

INTERNATIONAL HEALTH & SOCIAL MANAGEMENT - 2014

evaluation of the master thesis.

MARTEN SCHMIED, BA

Student ID number: 1410360006

MCI MANAGEMENT CENTER INNSBRUCK
Internationale Hochschule GmbH
Universitaetsstrasse 15, 6020 Innsbruck, Austria
tel: +43 512 2070-3700, fax: -3799
www.mci.edu

EVALUATION OF THE MASTER THESIS

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|----------------------|--|--------------------|------------------|
| Master thesis title: | Business Intelligence in Healthcare - Data Mining Techniques as a Possible Hospital Management Tool in Austria | | |
| Examinee: | Marten Schmied, BA | Student ID number: | 1410360006 |
| Supervisor: | FH-Prof. Dr. Nils Mevenkamp | Overall Grade: | satisfactory (3) |

SCORES – OVERALL GRADING SCALE:

| | |
|----------|------------------|
| 100 – 90 | excellent (1) |
| 89 – 80 | good (2) |
| 79 – 70 | satisfactory (3) |
| 69 – 60 | sufficient (4) |
| 59 – 0 | insufficient (5) |

City, Date:Innsbruck, July 7th, 2016

Signature: 

FH-Prof. Dr. Nils Mevenkamp

| EVALUATION CRITERIA | REMARKS | POINTS (0-100) | FACTOR OF WEIGHTING | POINTS X WEIGHTING |
|--|---------|-------------------|------------------------|-----------------------|
| Quality regarding content | | | | |
| <ul style="list-style-type: none"> Scientific foundation Quality of used references; adequacy of literature review Practical relevance Summary and reflection Individual contribution and independence in development of thesis | | 75 | 0,5 | 37,5 |
| Structural quality | | | | |
| <ul style="list-style-type: none"> Structure and outline (clear, logical, comprehensible) Congruency of objective, layout and argumentation Approach to problem solving (process, applied method) Linkage of theory and practice | | 60 | 0,3 | 18 |
| Formal quality | | | | |
| <ul style="list-style-type: none"> Extent is consistent with specifications Correct and complete mode of citation Style and language Overall impression | | 70 | 0,2 | 14 |
| FINAL GRADE | | | 1,0 | 70 |

OVERALL EVALUATION

The study aims at exploring the nature and prevalence of electronically processed data in Austrian hospitals, the local application of Business Intelligence (BI) techniques, and the potential for Data Mining (DM) techniques (2). Initially, the differentiation between BI and DM lacks clarity as the terms are easily mixed up with the many other terms and abbreviations given here. After briefly reviewing his methodology (5-6) the author categorizes data generated in hospitals by its sources, storage, access, and reporting potentials (7-18). Subsequent to this rather technical chapter he focuses closer to DM as tool for hospital management (19-28). Starting from the idea of Knowledge Discovery in Databases (KDD) he describes the Cross-Industry Process of DM, lists basic DM techniques, which basically comprise of classical exploratory data analysis (EDA) techniques, and finally derives criteria for his further literature search. In the main part of his thesis the author compiles findings from both expert interviews and a focused literature review (29-55). The first 15 pages cover the prevalence of data processing in Austrian hospitals while the latter 12 pages refer to the potential of data mining. The text ends with a brief outlook (56-57).

From a methodological perspective the reader is not empowered to reproduce the findings given. The methodological approach of the present study is sketched vaguely, but lacks details about the expert status of the interviewees, the interview settings with regard to both location and recording technique, and the content analysis techniques applied. Although the interview guide line is documented in the annex, the process of operationalization remains unclear. As to the literature review search findings are documented quantitatively in the annex; the qualitative aspects, e.g. how relevance of papers was evaluated, is not documented. All in all the reliability of the author's findings are hardly assessable.

As to structure, the author's line of argumentation is not always as clear as desirable. He covers many different aspects in high technical detail but their interrelations are not always visible. This study contains great detail but lacks synthesis of its different parts. While thoroughly researched it never succeeds being more than quite a loose collection of ideas and examples. The text is fluently written and well edited, literature is of good quality and referenced correctly.

At some points the author's perspective becomes ontological, e.g. if he argues "KDD does not substitute for business analysts but may make their work more efficient" (25); does KDD "make" something or do business analysts "make" KDD by definition? Symptomatic for this argumentation is the author's final claim to "devise evocative and useful application models" (56). From a sociological perspective an analysis should either start with social needs (1. define the problem, 2. look for an appropriate solution), or with techniques available (1. evaluate the technique, 2. look for possible social and/or ethical implications). The author's approach, however, is technocratic (1. evaluate the technique, 2. find a useful application). Moreover, this perspective bypasses the ethical issues implied by the use of big data in health care settings; unfortunately, ethical considerations are not part of this thesis, although many questions are obvious (e.g. do DM tools exist which could mislead inexperienced controllers? Do EDA techniques provide the gold standard when dealing with big data or do we need theory based approaches, at least in highly sensitive settings like health care management?).

Due to the complexity of the topic, the good quality of the literature, and the correct (if not documented) methodological approach I grade this thesis satisfactory (3).