

## CHAPTER 5 COMPARATIVE ANALYSIS AND CONCLUSION

*“The big work behind business judgment is in finding and acknowledging the facts and circumstances concerning technology, the market, and the like in their continuously changing forms. The rapidity of modern technological change makes the search for facts a permanently necessary feature.”*

– Alfred P. Sloan, Jr., My Years with General Motors

In the preceding chapter, the use of sales and marketing data marts as a management information delivery mechanism in manufacturing organisations when the data source is outside of the organisations’ boundaries, namely third party distributors was shown through two case studies. The aims of this chapter are to:

- Perform a comparative analysis of the case studies presented in the preceding chapter;
- Evaluate the hypothesis stated in Chapter 1 based on the comparative analysis; and
- Identify future research opportunities stemming from this research.

### 5.1. Comparative Analysis of Case Studies

As stated in the research methodology pertaining to the case studies (see 1.2.3.2. *Qualitative Case Study Research*), the two organisations examined in the case studies have very similar profiles, which supports the validity of the comparative analysis. The case studies presented in Chapter 4 is analysed comparatively in this section according to the same structure in which the case studies were discussed, namely:

- User community;
- Management information requirements;
- Data mart access tool requirements; and
- Nature and sources of data used to populate the data mart.

#### 5.1.1. User Community

The target user communities for the respective organisations were senior and middle management. The comparison between the BCP and pharmaceutical manufacturing organisations in terms of positions requiring access to the sales and marketing data mart is listed in Table 21 by management level.

The user community of the sales and marketing data marts in both organisations are largely similar with matches in 5 of the 7 positions affected. The differences can be attributed to the different industry characteristics of the two organisations, the pharmaceutical manufacturer requiring significantly more and

Management Level	Case Study 1: Branded Consumer Products (BCP)	Case Study 2: Pharmaceutical	Match?
Senior	—	Managing Director	✘
	Financial Director	Financial Director	✓
	Sales and Marketing Director	Sales Director	✓
		Marketing Director	✓
Middle	Regional sales managers	Regional sales managers	✓
	National account managers	National account managers	✓
	—	Marketing research manager	✘

**Table 21: Comparison of user community for respective sales and marketing data marts by management level**

more sophisticated market research and competitive intelligence. The use of the data mart by the Managing Director was personal preference to have direct access to data rather than indirect access through directors reporting to him/her, which is a reflection of the management style and organisational culture.

### 5.1.2. Management Information Requirements

In the first case study, the user community expressed their management information requirements in terms of existing management reports, which had to be reproduced whilst in the second case study, the users were able to formulate business questions that the data mart should be able to answer. Since not all the questions could be answered by the data that were to be used to populate the data mart, it was clear that a second phase was required to incorporate competitive intelligence. It is worthwhile to note here that as implemented the sales and marketing data mart solution is suitable only for quantitative data and not qualitative data which includes, for example, competitive intelligence, although qualitative is as important in the decision-making in sales and marketing. A summarised overview of the applications of the respective sales and marketing data marts in the case study organisations are listed in Table 22.

Industry	Functional Area	Applications / Use
Branded Consumer Products	Sales and Marketing	<ul style="list-style-type: none"> <li>• Sales</li> <li>• Customer ranking by value and volume</li> <li>• Trade marketing – spend vs. sales by major customer</li> <li>• Invoiced sales versus returns (credit notes) analysis</li> <li>• Returns</li> <li>• Product promotions, including location-targeted sales promotions planning</li> <li>• Retailer pricing and promotional reviews</li> <li>• Rebates analysis</li> <li>• Profitability analysis, both by customer and product</li> <li>• Channel distribution analysis, i.e., direct or factory sales versus normal sales, i.e. through the third party distributor</li> <li>• Inventory control</li> </ul>

Pharmaceutical	Sales and Marketing,	<ul style="list-style-type: none"> <li>• Sales</li> <li>• Customer service, e.g., monitoring number and status of products on back order</li> <li>• Sales forecasts and accuracy measurement</li> <li>• Inventory control, e.g., maintaining exact levels, production planning and replenishment</li> <li>• Location-targeted sales promotions planning</li> <li>• New product and service promotions</li> <li>• Pricing policy (average selling prices)</li> <li>• Product promotions</li> <li>• Profitability analysis – customer and product</li> <li>• Sales force management, including commissions</li> <li>• Vendor pricing and performance analysis</li> <li>• Optimal channel distribution</li> <li>• Rebates analysis</li> </ul>
	Operations	<ul style="list-style-type: none"> <li>• Commissions (calculation)</li> <li>• Rebates (calculation)</li> </ul>

**Table 22: Summarised overview of applications of sales and marketing data marts in case study organisations**

The applications or use of the data marts are mostly similar in nature and are also in line with those listed in 2.3. *Management Information and Data Source Requirements* as well as with Table 14 and Table 15. However, although the management information requirements are similar in nature, they differs with regard to extent of data required to fulfil the information needs as well as the method used to specify requirements, namely replicating existing reports versus answering a variety of business questions. It can be concluded that the pharmaceutical organisation is somewhat more sophisticated than the BCP organisation with regard to management information requirements.

### 5.1.3. Data Mart Access Tool Requirements

Both organisations developed independent data marts with a view to developing a distributed data warehouse by means of interdependent data mart. However, the access tool requirements from these data marts differed somewhat as listed in Table 23.

Aspect	Case Study 1: Branded Consumer Products Organisation	Case Study 2: Pharmaceuticals Organisation
Functionality required	Required analytical functionality only	Required analytical functionality and some operational capabilities, particularly direct expense calculation to determine profitability
Type of data mart access tool	Query and reporting for standard management information reporting	Query and reporting for standard reports and ad hoc queries and OLAP for analytical purposes

**Table 23: Differences in data mart access tool requirements between the organisations**

The BCP organisation only required query and reporting whilst the pharmaceutical organisation required both query and reporting and OLAP. Thus, one organisation is still at the first stage of use, namely reporting, and the other has progressed to analysis (see 3.3. *Nature of Usage*). Neither organisation has yet explored the possibility of the predictive use of data through data mining. The organisations' progress is indicated in Table 24. As previously indicated, progression through the stages of use is evolutionary and use will progress as organisations and its users develop and become comfortable with the concept and use of data mart access tools.

Stage of use	Reporting	Analysis	Prediction
Class of Access Tool	Query and reporting	OLAP	Data mining
Categories	Deductive	Deductive	Inductive
Case Study 1: Branded Consumer Products Organisation			
Case Study 2: Pharmaceuticals Organisation			

Legend:

- Implemented
- Not yet implemented

**Table 24: Organisations' progress on the stages of data mart use**

#### 5.1.4. Sources of Data

Both organisations in the case studies used the hybrid option, i.e., operational data from the data from the third party logistics provider is fed into the analytical system of the manufacturer, in order to deliver management information to the user community which is based on data provided by a channel partner (see 3.4. *Using Data Provided by Channel Partners*).

The data sources used to populate the sales and marketing data marts in the case studies are listed in Table 25 together with an indication of whether the data originates internally or externally to the manufacturing organisation.

Thus the data sourced externally that is common to both organisations are:

- Balancing figures;
- Customer master data;
- Inventory levels; and
- Invoices.

Data Source	Internal <sup>7</sup>	External
Backorders		2
Balancing figures		1, 2
Budget	1, 2	
Costs	2	
Customer master		1, 2
Distribution		1
Expenses	2	
Inventory levels		1, 2
Inventory transactions		2
Invoices		1, 2
Orders picked but not yet invoiced		2
Orders placed	1	
Price lists	1	2
Product master	2	1

Legend:

1 = Branded Consumer Products organisation

2 = Pharmaceuticals organisation

**Table 25: Comparison of data and data sources for the data marts from the organisations' viewpoint**

On the other hand, data sourced externally that is particular to one of the organisations are:

- Backorders;
- Orders picked but not yet invoiced; and
- Product master data.

The reasons for the differences between the organisations with regard to externally sourced data are:

- Order data is held by the BCP manufacturer in one instance and by the pharmaceutical organisation's distributor in another; and
- Although both manufacturers maintain product master data, the BCP manufacturer's distributor maintains this data and the manufacturer decided to utilise the external source for cross-reference purposes.

In both instances small volumes of transactions are handled on a daily basis resulting in a relatively small database size although the transactions are complex in nature and therefore require complex processing.

A difference in the utilisation of the data marts in the respective organisations is with regard to the integration of the analytical data mart solution with internal operational systems. In the case of the BCP organisation no integration with the financial system was required. In the case of the pharmaceutical

---

<sup>7</sup> Note that where only one organisation is indicated, only that organisation requires the particular data source.

organisation, however, the transactional data received into the data mart was required also to be fed into the financial system together with a balancing of figures between financial system and data mart.

### 5.1.5. Assessment of the Use of the Data Marts

The benefits derived from the implementation of the data marts in each of the case study organisations are listed in Table 26.

Nature of benefit	Derived benefit	Case Study 1: Branded Consumer Products Organisation	Case Study 2: Pharmaceuticals Organisation
Tangible	Improved sales improved through improved targeted trade marketing and monitoring of the outcome	✓	✓
	Improved forecasting accuracy	✓	✓
	Sales representatives were better prepared for sales visits	✓	✗
	Exposed the lack of underlying data quality	✗	✓
	Reduced paperwork	✗	✓
	Improved customer information	✗	✓
	Reduced expenditure	✗	✓
Intangible	Direct user access to a single integrated source of management information through a data mart access tool	✓	✓
	Improved information flow and communication with a perceived positive impact on decision making	✓	✓
	Organisational time saving	✗	✓

**Table 26: Benefits derived from the implementation of data marts in case study organisations**

Both organisations derived significant benefits from the implementation of the sales and marketing data marts. A significant number of benefits derived are similar between the two organisations although it appears as if the pharmaceutical organisation received more benefits relative to the BCP organisation, in particular with regard to tangible benefits.

The concerns that emerged were that in the case of the BCP organisation significant user training was required, and in the case of the pharmaceutical organisation qualitative data had not been incorporated. With the introduction of the concepts of data warehousing in an organisation a significant change in mindset is required, for example, the phrasing of management information requirements as business questions to be answered rather than specific reports to be produced. Together with this paradigm shift, it is necessary to become acquainted with the tools that allow direct access to the underlying database, in this instance the data mart. Investment in training is costly but is an investment that will produce many benefits in future in terms of the decision-making processes. In order to address the second concern it would be necessary to explore the possibilities of implementing a document management or knowledge management solution.

It is also vital to note in comparing these data mart implementations that although the nature of the sales and marketing data marts in both organizations were similar, it is clear that a data mart solution is also specific to a particular organisation’s business requirements in order to handle organisation-specific issues. As Cashman (2000:49) correctly states, data warehousing solutions are not “one-size-fits-all” and “implementation will generate company-specific issues.” Therefore, if an organisation is considering implementing a data mart to provide access to data received from a distributor, different organisational requirements will result in a solution that is specific to the organisation although the solution from the point of view of design rather than implementation is similar.

In summary, the comparative analysis of the sales and marketing data mart solutions as in the two organisations discussed in the previous chapter is listed in Table 27.

<b>User community</b>	Mostly similar but differences are due to a difference in the organisational size and the industries in which the organisations operate.
<b>Management information requirements</b>	Similar in nature but differs with regard to extent of data required to fulfil information needs and the methods used to specify requirements—the pharmaceutical organisation is somewhat more sophisticated in its specification of management information requirements.
<b>Data mart access tool requirements</b>	Different levels of progression with regard to the nature of use.
<b>Nature and sources of data used to populate the data mart</b>	Largely similar in volume and complexity with differences due to where orders are placed and where product master data is held.
<b>Assessment of the data mart implementations</b>	Largely similar benefits were derived between the two organisations although it appears as if the pharmaceutical organisation received more benefits relative to the BCP organisation due to more sophisticated management information requirements.

**Table 27: Summary of comparative analysis between case study data marts**

## 5.2. Conclusion

Since customer knowledge plays a vital part in organisations today, particularly in several sales and marketing processes, with customers being either channel partners or the final consumers, managing data and/or information across business units, departments, and functions is vital but problematic. Frequently, channel partners gather and capture data about customers that the other organisations in the channel require and which must be incorporated/catered to in the receiving organisations’ information systems in order to allow for management information delivery to users. It has been demonstrated in the preceding chapters, as Ross (1998:52) also accurately summarises, that the thread that draws partners in a supply chain together is “information, and the tools they [channel partners] utilize are the information and communication technologies they develop and implement.”

The data warehouse, specifically the marketing data mart, by its very nature, is the repository where customer data are integrated from where it is analysed. Data warehouses and data marts are predominantly built for sales and marketing applications. In addition, data warehouses and data marts can play a vital role in making the data received from channel partners available in an organisation.

Given the summary of the comparative analysis above (in Table 27) of sales and marketing data marts as management information delivery mechanisms in manufacturing organisations, there are differences that can be attributed to size, IT sophistication, and level of information usage. Slight differences in the locations of data storage also impact the population of the data mart but not on the use as a management information delivery mechanism from the user community's point of view. As a result the benefits derived from the data mart implementations also differed. The hypothesis of this study as stated in Chapter 1 is that there is no significant difference in the use of sales and marketing data marts as management information delivery mechanisms in manufacturing organisations in different industries, particularly the pharmaceuticals and branded consumer products. Based on the evidence presented, the hypothesis is rejected, i.e., there are significant differences between the use of sales and marketing data marts in different manufacturing industries, which can be ascribed to the industry variable. Furthermore, the required level of information usage can be seen as a variable co-dependent on the industry since different industries require different levels of information usage.

### **5.3. Suggestions for Future Research**

The research contained in this study indicates that there is a significant qualitative difference in the use of sales and marketing data marts as management information delivery mechanisms in manufacturing organisations in different industries. Quantifying the difference in use of data marts by the various variables, for example, size, IT sophistication, resources, etc., can serve as confirmation of the findings of this study and also assist in the development of data mart access tools by software vendors, for example, confirm that industry-specific tools are called for rather than generic tools in the different classes. If differences in data mart use by industry are known these can also be factored into the planning of implementations allowing for more accurate timeframes.