

Foreword

The *Handbook of Research on Big Data Storage and Visualization Techniques* edited by Richard S. Segall and Jeffrey S. Cook could not be more-timely for information professionals. The past few years have seen seismic shifts in information technology paradigms. At the forefront is the shift away from transforming data on writing to transforming data on reading. Traditionally, data processing systems start with the creation of a data model, usually a relational database management system (RDBMS) schema. Then all incoming data is transformed to fit into that one fixed model. However, as George Box once noted, “All models are wrong, but some are useful.”

The current trend is to make data systems less reliant on a single, pre-defined model in order to be more agile and able to adjust to changing data inputs and changing data use case. Newer systems are achieving this kind of “data agility” by reversing the traditional paradigm by ingesting and storing the raw, untransformed data, analyzing its content, and apply local transformations to build smaller, specific-use “data-marts” while always retaining access to the original data. As the volume and variety of data increases, this new paradigm, sometimes called the “data lake” approach, is placing extremely high demands on storage capacity, storage management, and storage architecture innovation. For this reason, the Handbook is right in line with current IT (Information Technology) trends.

At the other end of the spectrum there has been a sea change in data usage. A well-recognized principle is that data only produces value when it is used. Even though planning, acquisition, storage, maintenance, and disposal are all important phases of the data life cycle, it is only the use of data that produces any value. All the other phases represent overhead costs. Again, driven by the need to be more agile and responsive to change, another IT (Information Technology) trend has been to put more control of the processing and analysis directly into the hands of the user. Software vendors and in-house developers alike are all striving for higher and higher levels of self-service analytics of which information visualization is an essential component. Once again, material in this handbook is very timely.

A great feature of the handbook is that it has something to offer everyone. From developers to users, from architects to business analysts and executives, I believe all will find it helpful. With eleven chapters on Big Data storage, another fifteen chapters on Big Data visualization, and also four chapters covering both Big Data storage and visualization together; the coverage is comprehensive. It is an outstanding contribution to the information and data management body of knowledge.

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John R. Talburt, PhD, IQCP, CDMP, is the Acxiom Chair of Information Quality, Director of the Information Quality Graduate Program, and Research Associate in the Institute for Chief Data Officers (iCDO) at the University of Arkansas at Little Rock (UA Little Rock). In addition, Dr. Talburt serves on the Board of Directors of the Electronic Commerce Code Management Association (ECCMA), is a member of the U.S. Technical Advisory Group to the International Organization for Standardization (ISO) in the area of data and information quality, and serves as Editor-in-Chief of the *IQ International Journal*. Dr. Talburt previously served as the Chief Scientist for Black Oak Analytics, Inc., an Arkansas-based company specializing in data quality and entity identity information management solutions. Prior to his appointment at UA Little Rock he was the leader for research and development and product innovation at Acxiom Corporation, a global leader in information management and customer data integration. Professor Talburt is an inventor for several patents related to customer data integration and the author of numerous research papers and articles on information quality and entity resolution. He has also authored four books including *Entity Resolution and Information Quality* (Morgan Kaufmann, 2011), *Data Engineering: Mining, Information and Intelligence* (Springer, 2010), *Information Quality and Governance for Business Intelligence* (IGI Global, 2014), and *Entity Information Life Cycle for Big Data: Master Data Management and Information Integration* (Morgan Kaufmann, 2015). His current research interests are entity and identity resolution, master data management, data governance, and the role of the Chief Data Officer (CDO). Dr. Talburt is the winner of the International Association for Information and Data Quality 2014 Distinguished Member Award and the 2008 Data Management Association (DAMA) International Academic Award. He has earned the Information Quality Certified Professional (IQCP) credential from IQ International and the Certified Data Management Professional (CDMP) credential from the Institute for Certification of Computer Professionals (ICCP). He is also a certified Master Data Quality Manager (MDQM) for the ISO 8000-110: 2009 Master Data Quality standard through ECCMA.