

The application of a personal identification database and risk management mechanism

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Abstract

In the ICT era and take into account the trend toward NPM, Governance has been urging the e-government to provide "active" and "tailored" services. More importantly, in the aged society resulting from the aging baby boomers, the services of a democratic government need to be more satisfactory and timely when a large part of the citizens in any society become old. A system or database containing personal data by which to identify individuals is indispensable when the e-government wants to deliver services. According to Tsai (2005a: 7)'s research: a method of personal identification is used to distinguish the data specific to personal characteristics such as ID cards, credit cards, GCA, signatures, fingerprint, iris scans, blood vessels, etc. The first part assigns data on personal characteristics on the "carrier," and the second part makes us of a "live" body. Because the "carrier" may be lost and copied, the second method is less risky from the current perspectives of "duplication" technology. Although a "live" body is better than a "carrier," considering the method of personal identification, there is another issue that must be considered when the e-government wants to collect personal data that relates to the issue of "privacy," not to mention the development of a means by which to integrate different kinds of personal "live" data into a database. Therefore, in this research, a literature analysis and the political economy approach are used to explore this issue based on demand and supply, problems of privacy, risks, and management mechanisms because determining a method by which to ensure that personal identification data is not leaked and misused is a very serious issue. This also involves the concept of "risk," as Beck, Giddens, Lash & Urry (1994) mentioned in their discussion of "Risk Society" in the "Second Modernity." As a result, risk management is vital, especially the recognition of how risk diverges among people. This essay therefore focuses on the following: how to choose a proper personal identification tool, the establishment of a personal identification database and the creation of a set of safe enquiry mechanisms, which includes both inquiry rights and inquiry methods. This inquiry method contains both public usage and personal usage, based on group decisions and self-decisions, respectively. Furthermore there should be laws established to punish offenders. Thus, this paper not only provides a method for using personal identification to benefit people, but also offer cures intended to prevent risk by using a special enquiry mechanism. Consequently, the e-government will be able to actively provide tailored services and provide welfare to the population.

Keywords: Personal identification, risk, enquiry mechanism, tailored service, e-government

1. Introduction

The main goal of personal identification is to distinguish between individuals. It not only positively identifies who someone is, but also can negatively prevent others from impersonating someone. Personal identification is also helpful with regard to clarifying the rights and obligations that exist among members of social groups and to establishing stable collective orders. In addition, it always can be used to deliver governmental services as an important basic tool. Especially in regard to the development, integration and application of ICTs, security control functions can be applied, democracy and justice can be promoted, making it be more important as time goes by.

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(Tsai, 2006: 29 ; 2005b: 103 ; 2002: 70) More importantly, as a result of the incitement of “re-inventing government,” “new public management” (NPM), “governance” and the influence of changes in “customer orientation” a new benchmark for “tailored” e-government services has emerged. For example, online taxes, easy cards, E-gates, and E-voting, among others. As a result, for e-governments, it is a critical mission to determine which kinds of tools are suitable for actively delivering these “tailored” services. One example is where the UK uses biometric fingerprint and face characteristics to identify personal visas¹, or where the R.O.C. uses facial biometric images, two index fingerprints and a passport as an rapid immigration pass tool to permit passage through an E-gate in 12 seconds.²

According to research by Tsai (2005a: 104-111), methods of personal identification can be used to distinguish data related to personal characteristics. Some identification tools, such as ID cards, credit cards, GCA, signature, ATM cards, ID number, etc. puts personal characteristics data onto a “carrier.”³ Other tools such as fingerprints, palm prints, iris scans, blood vessels, finger-veins, voiceprints, physiognomy, DNA, etc. are only on a “live” body,⁴ due to the fact that material on a “carrier” can easily be lost and also easily copied. Since a “carrier” may be easily lost and duplicated, the “live” body is relatively less risky than the “carrier” from the viewpoint of current “duplication” technology. Nevertheless, the question remains as to why e-governments don’t establish a platform for a personal identification database that can be provided to the entire nation⁵ instead of personal identification files that are distributed by many government divisions individually. There are some problems that must be solved.⁶ Although these kinds of problems are in the Public Administration arena, they are always related to policy analysis and involve: 1. a primary concern with explanation rather than prescription, 2. a rigorous search for the causes and consequences of public policies, and 3. an effort to develop and test general propositions about the causes and consequences. (Dye, 2001:6-7) Also, developing scientific knowledge about the forces shaping public policy and the consequences of public policy are themselves socially relevant activities. However, policy issues are decided not by analysts but by political actors.

¹ Basically it is related to the development of the social, political, economic, culture of a country. For more BRP information, please search the website of <https://www.gov.uk/browse/visas-immigration/manage-your-application>.

² National Immigration Agency (NIA) of Republic of China (ROC) announced its online E-gate system services for residents on 09/03/2012. For more information, please search the website <http://www.immigration.gov.tw/egate/english.html>.

³ Because it is just a “carrier”, it cannot prove who the holder is, only that it is the “carrier.” Thus, swindles can easily to occur when the “virtual person” is revealed by ways of two duplicate identifications.

⁴ There have been many new innovations in biometric technique applications in recent years that have already crossed over the traditional biometric characteristics (e.g. face, iris, fingerprint, etc.) to things such as finger-veins. These techniques have the merits including “immunity to counterfeit”, “active liveness”, “user friendliness”, and no contact. (Wu and Liu, 2011; Yang, Shi, & Yang, 2011; Song et al., 2011; Seetharaman and Ragupathy, 2012)

⁵ This kind of platform could provide efficient and economical usage by an entire country. Especially in this diverse policy environment, using government tools such as contracting out some public services, building networks, and establishing citizen participation mechanisms are considered as essential components of this new approach (Ismail, 2014: 1082). And this kind of integrated platform can be applied to different ministries, as basic infrastructure to achieve the aims of openness, transparency, and knowledge accumulation by e-governments.

⁶ To solve the problem, some questions should be asked which include: What policies have been established? What is the result? What is the value of the result? What policy alternatives could be utilized to resolve the problems? What will the future outcome be? Dunn (1994) suggested that “the methodology of policy analysis provides the information which could answer five problems effectively, which are: the nature of problem, policy future, policy action, policy outcome, and policy performance.”

Tsai, C.H. (2015). The application of a personal identification database and risk management mechanism. *International Journal of Social Sciences and Education Research*, 1 (4), 1009-1016.

Therefore, this research makes use of a literature analysis and a political economy approach.¹ It is aimed at exploring the application of personal identification databases via demand and supply, problems, and risk and its management.

2. The need for personal identification tools and a database as a platform

Initially, the e-government needs to establish a comprehensive personal identification database or system through which to deliver services. Because the government delivered its services through establishing household registration data in the early days, it cannot deliver the services through this tool actively. However, now e-governments always deliver services through ICT devices. With the trend toward NPM, the governance urged the democratic government to fulfill the needs of people² because democratic governments should respond to these needs. Moreover, in an aged society³ resulting from the aging of the baby boomers, government services have to be more satisfactory and timely.⁴ The number of aged people will double in a few decades. Aged people need more aid and care, which includes life and health care subsidies. However, if the personal identification database is constructed among many divisions of the government, even if it still maintains the same public values, more manpower resources and budget expenditures are necessary. However, this goes against the tide of improving performance and reducing costs. In short, it will affect administration efficiency.

Certainly, the need for establishing a personal identification database could exert a multiplying effect. It is especially helpful with regard to fiscal income because this kind of system could be applied to both the government and private sector to provide identification functions quickly and cheaply through an ICT network device. In fact, the whole country needs to promote efficiency and save money with integrated personal identification tools and a centralized system. Naturally it is helpful for the e-government to provide “active” and “tailored” services. Meanwhile, fiscal income could also be increased by charging for private usage if the owner of the “live” body permits this. For example, currently, if a customer wants to obtain an account in a bank, then the bank will check who this customer is by comparing two kinds of personal identification. If a customer agrees to use a biometric personal identification database, it will be very easy to identify

¹ Due to the fact that has relationship with a country’s development and abilities, which includes economical ability and political ability, this essay explores it using an approach taking into consideration people’s demands and the government’s supplies and tools. Because of political economy is related to supply and demand and a country’s autonomy and functions.

² The New Public Administration movement is responsive to the challenges of a networked, multi-sectored world where no one person is wholly in charge. This means that the new approach should stick the principle of public values as before and try to make use of the merits of entrepreneur and through the collaboration of citizens as well as businesses and nonprofit organizations, to solve the problems. Just as Enroth (2014: 60) mentioned: “in order to access and assess the new art of governing on its own terms we need a sociological imagination that stretches beyond societies and a political imaginary without the presupposition of collectivities.”

³ The definition of “aged people” is old people aged 60 or older. According to the “Population Ageing 2013” report from the Department of Economic and Social Affairs (DESA) of the United Nations, ageing results from a decrease in mortality, and, most importantly, declining fertility in nearly every country in the world. The global share of older people (aged 60 years or over) increased from 9.2% in to 11.7% in 2013 and will continue to grow as a proportion of the world population, reaching 21.1% by 2050. <http://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2013.pdf> Accessed in Nov. 10th 2015.

⁴ As Liou (2015: 40) stated: “Local governments have also emphasized the governance concepts providing quality public services, and the applications of modern information and communication techniques improving their performance (e.g., OECD 1995; Peters and Pierre 1998; World Bank 1994).” Walker said, “Changing circumstances have focused attention outside the silos of policy and functional areas of the government towards the complexity associated with challenges that cut across these domains, and include issues such as ... sustainable development, aging and poverty alleviation”(Walker, 2015: 47).

the person by simply connecting with the network. This not only could improve the efficiency of opening an account for both the customer and the bank, but the government could also get a usage charge.

In short, the aims of new public management or governance, especially in the case of an e-government, is to serve as a guarantor of public values, and also to try to get the benefits associated with private entrepreneurial management in order to reinvent the government because they want to innovate, introduce new management and organizational practices, and explore new ways to deliver services. As Walker (2015: 47) pointed out, “at the heart of good management and governance is to establish outstanding institutions.”

3. The key points of e-government supply

From a comparison of personal identification tools, we can conclude that a “live” identification is better than that of a “carrier.” However, when we want to apply it, there are some key points should be considered when an e-government wants to construct a personal identification database. First, mass, uniqueness, invariability, and convenience should be considered (Tsai, 2006: 33). Second, two or more kinds of personal identification tools are helpful for confirming identity. Because we may be hurt or get a disease, and it may let our body some changes, and that changes may affect the accurate rate of personal identification tools. Consequently, it is very important to have a standby system with different identification tools to prevent the identification failure. Third, the system must work continuously and it is critical to ensure utility of usage and personal identification data isn’t leaked or misused. This means risks must be lowered. In other words, a mechanism is necessary to manage security risks.

4. “Privacy” problems

Although a “live” person is better than a “carrier” considering the method of personal identification, it’s another story when the government wants to collect personal data. Naturally, we always encounter the issue of “privacy” because “privacy” implies the willingness to let others know something private. Hence, it should be decided on an individual basis. Therefore, “self-decision” is the core of “privacy.” In another words, it is not so easy to get an agreement to access “live (biometric)” data. Not to mention that is really hard to integrate different kinds of personal “live” data into a database, because two more personal identification tools are necessary. Therefore, how to ensure the personal identification data isn’t leaked and subsequently misused is a very serious issue and it involves the concept of “risk.” As a result, risk management is vital, especially because what is considered to be risk varies among individuals.

Nevertheless, when we talk about the risk, in general, people always think about the rate of chance especially as it is related to science, while some scientists regard it as an invariably objective type of knowledge. But, when we reflex on it, there may be somebody who doesn’t think so in his or her subjective recognition because people have different perceptions of risk in the “second modernity”. For the sake of that those risks that have been regarded as not only the idea of general “risk” of technology, but also the risk of uncertainty. Uncertainty makes people fear about the future. Chou (2001: 55-64) emphasized the uncertainty and Post-normal science by the discourse of “the random recognition, practice of science, and the order by political economy, especially the development of Post-normal Science, touched the core of risk society theory.” These kinds of risks cannot be seen through, counted, or controlled in today’s society. It means that there

Tsai, C.H. (2015). The application of a personal identification database and risk management mechanism. *International Journal of Social Sciences and Education Research*, 1 (4), 1009-1016.

are also developing more systematic uncertainty of risk science. Just as Funtowicz and Ravetz (1992: 254) attempted to characterize a methodology of inquiry that is appropriate for cases where "facts are uncertain, values in dispute, stakes high and decisions urgent" there are various perspectives of risk. As a result, it is hard to communicate with each other, and hard to get a consensus on what actually constitutes risk.

Beck, Giddens, Lash & Urry (1994) mentioned the "Risk Society" in the "Second Modernity."¹ The perception of risk in the "second modernity" was the idea of general "risk" related to technology and the risk of uncertainty. Uncertainty in turn makes people fear about the future. Therefore, we need an enquiry mechanism when constructing such systems. Hence, when we want to construct a system of personal identification tools in a database, issues besides data leakage problems should be taken into consideration. Based on the fact that the core of "privacy" is "self-decision rights," the decision to divulge personal identification must be made by the individuals themselves. However, there are still some problems, such as the more we grow older, the more we are unable to do some things, which include self-decision making and activity in daily life. This implies that we need more aid and care from family, society, and the government.

5. The MIS and Enquiry Mechanism as risk management cures

Subsequently, when the e-government wants to deliver services, it needs to create a set of safety mechanisms intended to get rid of risk. A personal identification database should contain an MIS system to ensure identification security and that personal data will not be leaked (Tsai, 2005b: 101-106).² Besides, the enquiry mechanism should include both inquiry rights and inquiry methods. The first step is to ensure who has the inquiry rights. For this purpose, it can be separated into two parts. Part one is the conditions for public usage, and the other is for personal usage. Public usage means group usage because it is related to public interest. Therefore, it has to be decided by a group. Because group decisions are decided by a group, this group should consist of a committee, which includes a majority that ensures the public interest will not be violated during public usage of data. Personal usage on the other hand refers to private usage. Because it is related to private interests, it should be decided individually to ensure the rights related to self-decision and because everyone's perception of risk related to the use of a personal identification database is different. This means that it is necessary to confirm that the person making the decision can be the judge of the risk related to the decision and therefore will be responsible for any consequences or repercussions. The second step is to create a set of inquiry safety methods. This step is also divided into two parts. The first part is in case of public usage, which follows the steps referenced above. It means that for purposes of public interest, the personal identification database can be searched to determine the identity of a person. Such an inquiry determines who a person is through an inquiry. The other part is for personal usage. This refers to where the database can only be used to make a comparison with the personal identification database by oneself permission to check

¹ In the "Second Modernity" there have many interpretations of "risk society", such as "Risk: A Sociological Theory" (Luhmann, 1993) or "N. Luhmann's Risk-Sociology and Policy-Making" (Huang, 2006). For the sake of this essay focus on the theme, so as to no more discussing here. For more discussion please searching the website http://politics.ntu.edu.tw/psr/?post_type=chinese&p=924

² There have many examples about MIS system, such as USA E-Government Act of 2002 (implementation report, February, 27, 2015) (41pages). It is helpful to visit the web page of "Office of E-Government & Information Technology" website by access <https://www.whitehouse.gov/omb/e-gov/> (Nov. 9th. 2015). And web page of "internet" in TOPICS of OECD. (accessed [http://www.oecd.org/internet/ieconomy/information security](http://www.oecd.org/internet/ieconomy/information%20security), in Nov.9th.2015) Its main content include awareness, responsibility, response, Ethics, democracy, risk assessment...etc..

and assure who a person is and the result only consists of “yes” or “no.” Furthermore, to ensure the operational regulations are not violated, there should be regulations related to compensation and penalties associated with the use of this database information which could be perceived as a threat affecting anyone who violates the regulations because there may be somebody who would choose to use the information for a purpose that currently can’t be imagined. Thus, through the use of these methods, the public values related to the use of information supplied by the e-government can be maintained because the e-government plays the basic role as the guarantor of public values (Bryson, Crosby & Bloomberg, 2014).

To sum up, the cures of risk management besides the MIS include the following: First, a proper personal identification tool must be established that involves a set of system databases, including the construction of an MIS to create freedom from risk (Tsai, 2005a: 112-130). Second, a set of safe enquiry mechanisms must be created. That contains inquiry rights and inquiry methods in an institutionalized form allowing for formal regulations. The first step is to set up the mechanism for inquiry rights, which includes two parts. Then the second step is to construct an inquiry mechanism that follows the first step, which is also divided into two parts that include public use and personal use, according to group decision and self- decision, respectively. (Figure 1) Third, to ensure that the personal identification data of others cannot be seen through the use of the inquiry mechanism, the second step is the inquiry method. The one for public usage could search the database and check with the “live” data to determine identity. The other one for private use only could compare and confirm identity by requiring a result of “yes” or “no.” (Figure 2) Fourth, we need to have effective compensation and punishment mechanisms to provide risk management and prevent data leakage and ensure responsibility.

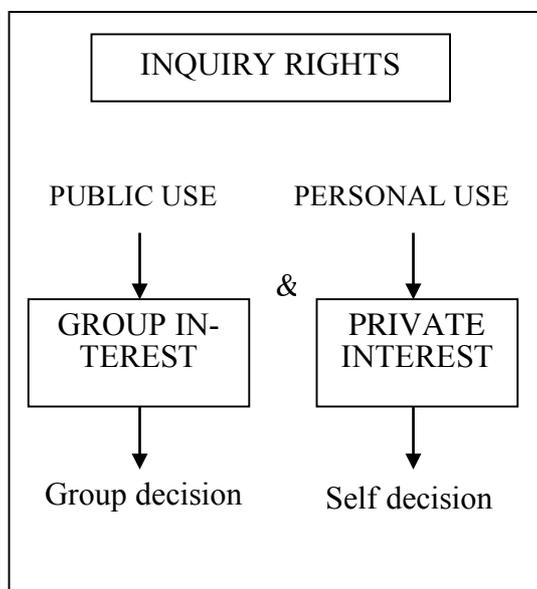


Figure 1. Inquiry Rights

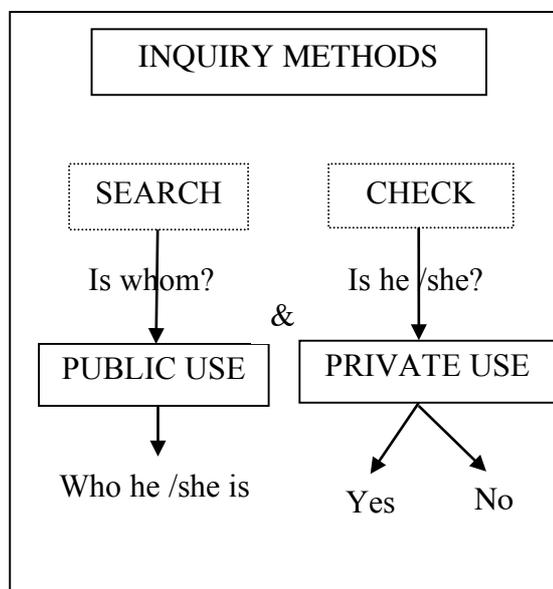


Figure 2. Inquiry Methods

6. Conclusions

To conclude, this essay explores the application of a personal identification database and risk management mechanism using a political economy approach, which is related to a country’s degree of autonomy and function, and the demand and supply of the economy. This paper’s contribution is that it provides not only a method for using personal identification to benefit people, but

Tsai, C.H. (2015). The application of a personal identification database and risk management mechanism. *International Journal of Social Sciences and Education Research*, 1 (4), 1009-1016.

also the cures to prevent risk through the use of an innovative enquiry mechanism. Consequently, e-governments can actively provide tailored services and more welfare to their populations.

More important, this decision making mechanism model could be widely applied to solve similar kind of problems, especially in the diverged era because the suggested cures take different value systems into consideration and integrate them as a whole. Besides, this kind of integrative platforms could be applied to different ministries as a basic infrastructure to achieve the aims of openness, transparency, knowledge accumulation, etc. on the part of e-governments.

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