Making Business Intelligence Easy

White Paper
Mobile Business Intelligence
and Analytics

Contents

Overview

With the advent of the mobile phone a fundamental shift occurred in telecommunications. You no longer called a place, you called a person. The arrival of the Internet provided an even greater degree of interconnectivity. These changes are having a profound impact on the way businesses manage their mobile workforce and access to their data assets.

The convergence of Business Intelligence (BI) and mobility, resulting in the capability to deliver data anytime anywhere, has been well underway for some time. Business professionals are fast becoming comfortable utilizing smartphones and tablet PCs to keep up-to-date with business information.

As a result, data mobility is fast becoming the norm, rather than a specialized set of applications. An increasingly dispersed and technologically savvy workforce means that custodians of corporate IT need to plan information and data management strategies with shifting working habits and mobility front-of-mind.

This paper looks at the audience for Mobile BI applications (senior management and executives, key sales people and field service personnel), the key influencers driving the need for Mobile BI, and the organizational benefits derived from embracing mobile analytics.

We then analyze the requirements, both technical and organizational, which are needed to ensure the successful rollout of a Mobile BI platform.

Incorporating a Mobile BI platform into an organization's analytics and reporting infrastructure will have a direct impact on improving its bottom line, by increasing competitive advantage, employee productivity and the level of customer service/satisfaction.

What is Mobile Business Intelligence?

The definition of mobility needs to be much broader than simply referring to the use of a mobile device.   Mobile BI is the capability of the organization to deliver relevant and timely data to anyone, whenever they need it, wherever they are, regardless of the device used to access that data.

On the one hand, there is the mobile worker who is physically mobile, and requires remote access to information assets. This is the traditional definition of Mobile BI. However, there is a fast emerging group who are device mobile. These users regularly switch between laptop, desktop and smartphone, but are not necessarily out in the field.

This modern definition of Mobile BI includes the concept of **device independence**. This is a critical distinction. A distinction that warrants careful consideration and has a fundamental impact on how organizations should plan for and implement Mobile BI strategy.

Both sets of users – the physically mobile and the device mobile – demand flexible data access and the ability to access and analyze data wherever they are, in a uniform manner, regardless of the device used – be it PC, laptop or smartphone. In simple terms, no matter how the end-user accesses their corporate data, what they see should be the same.

Mobile data delivery falls into four distinct categories:

Push / scheduled Reporting	Role specific predefined reports, such as Key Performance Indicators (KPIs), are sent to executives on a regular basis regardless of their location or device. For example, each Monday morning, a report on last week's sales could be distributed to sales and marketing executives, while the CFO might receive a report on critical financial metrics.
Pull Reporting	Authorized users can access information from the centralized server-based BI system on demand. Access to information can be customized to ensure that only those personnel permitted to view certain reports and data sets can request them. A salesperson, for example, could ask the application to identify the current top five customers, or to provide detailed background about a specific customer.
Exception & Alerts	Users receive proactive alerts – relevant to their position – notifying them of unscheduled events and incidents. For example, a purchasing agent could be alerted when the inventory of a critical part falls to a level that threatens to interrupt manufacturing. Similarly, sales executives would be alerted about a delayed shipment, enabling them to proactively notify affected customers.
Sharing	Users can share reports, information and insight relating to BI content – with other authorized users – across devices and platforms to collectively solve problems and decide on the best course of action. Sharing new ideas and fresh perspectives creates a more effective and efficient decision-making process. Users are able to utilize the knowledge gained through reporting and analytics more efficiently and effectively to make better, faster decisions. For example, the sales executives affected by the delayed shipment could email the stock level report to the marketing manager. Notifying marketing team about the delay allows them to adjust the launch of their advertising campaign accordingly.

Who is it for?

There are three main groups within an organization who will benefit from the implementation of a Mobile BI solution. These are: Executives, key sales people, and field service personnel.

The executive team and senior management: Time-poor executives must be able to access KPIs and other important data at a glance whilst on-the-move between appointments and meetings. Senior managers are now proficient at absorbing information via smartphones and tablet PCs. Receiving analytics and reporting via mobile devices is merely a natural progression for this end-user group.

As executives begin to use smartphones, tablets and laptops almost interchangeably, and emerging devices become capable of displaying increasingly rich Web content, business leaders are seeking more extensive access to corporate data. Additionally, business timeframes are being compressed, and if a company is to maintain competitive advantage, its decision-makers need access to critical information wherever and whenever they need it, to enable them to make important decisions on-the-go.

Key sales people: Sales personnel, who are in constant contact with customers and often out of the office, will benefit enormously from access to mobile analytics. Having access to real-time sales data, such as current sales figures and sales history, provides the sales team with the timely information they need to increase sales, via up-selling and cross-selling, and act upon opportunities as they unfold.

Field service personnel: Field personnel need to have an accurate understanding of their organization's customer-base to do their job effectively. Pro-active alerts and access to both real-time and historical data, detailing current customer needs and past behaviors, will lead to increased efficiency and productivity 'in the field', and ultimately enhanced customer satisfaction. Other benefits include increased risk visibility (risk management) and workforce cohesiveness.

End-user Matrix

Role	Requirements
Executive / Senior Management	Real-Time Organizational KPI's Anytime Anywhere Access to Data Decision-Making On-the-Go
Sales Personnel	Customer Analytics Proactive Sales Alerts Real-Time Customer Data Sales Performance Reporting
Field Service Personnel	Proactive Service Alerts Real-Time Customer Data

What are the external factors driving Mobile Business Intelligence?

There are three major external factors driving Mobile BI adoption. These are: Device maturity, end-user expectations and constant connectivity.

Mobile BI has reached a new level of maturity: Mobile devices such as Apple's iPhone and iPad, as well as the emerging fleet of Android smartphones and tablets, deliver users a rich reporting and analytics experience straight from their pocket. As devices mature, and the functionality and usability of those devices approaches that of a traditional desktop, we will continue to see convergence of applications across devices. As devices have matured, BI vendors such as Yellowfin, have delivered applications that take advantage of those devices. Mobile BI needs to be supported through rich clients on similarly high-function devices.

Users expect to interact with the Internet: The device-savvy digital generation continues to enter the workforce, using devices to stay connected in ways previously un-thought-of – they are becoming device independent. The personal use of the Internet and mobile devices continues to grow and shape expectations regarding access to, and dissemination of, business information and the technologies and applications that underpin that system. Technologically savvy business people have the skills to use and access increasingly complex information on increasingly complex mobile devices. Today's business professionals expect enterprise data delivery mechanisms to support that trend and keep them well informed about the business information that matters to them. For example, social media applications, such as Twitter, have a Web client in addition to many mobile clients. Each client has different User Interface. But, what these different clients have in common is the ability to receive the same content – the application delivers the same content regardless of the device used to receive that content. In the Internet-centric world, content is king, and users want to stay connected to that content. Constant and uniform connectivity is a must if business users want to take action through any device, automate many of their activities on a daily basis, and participate in business processes from any location. This allows end-users to react to change with immediacy, no matter their whereabouts. Those in the field can also respond more effectively to customer needs and issues.

Constant connectivity to the Internet: The ability to stay connected to the Internet and business developments means that organizations must embrace this trend, or be left behind. In the past, business people worked offline when they were on-the-road. Access to the Internet and real-time company information assets was not possible. In today's business environment, it is unacceptable and cumbersome to work without up-to-date information. The inability to access real-time data is a major inhibitor for mobile business men and woman. How can you perform your job accurately, effectively and efficiently if you are poorly informed by outdated information?

The cost of establishing a mobile reporting and analytics solution that provides widespread workforce access to real-time data and key business drivers is becoming increasingly affordable. Additionally, delivering a Mobile BI platform via the Internet removes security issues surrounding remote data access and storage, and delivers real-time data capabilities to end-users. The price of inaction is becoming simultaneously more costly.
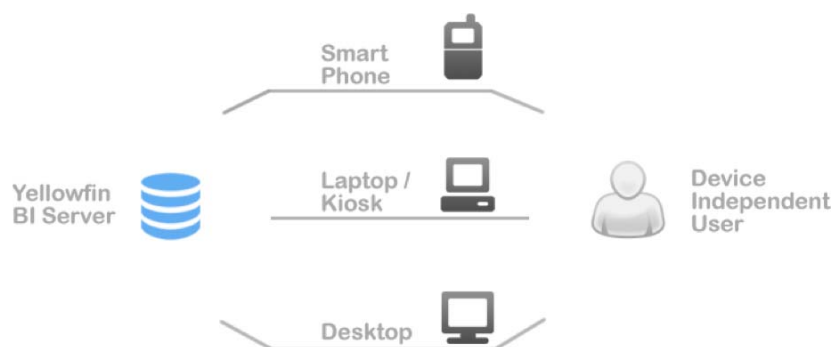
Figure 1 Device Independent Users

What are the internal drivers for Mobile Business Intelligence?

The three fundamental internal drivers for Mobile BI are: Increasing employee productivity, improving data delivery efficiency, and the need to deliver real-time reporting and analytics.

Increasing employee productivity: Increasing employee productivity is a key motivation for delivering BI to mobile devices. The inability to access real-time information inhibits the mobile worker from achieving maximum productivity. End-user groups must have access to real-time data, no matter their location or mobile device, to enable them to improve individual as well as organizational performance. Delivery of the right data at the right time, can significantly improve productivity; by empowering users with the fact-based information they need to execute their jobs effectively and reduce time wasted searching for data.

Improved data delivery efficiency and closed loop reporting: Improving information flow through an organization is a common overarching motivation for implementing Mobile BI. For mobile workers who are often away from their desks, a Mobile BI application provides direct access to organizational data assets. In addition to delivery efficiency, the ability to act on that data and 'close the loop' means that overall organizational efficiencies and productivity can be streamlined. Organizations are better placed to act on opportunities, and make faster, better-informed business decisions.

Real-time reporting and analytics: Mobile BI is about delivering real-time, or near real-time, access to data. Field sales and service teams need access to real-time data so they can effectively and efficiently achieve their goals and objectives. We live in the world of the instantaneous and the now – inability to swiftly respond to marketplace opportunities will result in lost business and reduced competitiveness. For example, if a customer cancels an order, the field delivery team cannot waste time and effort delivering unwanted goods or services. It is critical that the data delivery mechanism (the BI solution) and the underlying data sources are capable of real-time data delivery.

What benefits are sought?

The potential benefits of rolling out organization-wide Mobile BI are enormous.

Access to real-time information for the mobile worker has many notable benefits, including:

- The ability to make better fact-based decisions anytime
- Improved knowledge-sharing to support organizational collaboration and cohesion
- Increased workforce productivity and organization-wide efficiency through accelerating the decision-making process
- Closed-loop reporting
- Increased flexibility and adaptability to stay ahead of the competition and act on marketplace opportunities
- Improved understanding of customer needs and the customer decision making process
- Increased customer satisfaction and enhanced reputation through timely and accurate decision-making

Many of these benefits can also be equally applied to implementing a standard BI solution. The four most commonly sought benefits of implementing a Mobile BI strategy are: Increased competitive advantage, increased productivity leading to greater profitability, and a clearly definable Return On Investment (ROI).

Competitive advantage: Organizations are looking to be more responsive and flexible by having access to data that keeps the mobile worker ahead of the competition. Mobile access to real-time data increases the opportunities to up-sell and cross-sell as well as respond dynamically to changing market conditions.

Increased productivity of the workforce: With real-time access to data the potential to improve operational efficiencies are dramatically increased. The ability to speed-up the decision-making process, by providing decision-makers with vital business data anywhere, anytime, is a major benefit of Mobile BI.

Raising the level of profitability through customer satisfaction: Delivering Mobile BI to the field will improve customer service and increase customer satisfaction by empowering workers to make faster and more accurate decisions. Access to timely information, particularly for field and sales staff, will help deliver better and quicker results to customers, improving their experience and saving them time. Enhanced customer service leads to lasting improvements in customer satisfaction levels. Exception reporting can also alert mobile workers to potentially harmful events before they affect customer relationships, whilst enabling them to proactively capitalize on emerging opportunities.

ROI: The rate of end-user adoption is the best method for measuring the success of any BI solution. The more people with access to the benefits of quality BI, the better equipped any organization is to respond to, and take advantage of, opportunities and shifts in their business environment. Mobile BI enables widespread BI user adoption and drives exceptional ROI.
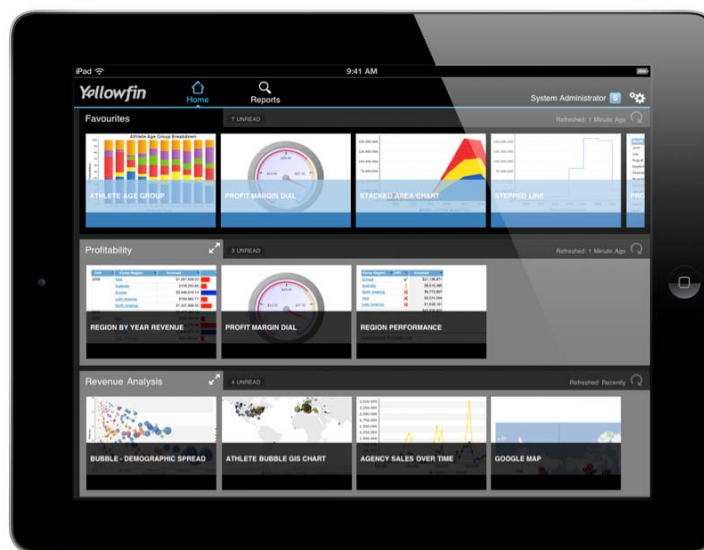
What organizational factors are required?

Implementing a successful Mobile BI solution is as much an approach, and mentality towards business reporting and analytics, as it is a methodology driven by new technology.

To achieve the benefits sought from a Mobile BI project, a key set of organizational attributes needs to be in place.

It is vital that a company has already established a competency for BI, or has a general analytics strategy in place.
Mobile BI is a sub-set of a broader BI program. It should not be embarked upon in isolation.

To deliver a successful Mobile BI project, employers should:

- Adopt an open 'anywhere, anytime' attitude towards business data to empower employees to make decisions and take full-advantage of the benefits associated with pervasive BI. As companies continue to focus on delivering information to the mobile workforce, they will need to ensure information is delivered promptly to affect action in the field.
- Equip as many people as possible from across the organization with the skills, knowledge and permission to access business data – widespread user-adoption is the key factor to successful BI projects.
- Understanding the reporting needs of each of the three main beneficiaries of Mobile BI – the executive, sales and service teams – is critical. Their needs will differ, and appropriate KPI reports should be developed that are specific and meaningful to each user-group to ensure quick end-user uptake and assure high ROI.
- Link Mobile BI to clearly defined business goals and objectives. Openly articulate these objectives throughout the organization to deliver Mobile BI in a way that supports those demands.

Employees on-the-move need to know that they can access the data they need when and where they need it.

What technology has to underpin a Mobile Business Intelligence initiative?

The success or failure of a Mobile BI project rests, to some degree, on the underpinning technology. Above all, the chosen platform should be Web-based. Beyond that, there are several other essential technological components that are required to deliver the business benefits sought from Mobile BI.

A single authoring environment is vital, allowing information to be delivered to mobile users without having to create a separate set of BI views, reports and dashboards. This way, users can gain the benefits of Mobile BI immediately and experience the power of true device independence. Having to recreate content for the mobile platform, or repackage existing reports for mobile distribution, wastes significant time and drastically increases maintenance and support requirements.

This concept needs to be extended to ensure that users can access all authorized content the same as from their desktop (device independence). There should be no difference in the content able to be accessed from different devices to ensure a uniform understanding of business operations. Users must have the same access to reporting and analytics on-the-go as they do from their office. A 100 percent Web-based BI solution will allow data to be delivered seamlessly to mobile platforms.

The mobile software client should optimize the delivery of content based on the size of the screen. Emphasis should be placed on 'bite size' reports such as KPI sparklines and bullet charts. Mobile reporting should be designed to highlight those strategic KPIs that are of the greatest concern, as well as drive action, through exception reporting. This is not a contradiction to the point above, but an acknowledgement that what works well in a full size browser, is often not ideal on a mobile device. For example, delivering an analytical dashboard of ten reports to a phone would result in a terrible user experience.

Figure 2 Content tailored to fit the device
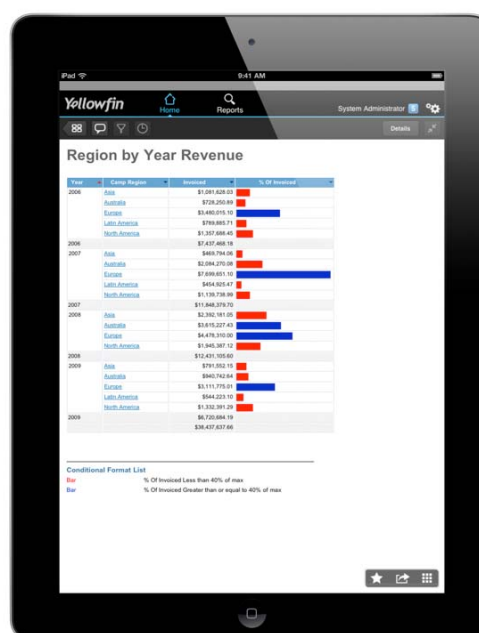
Security is paramount

Deploying Mobile BI poses unique challenges. Security considerations are very important. Companies must consider what type of information travels outside their firewall and how it will be protected.

The most effective security strategy is to ensure Mobile BI users connect, authenticate and access organizational data from their BI server via the Web in real-time. Too often, news stories and headlines tell a horror tale of executives whose laptops or mobile devices are lost or stolen. The stories inevitably reveal the extent of the damage to customers and stakeholders as the details about sensitive data on the device becomes known. A 100 percent Web-based BI service means that no data is stored on the mobile device. For mobile devices with offline mode capabilities – where data can be stored (cached) on the device itself – it is imperative that application access safeguarded. A users' session should timeout, or the application should 'lock', after a period of significant inactivity. Attempted reconnection should be guarded by username and password authentication.

Secondly, it is critical that authentication (such as password management) is managed centrally, preferably through a Lightweight Directory Access Protocol (LDAP) directory, so that a lost device does not result in unauthorized access to the BI server. A single simple change to the centralized authentication system ensures access to reports from a lost or stolen device is disabled.

In-business confidentiality must also be guaranteed. Delivery of data to mobile devices must be able to be personalized to suit the needs, skills, roles and responsibilities of individuals from different departments.

Finally, highly sensitive report data transferred from the server to mobile devices should be able to be encrypted.

Yellowfin's Mobile Business Intelligence platform

Yellowfin offers the ability to receive mobile analytics out-of-the-box. Yellowfin's native applications for the iPhone, iPad and Android devices, as well as new HTML 5 integration, makes Mobile BI easy on any device.

Yellowfin's Mobile BI platform provides business professionals with the flexibility and security they require to access business critical information, wherever they are, and whenever the need it.

Yellowfin Mobile BI applications offer a cost-effective means to keep people of all business backgrounds and technical capabilities within an organization in touch and up-to-date. This ensures that actions and decisions are effectively aligned with organizational strategy.

Yellowfin offers a flexible, fast, secure, easy-to-use and install Mobile BI solution that empowers end-users.

KPIs: Yellowfin for the mobile device is designed to sharpen the focus on those strategic KPIs that are critical to the success of a business and its leadership team. Yellowfin's Mobile BI platform drives action through proactive alerts and exception reporting, with all of the industry-leading ease-of-use and analytic capabilities now expected by Yellowfin's customers.

Native iPhone, iPad and Android functionality: Yellowfin for the iPhone, iPad and Android devices supports, and takes advantage of, their native multi-touch interfaces and functionality features. Additionally, Yellowfin has been engineered to take full-advantage of the large screen form factors of tablet PCs.

Users can:

- View all their reports and data at native high-resolution picture quality
- Select, drill down and through data points by swiping or touching the screen
- View reports and data in portrait or widescreen modes - Yellowfin's interface senses device orientation and shifts to match

With Yellowfin you can email and comment on reports, filter results, drill down and through data with the flexibility to make business decisions wherever, and whenever you need to. No extra training is required – just connect and go. Yellowfin for the iPad also offers

- Offline data exploration (Yellowfin's iPad application can cache data on the device)
- The ability to manage all information delivery, access and dissemination from one central location via a drop-down inbox
- A restyled User Interface that offers an interactive, intuitive and consumer-oriented user experience and makes mobile analytics as fun and easy as browsing an online magazine or sharing information across social networks

Yellowfin's Mobile BI solution is:

Fast: Yellowfin reuses existing report content, so there is no need re-create content for the mobile platform, or repackage it for mobile distribution. When on-the-move, a user simply logs into their existing Yellowfin account via a 3G or Wifi network. This allows customers to gain the benefits of Mobile BI immediately. Newly created reports can be sent to the users inbox while they travel, allowing them to access the latest data required to make business decisions wherever and whenever they need it.

Easy to use: Users do not need extra training as Yellowfin brings its intuitive desktop navigation to mobile applications. Yellowfin allows easy access to a user's favorite reports, inbox and KPI folder all from the main menu.

Collaborative: Users can share reports, information and insight relating to BI content – with other authorized users – across devices and platforms by commenting on and / or emailing reports to relevant stakeholders. Sharing reports and related information helps end-users resolve business questions faster, and apply knowledge acquired through BI content more effectively, to drive better decision-making.

Secure: Yellowfin's multi-tiered security model gives you the confidence necessary to implement widespread Mobile BI reporting and analytics. Yellowfin's mobile applications reuse Yellowfin's security infrastructure, so data security is assured. Yellowfin's 100 per cent Web-based service means that no data is stored on the mobile device unless offline data exploration is enabled by the client organization – a flag on the Yellowfin instance can be toggled to prevent data from being cached on the device. When operating in offline mode, Yellowfin protects customer data assets in two ways. Users are automatically logged out after a predefined period of inactivity. A username and password are required to re-enter the application. Yellowfin's Mobile BI password protection system ensures security from unauthorized access to business data, even if the device is lost or stolen. Personalization of data delivery also guarantees in-house confidentiality. Groups of users can be given access to different reports and various sub sets of data within those reports based on client security protocols.

Summary

This paper has outlined and defined Mobile BI and pinpointed senior management, key sales people and field service personnel as the three main user-groups to benefit from the implementation of an organization-wide Mobile BI program.

External business pressures driving Mobile BI take-up include the maturity of handheld electronic devices, the expectation and ability of technologically savvy end-users to receive increasingly complex data on their mobile devices, and the ability to remain constantly connected to the Internet. The four predominant internal motivations pushing Mobile BI rollout are identified as increasing employee productivity, improved data delivery efficiency, access to real-time reporting and analytics, and superior BI ROI.

There are several fundamental organizational factors required for the successful implementation of a Mobile BI project. Management must adopt an open 'anywhere, anytime' attitude towards business data; equip as many people as possible from across the organization with the skills, knowledge and permission to access BI; understand their reporting needs and have clearly defined business goals and objectives. From a technological perspective, a successful Mobile BI initiative must be underpinned by an Internet-centric BI platform; a single authoring environment; uniform data access no matter the device or location; the ability of data delivery to be tailored to take advantage of native mobile device features; and robust security features to encourage widespread Mobile BI development.

The benefits of implementing a Mobile BI project are enormous. Successful Mobile BI execution will lead to sustained competitive advantage, increased productivity, enhanced profitability through improved customer satisfaction ratings as well as definable and exceptional ROI.

Yellowfin

Find out more

Contact Yellowfin at **www.yellowfin.bi**
and ask for our proven roadmap to assist you
to successfully implement Yellowfin Mobile BI
into your organization.