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CONTENTS

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The use of CAATTs in tax audit lessons from some international practices

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Abstract
This article presents a comparative study of the state-of-the-art kemenkeu.go.id

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1. INTRODUCTION

It is within a country's tax authorities' power to determine whether a taxpayer has fulfilled their tax obligations in accordance with the provisions of the applicable law. Tax auditors will provide their recommendations on the compliance level of the audited taxpayer following consideration of evidence collected from either the taxpayer or related parties. Rapid advances of information technology in business have made digital trails dominate the form of evidence in tax audits. Consequently, tax auditors will need to deal with e8.3 (s d98.087 0srh)2 (e f)-2 (nd)2 (e d) 0sc 3 (s1 (i)-2.ai)-2.6 a as

2014; Widuri, 2014) have taken up the issue by suggesting the details on the role, relative position, and innovations around the use of CAATTs in audits of the commercial sector. However, tax practitioners seem to be 'reasonably content' with utilising this body of literature (articles, cases and research reports) without taking a more active role in promoting the need for research on CAATTs in tax audits. In this paper, we argue that the tax audit field needs to break this tradition by initially taking up the comparative tax research tradition suggested by Garbarino (2009). To the best of our knowledge, this has not been attempted before and is necessary for building cumulative understandings in the tax audit field. The literature on CAATTs in tax audits is predominantly focused on technical how-to guidelines issued by several research institutions and private consulting firms (for example, Ernst & Young, 2014; IOTA 2010; OECD 2010). From a methodology perspective, most of this body of literature is descriptive in nature (for example, Nevelsteen & Frenckell, 2014). In the educational settings, Boritz and Datardina (2007) paid little attention to CAATTs in comparison to other topics in their academic classes.

The IOTA (2010) compared the use of CAATTs among its country members. The comparisons included business process mapping and evaluation of internal auditing, coordination with developers of accounting and e-audit software, and use of taxpayers' data from either internal audits or audits carried out by chartered accountants. To this end, this article aims to supplement the work of IOTA by exploring a few aspects that have not been discussed, for example, the presence of continuous auditing techniques or digital forensics, and expanding the comparative cases of CAATTs use in countries outside of IOTA memberships.

Based on the above, this paper aims to reveal how CAATTs has been utilised by tax administrations in tax audits. It achieves this goal through a comparative study on the use of CAATTs within a number of tax jurisdictions. Using comparative institutional analysis (Cole, 2013; Garbarino, 2009), this study seeks to reveal how CAATTs institutional practices may differ from one tax administration to another. The study is expected to contribute to the larger body of knowledge about CAATTs in the auditing field. Methodology-wise, this study presents a comparative research approach that is built upon interpretive data analysis combined with our accumulated experience in the fields of tax audit, information technology, and CAATTs.

This paper is structured as follows: introduction, research design then the contextual and analytical foundations of the study are presented. Next, the findings of the comparative study are discussed. The paper concludes by outlining the contribution of the study and suggestions for future research.

2. RESEARCH DESIGN

Creswell (2009,p. 22) defines research design as a plan of action and procedure in research that comprises the worldview and detailed techniques for collecting and analysing data. It specifically includes ' (1) informing this decision should be the worldview assumptions the researcher brings to the study; (2) procedures of inquiry (called strategies); (3) specific methods of data collection, analysis, and interpretation'. This study is qualitative-interpretive in which the researchers construct social reality and offer their interpretation of the reality based on their knowledge, experience, and contextual information that presents to them. The case study method used in this research enables us to thoroughly explore the events,

programs, activities, and processes of an individual and a group of individuals in their natural settings. A case study is bound by time and activities which define the scope of the research (Bhattacharya, 2008; Creswell, 2009; Yin, 2009).

According to Creswell (2009), research design is also concerned with methods; the means through which data is collected and analysed to construct an interpretation of the object of study. In this study, the data was sourced from documentary materials around the implementation of CAATTs issued by each of the tax authorities as well as published by consulting firms, research institutions and media releases. Bowen (2009) defines document analysis as a systematic procedure for examining electronic and print documents to reveal empirical research findings.

More specifically, the study used comparative institutional analysis (hereinafter 'CIA') as a frame of reference in collecting, transforming, analysing, and interpreting the data. Referring to Bowen (2009), document analysis can be part of (or incorporated with) other types of data analysis techniques. In this regard, we combined document analysis and CIA. CIA is one method available for comparative tax research. It uses a technique that combines tax problem, tax model, and tax mechanism; a pattern suggested by Garbarino (2009). The relationship between the three as a data analysis technique is determined by combining them with the core elements of CIA as follows:

1. determining the tax problem, in which case how the use of CAATTs influence tax audits
2. determining the tax model, which is the amount of available institutional choices with regards to tools and audit techniques including regulations surrounding CAATTs
3. determining the tax mechanism, which refers to the working rules or the selected institution for exchange. In this regard, it transpires in how the tax authority eventually determine the tax audit procedures which should use CAATTs.

Detailed explanations on CIA are presented in Section 4.

This study follows the analytical framework in Debreceny et al. (2005) which uses qualitative methods to examine the extent to which generalised audit software has been utilised in banking sectors. The paper begins with a description on the sequential steps of conducting CIA for the purpose of comparative tax research (Garbarino, 2009). The detailed steps are important to illustrate the trilogy of tax problem, tax model, and tax mechanism in relation to the deployment of CIA. This will also be a critical contribution for other comparative tax research in this area.

Firstly, the context of CAATTs used in the case study is explicated which comprises tax authorities in five countries: Australia, Finland, Indonesia, Germany, and the US. wimfarsteto m6

Tax authority	Description issued by the

In response to the variety of institutional roles and positions, Williamson (1998) suggests four levels of social analysis to differentiate institutional roles and positions based on the level of durability and maturity. These four levels distinguish one form

form of fiscal institution. Tax audits and CAATTs are both the selected institutions to realise the expected social interactions, that is, tax compliance. Building upon Williamson (1998), CAATTs can be positioned as a configuration shown in Figure 1. CAATTs in this setting are situated within levels 3 and 4 which afford a discussion on institutional choices and the most relevant mechanism options available to the environment.

Figure 1: Choice of CAATTs and tax administration in four levels of social analysis—adapted from Williamson (1998)

From a conceptual and practical perspective, CAATTs use in audits is a response to the ubiquity of enterprise information systems which produce digital audit trails. Such a response manifests in the handling of digital audit trails from data test techniques to continuous auditing. Hardware-wise, CAATTs can take place in the

introduction of SAFT will place a burden on taxpayers in their efforts to meet the requirement of the standardised data format.

Based on the above, the authors propose some important criteria to compare how those tax authorities apply CAATTs in their tax audit.

techniques so long as the implementation does not temper the taxpayers' running of business while being audited.

4. The relative position of digital forensics in the landscape of CAATTs use in tax audits. Tax audits have the potential to reveal fraud. This would require further treatment in the form of investigative audits. Questions remain on how the transition from CAATTs use in tax audits can be facilitated

	unzip/uncompress), number of records, length of records. x If company cannot deliver accounting system files where transactions are primarily recorded, tax auditors alternatively utilise reporting files or list files. Accounting systems create reporting files and transaction lists associated with the general ledger and journal, accounts receivable and accounts payable.[6]	
Germany	Not specifically described	Direct access (Z1): Auditor has the right to independently access the taxpayer's computer systems which contain tax-relevant data by using a user role that has been set up for the auditor. The taxpayer has to provide the hardware een software so that the auditor can inspect the data

		analysis techniques.			

Additional information:

The term ‘tax-related data’ has not been defined nor specified respectively within the scope of the legal provisions for data access. The statutory record retention requirements and the data access refer to the documents mentioned in § 147 Sect. 1 AO.

x Accounts and records, inventories, financial statements, management reports, opening balance sheet as well as the.6 (s)-2.3 e0078>Tj /se Tc -cess.

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