U4 Expert Answer

The use of technology for managing income and asset declarations

Query

Could you provide an overview of software for managing and verifying asset declarations of public officials, including examples of countries where it has been implemented and lessons learnt from implementation?

Purpose

Our Anticorruption and Integrity Department would need this information to inform other projects.

Content

Caveat

There is no universal generic software that can be used by countries to manage asset declaration schemes, and most countries have developed their own customised technical solutions. This answer focuses on the expected benefits of the use of technology for managing asset declarations and the core functions that such software should perform.

Summary

There is evidence in countries such as Argentina that the use of technology can improve the effectiveness and efficiency of asset declaration schemes by increasing compliance and decreasing management costs. The use of technology can contribute to reducing human error in the submission process, increasing the efficacy of the verification process and facilitating public access to asset declaration information.

Software for managing asset declaration regimes needs to be tailored to the local legislation and declaration items. No universal software can embrace the wide diversity of required specifications and functionalities that vary greatly across countries. Most oversight bodies implementing a technology-based asset declaration system have developed their own customised technical solution to perform their core functions.

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1. Benefits and challenges of using technology for managing income and asset declarations

Overview

Asset declaration regimes aim to prevent conflicts of interest among public officials and members of the government and/or avoiding illicit enrichment by monitoring variations in the wealth of senior public officials and civil servants over time. An independent government agency is responsible for receiving, archiving and reviewing the submissions, verifying and investigating possible wrongdoing, and training and reporting on compliance. When the law requires disclosure to be accessible to the public, the responsible agency is required to publish the declared information (in the media or online) or to make it available on request.

Therefore, the government agency/oversight body in charge of managing the assets declaration regime plays a pivotal role in making the system effective and ensuring that it meets the objective of preventing conflicts of interest and/ or illicit enrichment. The agency's role revolves around three major core functions:

- managing submission compliance to ensure that public officials who are required to disclose their assets do so accurately in a timely manner in compliance with laws and regulations
- verifying the contents of a selection of asset declarations, including formal review of the completeness and consistency of the declared information and analysing the content of the declarations for detecting potential illicit enrichment
- managing public access to asset declarations

Countries across the world rely on technology to varying degrees for performing these core functions of asset declaration schemes. Some systems are entirely paper-based, others, such as that in Argentina, are entirely technology-based, from online submission of asset declarations to verification of declared information and online publication of compliance data. However, in general, the vast majority of countries combine paper-based and technology-based systems.

Expected benefits

While there is little empirical evidence of the impact of the use of technology on the effectiveness of income and asset declaration systems, there is a broad consensus that it can contribute to reduce human error in the submission process, increase the efficacy of the verification process, and facilitate public access to asset declaration information and thereby improve the accountability of public officials.

In countries with technological capacities, electronic management of asset declarations has many potential benefits (Hoppe 2014; World Bank 2012; Burdescu et al. 2010):

- Technology allows the automation of completeness and consistency checks, reducing delays caused by incomplete or incorrect declarations. Online submission systems can prevent many mistakes, providing guidance to the filers on how to file the information, alerting them to missing, incomplete or erroneous entries. Electronic filing also allows for standardisation of a wide range of terms and financial terminology that can be used differently by filers through the use of "drop-down" menus.
- Electronic filing may save time for both filers and agency staff. Online submission may increase compliance by reducing the filers' time and cost burdens of physically submitting their declaration, while eliminating for agency staff the cumbersome process of transferring data from paper to electronic data management systems. In Argentina, compliance rates increased from 67% to 96% after transitioning to electronic submission of declarations (World Bank 2013).
- Electronic submission facilitates compliance checks as to whether officials have submitted their declarations within the required deadlines. Statistical information and overall analysis of all declarations are easy to implement.
- There are major logistical challenges in managing a paper-based system. Electronic

filing makes it easier, safer and more secure to store the data. Electronic declarations also facilitate the management and retrieval of data, allowing declarations to be retained, consulted and compared more easily for longer periods of time, as opposed to archiving and locating physical copies.

- In terms of verification, software can automatically calculate and flag numerical misbalances and suspicious patterns. Electronic filing also makes it easier to cross-check declared information with other databases or to share the information with other state agencies such as prosecution services, financial intelligence units, etc.
- Technology makes publication of declarations easier and more user friendly, allowing third parties, such as investigative journalists, to electronically search data bases of assets declarations.
- Lastly, electronic systems allow the implementing agency to quickly track and report on performance of the systems and of their own operations.

Costs and challenges

Costs

In determining whether to use technology for managing asset declarations, it is important to consider the up-front costs associated with developing and implementing the technology as well as the longer term costs of maintaining, running and updating software and equipment (Hoppe 2014).

Using technology for managing income and asset declarations not only requires up-front investment in the development of customised software and purchasing the necessary hardware but also ongoing costs of maintaining the computers, servers and storage capacity of the system (World Bank 2012). In Argentina, for example, the current hardware has not been renewed since the inception of the electronic system in 2000, resulting in slower processor speeds in the face of the increasing database of the 33,000 officials who are required to electronically file their asset declarations (World Bank 2012).

Challenges

The use of technology also requires access to adequate training and technical expertise to ensure proper functioning of data management systems.

Public sector anti-corruption institutions in developing countries face major challenges in this regard. According to experts consulted within the framework of this query, many of these agencies lack the understanding of how technology and data management can be deployed effectively to meet their policy goals. Too often anti-corruption institutions also lack the knowledge of which software applications must be procured. This situation is exacerbated by the absence of a coherent, informed and practical national strategy for information management, including data collection, storage and retrieval as well as data security. A comprehensive ICT strategy is therefore a critical pre-requisite before investing considerable amounts of money in acquiring expensive hardware and software.

In addition, government agencies tend to operate in silos and develop their own platforms and software systems, using their favourite local contractors and programmers, without necessarily considering critical issues such as inter-operability of data management systems between government agencies and essential cooperation necessary to expose corruption and successfully prosecute corruption cases. This can pose major challenges for managing asset declarations, as one agency's dysfunctions will automatically impact another and undermine the exchange of information across relevant agencies such as Financial Intelligence Units (FIU) or prosecutorial agencies.

For example, weaknesses in the technological solution used for human resource management will undermine the capacity of the oversight body to effectively target the public officials that are required to submit their declarations. Similarly, the FIU may have built its own system and use an incompatible database system to collect suspicious activity reports from banks, which constitute valuable information to cross-check and to uncover corruption and money laundering patterns. In many cases, prosecutorial agencies

also have their own case management information systems which would need to access the asset declaration data in real time if the system could allow automatically matching and retrieving relevant declarations for further verification. If the data systems of these agencies are not connected and operate in silos, automating the data management of the income and asset declaration system may fail to yield expected benefits in terms of detecting corruption and illicit enrichment.

Such interconnectivity across agencies is all the more important as in practice, it is relatively rare that analysis of an income and asset statement alone will reveal corrupt activity (Messick 2014).

2. The use of technology for managing income and assets declarations

The use of technology for managing compliance

There are a number of tasks which the oversight body needs to perform to manage compliance that can, to a certain extent, be automated (World Bank 2012):

- creating and managing a register of officials obligated to file, keeping track of the number and identities of the officials occupying these positions and their career development over time, notifying officials of their obligations to file within deadlines
- developing forms for submission, in some cases online forms
- receiving asset declarations and conducting a formal review for completeness and consistency of declared information
- contacting filers to complete and clarify incomplete declarations
- transferring data from the declarations to a database for facilitating retrieval of information, verification, data tacking and publication of data
- securing safe storage and easy retrieval of declared information

The use of technology can greatly facilitate the various stages of these processes.

Submission process

Paper-based systems have higher numbers of declarations with mistakes (Hoppe 2014). Electronic submissions of asset declarations can be instrumental to develop a user-friendly submission system that ensures that the information is provided in a consistent format, using standardised terminology to facilitate the validation and analysis of the data. In addition, in fully automated systems, the submission of an incomplete declaration can be electronically prevented, with filers unable to complete the submission process if some fields are left blank. The system can also provide support to filers in filling out the declaration, by allowing only correct categories to be entered, as is the case in countries such as Latvia and Argentina. Some countries, such as Latvia, pre-fill online declaration forms with personal data from existing databases, such as tax information.

Electronic submission also allows the monitoring of compliance data and to easily check whether all officials required to submit their declarations have done so within the requested deadline.

Data management systems

Irrespective of whether declarations are submitted online or on paper, the oversight body needs to transcribe data from a hard copy to a database management program. It needs to acquire or develop data management software to create a searchable database with a user-friendly interface.

In countries where declarations are submitted on paper, the registration and financial information need to be entered manually into the database and the declaration checked for completeness. As such, the data transfer process provides the first opportunity for basic detection of irregularities and red flags. However, it is a labour intensive and time consuming process, which ideally requires the involvement of two people to avoid possible errors (Hoppe 2014). Some countries, such as Croatia, hire temporary staff during “busy” periods following elections to perform the data transfer, although this approach is not necessarily

recommended as temporary staff are unlikely to be trained in detecting risk factors (World Bank 2012). In some countries, such as Romania, the paper-based declarations are scanned and introduced in a data management system and are accessible in pdf format. The database is searchable using criteria such as the name of the public official, the position, the public agency and the date of submission (OECD 2011). Many NGOs argue that a scan is only useful when the text is itself searchable and not encrypted in an image. Otherwise, picture files in which text cannot be searched should be avoided (Hoppe 2014). The electronic database can take the form of a spread sheet (Excel file) or a database customised to the needs of the oversight body. The register can be organised with separate columns for each category of data as well as a comment field for the oversight body to flag missing data or irregularities. Irrespective of the technical solution adopted, the database needs to be all-inclusive to allow for automated searching and filtering of information. For operational guidance on how to design such registers, please see the practitioner manual on processing and analysing income and asset declarations of public officials (Hoppe 2014).

The data transfer process needs to be designed in a way that ensures secure storage and easy retrieval of information. Assigning a number to each filer can contribute to facilitating the retrieval of information. Some systems, such as that in Slovenia, assign a unique number to each filer which enables quick retrieval of all declaration submitted by a filer over time. This allows for the identity of the filer to be concealed for privacy purposes during the formal review and verification processes and eliminates potential errors resulting from duplicate names (World Bank 2012).

The use of technology for the verification of assets declarations

To fulfil its deterrent function, the verification process needs to be designed in a way that creates a reasonable likelihood of detection of illicit enrichment. In principle, the law regulates whether the oversight body has the mandate to verify or not the content of the declarations. In some countries, privacy laws preclude the possibility of verification and investigation can only be triggered by allegations of violation or suspicious or inconsistent filing in the initial review of the asset declarations. Some countries, such as Georgia or Croatia, leave verification to members of the public or the media. As it would not be feasible and cost-effective to verify all declarations, most countries that have a verification system in place target a sample of asset declarations for review, according to pre-defined criteria. The use of technology is instrumental to select declarations for verification in a transparent and unbiased manner.

Targeting assets declarations for verification

There are various approaches to targeting a sample of declarations for verification. Many countries use a combination of criteria (World Bank 2012):

- declarations of high ranking officials: this requires a system for maintaining an updated database of senior officials and their rank
- declarations of officials from certain agencies (tax, customs, etc.) who have higher risks of corrupt behaviour
- declarations of officials with particular duties and functions regardless of the agency they work for (managing state resources, procurement, licences and permits, transactions with private sector and the public)
- declarations for which red flags have been detected or allegations of misconduct have been made
- random verification of a number of asset declarations

Paper systems are more limited in their ability to target declarations for verification and the selection process is more onerous and time consuming without electronic management capacity. On the other hand, electronic review systems with data mining software can enable agencies to conduct random or targeted reviews of asset declarations as well as to prioritise specific risk categories (Burdescu et al. 2010). Electronic submission and data management systems greatly increase the range of options available for targeting declarations for verification in a cost-effective manner, according to rank and seniority, specific public agencies,

positions, or declarations for which red flags have been detected.

Electronic systems also make it possible to randomly verify a selection of declarations based on identification numbers associated with each specific filer. This spreads the likelihood of verification evenly across all categories of public officials, preventing the arbitrary or politically motivated selection (World Bank 2012).

Means of verification

The verification process can involve a number of steps and approaches, including 1) formal review of all declarations (checking individual submissions for internal consistency and completeness); 2) variation in wealth (comparing declarations to monitor changes over time); 3) cross checking declarations with external sources and databases (vehicle, tax, land, banking registers if such sources of information are available and reliable in the country); 4) analysing declarations for potential incompatibilities (conflicts of interest) and 5) lifestyle checks.

Beyond selecting declarations to be checked, technology can be instrumental in the actual verification process at different levels:

- Quality of the submission: simple checks for both completeness and consistency of the declared information can be automated.
- Identification of red flags and suspicious patterns: technology also makes it possible to run computerised pattern recognition checks to identify red flags and irregularities (Burdescu et al. 2010). This can include detecting inconsistencies, discrepancies and significant changes in wealth by comparing changes in assets from one declaration to the next (World Bank 2012). Another approach consists of comparing basic data and elements across a whole sample of declarations to identify outliers and discrepancies.
- Cross-checking of information with other databases: the agency can also electronically tally the declared information with other state databases such as tax, land, real estate, vehicle registers, FIUs' databases, etc.

However, while technology can greatly facilitate the process of detecting red flags, some irregularities can only be detected through in-depth checks by qualified staff members, especially when it comes to non-numerical data (for example, changes in makes of cars or location of property) (World Bank 2012). Therefore, effective verification can neither be fully automated nor totally substitute a certain degree of human scrutiny.

Electronic solutions for facilitating public access to asset declarations

For countries publishing asset declarations, technology facilitates public access to individual declarations, especially when declarations are published online, allowing external users to search or migrate data for their own purposes. Croatia, for example, relies on public access to declarations for verification purposes. The staff of the Commission for the Prevention of Conflict of Interest transfers the information from paper declarations onto the Commission's website, submitting assets declaration to public scrutiny by publishing them online (World Bank 2012).

Technical solutions[1]

Broadly speaking, software for managing asset declaration systems can be developed to perform a number of key functions, including (World Bank 2012):

- maintenance of up-to-date register of declarants
- electronic submission of declarations
- electronic filing system
- searchable database of declarations to track data
- plausibility check/identification of red flags
- targeting of verifications according to risk factors/random selection of declarations to be verified

[1] This section is based mainly on input from experts consulted within the framework of this query.

- connecting with other state agencies

providing online access to declarations and compliance data Most countries implementing a technology-based asset declaration system have developed their own customised technical solution to perform these tasks, probably as the software's specifications and functionalities need to be tailored to the local legislation and the declaration items vary greatly across countries.

In addition, the technological solution adopted may be designed to serve different purposes across countries. Some countries use technology to support compliance and remind declarants of deadlines while others are especially concerned with publishing declarations online and allow external users to search and migrate the data. Others put greater emphasis on the submission process with features such as pre-filling declaration forms with data from other state databases or preventing incomplete or incorrect declarations. It would therefore be quite challenging to develop a universal software that can embrace the wide variety of country-based requirements and approaches to asset declaration management.

An additional challenge is that universal software typically requires more training than a customised one which are specifically designed for the each country's legal requirements and the specific needs of the oversight body.

According to experts consulted within the framework of this query, from a technological perspective, it is relatively easy for programmers to develop software performing the various functions required for an effective asset declaration system. However, the pre-requisite is that the oversight body has a clear vision of what the software should do and provide the programmer with exact instructions of what is needed. As in many countries, the procedures for financial verification on paper are already weak, and this process can prove challenging.

An example of a technological tool that could potentially be used to overcome such challenges is INFORM IAD, a database tool that can help a country or agency create their own declaration form, provide access to users and analyse the data to look for discrepancies. For the latter, additional reporting or analysis tools are necessary. To identify discrepancies, the agency must come up with the business rules that will automatically flag and filter out the declarations meeting these criteria. Developed within the framework of World Bank income and asset declaration projects, countries such as Ethiopia, South Sudan and Thailand are developing tools based on the INFORM IAD concept.

3. Country examples

The examples below have been selected to illustrate the variety of technical approaches and systems that countries can take to manage their asset declaration schemes.

Argentina

Argentina transited to online submission and management of asset declarations when it became clear that with the number of public officials required to file an asset declaration (currently approximately 36,000), the filing requirements would rapidly overwhelm the agency's ability to fulfil its mandate. As a result, the system became highly automated, including online declaration forms; online submission and submission compliance processes; and electronic data storage, records management and reporting (World Bank 2013).

Software was developed in-house by a consultant which filers can download from the Anti-Corruption Office's website or access on a CD-ROM. The software requires filers to complete all required fields before the form can be submitted, reducing the number of formal errors or incomplete or incorrectly filed declarations. It also automates the detection of discrepancies between a filer's declared income and changes in income and assets over time.

The system also enables the systematic verification of the top 5% of most senior officials as well as electronic verification and targeted audits of disclosures based on categories of risk of the remaining 95%. The Asset Declaration Unit is able to verify around 2,500 declarations a year.

The system also provides added safeguards for the protection of personal and sensitive data, such as addresses, bank account numbers, copy of tax declarations, by using a dual submission process (of private and public annexes). The software automatically splits the data into two files, corresponding to the public and private annexes. These are then sent online to be stored on the servers of the Asset Declaration Unit in the Ministry of Justice (the private annex is encrypted). The private declaration (*anexo privado*) is kept under seal except by court order, while access to a hard copy of the public annex (*anexo público*) is given in situ in the premises of the Asset Declaration Unit. A list indicating the names and posts of officials who have submitted or not submitted declarations must be published on the internet and in the official government publication (Boletín Oficial) within 90 days of receipt of the filed declaration.

The introduction of technology had a significant impact on the effectiveness of the asset declaration scheme. In the year following implementation of the automated submission system, submission compliance rates increased from 67% to 96%, and the estimated cost to the government per declaration decreased from US$70 to US$8. The number of conflict of interest investigations as well as the number of financial disclosure requests rapidly and dramatically increased (World Bank 2013).

In Argentina, asset declarations are deemed to be public records and newspapers routinely publish the public disclosures of prominent politicians. In 2012, for example, the newspaper La Nación of Argentina partnered with Directorio Legislativo, Poder Ciudadano – Transparency International's chapter in Argentina – and the Asociacion Civil por Igualdad la Justicia (ACIJ) who had respectively been collecting asset declaration data on national legislators and public officials within the executive and from federal judges (Baron 2013). A platform was developed to show, in an interactive and simple way, asset declarations of public officials, judges and legislators.

Mexico's Declaranet system

In Mexico, since 2002, all federal public servants are required to complete and present their declarations through the Declaranet system (Kossick 2002):

The first step consists of establishing the public servant's electronic identity, which is completed online in a few minutes, resulting in the generation of a pair of keys and a digital certificate. Public servants can use these password protected keys and certificate to electronically sign the declaration for a period of five years. Once the Declaranet application has been downloaded, public servants enter the required information. All data is encrypted and the information is kept confidential. Properly completed declarations are digitally signed and electronically filed with the Secretaria de Contraloria y Desarrollo Administrativo (SECODAM) which electronically acknowledges receipt of the declarations.

SECODAM is responsible for verifying the asset declarations and for initiating investigations when illicit enrichment is suspected. The information from the reports is organised as a matrix of facts that can be analysed along vertical and horizontal dimensions, making it possible to track the history of assets through examination of the acquisitions, sales, donations and inheritances of the public servant. It also allows examination of bank records to ensure that savings and expenditures are consistent and in line with the public servants' known sources of income. SECODAM then also cross-checks the reported information using information collected by other public institutions (Raile 2004).

The implementation of the system initially faced challenges, such as the weak digital culture across the federal public administration, modest resources, lack of internet access of staff working in remote areas as well as some initial technical difficulties (Kossick 2002). At the inception of the system, to overcome public officials' resistance to new technologies, the government developed an online instruction portal, provided training sessions, created a toll free call centre and set up training centres to provide guidance to filers (World Bank 2012).

Transparencia Mexicana recently launched a platform which is intended to help citizens identify who their electoral candidates are and invite them to disclose assets, interests and tax declarations, let candidates know how they can disclose their information and review the information about the candidates who have disclosed it.

Indonesia

Indonesia's asset declaration system is managed by the Corruption Eradication Commission (KPK), an independent anti-corruption agency. The system was introduced in 2001 and the KPK primarily focused on establishing mechanisms and capacity for managing its "wealth reporting system" and, increasing submission compliance among officials required to disclose their patrimonial situation. Having increased compliance from 56% in 2006 to 85% in 2009, the KPK is now focusing on strengthening its verification capacity (World Bank 2013 and 2012).

The submission of declarations is paper based but administrative and operational data management processes are technology based. Declarations are submitted in hard copy (about 116,500 in 2009), and scanned for archival and retrieval purposes. Data is then processed by about 80 staff with line managers helping validate the data. Consequently, the majority of the staff in the Wealth Reporting Directorate are data processing agents in charge of entering the data into a custom built system. The technology staff formally review the declarations but more so to validate the information in terms of completeness and consistency of dates, personal information, values and totals than to check its accuracy.

A sample of 1% to 5 % of declarations is verified, primarily targeting the declarations of officials in high-risk agencies, selected manually by cross checking various KPK data bases. The KPK has introduced enhanced analysis and reporting using data warehouse and business intelligence tools which provide increased verification options and the publication of statistics and trends.

Summaries of wealth disclosure reports are published in the state gazette and online on the Anticorruption Clearing House Portal website. The portal also provides public access to compliance statistics and other reports on the system's performance. For example, the Wealth Reporting Department analyses collected information to obtain institutional performance reports, such as the submission compliance rates (overall, by government office, by province, by sector, by age, and so forth). Other kinds of reports collate all declared assets and their values, which can then be viewed across a number of dimensions (World Bank 2013 and 2013).

Georgia

Georgia's transition to an online asset declaration system took place in 2010. The online submission program was developed and administered by the Civil Service Bureau (CSB) and completely replaced the previous paper-based declarations. Senior officials simply need to log on to the website and fill out their declarations online using a unique password issued by the CSB. Within 48 hours following the submission of declarations, the information is published online for public scrutiny and is available for free to anyone wishing to download a copy.

While this system is considered to be a sound, transparent electronic system of asset declarations, making the information regarding the property and economic interests of public officials accessible to the public through a dedicated website, the information was initially disclosed by the government in a format that made it difficult to search and use the data. Transparency International Georgia downloaded the data, repackaged it and made it available in a user-friendly format. Over time, the government also improved the data format of the official declarations.

As there was until recently no verification system in place, verifying the completeness and accuracy of the disclosure is left to the media and the public. Civil society organisations verify the asset declarations of politicians and compare them over time to detect changes in income and financial interests, linking figures to other publicly available data from the public registry of companies, for example, to search for potential conflicts of interest and illicit enrichment (Transparency International 2013). Informal reviews of asset declarations conducted by Georgian civil society

organisations have identified multiple cases where public officials have failed to disclose their involvement with various private sector companies or to fully report their assets (Open Society Georgia Foundation 2015). Parliament recently adopted at first reading amendments introducing a concept of verifying asset declarations.

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