit from business intelligence if only it were accessible. Consequently, there is a market push towards self-service as a way to deliver an autonomous BI experience to a variety of users – from executives to line of business (LOB) managers, and those involved in daily operations. The implication of this when looking at creating an agile BI environment is that there is no one solution that can be created for all users across the organization. Both an employee's role within the organization and their experience with BI will affect the type of self-service access required.

This means that the reality for developers is that more than one type of self-service exists. The creators of self-service need to look at the following areas when developing solutions for business users:

- Company role – a combination of job title, description, and contribution to the organization
- Levels of interactivity and data access – the level of comfort with technology as well as the type of data access required
- Collaboration – level of interactions with other departments and the amount of data sharing required
- Ease of use – level of intuitive interaction as opposed to advanced analytics and strong knowledge of data relationships
- Creator versus consumer – how users will be using the solution and whether they will also be developing tools for others

All of these aspects help build the user experience that supports broader agility. The general success of any solution will be the rate of adoption. Therefore, building applications that are easier to consume and interact with help support general use and make analytics more accessible. This type of access strongly supports an agile BI infrastructure.

## Recognizing the Value of Multiple Types of Data Access Points and Analytics Through Data Diversity

In addition to ease of use, ensuring access to the right data is a key component of any agile initiative. The reality is that the trends surrounding big data access is just the tip of the iceberg. Not only should organizations be able to manage large and complex data sets, but business users require accessible entry points to multiple types of information assets to help support overall decision making. In the past, internal data may have been enough, but now businesses require access to internal, external, structured, and unstructured data to understand the market and plan accordingly.

Broader access to data means looking beyond storage. Storing information assets is the first step to gaining value. Business rules need to be applied so that users can leverage data in a way that is valuable within the context of the organization. This requires looking at information in two ways:

1. At the organization level – although departments may have different ways of looking at and evaluating information, the reality that MDM (master data management) and data quality have taught are that there need to be overarching data definitions that can be applied to the organization. A typical example includes developing a single view of the customer. Disparate departments may look at customer in different ways, for instance help desk considers customers internal to the organization, while customer service considers customers the people who call in for support and who are generally external to the organization. Although looked at in different ways, singular definitions or reference points need to be decided upon in order to ensure a consistency of terms across the organization.
2. At the user level – individual roles within the organization will look at data differently. This means that some of the general analytics developed for overall consumption may require tailoring for individual use. Alternatively, some business units will need to customize their access to look at information in a way that best addresses their individual challenges.

Whether looking at information in a more macro or micro way within the organization, being able to access multiple data sources means bringing information together in a way that can be used irrespective of who the business or technical user is. However, even though information may be accessed and looked at differently, the ability to validate data still remains essential to ensuring data quality over time and enabling a central governing body to ensure that data is reliable and makes sense to various entities within the organization.

## Enabling User Controlled Design

One of the goals of agility is to create an analytics experience that reflects the speed of change of business. Within a fast paced and competitive market landscape, companies can no longer rely on their IT departments to manage all of the BI changes required. Doing so will only result in a solution that is behind the times. Not only do information consumers need access to reports and developed dashboards, but they also require the ability to create their own experiences. For some this may include adding new data sources and developing personalized analytics, while for others this means leveraging flexibility to drill into pre-defined data more deeply. Either way, agile solutions need to include the ability to create individualized and flexible analytics.

This expands beyond self-service interfaces and moves towards empowering users to create their own experiences by providing technologies that enable the development of tailored solutions for multiple users. This might require each user to create their own analytics, or developers can create an analytics access point, while providing a certain level of freedom for users depending on their role and understanding of data relationships. In some ways, developing solutions for business units and enabling user controlled designed expands upon the need for self-service interactions. Not all users will require the ability to create their own analytics, but many will. Even though varying users might need different levels of creation abilities, companies can design solutions that take into account self-service best practices to give users the flexibility they need to interact with BI both as a consumer as well as through general design.

## Understanding the Role of Data Discovery Within an Agile Environment

Tying in data access to design and autonomy of use touches the need for data discovery. In essence, data discovery provides users with the ability to interact with their analytics interfaces in a way that helps them hone in on their business questions and delve deeper into data without pre-defined drill paths. What this means is that data discovery supports the ever-changing business landscape. Because new issues will arise on a regular basis, companies need a way to research what is occurring while supporting their ability to make informed decisions on the best way to act to ensure positive outcomes. This is the essence of data discovery.

Providing flexible analytics access and being able to interact with an agile BI environment means that users can delve into information in a structured way to ensure that they are accessing reliable information that is valid to the issue being addressed. At the same time there is the ability to drill down or drill through information, add additional data sets, and hone in on areas that require more analysis. The reason this matters is because there is also a downside to data discovery. Granting users indiscriminate access to data can lead to people analyzing the wrong things or creating correlations that don't actually exist. This has been a continual debate within the area of data discovery – how much information and flexibility is too much versus the balance of granting users data access but with controls that identify context. Taking this one step further requires a look at the overlap of agility within the framework of data discovery access.

For data discovery to exist within an agile BI environment, there need to be high levels of interactivity that occurs automatically. This means that a decision maker cannot wait for data updates and batch processes that happen at the end of the day. Information is required on an immediate basis to ensure that the most relevant data is taken into account. Answering questions means that data accessed should be up to date and reflect what is happening within the organization.

## Managing Data Through Governance

The last area that needs to be looked at when approaching agility is governance. Understanding who will be responsible for managing important data assets and the chain of command to escalate and address issues that arise will help ensure that the system runs smoothly over time and that data is managed properly. There are four key areas to evaluate that include understanding what security requirements exist, developing a metadata layer to support broader data management, understanding the role of data and the creation of a centralized data access point, and assigning responsibility to the appropriate stakeholders. Each of these areas reflects the aspects that need to be put into place to help ensure ongoing success within an agile environment. In essence, organizations need to understand that implementing or expanding technology use without ensuring strong process management will be difficult to maintain over time.

### Evaluating Data Security Requirements and Management

Information security can take many shapes. Organizations need to manage access to systems and create firewalls that protect the company from unwanted external access. This is just the first layer of security and many of the general security requirements are taken into account by solution providers and within the confines of infrastructure design. However, within an analytics environment more robust security requirements exist, many of which are tied to internal access and meeting compliance and regulatory requirements that may differ depending on the specific industry or market being served.

Limiting access to data can happen at various levels. Sometimes management has requirements to implement security procedures that go down to the cell level within individual data sources, and sometimes access to data is limited to group and based on the data sources that support daily operations. Either way, businesses need to hone in on these requirements beforehand so that they can develop a strong set of security procedures and maintain a high level of trust among employees and customers. Understanding who gets access to what may be as easy as looking at departmental role or management level. In other cases, identifying proper security access may be directly related to BI access points and the way in which organizations deploy analytics and their overall goals. For instance, some companies want to ensure customer privacy but empower their staff to serve customers more efficiently and make decisions without having to access multiple business systems. In these instances, BI will provide a consolidated view of information that gives employees more insight into what is happening as well as the possible outcomes so that more informed and immediate decisions can be made.

Compliance and regulatory requirements cannot be overlooked as organizations can face strong ramifications. In most cases, BI providers are able to ensure compliance within their stack making it easier for businesses to be compliant. Although ensuring compliance and proper security management do not always lead to agility, for an agile BI environment to exist, strong management needs to be in place, including a strong security framework which addresses how internal employees access solutions as well as how data is accessed and controlled external to the organization.

## Leveraging Metadata Management Models to Support Better Information Access

In essence, metadata management is the management of an organization's information assets. Information stored about data can help support time-based analysis and ensure that information about data is known to help classify it better. Understanding how data interrelates and what parameters are required for its validity are what is needed to support a strong analytics environment and also support better design and delivery of analytics. Metadata objects also need to be centralized and reusable. This way the data maintained will remain consistent across the organization, leading to lower risk because updates will apply to all objects affected by general changes and not limited to one area.

Understanding data and being able to deliver it and support consumption in an easy to digest manner ensures that any agile solution will be adopted and used effectively. For governance it is important to understand that organizations need to develop a standardized way to manage metadata across the organization. Within centralized BI infrastructures this can be done quite easily. But most organizations struggle with information management and many departments create their own BI access points and solutions to meet individualized needs. In these cases, it becomes more difficult to ensure metadata management.

The reality is that separate business units may be accessing the same data and using it in different ways. Doing this creates the scenario whereby data is not standardized and different departments view data differently. This may be as simple as using revenue in a different way and may be as complicated as applying statistical algorithms differently and viewing entities within the organization in a different light – such as customer, product category, or partner.

The only way to ensure agile BI support is to leverage the metadata repository available within the BI solution or create one specific to the organization with a way to update and reference disparate data entities within the organization. Part of this also involves a level of collaboration between business units and IT to make sure that the information collected on the data can be accurately matched to some of the business information requirements within

the company itself. In a sense this means going beyond simple metadata management and creating a repository that supports business processes as well. This way, there will be an understanding of what data is needed, in what format, and the value it provides to the organization.

## Moving Beyond Data Silos

One of the major challenges for most organizations transitioning towards an agile BI environment surrounds the fact that most BI solutions are built in silos. Even if a large amount of data has been stored within a centralized data warehouse, much of its use will have been developed for a specific purpose or developed with schemas designed for different departments. This type of design limits the ability to be agile because data can only be accessed and used in a limited way.

Many organizations struggle with the idea of creating a centralized data access point and maintaining their data on a broader level. The implications of not doing so, however, can be quite far reaching. To really understand operations, the supply chain, customers, product management, market opportunities, and so on, businesses need to see the whole picture. This level of visibility comes from being able to delve into information across disparate business areas without having to spend hours searching for the right information or asking colleagues questions that could easily be deciphered if access to the right data existed. The reality is that the only way to achieve true agility is to enable broader access to information without compromising security.

Since most information is already stored and reported on in some way within the company, it stands to reason that much of the data stored is being consumed in a regular way. Network analysis can look at who is accessing which data sources and looking at what data to determine the level of data required and can build a centralized access point based on general access. For some organizations, this is where Big Data comes in by using Hadoop as a centralized data access point and leveraging the data needed for analytics when desired. Whether leveraging big data or not, the whole point of newer BI and analytics access is to provide visibility into operations more broadly and to enable better decision making through information access. Both of these things require developing information architectures that support a holistic approach to data access for information both internal and external to the organization.

## Levels of Stakeholder and User Involvement and Overall Responsibility

All areas of information governance require the management of data assets and business processes by people who have a stake in the decisions being made. The broadest implication of this is that organizations cannot look at governance as a role for IT to fulfill. IT departments can manage information architectures and help support Agile BI, but they cannot be expected to be experts of business processes or understand the value proposition of each data entity within the organization.

Now that many organizations have BICC (Business intelligence competency centers) there should be an understanding that having a centralized governance body is just as important, if not more so. Information has to be managed across the organization with the understanding that there are processes to be followed in the case that issues arise surrounding data quality or a dispute over how to define a customer. Having a centralized governance infrastructure means that accountability exists and that employees have a stake in their data and making sure that information being analyzed is perceived accurately.

Although starting from scratch might not be easy, identifying key data assets and making sure that there are people that can help develop a framework and communicate a new set of processes to follow will link the system and technical requirements of an agile BI infrastructure to the business requirements by ensuring that a certain level of understanding exists across the organization in relation to the value of specific data assets, how they are defined, and how to address issues that occur over time. In addition, providing people with accountability gives them a platform to interact with and understand their environment more as well as empowers them and gives them more autonomy and control over their jobs, the decisions they make, and their access to the data assets they require to support their job functions.

## Making Agility Work in Your Organization

The reality is that creating an agile BI environment requires three areas of consideration:

1. Platform and technology to host the solution
2. Access to analytics and a way to interact with data
3. Management of the system and a way to govern data assets to ensure continual success

Organizations may go about achieving agility in different ways based on the BI environment that currently exists, what data is available, the resources on hand, and many other factors. Achieving higher levels of interactivity and better data access is no longer a choice. In order to maintain competitive advantage and understand the marketplace companies need to become more agile. This means looking at information more broadly, making sure analytics can be delivered to business users when and in the way they need to consume it, and creating accountability to ensure data validity and reliability over time. The bottom line for agility is that the only way to achieve it is to ensure that technology supports the business needs and that governance enables proper identification of data assets to ensure data reliability over time.