Auditing 2.0: Using Process Mining to Support Tomorrow's Auditor

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The term *auditing* refers to the evaluation of organizations and their processes. Audits are performed to ascertain the validity and reliability of information about these organizations and associated processes. This is done to check whether business processes are executed within certain *boundaries* set by managers, governments, and other stakeholders. For example, specific rules may be enforced by law or company policies and the auditor should check whether these rules are followed or not. Violations of these rules may indicate fraud, malpractice, risks, and inefficiencies. Traditionally, an auditor can only provide reasonable assurance that business processes are executed within the given set of boundaries. They check the operating effectiveness of controls that are designed to ensure reliable processing. When these controls are not in place, or otherwise not functioning as expected, they typically only check samples of factual data, often in the 'paper world'. However, today detailed information about processes is being recorded in the form of event logs, audit trails, transaction logs, databases, data warehouses, etc. Therefore, it should no longer be necessary to only check a small set of samples offline. Instead, all events in a business process can be evaluated and this can be done while the process is still running. The availability of log data and *advanced process mining techniques* enable a new form of auditing: *Auditing 2.0*. Surely, the availability of process mining techniques and the omnipresence of recorded business events will dramatically change the role of auditors.

PROCESS MINING

The idea of process mining is to discover, monitor and improve real processes (i.e., not assumed processes) by extracting knowledge from event logs. Over the last decade process mining techniques have matured and are currently being integrated in commercial software products (W.M.P. van der Aalst, H.A. Reijers, A.J.M.M. Weijters, B.F. van Dongen, A.K. Alves de Medeiros, M. Song, and H.M.W. Verbeek. Business Process Mining: An Industrial Application. Information Systems, 32(5):713-732, 2007).

Business provenance

Starting point for process mining are so-called *event logs*, i.e., sequentially recorded collections of events such that each event refers to an *activity* (i.e., a well-defined step in the process) and is related to a particular *case* (i.e., a process instance). Furthermore, some mining techniques use additional information such as the performer or originator of the event (i.e., the person/resource executing or initiating the activity), the timestamp of the event, or data elements recorded with the event (e.g., the size of an order). Note that from an auditing point of view the systematic, reliable, and trustworthy

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Ensheng Dong

Auditing 2 Process Mining:

Evaluation of Novel Approaches to Software Engineering Ernesto Damiani,George Spanoudakis,Leszek A. Maciaszek,2019-06-29 This book constitutes the refereed proceedings of the 13th International Conference on Evaluation of Novel Approaches to Software Engineering ENASE 2018 held in Funchal Madeira Portugal in March 2018 The 17 revised full papers and 5 revised short papers presented were carefully reviewed and selected from 95 submissions The papers are organized in topical sections on service science and business information systems and software engineering   Advanced Digital Auditing Egon Berghout,Rob Fijneman,Lennard Hendriks,Mona de Boer,Bert-Jan Butijn,2022-10-29 This open access book discusses the most modern approach to auditing complex digital systems and technologies It combines proven auditing approaches advanced programming techniques and complex application areas and covers the latest findings on theory and practice in this rapidly developing field Especially for those who want to learn more about novel approaches to testing complex information systems and related technologies such as blockchain and self learning systems the book will be a valuable resource It is aimed at students and practitioners who are interested in contemporary technology and managerial implications   **From Software Engineering to Formal Methods and Tools, and Back** Maurice H. ter Beek,Alessandro Fantechi,Laura Semini,2019-10-08 This volume was published in honor of Stefania Gnesi s 65th birthday The Festschrift volume contains 32 papers written by close collaborators and friends of Stefania and was presented to her on October 8 2019 one day colloquium held in Porto Portugal The Festschrift consists of eight sections seven of which reflect the main research areas to which Stefania has contributed Following a survey of Stefania s legacy in research and a homage by her thesis supervisor these seven sections are ordered according to Stefania s life cycle in research from software engineering to formal methods and tools and back Software Engineering Formal Methods and Tools Requirements Engineering Natural Language Processing Software Product Lines Formal Verification and Applications   Good Practices and New Perspectives in Information Systems and Technologies Álvaro Rocha,Hojjat Adeli,Gintautas Dzemyda,Fernando Moreira,Aneta Poniszewska-Marańda,2024-05-15 This book is composed by a selection of articles from the 12th World Conference on Information Systems and Technologies WorldCIST 24 held between 26 and 28 of March 2024 at Lodz University of Technology Lodz Poland WorldCIST is a global forum for researchers and practitioners to present and discuss recent results and innovations current trends professional experiences and challenges of modern Information Systems and Technologies research together with their technological development and applications The main and distinctive topics covered are A Information and Knowledge Management B Organizational Models and Information Systems C Software and Systems Modeling D Software Systems Architectures Applications and Tools E Multimedia Systems and Applications F Computer Networks Mobility and Pervasive Systems G Intelligent and Decision Support Systems H Big Data Analytics and Applications I Human Computer Interaction J Ethics Computers and Security K Health Informatics L Information Technologies in

Education M Information Technologies in Radiocommunications and N Technologies for Biomedical Applications The primary market of this book are postgraduates and researchers in Information Systems and Technologies field The secondary market are undergraduates and professionals as well in Information Systems and Technologies field **Tax Law and Digitization** Michael Lang,Robert Risse,2022-07-04 Tax tech companies are rapidly gaining ground as global tax advisory firms and are set to fundamentally change and revolutionize the way tax administrations taxpayers and their advisers interact ushering in a much more efficient and effective integration of tax services into the processes used by both taxpayers and tax authorities The distinguished contributors to this book clearly explain not only how tax law can be revised to promote digitization and speed up its implementation but also how to achieve better tax compliance and administration at a lower cost The authors cover such aspects of this veritable paradigm shift in tax management as the following how new technologies improve existing VAT GST systems uses of artificial intelligence secured certification of taxpayers electronic invoices securing real time reporting with cryptography taxing virtual currencies enhanced personal data protection fewer opportunities to engage in aggressive tax practices competitive advantage in attracting investment work flow assessment and more opportunities for information flows and collaboration Because the perspective as to what is meant by tax compliance is already overlaid by technological pressure as indicated especially by BEPS 1 0 s domestic tax law initiatives and its recommendations of newly developed options to secure full transparency of tax processes it is clear that controls and tax risk management are on the rise and that systems will become more digitized For these reasons professionals in the tax advisory industry and tax authority officials will welcome this book s sound and practical measures leading to progress and revitalization through digital transformation **Business Intelligence** Esteban Zimányi,2014-03-20 To large organizations business intelligence BI promises the capability of collecting and analyzing internal and external data to generate knowledge and value thus providing decision support at the strategic tactical and operational levels BI is now impacted by the Big Data phenomena and the evolution of society and users In particular BI applications must cope with additional heterogeneous often Web based sources e g from social networks blogs competitors suppliers or distributors data governmental or NGO based analysis and papers or from research publications In addition they must be able to provide their results also on mobile devices taking into account location based or time based environmental data The lectures held at the Third European Business Intelligence Summer School eBISS which are presented here in an extended and refined format cover not only established BI and BPM technologies but extend into innovative aspects that are important in this new environment and for novel applications e g pattern and process mining business semantics Linked Open Data and large scale data management and analysis Combining papers by leading researchers in the field this volume equips the reader with the state of the art background necessary for creating the future of BI It also provides the reader with an excellent basis and many pointers for further research in this growing field Continuous Auditing Mohammad Javad Abdolmohammadi,Ahmad Sharbatouglie,2005 *A Dictionary of*

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