

SPRINGER BRIEFS IN INFORMATION SYSTEMS

Mathias Eggert

Compliance
Management in
Financial Industries
A Model-based
Business Process and
Reporting Perspective



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Foreword

Since the world financial crisis, legislators all over the world have enacted new regulations and guidelines in order to monitor banks and to control their risk behavior. The compliance with regulatory requirements is often concerned with the compliant design of business processes and information systems. Due to the steady increase in regulations, this design effort challenges particularly the financial service industry. On the one hand, financial institutes must provide organizational structures to enable a proper collaboration of IT and legal experts when planning regulatory-compliant information systems. On the other hand, the frequency of enacted regulatory requirements increases steadily and forces financial institutes to react in a timely manner in order to prevent serious penalties or interruptions of business operations. The sum of all actions taken by an organization to respond appropriately to regulatory requirements are defined as compliance management—a research field that finds a growing interest, especially since the financial crisis.

Two types of regulatory requirements significantly affect financial institutions: requirements that primarily influence the business processes and requirements that primarily influence the supervisory reporting. Regulatory requirements on business processes are particularly relevant for the design of the organization, while supervisory requirements primarily affect the design of reporting and data warehouse systems. The growing number of regulations and more interconnected business processes lead to an increase of compliance management effort. The work of Mathias Eggert suggests model-based solutions for reducing this effort.

Motivated by the importance of information modeling for the successful design of information systems and business processes, Mathias Eggert investigates compliance management approaches from a business process and a data warehouse modeling perspective. He develops model-based approaches to analyze the effects of legal requirements on business processes and data warehouses. In addition, he gives insights into the influence of regulation on the design of information systems and suggests solutions for the improvement of the collaboration between IT and legal experts. The promising results are a valuable contribution to the improvement of information systems in the financial service industry.

Münster, July 16, 2013

Jörg Becker

Acknowledgments

“Falling is neither dangerous nor a disgrace. Staying down is both.”

Konrad Adenauer

The story that ends up in this book is not as usual, as it is for other researchers. In the beginning of my life, I did not think about a scientific career. At the age of 18, when others think about their study topic and university to visit, the scientific path was even not in my mind. Rather, I was convinced that a more practical oriented way would characterize my career. After graduation at the junior high school, a scientific career was so far away that nobody, including myself, would have thought that I would ever write a dissertational thesis. My career began with an apprenticeship at a logistic company close to my hometown Cologne. After a couple of years of working for different companies, I realized that I had to change my life completely in order to get new challenges. Thus, I decided to leave the practical level in order to go back into learning and to visit high school for getting the permission to study. At the age of 24, I finally began studying Information Systems in the city of Ingolstadt.

“Et hätt noch emmer joot jejange,” a traditional proverb from the German city of Cologne, says that each change in life will finally end up successfully. Writing this book was the end of a story that is about many people who trusted me, who motivated me, and who never gave up telling me that also my winding way will end up successfully. Without their help and support, these lines would not exist. The following pages are for all of these wonderful people.

Studying is expensive, even in Germany, where usually no study fees have to be paid. The study costs usually forces students to work besides their lectures and learning sessions. During my study, I could completely focus on my study because I received two scholarships during the Bachelor and Master phases. Therefore, I thank the Siemens AG for their financial support and the chance to attend in several workshops and seminars. I especially thank the Konrad Adenauer Foundation, which strongly supported my Master’s program and the research project that led to the results published in this book. I do not know whether I would be able to write these lines without the support of these great organizations.

Successful research that aims to produce valuable results for the industry always needs good industry partners, which trust in the ability to create innovative ideas and successful results. During the past 4 years I especially built-up strong

ties with an IT service provider in Muenster, whose employees always supported my ideas. Therefore, I especially thank Thorsten Webering and Daniel Vohrmann for their great support of this research project. Without their continuous availability for workshops and interviews, I could not reflect industry expectations for compliance management systems. Furthermore, I thank all the students who worked in the numerous project seminars I supervised. In particular, the collaboration with Sebastian Schwittay and Friedrich Chasin supported my research work.

I will always remember the time as researcher at the IS department of the University of Muenster. In particular, the “researcher beer,” the numerous conference trips, and the fun I had during the holidays afterwards. I especially thank Matthias Voigt for the great trips to Moscow and Marcel Heddier for the great collaboration and time in Australia. I also thank my supervisors Jörg Becker, Ralf Knackstedt, and Patrick Delfmann. They have taught me how to research and how to publish scientific papers. Without their critical reflection and openness for new ideas, this doctoral thesis would not exist in the way it does.

However, all fruitful ideas and scientific discourses need two essential resources: family and friends. My friends were there for me, when I was disappointed about a bad grade or rejected papers. They always motivated me to go on studying and finally they strengthened my wish to begin the Ph.D. program. Particularly, I thank my close friends Dirk, Hans Peter, Jan, Regina, Stephie, and Susanne for their great support at all times since I decided to follow the scientific path.

Finally, I would like to express my deepest gratefulness to my parents, Günther and Irma, as well as my sister Claudia. They always supported my way of life and gave me love. At any time, I could count on their help—in particular in hard times, when life was not shiny and successful. I dedicate this work to my family.

Cologne, October 13, 2013

Mathias Eggert

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Abbreviations

| | |
|--------|---|
| ACIS | Australasian Conference on Information Systems |
| ADAPT | Application Design for Processing Technologies |
| BPCL | Business Process Compliance Language |
| BPEL | Business Process Execution Language |
| BPM | Business Process Management |
| BPMN | Business Process Modeling Notation |
| BPR | Business Process Reengineering |
| BPSL | Business Property Specification Language |
| CIO | Chief Information Officer |
| CNF | Conference Paper |
| CRD | Capital Requirements Directive |
| DFM | Dimensional Fact Model |
| DSRM | Design Science Research Methodology |
| DW | Data Warehouse |
| ECIS | European Conference on Information Systems |
| ERM | Entity Relationship Model |
| ETL | Extracting, Transforming, and Loading |
| EU | European Union |
| FCL | Formal Contract Language |
| FSM | Finite State Machine |
| H2fR | H2 for Reporting |
| HICSS | Hawaii International Conference on System Sciences |
| IFRS | International Financial Reporting Standard |
| IS | Information Systems |
| IT | Information Technology |
| ITSP | IT Service Provider |
| JNL | Journal Paper |
| JQ2.1 | Jourqual 2.1 |
| LTL | Linear Temporal Logic |
| MaRisk | Minimum Requirements for Risk Management |
| ME | Method Engineering |
| ME/RM | Multidimensional Entity Relationship Modeling |
| MiFID | Markets in Financial Instruments Directive |
| MIS | Management Information Systems |
| MISQ | Management Information Systems Quarterly |
| MKWI | Multikonferenz Wirtschaftsinformatik |
| OLAP | Online Analytical Processing |
| OLTP | Online Transaction Processing |
| PBB | Process Building Block |

| | |
|----------|--|
| PCL | Process Compliance Language |
| PCML | Process Constraint Modeling Language |
| PLS | Partial Least Squares |
| PPML | Process Pattern Modeling Language |
| RQ | Research Question |
| SBPML | Semantic Business Process Modeling Language |
| SEC | Securities and Exchange Commission |
| SEM | Structural Equation Modeling |
| SimBPEL | Simplified syntax Business Process Execution Language |
| SOX | Sarbanes Oxley Act |
| TAM | Technology Acceptance Model |
| UML | Unified Modeling Language |
| US-GAAP | United States Generally Accepted Accounting Principles |
| WI | Wirtschaftsinformatik |
| WKWI | Wissenschaftliche Kommission Wirtschaftsinformatik |
| WpDVerOV | Wertpapierdienstleistungs-, Verhaltens- und Organisationsverordnung |
| WpHG | Wertpapierhandelsgesetz |
| WS-BPEL | Web Service Business Process Execution Language |
| XBRL | eXtensible Business Reporting Language |
| XML | eXtensible Markup Language |