Are the Supreme Audit Institutions Agile? A Cognitive Orientation and Agility Measures

Zbysław Dobrowolski[1]

Abstract:

Purpose: Public organizations operate in a turbulent and increasingly less predictable environment. According to Wagner's law, they must meet better growing social needs, which increase as civilization progresses. Such a situation creates challenges for supreme audit institutions (SAIs), which are the most important public auditors. They must determine how the public organizations realized programs in the past and what factors may disrupt the realization of plans in the future. No one questions the public auditors' role in financial accountability and management. However, are the public auditors agile? This research aims to resolve this research question.

Approach/Methodology/Design: The insights in this paper have emerged iteratively by considering both theory and the empirical case based on public auditors' database analysis and unstructured interviews with randomly selected Polish SAI auditors. Such methodology is consistent with an abductive approach.

Findings: Based on available evidence, I offer the potentially radical generalization that SAI's current role is partially useless for society. Therefore, there is a need to implement an agile concept in SAI.

Practical Implications: The article brings several valuable pieces of information that can be the base material and reference to further research. Study results can be a starting point of discussion and analysis on each auditor's agility, both from the public and private sectors. The twelve original and universal agile principles relating to the activity of auditors have been formulated.

Originality/Value: There are several studies on SAIs; however, it is the first study, which aims to determine whether public auditors are agile, and first, where such agile principles of auditing were created.

Keywords: Agile, public management, external auditing, supreme audit institution.

JEL Code: M4.

Paper Type: A research study.

[1]Zbysław Dobrowolski, Institute of Public Affairs, Jagiellonian University, 30-348 Kraków, ul. Prof. S. Łojasiewicza 4, Poland; zbyslaw.dobrowolski@uj.edu.pl

1. Introduction

Public organizations operating in a turbulent and less predictable environment face several challenges. One of them is the need to meet social requirements more increasingly and to prepare conditions for business development in a competitive way for other countries. Correct implementation of public tasks requires openness resulting from the trust, flexibility, and the ability to respond quickly to stakeholders' needs. Also, it requires limiting the scale of irregularities in public life, including corruption, which is too high in most of the countries in the world (Transparency International, 2020).

The supreme audit institutions (SAIs) play an essential role. They examine and evaluate the use of public funds. They improve financial accountability and management (González-Díaz and Fernández, 2008; González-Díaz *et al*., 2013; Blume and Voigt, 2011; Bringselius, 2014; Jeppesen *et al.,* 2017; Cordery and Hay, 2019). There is, however, an opinion on the weakness of some of the SAI activities and that SAIs do not bring socially desired outcomes (Pollitt *et al.,* 1999; Dobrowolski, 2017). There is a research gap on the agility of public auditors representing supreme audit institutions. Meanwhile, evaluating others should perform their task in an agile manner, giving audited institutions and society examples of how to spend money wisely.

Given the importance of SAI for society and the economy, there is a need to determine agile standards for SAI, bringing significant benefits to SAI and its stakeholders. So far, no study conducted on the use of the agile concept in SAIs. The research used methods and techniques appropriate for management science.

The paper proceeds as follows: First, I review the previous studies on the agile concept and review the previous research on supreme audit institutions. After that, I discuss the research method, followed by the analysis of SAI activity. Based on SAI analysis, I formulate twelve SAI agile principles related to SAI. Finally, I present conclusions and opportunities for further research.

2. The Agile Concept

The development of the agile presented in the Manifesto for Agile Software Development published in 2001 resulted in unprecedented changes in software engineering (Boehm, 2002; Chuang *et al.,* 2014). Agile research focuses on topics related to how to apply the idea of agile in organizations (Boehm, 2002; Nerur *et al.,* 2005), effectiveness in achieving assumed goals (Williams *et al.,* 2000), the impact of trust and communication on the concept of agile (Moe *et al.*, 2009), the possibilities of its application in various organizations and the areas of their functioning (Erdogmus *et al.,* 2005; Janzen and Saiedian, 2005; Chuang *et al.,* 2014; Wells, 2014; Potdar *et al.,* 2017; Masood *et al.,* 2018; Hodgson and Briand, 2013). Attention also focused on the possibility of using the agile concept in public

Are the Supreme Audit Institutions Agile? A Cognitive Orientation and Agility Measures

54

administration, emphasizing the positive effects of such thought as rapid identification of changes, anticipating their potential impact on public administration and its clients, modifying standard operating procedures (Mergel *et al.,* 2018; Dobrowolski, 2019).

Concept agile means the minimization of formal requirements for processes, and flexibility manifested in the ability to immediately respond to signals from the environment of the organization (Highsmith and Cockburn, 2001; Williams and Cockburn, 2003; Henderson-Sellers and Serour, 2005; Erickson *et al.,* 2005; Cockburn, 2007; Conboy, 2009; Lee and Xia, 2010; Chuang *et al.,* 2014; Agarwal *et al.,* 2006; Lyytinen and Rose, 2006).

Agile issues were also considered from audit perception. Authors aptly underline that environmental forces' changes provide an opportunity for audit firms to move away from a reactive audit planning approach to one that is more agile (Newmark, Dickey, and Wilcox 2018). Authors proposed an auditing model for ISO 9001 traceability requirements applicable in agile (XP) environments (Qasaimeh and Abran, 2015; Qusaimeh *et al.,* 2017). Others focused on auditing an agile project (Falah, Jamali, and Mousavi, 2015). The authors also showed an agile concept from an internal audit point of view (Foo and Bhattacharya, 2017; Lehmann and Thor, 2020). Finally, the agile concept is also perceived from the point of governance (Wrigth, 2014). However, there is a lack of research on how SAIs can use the agile concept. No one formulated agile principles of public auditing.

3. The Role of the Supreme Audit Office in Contemporary State

In studies on SAIs, researchers pointed out these institutions' activities, being independent of the State's executive branch, their informational and other functions, position in the macrostructure, the role of SAI in financial accountability, and public management (Dye and Stapenhurst, 1998; O'Donnell, 1998; Pollitt *at al.,* 1999; Stapenhurst and Titsworth, 2002; Dobrowolski, 2004; Santiso, 2006; González-Díaz and Fernández, 2008; Blume and Voigt, 2011; González-Díaz *et al.*, 2013; Bringselius, 2014; Kożuch and Dobrowolski, 2014; Dobrowolski, 2017; Van Acker and Bouckaert, 2018; Cordery and Hay, 2019; European Court of Auditors, 2019; Dobrowolski and Sułkowski, 2020; Dobrowolski, 2020; Dobrowolski and Sułkowski, 2020a). Based on the previous study, one may formulate that SAIs play an essential role in each country. SAIs bring accountability through timely disclosure, reliable financial statements based on reliable accounting. They promote best practices in public services through performance audits.

4. Material and Methods

To realize the aim of the research and answer the question are public auditors agile? I conducted a case study of the Polish SAI and review documents of the

International Organization of Supreme Audit Institutions (INTOSAI) available on its webpage (INTOSAI, Documents). Based on the INTOSAI web page analysis and Polish SAI webpage analysis, I found that these two organizations publish all documents available to the public on their website. In the case of annual reports on the activities of the Polish SAI, I found that they contain information on the results of the audits carried out by Polish SAI, including information on when these audits were carried out, in which institutions, to what extent and what period of operation of the audited units were covered by SAI audits. I completed the review of Polish SAI annual reports published in the SAI official website (listed in the bibliography) and INTOSAI documents by unstructured interviews with 11 randomly selected Polish SAI auditors. The unstructured interviews were conducted between 2012 and 2017. The insights in this paper have emerged iteratively through consideration of both theory and the empirical case. Such an approach is consistent with an abductive approach (Lukka, 2014; Lukka and Modell, 2010).

This research has some limitations. First, I conducted this research mostly within the Polish SAI, and analysis could suffer from endogeneity. Second, the research is based on analysis, among others, on SAI staff's perceptions concerning their organization's performance. Therefore, I cannot rule out that they overlooked some facts about their SAI or were not aware of their organizations' activities. Due to these limitations, I thus need to show modesty towards the generalizability of research findings and encourage future researchers to tests whether research findings hold in other SAIs, which belong to INTOSAI. I also postulate that after introducing age introducing auditors' activities, one should examine what effects it has brought.

5. Research Results and Discussion

5.1 SAI is Not Agile in the Fight Against Severe Social Threats

The scale of corruption is enormous in most of the countries in the world (Transparency International, 2020). The governments are responsible for an effective fight against corruption. Nevertheless, from the SAIs perspective, one may formulate the following question. Where were SAI auditors? Although the corruption threat is significant for many years, SAIs did not determine a common auditing approach to fight against corruption for a long time. The first document presenting a common SAIs approach to combating corruption was prepared and adopted by SAIs worldwide organization – the INTOSAI only in 2016. This document enables cooperation through the unification of audit methodology in anti-corruption (INTOSAI, IFPP GUID 5270).

Nevertheless, there is a lack of common SAIs' auditing standards and guidelines related to stolen assets recovery and anti-money laundering. Meanwhile, money laundering is linked to corruption (Sułkowski and Dobrowolski, 2020). The fight against organizational pathologies should be seen holistically. There are no

Are the Supreme Audit Institutions Agile? A Cognitive Orientation and Agility Measures

56

universal solutions for SAIs in audit stolen assets recovery system and AML system. It makes it difficult for SAIs to cooperate effectively in combating the pathologies mentioned above.

The value-added tax (VAT) gaps are still significant in the many European Member States (European Commission, 2019). It means that preventive measures did not work correctly. Based on Basel Anti-Money Laundering Index, one may generalize that most of the 141 countries listed are seriously threatened by money laundering (Basel Institute on Governance, 2020). Lack of noticeable improvement in reducing these social irregularities constitutes undirect evidence of SAIs' ineffectiveness of their preventive measures.

During the unstructured interview with 11 Polish SAI auditors from one of SAI's regional offices, I found that auditors worked for several years at SAI. They did not change employment and did not work outside SAI. Therefore, they could not gain experience outside SAI. These auditors examine, among others, correct preparation of financial statements by public organizations. However, none of them has ever participated in the development of financial statements. They were not accountants. These auditors also examined the procurement process, but none of them had ever had experience in preparing documents under public procurement. They knew how to audit such issues, being familiar with laws and regulations and audit programs' requirements. It seems there is too little to effectively prevent any severe irregularities in the financial process or public procurement.

5.2 Agile Principles in the Auditors' Activity

Considering the agile manifesto principles (Agile Essentials), one may formulate the following agile principles related to SAI, which may also apply to other auditors, including from the private sector.

The first principle is the following. The auditor's highest priority should be to satisfy the customer through early and continuous delivery of valuable audit recommendations based on audit findings. SAIs should plan their audits in such a way as to identify any threats in the implementation of public programs. The scope of audits should enable an in-depth explanation of the phenomena and their causes and effects to formulate audit conclusions, which effectively improve the audited activities. The second principle states that auditors are open to changing requirements, even late in developing an audit. Agile processes harness change for the best realization of customer's needs. The customer could define as a decision-maker, auditee, taxpayer, and beneficiary of public programs. The third postulate is the following. Deliver audit reports frequently, from a couple of weeks to a couple of months, with a shorter timescale preference.

The realization of the second and third postulate requires remodelling the audit methodology. Analysis of the Polish SAI's activities (NIK, 2011-2019) showed that

the time between the start of the audit and the publication of some audit report is, on average several months. However, based on the analysis of the audit reports, one may formulate another generalization. Considering the date of publishing some audit reports and timeframe of audited activities, one may generalize that decision-makers and the public received information on the audited entities' activities several years after audited entities carried out these activities. It is too long from an agile perspective.

The fourth principle is the following. Audit managers and audit staff must work together daily throughout the audit, which should be treated as a project. No doubt, audit methodology should contain the requirement of daily meetings of audit teams with audit managers using the contemporary e-tools.

The fifth agile principle states that there is a need to build audit projects around motivated individuals. Audit managers are responsible for giving audit staff the environment and support they need and trust them to get the job done. The realization of this postulate requires the implementation of the theory of expectations. People achieve good results at work; if they understand and accept their tasks, have the skills and resources to implement them, the expected reward is attractive. The size of this reward should be appropriate for work (Vroom, 1964).

The sixth principle states that the most efficient and effective method of conveying information to and within an audit team is face-to-face conversation. Therefore, there is a need to organize day-to-day in such a way to provide face-to-face contact between auditors using e-tools. However, there should be a requirement to secure such a conversation against unauthorized access and reveal.

The seventh principle states that conducting the audit is the primary measure of progress. The principle means that the audit procedure should be designed so that there is no downtime during the examination, for example, caused by low recognition of audit restrictions. The mitigation plan should be developed and specified in the audit' design matrix. Specify audit gates, including the requirements that the audit.

The eighth principle states that agile processes promote the sustainable development of audit organizations and their staff. The stakeholders, audit managers, and audit staff should be able to maintain a constant pace indefinitely. This principle means that there is a need to prepare a plan for personal development, including training. SAI should implement procedures to eliminate any waste of energy and materials and remove architectural and other barriers for the disabled. Analysis of SAI activity showed that SAI fulfilled these requirements (NIK, 2011-2019).

The ninth principle states that continuous attention to technical excellence and good design enhances agility. The tenth principle states that simplicity - the art of

Are the Supreme Audit Institutions Agile? A Cognitive Orientation and Agility Measures

58

maximizing the amount of work not done - is essential. The principle means that SAI should continuously develop and improve audit software and audit methodology to meet the stakeholder's needs betters. It includes reducing the stay of auditors at the auditee's place.

The unstructured interview of 11 SAI auditors showed that sometimes during the audit, some issues that required a comprehensive explanation and audit programs did not show how to deal with such problems. Auditors explained these problems in the timeframe of the planned audit. They also said that the date of completion of the scheduled audit rarely changes. Although none of the auditors confirmed that omitted the new problems were revealed only during the audit, the auditors did not confirm that such issues were thoroughly analysed in such a way as other issues covered by the audit program.

The eleventh principle states that the best audit reports emerge from self-organizing teams. The twelfth principle states that the audit team reflects on how to become more productive at regular intervals and then tunes and adjusts its behaviour accordingly. The last two principles can refer to the Kaizen concept, well known in management sciences and in practice, which one may define as continuous process improvement.

Cushman and King (1995) postulate that organizations should maintain close relationships with both customers and suppliers, partners, and competitors. Such an approach avoids surprises. This postulate means that SAI should reorganize the traditional planning system, where only SAI auditors carry out planning tasks into a hybrid system, where SAI auditors widely cooperate with those who initiate audit needs. For example, parliamentarians should be engaged in the planning phase of the audit and be familiar with any audit constraints. American SAI - the GAO uses such an approach for many years and fix audit assumptions with the audit's initiator in a commitment letter (Dobrowolski, 2004). Such a planning approach should also be used in ad hoc audits, where a review is initiated by those who refer complaints to SAI about the activities of specific public institutions. The analysis of Polish SAI activities presented in annual reports (NIK, 2011-2019) showed that SAI did not use the solution referred to above in its planning. Although it organizes expert panels, the role of such experts is passive.

6. Conclusion

The study has shown that SAI was not agile. In particular, SAI was not agile in the fight against severe social threats. Audit reports presenting the audited activities were published several years after audited institutions realized these activities. Such audits were useful primarily for historians and not for decision-makers expecting from SAI to prepare comprehensive and fast information on problems in the functioning of various spheres of the state.

The application of the agile concept in SAI's activity requires remodelling planning audits, including increasing the role of those who commission audits in the planning process. Also, it requires a change in the way of managing human resources. Helpful in changing the way SAI works can be the original twelve agile principles in SAI's operations.

The activities of SAI correspond to the management logic. The control function is one of the management functions. Auditors must adhere to praxeological principles in their activities. They assess the efficiency of others' implementation, and their efficiency is assessed by others, for example, decision-makers, audit principals, and audited entities. This statement applies not only to SAI's auditors but also to other auditors, including those from the private sector. Agility is an essential requirement for operations, especially under conditions of unpredictability. Therefore, the results of the study are useful for practitioners. Identifying the conditions of efficient operation and formulating theoretical generalizations in management functions is also crucial for the development of management theory.

References:

Agarwal, A., Shankar, R., Tiwari, M.K. 2006. Modelling the metrics of lean, agile and legible supply chain: an ANP-based approach. European Journal of Operational Research, 173(1), 211-225.

Agile Essentials. 12 Principles Behind the Agile Manifesto. Retrieved from: https://www.agilealliance.org/agile101/12-principles-behind-the-agile-manifesto/.

Basel Institute on Governance. Basel AML Index. Retrieved from: https://www.baselgovernance.org/basel-aml-index/public-ranking.

Blume, L., Voigt, S. 2011. Does organizational design of supreme audit institutions matter? A cross-country assessment. European Journal of Political Economy, 27(2), 215-229.

Boehm, B. 2002. Get ready for agile methods with care. IEEE Computer, 35(1), 64-69.

Bringselius, L. 2014. The Dissemination of Results from Supreme Audit Institutions: Independent Partners with the Media? Financial Accountability & Management, 30(1), 75-94.

Chuang, S.W., Luor, T., Lu, H.P. 2014. Assessment of institutions, scholars, and contributions on agile software development (2001-2012). Journal of Systems and Software, 93, 84-101.

Cockburn, A. 2007. Agile Software Development: The Cooperative Game. 2nd Edition, Addison-Wesley Professional, Boston.

Conboy, K. 2009. Agility from first principles: reconstructing the concept of agility in information systems development. Information Systems Research, 20(3), 329-354.

Cordery, C.J., Hay, D. 2019. Supreme Audit Institutions and Public Value: Demonstrating Relevance. Financial Accountability & Management, 35(2), 128-142.

Cushman, D.P., King, S.S. 1995. Communication and High-Speed Management, State University of New York Press, New York.

Dobrowolski, Z. 2020. The Supreme Audit Institutions Readiness to Uncertainty. Entrepreneurship and Sustainability Issues, 8(1), 513-526.

Are the Supreme Audit Institutions Agile? A Cognitive Orientation and Agility Measures

60

Dobrowolski, Z. 2019. Agile Concept in Management Controls of Public Universities. Przedsiębiorczość i Zarządzanie, 20(12/2), 109-119.

Dobrowolski, Z., Sułkowski, Ł. 2020. Implementing a Sustainable Model for Anti-Money Laundering in the United Nations Development Goals. Sustainability, 12, 244.

Dobrowolski, Z., Sułkowski, Ł. 2020a. Public Ethnocentrism. A cognitive orientation and preventive measures. Journal of International Studies, 13(2), 178-190.

Dobrowolski, Z. 2017. Combating Corruption and Other Organizational Pathologies, Peter Lang GmbH. Internationaler Verlag der Wissenschaften, Frankfurt Am Main.

Dobrowolski, Z. 2004. Auditing of Public Funds in American Democracy. Parliamentary Publishing House, Warsaw.

Dye, K.M., Stapenhurst, R. 1998. Pillars of Integrity: The Importance of Supreme Audit Institutions. The World Bank Institute, Washington D.C.

Erdogmus, H., Morisio, M., Orchiano, M. 2005. On the effectiveness of the test-first approach to programming. IEEE Transactions on Software Engineering, 31(3), 226-237.

Erickson, J., Lyytinen, K., Siau, K. 2005. Agile Modelling, Agile Software Development, and Extreme Programming: The State of Research. Journal of Database Management, 16(4), 88-99.

European Commission. 2019. What is the VAT Gap? Brussels: European Commission 2019. Retrieved from: https://ec.europa.eu/taxation_customs/business/tax-cooperation-control/vat-gap_en.

Fallah, M., Jamali, G., Mousavi, S.E. 2015. Importance-Performance Analysis (IPA) on Factors Affecting Agility of Iranian Auditing Organizations. International Journal of Management, Accounting and Economics, 2(12), 1508-1516.

Foo, S.L., Bhattacharya, L. 2017. Agile auditing at DBS: Embracing the future, Singapore Management University. Retrieved from: https://cmp.smu.edu.sg/case/3441.

Henderson-Sellers, B., Serour, M.K. 2005. Creating a dual-agility method: the value of method engineering. Journal of Database Management, 16(4), 1-24.

Highsmith, J., Cockburn, A. 2001. Agile Software Development: The People Factor. IEEE Computer, 34(11), 131-133.

Hodgson, D., Briand, L. 2013. Controlling the uncontrollable: „Agile" teams and illusions of autonomy in creative work. Work, Employment and Society, 27(2), 308-325.

INTOSAI, IFPP GUID 5270. Guideline for the Audit of Corruption Prevention. Retrieved from: https://www.issai.org/pronouncements/guid-5270-guideline-for-the-audit-of-corruption-prevention/

INTOSAI. Documents. Retrieved from: https://www.intosai.org/documents/open-access.

Janzen, D., Saiedian, H. 2005. Test-driven development concepts, taxonomy, and future direction. Computer, 38(9), 43-50.

Jeppesen, K.K., Carrington, T., Catasús, B., Johnsen, A., Reichborn-Kjennerud, K., Vakkuri, J. 2017. The Strategic Options of Supreme Audit Institutions: The Case of Four Nordic Countries. Financial Accountability & Management, 33(2), 146-170.

Kożuch, B., Dobrowolski, Z. 2014. Creating public trust: an organizational perspective. Peter Lang GmbH, Internationaler Verlag der Wissenschaften, Frankfurt Am Main.

Lee, G., Xia, W. 2010. Toward agile: an integrated analysis of quantitative and qualitative field data on software development agility. MIS Quarterly, 34(1), 87-114.

Lehmann, D., Thor, M. 2020. The Next Generation of Internal Audit: Harnessing Value from Innovation and Transformation. The CPA Journal, 90(1), 60-61.

Lukka, K., Modell, S. 2010. Validation in interpretive management accounting research. Accounting, Organizations and Society, 35(4), 462-477.

Lukka, K. 2014. Exploring the possibilities for causal explanation in interpretive research. Accounting, Organizations and Society, 39(7), 559- 566.

Lyytinen, K., Rose, G.M. 2006. Information system development agility as organizational learning. European Journal of Information Systems, 15(2), 183-199.

Masood, Z., Hoda, R., Blincoe, K. 2018. Adapting agile practices in university contexts. Journal of Systems and Software, 144, 501-510.

Mergel, I., Gong, Y., Bertot, J. 2018. Agile government: Systematic literature review and future research. Government Information Quarterly, 35(2), 291-298.

Moe, N.B., Dingsoyr, T., Dyba, T. 2009. Overcoming barriers to self-management in software teams. IEEE Software, 26(6), 20-26.

Nerur, S., Mahapatra, R., Mangalaraj, G. 2005. Challenges of migrating to agile methodologies. Communications of the ACM, 48(5), 73-78.

Newmark, R.I., Dickey, G., Wilcox, W.E. 2018. Agility in Audit: Could Scrum Improve the Audit Process? Current Issues in Auditing, 12(1), A18-A28.

NIK. 2011. Annual Report on SAI Activity in Year 2010. Warsaw: The Polish Supreme Audit Office. Retrieved from: https://www.nik.gov.pl/plik/id,2821.pdf.

NIK. 2012. Annual Report on SAI Activity in Year 2011. Warsaw: The Polish Supreme Audit Office. Retrieved from: https://www.nik.gov.pl/plik/id,3957.pdf.

NIK. 2013. Annual Report on SAI Activity in Year 2012. Warsaw: The Polish Supreme Audit Office. Retrieved from: https://www.nik.gov.pl/plik/id,5017.pdf.

NIK. 2014. Annual Report on SAI Activity in Year 2013. Warsaw: The Polish Supreme Audit Office. Retrieved from: https://www.nik.gov.pl/plik/id,6922.pdf.

NIK. 2015. Annual Report on SAI Activity in Year 2014. Warsaw: The Polish Supreme Audit Office. Retrieved from: https://www.nik.gov.pl/plik/id,9949.pdf.

NIK. 2016. Annual Report on SAI Activity in Year 2015. Warsaw: The Polish Supreme Audit Office. Retrieved from: https://www.nik.gov.pl/plik/id,11879.pdf.

NIK. 2017. Annual Report on SAI Activity in Year 2016. Warsaw: The Polish Supreme Audit Office. https://www.nik.gov.pl/plik/id,14314.pdf.

NIK. 2018. Annual Report on SAI Activity in Year 2017. Warsaw: The Polish Supreme Audit Office. https://www.nik.gov.pl/plik/id,17825.pdf.

NIK. 2019. Annual Report on SAI Activity in Year 2018. Warsaw: The Polish Supreme Audit Office. Retrieved from: https://www.nik.gov.pl/plik/id,20101.pdf.

Pollitt, C., Girre, X., Lonsdale, J. Mul, R., Summa, H., Waerness, M. 1999. Performance or Compliance? Performance Audit and Public Management in Five Countries. Oxford University Press Inc., New York.

Potdar, P., Routroy, S., Behera, A. 2017. Agile manufacturing: a systematic review of literature and implications for future research. Benchmarking: An International Journal, 24(1), 2022-2048.

Stapenhurst, R., Titsworth, J. 2002. Features and Functions of Supreme Audit Institutions. Africa Region Findings & Good Practice Info briefs, 208. The World Bank, Washington D.C.

Transparency International 2020. Index 2019. Retrieved from: https://www.transparency.org/cpi2019.

Qusaimeh, M., Abran, A. 2015. Design and Assessment for Agile Auditing Model: The Case of ISO 9001 Traceability Requirements. Lecture Notes on Software Engineering, 3, 189-194.

Are the Supreme Audit Institutions Agile? A Cognitive Orientation and Agility Measures

62

Qusaimeh, M., Adballah, A., Abran, A., Al-Quassas, R. 2017. Investigating Vincenti Engineering Principles in Support to the Auditing of Measurement Processes in Agile Organizations. Journal of Software, 11(2), 201-211.

Van Acker, W., Bouckaert, G. 2018. The impact of supreme audit institutions and ombudsmen in Belgium and The Netherlands. Financial Accountability & Management, 35(2), 55-71.

Vroom, V.H. 1964. Work and Motivation. Jossey-Bass Publishers, San Francisco.

Wells, A. 2014. Agile management: Strategies for success in rapidly changing times – an Australian University Library perspective. IFLA Journal, 40(1), 30-34.

Williams, L., Cockburn, A. 2003. Agile software development: it is about feedback and change. Computer, 36(6), 39-43.

Williams, L., Kessler, R.R., Cunningham, W., Jeffries, R. 2000. Strengthening the case for pair programming. IEEE Software, 17(4), 19-25.

Wright, C. 2014. Agile Governance and Audit: An overview for auditors and agile teams. IT Governance Publishing, Cambridgeshire, United Kingdom.