Revisiting the information audit: A systematic literature review and synthesis

Robert B. Frost, Chun Wei Choo *

Faculty of Information, University of Toronto, 140 St. George. St., Toronto, ON M5S 3G6, Canada

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ABSTRACT

The purpose of this paper is to revitalize the theory and practice of the Information Audit (IA) by connecting it with recent developments in information management theories and methods While the IA is a powerful information management practice, the methods and applications of IA have not been wedded to recent developments in the study of information management capability and information quality management. This study addresses that gap. The paper also introduces and applies a systematic methodology for conducting literature reviews that combines concept mapping, review scoping, and a structured search and analysis process. The resulting search in Scopus and Proquest and subsequent analysis of the recent literature (2011–2016) on IA and quality, evaluation, measurement, and maturity in the context of information management yielded the following findings and recommendations. IA research and practice could do well to: pursue contingency frameworks rather than seek universal standardization; investigate the relationship between IA and the dimensions of information quality and information management quality; undertake case studies that apply more foundational IA methodologies in full; develop theories of IA maturity and IA maturity modelling methods; recognize that measurement and evaluation of information management quality and information quality are necessary elements of the IA and should be explicitly incorporated into IA methodology.

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1. Introduction

The information audit (IA) has been defined by Buchanan and Gibb (2007) as "a holistic approach to identifying and evaluating an organization's information resources and information flow, in order to facilitate effective and efficient information systems" (p. 171). The IA provides "an invaluable structure of knowledge" in formulating an organizational information strategy (Orna, 2004; p. 105), and as Buchanan and Gibb (2008) note, the IA's influence on information management, technology, systems, and content are well established in much of the foundational literature on IA (Buchanan & Gibb, 1998; Burk & Horton, 1998; Henczel, 2001; Orna, 1999). In its fullest form, the IA encompasses all the methods and tools needed to catalogue, model, evaluate, quality-control, and analyze an organization's information assets and information management.

In their comparative analysis of the common IA methodologies established in the late 1990s and early 2000s, Buchanan and Gibb (2008) propose a seven step methodological baseline for the IA and find that the methodologies of Orna (1999) and Henczel (2001)

cover every step of the baseline. Henczel's methodology involves seven stages (pp. 18–19):

1) **Planning** the audit by setting objectives, identifying stakeholders, scoping the project and allocating resources, selecting a methodology, and developing communications and business strategies.
2) **Collecting data** in an information resources database, designing and distributing questionnaires, holding focus groups, and conducting personal interviews.
3) **Analyzing** the collected data and research.
4) **Evaluating** gaps and duplications in information, mapping and interpreting information flows, formulating recommendations, and developing a change management plan.
5) **Communicating recommendations** to stakeholders through written reports, presentations and seminars, webpages, and personal feedback.
6) **Implementing recommendations** through implementation programs, formal change plans, post-implementation strategies, and information policies.
7) **Ongoing information service management** to measure and assess the changes through a regular information audit and service evaluation cycle.

* Corresponding author.
  E-mail addresses: robert@rbfrost.com (R.B. Frost), cw.choo@utoronto.ca (C.W. Choo).

Other established methodologies cover all seven stages of the baseline in different sequences or with added stages (e.g. Orna, 1999), do not provide guidance for the planning the audit (e.g. Buchanan & Gibb, 1998), or do not provide guidance for planning or change management following a report of the audit's findings (e.g. Burk & Horton, 1998). Griffiths (2012) notes that the traditional, established IA methods are generally concerned with *Hard IA,* involving "notions of compliance, regulation and accuracy" (p. 43), rather than improving the usability of information assets, increasing the efficiency of information use, or finding opportunities for business innovation by changing information management practices (what Griffiths calls *Soft IA*). Henczel's later emphasis on user-centric interviews and focus groups, information flow mapping, as well as integration with change management and service management showed that the IA could have applications beyond the "hard" realm of accountability and compliance.

While the IA is a powerful information management practice, the methods of both hard and soft IA described in the literature have not been wedded to recent developments in the study of information management capability (as described by Mithas, Ramasubbu, & Sambamurthy, 2011) and information quality management (as conceptualized in the framework of Baskarada & Koronios, 2014). Furthermore, measurement and evaluation techniques such as information asset registration and maturity modelling remain largely absent from most IA methodologies, their synthesis with IA representing a direction for further research (Griffiths, 2012). With the advent of widespread digital transformation and the rise of big data, it is now more important than ever for organizations to have methods and tools for auditing and evaluating their information assets.

With the aim of better connecting the IA literature with recent information management theories and methods, this paper poses three research questions for investigation:

RQ1: What recent research (from 2011 to 2016) has been done on IA?

RQ2: What recent research (from 2011 to 2016) has been done on quality, evaluation, measurement, and maturity in the context of information management?

RQ3: In the future, how might IA researchers and practitioners synthesize the recent research on IA with the recent research on information management quality, evaluation, measurement, and maturity?

This paper will address the above three research questions through a systematic literature review, present and discuss the results of the review, outline the implications of the review for IA researchers and practitioners, and describe the limitations of the review. To better aggregate the large volume of articles under review, the discussion of results will provide a high-level overview of recent trends in IA methods and theories rather than a complete analysis of every reviewed article. The paper offers unique contributions in both its literature review methodology and its findings on recent trends in IA and information management quality, evaluation, measurement, and maturity.

2. Concept mapping

In preparation for the systematic literature review, a conceptual map of the linkages between IA, information quality, information management quality, evaluation, measurement, and maturity was created through a preliminary analysis of pivotal works from the IA and information management literature. Mindful of the fact that researchers and practitioners in different domains often utilize different terminologies for similar concepts, the need to establish working understandings of quality, evaluation, measurement, and maturity was recognized. Applying the working understandings to

the conceptual mapping process led to the development of an analytical framework, which would ensure a consistent approach to analysis in later stages of the literature review.

Two perspectives on quality were considered: information quality and information management quality. Information quality was understood with respect to Floridi's (2013) characterization of information quality as the categories, dimensions, purpose-depth, and purpose-scope that shape a unit of information. Information management quality was understood with respect to Mithas, Ramasubbu, and Sambamurthy's (2011) characterization of high-quality information management capability as "the ability to provide data and information to users with the appropriate levels of accuracy, timeliness, reliability, security, confidentiality, connectivity, and access and the ability to tailor these in response to changing business needs and directions" (p. 238). Measurement and evaluation were understood interchangeably as appraisals of a quality criterion with reference to a specific performance indicator (e.g. the appraisal of a form's accessibility with reference to the quantity or severity of access barriers it contains). Maturity was understood with respect to Marchand, Kettinger, and Rollins' (2001) view of information orientation maturity as a mixture of highly developed information capabilities. Benchmarking was understood as an alternative approach to maturity modelling in which an organization's internal measurements are compared to external measurements, rather than compared to internal targets.

With the key concepts for analysis defined, their links to an IA were established in relation to Buchanan and Gibb's (2007) description of the IA as "a holistic approach to identifying and evaluating an organization's information resources and information flow, in order to facilitate effective and efficient organizational information systems" (p. 171). In deconstructing Buchanan and Gibb's description of the IA process, four implications for the linkages between an IA and the other concepts under investigation in this paper become evident:

Implication 1: The IA requires an evaluation of information resources and flows.

Implication 2: The evaluation of information resources entails a measurement of information quality.

Implication 3: The evaluation of information flows entails a measurement of information management quality.

Implication 4: The measures of information quality and information management quality are determinants of maturity, contributing to effective and efficient information systems.

The four linkages derived from Buchanan and Gibb's (2007) definition were formalized in a concept map, shown in Fig. 1. The concept map illustrates the causal relationships between each of the concepts under analysis, and also provides a basic rationale model of IA goals and IA-maturity links for use in future maturity modelling.

With working understandings of the concepts under investigation established and formalized in the concept map as a result of the preliminary analysis, it was possible to proceed with the creation literature review using a well-defined and consistent analytical framework.

3. Methodology

The literature review was systematic and performed in accordance with the methodology described by vom Brocke et al. (2009). The methodology is rigorous in its approach, prescribing five phases to the systematic literature review: scoping, conceptualization, literature search, analysis/synthesis, and stating the expected contributions of the review to the broader research agenda. This literature review largely followed the prescriptions of vom Brocke