



Chapter 12

Justification of Data Warehousing Projects

Reinhard Jung and Robert Winter
University of St.Gallen, Switzerland

Project justification is regarded as one of the major methodological deficits in Data Warehousing practice. As reasons for applying inappropriate methods, performing incomplete evaluations, or even entirely omitting justifications, the special nature of Data Warehousing benefits and the large portion of infrastructure-related activities are stated. In this chapter, the economic justification of Data Warehousing projects is analyzed, and first results from a large academia-industry collaboration project in the field of non-technical issues of Data Warehousing are presented. As conceptual foundations, the role of the Data Warehouse system in corporate application architectures is analyzed, and the specific properties of Data Warehousing projects are discussed. Based on an applicability analysis of traditional approaches to economic IT project justification, basic steps and responsibilities for the justification of Data Warehousing projects are derived.

INTRODUCTION

An empirical analysis (Helfert, 2000) of large companies' research needs in the field of Data Warehousing shows that Data Warehouse project justification is regarded as a major issue which requires a considerable research effort. As a consequence, only 53% of the participating companies tried to set up a Data Warehousing business case at all. Of those companies that performed an evaluation of costs and benefits, 58% used multi-attribute utility techniques, 33% used investment techniques, and 17% used various other approaches (Helfert, 2000). Superficial or missing analyses of Data Warehousing projects are usually attributed to the special nature of those projects, e.g., to the "obvious impossibility" to

Previously Published in *Managing Information Technology in a Global Economy*, edited by Mehdi Khosrow-Pour, Copyright © 2001, Idea Group Publishing.

This chapter appears in the book, *Data Warehousing and Web Engineering* by Shirley Becker.
Copyright © 2002, Idea Group Publishing.

assess “intangible benefits” (McKnight, 1999). If estimations are made, the return on investment (ROI) ranges from -1857% to an incredible 16,000% with an average of 401% (IDC study cited in McKnight, 1999).

In analogy to the term database system, the term Data Warehouse system denotes the entire range of applications and databases that is needed to utilize a Data Warehouse for business purposes. Data Warehousing then denotes all activities that are linked to the development, utilization, and operations of the Data Warehouse system.

Several facts contribute to the problems that companies are facing when they try to calculate ROIs for Data Warehousing projects:

- The Data Warehouse system is a complex middleware architecture built up incrementally by several Data Warehouse development projects.
- If a large number of data sources is integrated and a large number of applications is supported by the Data Warehouse, a huge investment is necessary, and lots of internal and external side-effects may be influencing the project(s).
- The Data Warehouse system comprises various components which are utilized by different business units in a different manner while the investment maybe has to be made jointly. While data consuming components (e.g., interfaces to decision support applications or horizontal applications) can be assigned quite easily to “consuming” business units, no such assignment can be made for infrastructural components (e.g., the core Data Warehouse, interfaces to source applications, meta data management).
- Due to the dynamic nature of many management processes, the Data Warehouse system is subject to frequent changes. From an investment theoretical point of view (Jung, 1998, p.38), diversification investments have to be taken into account in addition to initial investments.
- Although less frequently, not only information consuming applications, but also source applications are subject to changes (e.g., migration to standardized software packages).

In this chapter, the economic justification of Data Warehousing projects is analyzed, and first, descriptive results from a large academia-industry collaboration project in the field of non-technical issues of Data Warehousing are presented. As conceptual foundations, the role of the Data Warehouse system in corporate application architecture is discussed, and the specific properties of Data Warehousing projects are analyzed in the next section. In the following section, the applicability of traditional approaches to economic IT project justification is discussed. Based on that analysis, basic justification elements (i.e., tasks and responsibilities) for Data Warehousing projects are derived in the next section entitled, *Methodological and Organizational Aspects of Data Warehousing Project Evaluation*, and summarized in the last section.

8 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/justification-data-warehousing-projects/7870

Related Content

Predicting Future Customers via Ensembling Gradually Expanded Trees

Yang Yu, De-Chuan Zhan, Xu-Ying Liu, Ming Liand Zhi-Hua Zhou (2008). *Data Warehousing and Mining: Concepts, Methodologies, Tools, and Applications* (pp. 2816-2823).

www.irma-international.org/chapter/predicting-future-customers-via-ensembling/7802

Interactive Visual Data Mining

Shouhong Wangand Hai Wang (2008). *Data Warehousing and Mining: Concepts, Methodologies, Tools, and Applications* (pp. 1638-1642).

www.irma-international.org/chapter/interactive-visual-data-mining/7721

A Data Mining Approach to Formulating a Successful Purchasing Negotiation Strategy

Hokey Minand Ahmed Emam (2008). *Data Warehousing and Mining: Concepts, Methodologies, Tools, and Applications* (pp. 2900-2914).

www.irma-international.org/chapter/data-mining-approach-formulating-successful/7811

Clustering Techniques

Sheng Maand Tao Li (2005). *Encyclopedia of Data Warehousing and Mining* (pp. 176-179).

www.irma-international.org/chapter/clustering-techniques/10588

Big Data for Prediction: Patent Analysis – Patenting Big Data for Prediction Analysis

Mirjana Pejic-Bach, Jasmina Pivarand Živko Krsti (2019). *Big Data Governance and Perspectives in Knowledge Management* (pp. 218-240).

www.irma-international.org/chapter/big-data-for-prediction/216810