

# NovaTel Systems

Telecommunications Application Solutions

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## BUSINESS INTELLIGENCE

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### What is Business Intelligence

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In the minds of many, Business Intelligence is the gathering and use of information for the purpose of enhancing business competitive advantage and revenue generation. But is it really that simple?

A horse, for example, can be simply described as an animal with a head, four legs and a tail. But that tells you very little about the animal; it could be a placid and harmless child's pony or an ill-tempered and feisty thoroughbred racehorse.

It is the indirect output, knowledge shared and transferred... improved capacity to make the right decision, to formulate appropriate strategy that delivers the outcome.

How then should we think about this many faceted thing called 'Business Intelligence', which embraces all manner of applications and technologies for the gathering, providing access to, analyzing of and even interpretation of data – information? In its simplest form, it is a computer-based repository into which data (information) is manually entered or received directly from (fed by) other systems (computers).

But what is its purpose; how should the information contained in the Business Intelligence repository be used? What kind of a horse is it – what is its core purpose? The outputs of an accounting system, for example, are profit and loss and balance sheet reports, a word processing system – documents. Is the output of a Business Intelligence system intelligence? Astuteness and acumen are synonyms of intelligence, human traits that a computer-based Business Intelligence repository does not have.

The direct output of a Business Intelligence system is information (including the codified knowledge of others) relevant to the person inquiring of the system. But it is the *indirect output*, knowledge shared and transferred, incorporated into the recipient's own knowledge-base, their improved capacity to make the right decision and to formulate appropriate strategy that delivers the outcome – achieved business objectives and vision.

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## Attributes of a Business Intelligence System

Effective Business Intelligence systems have four key attributes:

1. Core purpose;
2. Essential, relevant & available data;
3. Key Functionality:
  - a) Access to the current status of the business and projected trends
  - b) Capability to perform ad hoc queries and analyses.
4. Support structure.

1. *Core Purpose.* All computer-based systems have a core purpose in the same way that the core purpose of a child's pony is to provide a safe and pleasurable riding experience to its child riders; an ill-tempered thoroughbred racehorse to win prize money for its owners. Whereas the core purpose or function of an accounting system, for example, is to provide profit and loss and balance sheet reports, the core purpose of a Business Intelligence system is to meet the many and varied knowledge/information needs of its users. Finance directors have quite different knowledge/information requirements to their sales or operations colleagues, but all have a common core purpose, to achieve the business objectives of their organizations.

2. *Essential, Relevant & Common Data* is perhaps the key attribute of an effective Business Intelligence system. In many businesses, for example, the sales department often has knowledge of pending orders long before other departments get to hear about them. Indeed other departments may not even get to hear about them at all for any one of a number of reasons, despite the fact that such information may be critical to their decision-making. In situations like this, decision-makers are faced with the reality of having to use fragmented, incomplete and even contradictory knowledge/ information knowing that the *essential, relevant* and *common* knowledge/information they require does exist – it's just not available.

3. *Key Functionalities* of an effective Business Intelligence system include:

*i. Simple and easy access to the current status of the business and projected trends.* Computers have been used in business for more than 40 years and yet even today, some executives cannot get access to the information they require to understand the position of their business. Should this surprise us? Perhaps not, when you realise that most computer systems produce information that reflects historical business performance; they are designed to report information, not promote the understanding of it.

Effective Business Intelligence systems, on the other hand, are designed to gather essential and relevant information about the current status of the business, to use this information to generate projected trends and to manipulate it using business rules; all with the sole objective of getting it into a form that can be cognitively processed, thereby improving the understanding of those required to make business decisions. This functionality is a key attribute of effective Business Intelligence systems, which typically encompass a wide range of information other than financial – including production capacity, product quality, customer relations, and market perspectives – whatever is essential and relevant to promoting understanding of the drivers of business revenue.

Decision-makers are faced with having to use fragmented, incomplete and even contradictory knowledge/ information knowing that the essential, relevant and common knowledge/ information they require does exist, it's just not available.

ii. *Capability to perform user-defined ad hoc queries and analyses.* Different business activities and functions require that knowledge and information be viewed from different perspectives. For example, when the finance and human resource directors are confronted with a financial report that reveals declining profits and projections that reinforce this trend, their immediate responses are likely to be quite different. The finance director will look for underperforming areas of the business and seek to cut costs, whereas the human resource director will look for reasons for lower than expected employee performance – employee churn, inadequate training, poor industrial relations, etc. Not only do they have different perspectives, they also have quite different knowledge/information requirements. An effective Business Intelligence system must cater for this by having the *capability to perform user-defined ad hoc queries and analyses*. The successful business needs the insight and understanding of all its' people and a Business Intelligence system should support the knowledge/information needs of everyone; the core data is common but the insights and interpretations gained can and indeed should be many and varied.

A Business Intelligence system is more than computer hardware and software, it is a process – an enabling process that promotes understanding and empowers people to make better decisions.

4. *A support structure.* Yes, a support structure, which may surprise some because 'support' is not normally considered to be part of a computer system. But a Business Intelligence system is more than computer hardware and software, it is a process – an enabling process that promotes understanding and empowers people to make better decisions and formulate better strategy in support of their business objectives and mission.

*A support structure* is required not only to provide training, but to also ensure that the knowledge/information gathered and stored in the Business Intelligence repository is aligned to the current and not the historical business; to ensure that the functionality of the system meets the changing requirements of the business.

Loading a piece of software on to a computer does not create an effective Business Intelligence system any more than handing out copies of the score for Vivaldi's Four Seasons creates a pleasing performance. It is only when the knowledge/information stored in the repository of a business intelligence system is used as part of the management process that its value becomes apparent. For an elite few, the magnificence and beauty of Vivaldi's Four Seasons is apparent in the score, but most of us have to hear it played – the score *used* – before we can appreciate its magnificence and beauty.

Regrettably, the term Business Intelligence has been hijacked by marketing professionals and used to describe any piece of software that has some kind of management use. Some have even suggested that a business intelligence system is one that 'executives use'. At best such a definition is tautological, and at worst, rather like describing a Rolls Royce as a car driven by the landed gentry, when it can be just as well driven by a scrap metal dealer from Romford or a little old lady from Blackpool who won the pools.

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## Why a Business Intelligence System?

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Why and when should an organisation consider implementing a Business Intelligence system? Are there any general indicators that suggest the need for such a system?

The short answer is that a Business Intelligence system is likely to be invaluable in almost all situations that involve business decision-making and strategy formulation. More specifically, it enables the business to meet with confidence the following challenges:

The system itself does not solve the problem; rather it assists in the recognition of a solution or the identification of a way forward...

1. *Never-ending challenges of business* such as declining profits, falling market share, the threat of a takeover or industrial action. The system itself does not solve the problem, rather it assists in the recognition of a solution or the identification of a way forward, by providing relevant knowledge/information in a form that is easily incorporated into decision-making and strategy formulation processes; something that most other computer-based systems fail to do.
2. *Reality of continuous change – the need to constantly facilitate and manage change.* It is now a fact, change is the only constant in business life. Further, the speed of change is likely to increase. Not only does a Business Intelligence system facilitate effective management of the business through greater spans of control and influence, it also directly empowers people throughout the enterprise to make appropriate decisions in their day-to-day activities. But above all else, a Business Intelligence system gathers the knowledge/information from many and varied sources that are critical to understanding the drivers that are forcing change both inside and outside of the enterprise.

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## What specific outputs can a Business Intelligence System deliver?

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A Business Intelligence system is not the panacea solution to management and information analysis problems. More often than not, a Business Intelligence system starts its life with a focus on a specific need and it develops from there.

Issues or areas of the business that a Business Intelligence system can assist management with include:

1. *Understanding the internal dynamics of the enterprise*  
Most people have a 'mental model' of how their business works. Yet as the business changes and grows and the interactions between different parts of the business become more and more complex, rarely are these mental models updated primarily because new insights into the dynamics of the business are required to trigger the need to update them. Such insights do not generally come from reviewing standard sets of information in isolation from each other. Rather, they are the direct output of looking across and combining diverse data sets, and of deriving indices or ratios that add value through improved understanding. A Business Intelligence system gives the enterprise the ability to build many different kinds of ratios, with the view to obtaining important, maybe even critical insights into the internal dynamics – the drivers of their business.

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2. *Understanding the business environment.* Unlike most other computer systems a Business Intelligence system can provide valuable insights into the economic, social and political climate in which the business operates.
3. *Improving management productivity.* This is achieved primarily by making readily available knowledge/ information that would otherwise be difficult to acquire. Regrettably, making hard to acquire knowledge/ information readily available does not mean that it will be used, especially when it is possible to complete a task without it.
4. *Improving the accuracy and relevancy of reporting.* Many Business Intelligence systems are developed primarily to improve the quality and accuracy of reporting, especially in large or distributed enterprises. It is the ability to consolidate complex sets of data at a high level, without sacrificing the ability to drill-down into the source data and information that makes this model so appealing to managers. Information overload, in particular excessive, irrelevant and redundant information, is a major issue for the majority of managers. They *want what they want* – nothing more and nothing less and an effective Business Intelligence system delivers just this.
5. *Improving customer service.* For many years it has been known that customer service is one of the key determinants of long term business success. Yet it is an area in many businesses where formal measurements are at best weak and indeed may not even exist. A Business Intelligence system can provide both the stimulus to introduce customer service measures and the means of collecting and analysing the data.
6. *Improving supplier relations.* In much the same way as for customer services, the introduction of an appropriately configured Business Intelligence system can benefit the organization by promoting understanding of the relationship between the enterprise and its suppliers, which can lead to significant changes in business models to the advantage of both parties.
7. *Changing corporate structure.* As was noted earlier in a previous section of this paper, a Business Intelligence system can significantly improve management's spans of control and influence, thereby mitigating the power of the silo, the filtering of knowledge/information that can occur in a multi-layered organizational structure and managing the message syndrome. This direct access to knowledge/information encourages flatter and leaner management structures and reduces the need for a traditional multi-layered bureaucracy.
8. *Improving the quality of decision making.* Whilst difficult to quantify, improving the quality of decision making ranks in importance alongside the formulating of strategy (9) as a major output of an effective Business Intelligence system. Intangible as it is, it is the output of a process that makes essential and relevant knowledge/information readily available in a form that is easy to process cognitively, thereby improving the understanding of individuals, updating their mental models and improving their overall decision-making capacity.

Underpinning the formulation of strategy is arguably the most important function of a Business Intelligence System, one that is uniquely positioned to deliver...

9. *Formulating strategy.* Together with improving the quality of decision-making, underpinning the formulation of strategy is arguably the most important function of a Business Intelligence system; one that it is uniquely positioned to deliver because it gathers the data essential for strategy formulation and provides the functionality for analyzing it. It facilitates the understanding required for the formulating of effective corporate strategy.

It goes without saying most users of Business Intelligence systems want systems that uniquely meet the needs of their company and industry.

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## What are the potential benefits of a Business Intelligence system?

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The outcomes of an effective Business Intelligence system are realised both corporately and individually.

Corporate benefits include:

- Increased profits generated through cost savings;
- Early recognition of new revenue-earning opportunities;
- More effective reporting;
- Better understanding of the business;
- New business processes are more easily introduced;
- Improved capacity for problem solving.

Individual user benefits include:

- Greater job-satisfaction
  - Involved in enterprise decision-making
  - Empowered to make decisions
  - Ownership and buy-in
- Time savings;
- Less paper;
- Improved communications;
- More effective meetings.

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## Who uses a Business Intelligence System?

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In the not too distant past, Business Intelligence was the sole domain of senior management – they were responsible for formulating strategy and guiding the company. But as the knowledge-based economy has emerged, so too have tacit workers, people who as part of their day-to-day work related responsibilities gather knowledge/ information and make decisions on behalf of the enterprise based upon their evaluation.

The transaction workers of yester-year did not need the support of Business Intelligence systems; today's tacit workers demand them.

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## Cost/Benefit Analysis of Business Intelligence Systems

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Business Intelligence systems are conceptually quite different to computer-based accounting/finance, ERP, trading systems, etc, in that their focus is not upon replacing or improving the efficiency of a transaction-based function or process, but upon assisting tacit workers to make decisions and formulate strategy. They do not have predetermined and verifiable outputs. These are determined by the way the people use the knowledge/information assembled and made available by the Business Intelligence system. This makes cost-benefit analysis difficult. It is easy to value a 20% improvement in transaction throughput, but how do you measure and value improved quality of decision-making.

One of the few ways to obtain some feel for the benefit of a Business Intelligence system is to look at the direct and indirect (lost revenue) costs of poor decision-making in the past.

One of the few ways to obtain some feel for the value of the benefits of a Business Intelligence system is to look at the direct and indirect (lost revenue) costs of past decisions which hindsight has subsequently revealed to be incorrect. Is this difficult to do? Yes. But not impossible with a few, not unreasonable assumptions.

It is not difficult, however, to produce a fairly accurate estimate of the costs of setting up a Business Intelligence system, but ongoing costs must be calculated and included. Not only are there ongoing hardware/software supplier support, maintenance costs and subscription costs to external data suppliers, there are also internal development and support costs. Without the later – ongoing internal development and support – a Business Intelligence system will rapidly become outdated, even dysfunctional and will not be used.

It is the total cost of ownership that must be determined, not just the cost of setup, which is a one-off cost.

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## Frequently asked questions

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1. Are there any sure-fire ways of making a Business Intelligence system a success?

*None.*

2. Are there any guaranteed ways of dooming a Business Intelligence system to failure?

*Many.*

3. Does this mean that introducing a Business Intelligence system is a high risk?

*Yes, but a bit less than it used to be, because there is a growing body of knowledge and good practice that a wise and shrewd project leader can use and follow.*

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## Frequently asked questions

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4. Can any major organisation afford to ignore Business Intelligence?

*No. The task of managing a substantial business is becoming increasingly complex; only those that effectively harness information and the supporting technology in creative and user-friendly ways will win through the 21<sup>st</sup> century.*

5. Is a Business Intelligence system an aid to good management?

*Yes, but it is not a substitute for good management.*

6. When should an organisation start on a Business Intelligence system?

*Immediately, for it will be some time before the system will deliver the expected benefits.*

7. Will the job ever be finished?

*No, primarily because the business environment never ceases to change – the new arriving or the old reborn. However, management processes are constantly changing and evolving to meet the challenges of the new (old reborn) and support systems must change/evolve with them.*

8. And what can be gained from implementing a Business Intelligence system?

*The competitive edge that ensures future business success and sustainability.*

## ABOUT NOVATEL SYSTEMS

NovaTel is a UK based software applications and services company specialising in the development and deployment of analytical and management solutions for the telecommunication industry.

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