References


papers/Critical-Success-Factors-Deploying-Pervasive-BI-eb5408/?type=WP
(accessed August 14, 2010).


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<tr>
<td>English (2005)</td>
<td>Practitioner</td>
<td>&quot;[t]he quality information in well-designed data stores, coupled with business-friendly software tools that provide knowledge workers timely access, effective analysis and intuitive presentation of the right information, enabling them to take the right actions or make the right decisions.&quot;</td>
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<td>providing critical insight to help guide better decision making</td>
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<tr>
<td>Gangadharan and Swami (2004:140)</td>
<td>Academic (x2)</td>
<td>&quot;refers to the use of technology to collect and effectively use information to improve business potency. … BI provides critical insight that helps organizations make informed decisions.&quot;</td>
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<td>to improve business potency / make informed decisions</td>
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<td>Gartner (2010)</td>
<td>Practitioner (market research)</td>
<td>&quot;an umbrella term that includes the applications, infrastructure and tools, and best practices that enable access to and analysis of information to improve and optimize decisions and performance.&quot;</td>
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<td>to improve and optimize decisions and performance</td>
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<td>Golfarelli et al (2004:1)</td>
<td>Academic (x2) Practitioner</td>
<td>&quot;the process of turning data into information and then into knowledge. … BI was born within the industrial world in the early 90's, to satisfy the managers' request for efficiently and effectively analyzing the enterprise data in order to better understand the situation of their business and improving the decision process.&quot;</td>
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<td>for managing the business, improve performance, and operate efficiently</td>
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<td>Howson (2008:2)</td>
<td>Practitioner</td>
<td>&quot;allows people at all levels of an organization to access, interact with, and analyze data to manage the business, improve performance, discover opportunities, and operate efficiently.&quot;</td>
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<td>support better decision making to gain competitive advantage</td>
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<tr>
<td>IBM (n.d.)</td>
<td>Vendor</td>
<td>&quot;Business intelligence software … connects people with information in an easy-to-use way so they can make better decisions.&quot;</td>
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<td>to manage the business, improve performance, and operate efficiently</td>
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<td>Ing (2007) [SAS Institute]</td>
<td>Vendor</td>
<td>&quot;getting the right information to the right people at the right time to support better decision making to gain competitive advantage.&quot;</td>
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<td></td>
<td>to manage the business, improve performance, and operate efficiently</td>
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<td>Inmon and Nesavich (2008:227)</td>
<td>Practitioner</td>
<td>&quot;The activity of converting data into information&quot;</td>
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<td></td>
<td></td>
<td>to manage the business, improve performance, and operate efficiently</td>
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<tr>
<td>Jones (2010:1)</td>
<td>Practitioner</td>
<td>&quot;refers to the skills, technologies, applications, and practices involved in bringing that understanding to light … intended to help guide better decision making.&quot;</td>
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<td></td>
<td></td>
<td>to manage the business, improve performance, and operate efficiently</td>
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<tr>
<td>Kimball and Ross (2002:353)</td>
<td>Practitioner</td>
<td>&quot;A generic term to describe leveraging the organization's internal and external information for making better business decisions.&quot;</td>
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<td>for making better business decisions</td>
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sumption | User(s) | Decision |
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<tr>
<td>Lönnqvist and Pirttimäki (2006:32)</td>
<td>Academic (x2)</td>
<td>&quot;An organized and systematic process by which organizations acquire, analyze, and disseminate information from both internal and external information sources significant for their business activities and for decision-making.&quot;</td>
<td>from both internal and external information sources</td>
<td>organized and systematic process / acquire</td>
<td>organized and systematic process / disseminate / analyze</td>
<td>for their business activities and for decision-making</td>
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<tr>
<td>March and Hevner (2007:1032)</td>
<td>Academic (x2)</td>
<td>&quot;refer[s] to inferences and knowledge discovered by applying algorithmic analysis to acquired information. A data warehouse is a repository of intelligence from which business intelligence can be derived.&quot;</td>
<td>to acquired information</td>
<td>A data warehouse is a repository of intelligence</td>
<td>by applying algorithmic analysis</td>
<td>business intelligence</td>
<td>derived</td>
<td>inferences and knowledge discovered</td>
<td></td>
</tr>
<tr>
<td>Markarian, Brobst and Bedell (2007) [Informatica, Teradata, and MicroStrategy]</td>
<td>Vendor (x3)</td>
<td>&quot;An interactive process for exploring and analyzing structured, domain-specific information (often stored in a data warehouse) to discern trends or patterns, thereby deriving insights and drawing conclusions.&quot;</td>
<td>(often stored in a data warehouse)</td>
<td>structured domain-specific information</td>
<td>an interactive process for exploring and analyzing</td>
<td>to discern trends or patterns, thereby deriving insights and drawing conclusions</td>
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<tr>
<td>Moss and Atre (2003:4)</td>
<td>Practitioner (x2)</td>
<td>&quot;an architecture and a collection of integrated operational as well as decision-support applications and databases that provide the business community easy access to business data.&quot;</td>
<td>an architecture and a collection of integrated operational as well as decision-support applications and databases</td>
<td>provide</td>
<td>business data</td>
<td>easy access</td>
<td>business community</td>
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</table>
| Negash (2004:178) | Academic | "BI systems combine data gathering, data storage, and knowledge management with analytical tools to present complex internal and competitive information to planners and decision makers."
<p>| Oikkonen et al (2002:7) | Academic (x4) | &quot;the process of gathering and analysing internal and external business information. ... In addition, business intelligence is defined as the process which supports operational and tactical business decision-making.&quot; | internal and external business information | combining gathering, storage, and knowledge management | complex internal and competitive information | planners and decision-makers |
| Oracle (2009) | Vendor | &quot;BI systems pull data from across the enterprise and present information to users in a meaningful way to improve decision-making.&quot; | data from across the enterprise | BI systems | pull | information | present ... in a meaningful way | to users | to improve decision-making |
| Pirttimäki (2007) | Academic | &quot;an intelligence process that includes a series of systematic activities, being driven by the specific information needs of decision makers and the objective of achieving competitive advantage.&quot; | corporate data | an intelligence process that includes a series of systematic activities | an intelligence process that includes a series of systematic activities | being driven by the specific information needs of | the objective of achieving competitive advantage |
| Ponniah (2010) | Practitioner | &quot;First, the term refers to the systems and technologies for gathering, cleansing, consolidating, and storing corporate data. Next, business intelligence relates to the tools, techniques, and applications for analyzing the stored data&quot; (18) / &quot;Generally used synonymously with the information available in an enterprise for making strategic decisions&quot; (558). | corporate data | systems and technologies / tools, techniques, and applications | BI systems / data information available in an enterprise | for analyzing | for making strategic decisions |
| Popović, Turk, and Jakišić (2010:8) | Academic (x3) | BI systems: &quot;information systems providing quality information for analytical decision-making as a source for guiding the business towards achieving organizational goal.&quot; | corporate data | for gathering, cleansing, consolidating and storing | for gathering, cleansing, consolidating and storing | for analyzing | for analytical decision-making as a source for guiding the business towards achieving organizational goal |</p>
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<tr>
<td>Sabherwal and Becerra-Fernandez (2011:6)</td>
<td>Academic</td>
<td>“providing decision-makers with valuable information and knowledge by leveraging a variety of sources of data as well as structured and unstructured information” for “improvement in operational performance, improvement in customer service, identification of new opportunities.”</td>
<td>a variety of sources of data as well as structured and unstructured information</td>
<td>by leveraging</td>
<td>with valuable information and knowledge</td>
<td>providing</td>
<td>decision- makers</td>
<td>improvement in operational performance, improvement in customer service, identification of new opportunities</td>
<td></td>
</tr>
<tr>
<td>Schiff (2006) [SAP Business Objects]</td>
<td>Vendor</td>
<td>“allows organizations to better understand, analyze, and even predict what’s occurring in their company. BI helps your organization turn data into useful and meaningful information and then distribute this information to those who need it, when they need it – thereby enabling them to make timely and better-informed decisions.”</td>
<td>turn data from a wide variety of sources into useful and meaningful information</td>
<td>then distribute … to those who need it when they need it / analyze, and even predict</td>
<td>allows organization to better understand, … what’s occurring in their company</td>
<td>thereby enabling them to make timely and better-informed decisions</td>
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<tr>
<td>Siegel and Shim (2000:59)</td>
<td>Academic</td>
<td>“using cost and related data to better understand activity behavior, define problems, draw conclusions, make recommendations, and take actions.”</td>
<td>cost and related data</td>
<td>to better understand activity behavior, define problems, draw conclusions</td>
<td>make recommendations, and take actions</td>
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<tr>
<td>Smith, Ariyachandra and Frolick (2010:23)</td>
<td>Academic</td>
<td>“It describes the entire infrastructure (e.g. data warehouses) and analytical tools (e.g. OLAP) required to integrate and analyze the growing accumulation of organizational data. It encompasses all the processes and systems needed for gathering, storing, analyzing and accessing data to improve organizational decision making”</td>
<td>the growing accumulation of organizational data</td>
<td>the entire infrastructure (e.g. data warehouses) and analytical tools (e.g. OLAP) required / systems needed to integrate / encompasses all the processes needed for gathering, storing, analyzing and accessing data</td>
<td>analyze / encompasses all the processes needed for … analyzing and accessing</td>
<td>methods and processes</td>
<td>to improve organizational decision-making</td>
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<tr>
<td>Thierauf (2001:66)</td>
<td>Academic</td>
<td>“centers on computerized methods and processes to improve strategic, tactical, and operational (including financial) decisions using data, information, and knowledge from multiple sources as well as applying experience and assumptions to develop an accurate understanding of the dynamics surrounding decision making.”</td>
<td>using data, information, and knowledge from multiple sources</td>
<td>computerized methods and processes</td>
<td>applying experience and assumptions to develop an accurate understanding</td>
<td>methods and processes</td>
<td>to improve strategic, tactical, and operational (including financial) decisions</td>
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<tr>
<td>Turban, Sharda, Delen and King (2011:8)</td>
<td>Academic</td>
<td>“an umbrella term that combines architectures, tools, databases, analytical tools, applications and methodologies. … By analyzing historical and current data, situations, and performances, decision makers get valuable insights that enable them to make more informed and better decisions.”</td>
<td>historical and current data, situations, and performances</td>
<td>combines architectures, tools, databases, analytical tools, applications</td>
<td>historical and current data, situations, and performances</td>
<td>By analyzing</td>
<td>decision makers get valuable insights</td>
<td>that enable them to make more informed and better decisions</td>
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</tr>
<tr>
<td>Tustin and Venter (2007:1)</td>
<td>Academic</td>
<td>“denotes the tools and systems that play a key role in the strategic planning process of a business. It entails a process of transforming data into valuable and actionable knowledge to gain a competitive advantage.”</td>
<td>data</td>
<td>tools and systems that play a key role</td>
<td>a process of transforming into valuable and actionable knowledge</td>
<td>in the strategic planning process of a business / to gain a competitive advantage</td>
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<tr>
<td>Vitt, Luckevich and Misner (2002:13)</td>
<td>Practitioner</td>
<td>“An approach to management that allows an organization to define what information is useful and relevant to its corporate decision making. Business intelligence is a multifaceted concept that empowers organizations to make better decisions faster, convert data into information, and use a rational approach to management.”</td>
<td>data</td>
<td>convert … into information is useful and relevant</td>
<td>define what is useful / an approach to management</td>
<td>empowers organizations to make better decisions faster</td>
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<td>Williams and Williams (2007:2)</td>
<td>Practitioner (x2) - consultants</td>
<td>&quot;Business information and business analyses within the context of key business processes that lead to decisions and actions and which result in improved business performance.&quot;</td>
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<td>that leads to decisions and actions and which result in improved business performance</td>
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<tr>
<td>Wixom and Watson (2010:14)</td>
<td>Academic (x2)</td>
<td>&quot;a broad category of applications, technologies, and processes for gathering, storing, accessing, and analyzing data to help business users make better decisions.&quot;</td>
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Appendix B: Semi-structured interview guide

Name of interviewee:
Date of interview:

Part 1: Organisation and owner-manager profile

1. How and why did you start your business?
2. How long has the business been in operation?
3. What is the legal status of your business?
4. How many people do you employ on a full-time and part-time basis respectively?
5. What products and/or services do you provide?
6. Would you say that the competition in your industry is intense?
7. How do you see the future for your business? [any plans for expansion?]
8. What is your educational background?
9. Prior to starting this business what was your managerial experience?

Part 2: Business intelligence

10. What information do you use when making decisions that affect your business?
11. Where do you obtain information to meet your decision-making needs?
12. How do you analyse your data? Do you do any data manipulation?
13. Does anyone assist you in any of these processes?
14. Do you share information with your employees or others outside of your enterprise? Who? How?
15. Overall, are you satisfied with the information that you have access to?
   a. what additional data would you like to have access to that you don’t currently have access to?
   b. In an ideal world, what additional functionality would you like to have?
16. What systems and technology do you use in your business [in addition to those already mentioned]?
Appendix C: Informed consent letter and form

Dear prospective participant

For many SMEs IT is not about leading edge technology and ‘blue-sky’ research but rather the adoption of technology that will enhance their efficiency, effectiveness and competitiveness. The objective of the research is to develop guidelines for such adoption of IT to support decision-making in South African SMEs. Current research in the field is focused on large firms, predominantly in developed countries; this research towards a doctoral degree at the University of Pretoria addresses both these limitations.

Your contribution: In order to understand the unique context and decision-making needs of SMEs and how best to benefit from IT, I need to conduct a face-to-face interview with the owner-managers of several SMEs in South Africa. If you agree to participate, you will be asked a number of questions about yourself as the owner-manager, your business, the external environment in which you operate and the use of information and technology as it relates to managing and running your business. The interview will take a maximum of 2 hours of your time. The interview will be audio-recorded and transcribed to written notes; please advise me if you do not want the interview recorded.

Feedback: The transcript (or notes if you do not consent to an audio recording) will be made available to you when completed in order to confirm accuracy, for any clarifications or corrections, and to verify anonymity. You may also choose to receive a report of the completed research. No further information will be sent to you unless requested to do so.

Confidentiality and anonymity: The confidentiality of the interview is assured. At the completion of this research, all written documents and tapes will be stored
electronically in the University of Pretoria’s digital research repository, which is password protected and secure. Any publications associated with the research will not be attributable to individuals or organisations.

**Voluntary participation:** Your participation in this study is voluntary. You can withdraw your consent and discontinue participation at any time during the interview or elect not to answer any question posed during the interview.

**University approval:** The research has been approved by the Faculty Committee Research Ethics and Integrity of the Faculty of Engineering, Built Environment & IT under reference number EBIT/40/2010.

**Contacts:** For more information, if you have any questions or concerns about this study or the study procedures, please contact myself at xxx-xxx-xxxx or at s93165740@tuks.co.za or my supervisor Professor Johannes Britz on +x-xxx-xxx-xxxx or at britz@uwm.edu.

I would be very grateful if you would contribute to this research project by agreeing to be interviewed. If you are prepared to participate please complete and sign the attached informed consent form.

Thank you for your time.

Shana Ponelis
Informed consent form

To be signed by each research subject, and kept on record by the researcher.

1 Title of research project: *The adoption of business intelligence in small and medium enterprises in South Africa*

2 I, ……………………………………………, hereby voluntarily grant my permission for participation in the project as explained to me by *Shana Rachel Ponelis*.

3 The nature, objective, possible safety and health implications have been explained to me and I understand them.

4 I understand my right to choose whether to participate in the project and that the information furnished will be handled confidentially. I am aware that the results of the investigation may be published but will not be not be attributable to individuals or organisations.

5 Upon signature of this form, you will be provided with a copy. You may also keep the accompanying cover letter.

Signed: _________________________ Date: _______________

Thank you for your willingness to participate in this study. If you would like to receive the aggregated results of this research please provide the e-mail address to which it can be sent:

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6 I certify that I have explained to the above individual the nature and purpose of this research study, have answered any questions and have witnessed the above signature.

Researcher: _________________________ Date: _______________