

5 Thesis summary

5.1 Contribution to the body of knowledge

The goal of the thesis was to develop a "bigger picture" model, or framework, that would put a number of the existing theoretical models into context and would provide a generic process for implementing BI in organizations. The conceptual model that was developed is shown again in **Figure 107**.

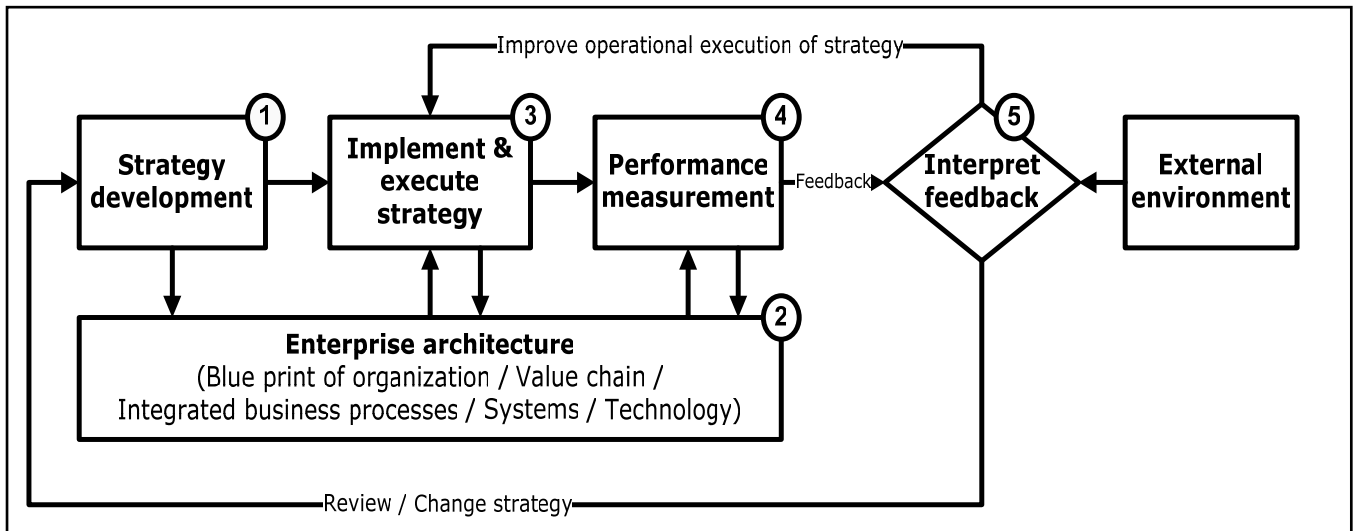


Figure 107. The Bigger Picture BI Context Model.

Most of the individual components of the model are supported by existing theories and the contribution of the author was to position them in the bigger picture to indicate how they can add value with regard to the establishment of business intelligence in organizations. Instead of packaging existing ideas slightly differently under a new name, the author intentionally searched for existing theories to fulfil certain requirements in the Bigger Picture BI Context Model. An extensive literature study led to the inclusion of the following work done by other people:

- Grulke, Manning, Ilbury and Sunter contributed to the strategy development component.
- The Foxy Matrix idea of Ilbury and Sunter was repackaged into a template where it is also suggested how the Six Hats concept of De Bono could be used to enhance the processes in the four quadrants of the Foxy Matrix.
- The Zachman Framework on enterprise architecture was found to fulfil all the requirements for a blue print of the organization that forms the glue between the different components in the model.
- Certain useful templates of Manning and Grulke were adapted to make them quantifiable tools in *MS Excel* (e.g. the Innovation Matrix of Grulke).
- The nine performance measurement variables idea from Rummler and Brache and the Balanced Scorecard concept of Kaplan and Norton were used as the basis for identifying performance measurement parameters. The latter concept forms a specific link between strategy definition and measurement.
- The data warehouse approach of Kimball was adopted as the basis for the establishment of a central data warehouse from where one consistent version of the performance measurements can be reported.

Apart from the set of MS Excel templates that were adapted from various other sources and packaged into useful formats that can be used during facilitation sessions, the author has also developed and described the conceptual Fourier Model and the Pots of Money Model. The Fourier Model is a powerful conceptual model consisting of concentric rings that helps a business to package solutions for market related requirements through selections of previously defined building blocks (technical components) that can be delivered through various business entities, depending on the requirements of the opportunity. The Pots of Money Model is a quantitative model embedded in a spreadsheet format to illustrate and communicate the effect of spending decisions in one area of the business on other areas.

During the preparation of the case study at Fourier a number of data marts were developed. The basic functional design of a typical project profitability data mart is included in the thesis. Ample examples were provided of screen dumps using various software applications such as *Casewise*, *Sagent* and other internally developed software. The emphasis was, however, not on specific products, but rather on the type of applications that can support the conceptual model.

Finally, a CD ROM accompanies the thesis. It contains a rich source of related literature - most of the articles are electronically available in full text and from many articles various other sources can be accessed via internet hyper links. It was not practical to refer to all the literature that was gathered during the study period in the thesis itself, but the author is of the opinion that many of those articles formed and influenced his thought process during the study even though they were not directly referenced. It therefore provides a categorized basis for further research. The sources are captured in a basic database that makes it possible to do various searches and to open those articles, spreadsheets, Powerpoint presentations and other types of sources that are electronically available.

5.2 Retrospection on the process

The study was undertaken over the best part of five years on a part time basis. This approach helped the author to get really familiar with the different components that are included in the model - not only from a theoretical point of view, but also through practical experimenting with the concepts at his own company, as well as at different clients.

The negative side of this approach was that many side issues distracted the author during the research process and although they enriched the experience, they did not all really add specific value in the end. (It is easy to say it now in hindsight, but at the time they all looked like logical avenues to pursue.)

Being an industrial engineer whose typical job it is to define and improve business processes, it was quite challenging to be involved in the definition and development of a less conventional process. A process which integrates inputs from people who are not traditionally thinking along the same process lines as industrial engineers - a process that links strategy with performance management (which is normally led by management science) and which is strongly supported by information technology tools (which are normally provided by people from ICT).

Taking all factors into consideration, the author believes that the goals of the study have been achieved: The Bigger Picture BI Context Model provides a solid foundation for the alignment of strategy with operational implementation of strategy through the important role of performance management that is supported by a well-designed data warehouse and relevant BI tools.

5.3 Material for further investigation

Every study of this kind ends with a number of new questions and questions that have not been addressed to a satisfactory level, even if the overall goal of the study has been reached. The author would like to identify the following issues that may be dealt with in future research projects:

- Data quality is the one factor that can sink a whole BI initiative. As any industrial engineer knows, quality is not inspected into any product - it should be designed into the manufacturing process. Similarly, data quality should be addressed at various levels such as the systems in which it is captured, the business process from where it is captured, the way in which it is extracted from the transactional systems, the way in which it is integrated with other data items, any transformations that are made to the data and the way in which it is used in calculations. The whole subject of data quality justifies a much deeper study, taken into consideration that more and more important decisions will be made from BI environments that will have to rely on quality data.
- The author believes that an opportunity exists to provide standard data marts for a number of industries from where common measurements can be drawn. The suggestion is not that all companies in the same industry should have the same vanilla data warehouse design and use only that - that would defeat the claim that BI should give an organization a competitive edge. It is rather suggested that a large portion of the data warehouse design would be the same for basic measurements that are the same for all role players in that industry. If a company can get a head start regarding the basic stuff, more quality time and effort can be spent on the company specific data marts that will support its specific strategies.
- As suggested in the last part of Chapter 4, the thorough application of the model in an academic environment might be a challenge with interesting results.
- There are probably many other management techniques (e.g. Six Sigma) that can be used fruitfully at various steps in the conceptual model for certain environments that had not been identified by the author. Further research might position new and existing techniques in the right category.