

# **The Inspiration from Open Government, Public Engagement and Agile Governance: A Case Study of Tax E-filing System Reform in Taiwan**

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## **Abstract**

Driven by the widely held belief that use of open government data is capable of making government more transparent, accountable, participatory, and inclusive, the phenomenon of Open Government Movement (OGM) has spread around the world in the last decade. The practice and research in this field are exponentially growing and open government data has caught stakeholders' eyes from different sectors. Governments around the world have become active participants in this evolution, gradually opening up their data for access and re-use by public and private agents. However, the goals of Open Government are not only releasing data to civic society, but also including collaborative cooperation, public engagement, and open policy decision-making processes. It is unclear how those associated departments collaborate with each other to achieve those goals. Furthermore, it is crucial to further the understanding of agile governance, such as how can governmental organizations improve their ability to delivering goods and services through new technologies to deal with uncertainties and opportunities. In the field of E-Government, Taiwan is a worth exploring case, as it is ranked as the number 9 among 65 countries based on the WASEDA - IAC International Digital Government Rankings in 2018. This article focus on how agility of government organizations can bring new innovative solutions on, as well as break the distinct constraints in the public sector. We apply a case study to investigate the successful improvement of the Tax E-filing system in Taiwan, which combining the spirit of agile governance, public engagement, and public-private collaboration to promote the goals of OGM.

**Key words:** Open Government Movement, Agile Governance, Public Engagement, Public–Private Collaboration, Electronic Government

## **1. Introduction**

Since the twentieth century, when the Internet was brought into the public spectrum, we have seen that Information and Communication Technologies (ICTs) have become highly developed, especially in the past twenty years. The speed of the Internet has spread information further than the telephone, radio, or television. We can say becoming digital is one of the most important trends in human society, which will continue to completely change our world. According to a report by International Telecommunication Union's 2018 Global Digital suite, the number of Internet users in 2018 is 4.021 billion, rising 7 percent year-after-year. This means ICTs have gradually realized the connection between people. Along with this digital trend, government has also begun to develop e-Government with ICTs since 1990s. Janowski (2015) proposed a Digital Government Evolution Model with four increasingly complex phases in the evolution of the concept: Digitization (technology in Government), Transformation (electronic Government), Engagement (Electronic Governance) and Contextualization (Policy-Driven Electronic Governance). In this field, Taiwan has had enormous success. According to Waseda University Institute of e-Government, the most recent survey, which is the 2018 Waseda - IAC International e-Government Rankings, indicated that Taiwan ranked number 9

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among 65 countries. This reveals that we already have ample literature discussing digital governance and digital government<sup>2</sup>.

On the other hand, the developing trend of public governance recently focuses on making government more transparent, accountable, participatory, and inclusive. The phenomenon of the Open Government Movement (OGM) has spread around the world in the last decade. The practice and research in this field are exponentially growing and open government data have caught stakeholders' eyes from different sectors. We expect the potential benefits of OGM are not only envisaged in monetary and economic terms, but also from the perspectives of social and good governance. The main values of OGM, such as improving government accountability, transparency, responsiveness and democratic control, promote citizens self-empowerment, social participation and engagement, as well as foster innovation, have helped government services to work more efficiently and effectively (Janssen, Charalabidis & Zuiderwijk, 2012). Nowadays OGM seems have become a worldwide tendency, such as when former U.S. President Barack Obama signed the Transparency and Open Government Memorandum in 2009, committing to creating an unprecedented level of openness in Government, which will strengthen the democracy and promote efficiency and effectiveness in Government. The primary element of this memorandum is to ensure public trust and establish a system of transparency, public participation, and collaboration, and openness.<sup>3</sup> This is where Taiwan is literally ahead of the rest of the world. In 2017, Taiwan ranked #1 in the Global Open Data Index, with the only other Asian countries in the Top 20 being Japan (#16) and Singapore (#17)<sup>4</sup>.

However, we think that only promoting open government can no longer meet the needs of our modern and rapidly changing society. The reason is that in the digital world, citizens' voices can reach the government in seconds, while the government responds to the people on a weekly basis. This results in the problem that the government often cannot keep up with the people. In view of this, many scholars have offered various solutions to resolve this problem. The notion of adaptive governance is an approach from socio-ecological systems that is often used for dealing with complex societal issues in which there are many stakeholders with diverging interests, as well as uncertainty about the actions to be taken (Wang, Medaglia & Zheng, 2018). The core characteristics of adaptive governance include decentralized decision-making, utilized organizational capabilities, popularized public engagement, and institutionalized adjustments to deal with uncertainty (Janssen & van der Voort, 2016). This type of governance aims at making government more adaptable to changes in their surrounding environment, while also keeping government able to balance stability and accountability on their day-to-day

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<sup>2</sup> Source: 2018 Waseda-IAC International e-Government Rankings. Retrieved from:  
<https://www.waseda.jp/top/en-news/53182>.

<sup>3</sup> Source: Memorandum on Transparency and Open Government. Retrieved from:  
<https://obamawhitehouse.archives.gov/the-press-office/transparency-and-open-government>.

<sup>4</sup> Source: Global Open Data Index. Retrieved from: <https://index.okfn.org/place/tw/>.

operations (Wang, Medaglia & Zheng, 2018). In addition, Mergel (2016) pointed out that outdated IT systems and acquisition processes are resulting in government faces information technology upgrade and legacy problem. As a response, recently the approach of agility has been increasingly adopted in the public sector literature and practices, although it has long been in use in the private sector. Overall, the adaptive and agile approaches aim at making governments more adaptable to changes in their surrounding environment, providing a potential solution for a transparent decision-making process and promoting the government properly uses ICTs.

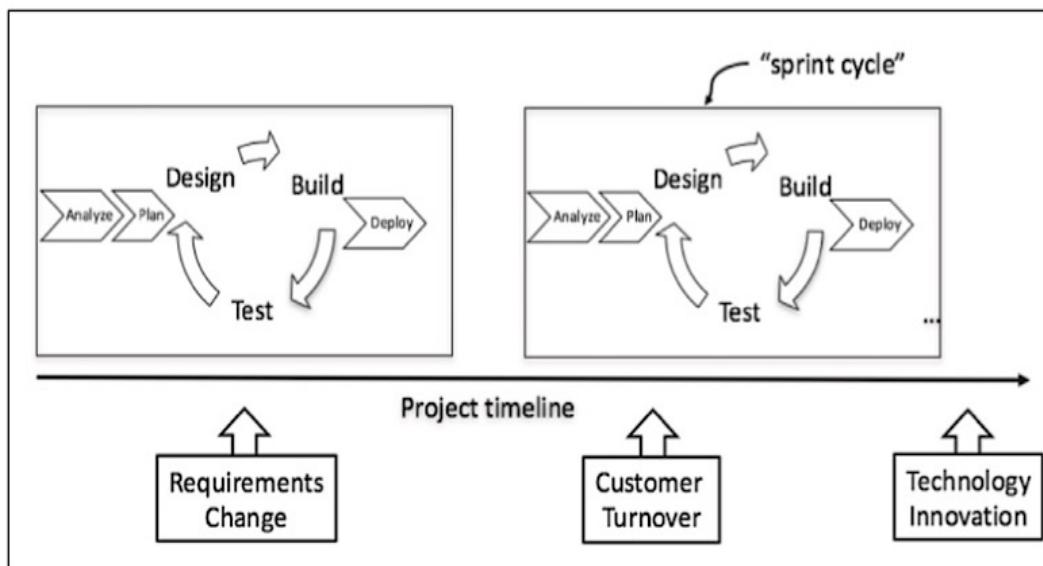
This article applies a case study analysis of the successful improvement of the tax e-Filing system in 2017 by the government of Taiwan. The purpose of this article is that through in-depth analysis of the selected case, it will spark relevant academic and empirical research and contribute to academic and practical work. The article is structured as follows. In the next section, we will introduce the concept of agile governance, highlight the benefits and challenges of agile development in the public sector, and then review the idea of public engagement. In Section 3, the article illustrates the methods of data collection and analysis used in our study, and introduces the case background in this IT-related project collaborating process. In Section 4, this article presents the findings from the empirical analysis, and constructs a new ideal model for public digital services based on the insights of the Taiwanese government case. In Section 5, we summarize our study and present the inspiration from this case for both the research and practice by adopting the spirit of agile governance, public engagement and public-private collaboration to promote the goals of OGM.

## 2. Literature review

### 2.1 Agile Governance

The development, management, and operation of IT projects in government traditionally adopting waterfall model (it is also named Software Development Life Cycle, SDLC), which tackling a relatively linear sequential process and providing product to government in the end (Mergel, 2016). In waterfall model, the sequential phases are from system and software requirements, through analysis, design, coding, testing, and ends up at operations. The core characteristics of waterfall model are that each phase must be completed and verified before the next phase begin, as well as the final product provide to buyer in the end (Royce, 1970). Although adopting waterfall model brings many advantages, it also introduces many shortcomings in the public sector (Balter, 2011). For example, requirements are hard to identify in the beginning, the external environment can change quickly, technology is innovating rapidly, the development process frequently faces design shifts, the overreliance on external IT contractors, there is a lack of user involvement, and the citizens' needs and expectations of their governments are rising (Mergel, 2016; Lappi & Aaltonen, 2017; Soe & Drechsler, 2018; Mergel, Gong & Bertot, 2018). According to the Study of Governmental Information System on Outsourcing Management in Taiwan", over half of those agencies were unable to meet the standards as scheduled.

As a response, recently government has adopted agile approach on the development of digital services that are able to resolve the problems mentioned from waterfall model and respond faster to citizens' needs (Mergel, Gong & Bertot, 2018). The notion of agile development is traced to the 2001 release of the Agile Software Manifesto (Beck, et. al., 2001), which are long in use in the private sector. The core idea of agility is the ability to quickly and effectively respond to change (Lee & Xia, 2010). Therefore, the agile model aims to make development processes fast and responsive and minimize the gap between customer's expectations and needs (Martini & Bosch, 2016). Figure 1 highlights the iterative sprint cycles of the development process:

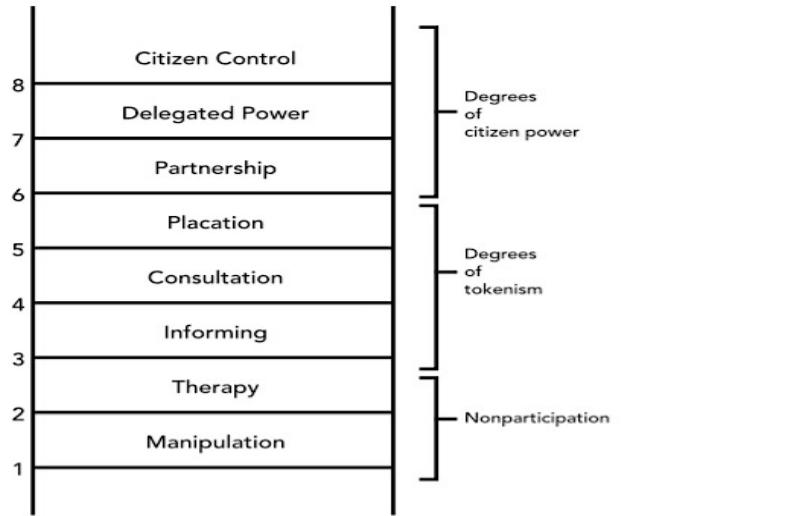


**Figure 1 Agile sprint cycles.**

Source: Mergel (2016)

## 2.2 Public Engagement

In recent two decades, public engagement (it is also named citizen engagement or public participatory) has been an international trend toward increased involvement of citizens in public decisions and public affairs (Rowe & Frewer, 2005). The purposes of public engagement are to establish a bilateral interaction between citizens and the public sector that goes beyond the traditional top-down approach on information sharing (Agostino & Arnaboldi, 2016), and enhance the quality and legitimacy of policy decisions to resolve the problems faced by representative democracy (Fazi & Smith, 2006). The ladder of citizen participation is the most clear and insightful understanding of public engagement, which was developed by Sherry Arnstein, who used a metaphor to describe the participation ranging from low to high (see figure 2). Arnstein (1969) claimed that the concept of public engagement is an approach for the redistribution of power that enables the proletariat to be deliberately included in the public affairs, and have opportunity to share the benefits from our affluent civil society.



**Figure 2. Eight rungs on a ladder of citizen participation.**

Source: Arnstein (1969).

### 3. Research Design

#### 3.1 Methodology

This article applies a case study analysis of the successful improvement of the system of e-Filing and Payment of Individual Income Tax in 2017 by the Government of Taiwan. The research method is secondary data analysis, in which empirical data was gathered through conference records via the PDIS and other online resources. We want to explore how the public sector can respond to citizen's proposals on Join Platform, and how to invite critics and associated departments to jointly improve the tax filing system through repeated discussions and collaborations. What challenges have been encountered in this process? How can they be overcome and ultimately create public value? More importantly, we want to connect this successful case with agile governance. Therefore, the purpose of this article is that through in-depth analysis of the selected cases, it will spark relevant academic and empirical research and contribute to academic and practical work.

#### 3.2 Case Background

##### 3.2.1 The Join platform

Online Public Policy Participation Platform, which is called "Join Platform," can be traced back to 2014 when President Ma Ying-Jeou aimed at construct a mechanism to response the appeals from Sunflower Student Movement. Through building a website like "We the people," an online petition system in United States, or set up an online civil deliberate forum at least, the Government of Taiwan believed that enhancing bilateral communication system with civilians is necessary. In 2015, National Development Council (NDC) set up "Join Platform" to proactively understand what citizens' needs, promote the effectiveness and responsiveness of government by means of the interaction between the public sector and civilians. Now there are four services provided on the web site: Propose, Talk, Supervise and Contact. First, Propose works like "We the people," a place where civilian can propose

their idea and second others. Second, Talk provides a platform for government to disclose the plan which government plans to do and receive people's opinion. Third, Supervise is composed of a series of visualized graph including the budget of all ministries in Executive Yuan and the detail information inclusive of schedule of policies. Last, Contact gathers the way to email all cabinets. Through public engage in Join Platform, Taiwan has an opportunity to boost government efficiency, promote broader participation in public affairs, and create a sounder business environment that may stimulate increased investment leading to stronger economic growth<sup>5</sup>.

### **3.2.2 The Public Digital Innovation Space and The Participation Officer**

The Public Digital Innovation Space (PDIS) founded by Audrey Tang, who is called "Digital Minister", and is one of ministers without portfolio in Executive Yuan, Taiwan. The PDIS is a team to promote open government, provide digital services to ministries and encourage participatory governance. In addition, based on the spirit of open culture, every activity, such as forums, meetings or interviews would be documented and be uploaded to the Internet and disclose in public through ways including transcript or video. Audrey Tang believes the most vital task is to deliver new culture to government, rather than new technology; hence, everything need realize "Radical Transparency."

In the task of realizing open government, the work is mostly performed by all ministries, councils or commissions; in contrast, Executive Yuan plays a coordinating role, and the PDIS serves as a staff and line to provide staff function. For instance, the PDIS was working with Council of Agriculture and Ministry of Finance to set up a system named vegetable price public information integration platform, which integrate wholesale price, temperature and rainfall to reduce jacking up and public concern. After that, the PDIS now manages to set up "Sandstorm," a coordinating platform to simplify internal communications and encourage cross-sectional cooperation.

Moreover, Participation Officer (PO) is one of its plans in the PDIS, which hopes to recruit public servants who interested in promoting open government. At first, they disclosed this news on PTT, the biggest bulletin board system in Taiwan. Due to Tang replied each concerning questions about recruitment under article and news, consequently, more and more public servants found this was attracted. In the blueprint of Tang, the PO is the one who get in charge of civic engagement and open government in belongs department. If there have an emergency issue of which no department or associated departments is in charge, the POs would stand out and start to coordinate. Meanwhile, the PDIS offers entitlement and technical support. Furthermore, those recruited POs would gather to attend meetings weekly, monthly and seasonally in which they can talk about every issue related to open government or civic engagement, discuss how to collaborate, and even hold a project named "Co-creation Meeting" for specific issue after they organized ideas.

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<sup>5</sup> Source: AmCham Taipei (2017). Retrieved from:  
<https://amcham.com.tw/2017/02/participate-join-gov-tw-make-taiwan-better/>.

## **4. Findings**

### **4.1 Setting the scene: the problem with waterfall development in Taiwan**

On the Join platform on 1 May 2017, a UI/UX designer (hereinafter called ‘the proposer’) made a proposal entitled “The Online Tax Filing System is Unbelievably Difficult to Use”. The proposal reflected that the tax e-filing system lacks clear instructions, easy-to-use interface and understandable process and thus taxpayers feel that using the system is unpleasant and extremely time wasting. Soon after, this proposal seen by hundreds and commented on by dozens and people started to share this complaint on social media. Of course, issues about tax filing always grab the public attention around this time because citizens in Taiwan should finish their tax filings by the end of May. Thus, many news agencies began to discuss the tax e-filing system, arousing strong criticism, such as: “The taxpayers crowded filling tax online on Labor Day, causing tax e-filing system unstable”, “Due to the serious instability of tax e-filing system, the Ministry of Finance (MOF) extend their opening hours”, “Continued Failure at e-filing with Mac after trying for 30 minutes”, and “Ministry of Finance (MOF) advised taxpayers who using Mac to filling tax online can borrow friends’ Windows computer”. As this issue seemed to concern the public more and more greatly, officials at the MOF attached importance to it and hoped to seize the opportunity to learn what civilians had been dissatisfied with and how to improve the tax e-filing system. Two days after the initial proposal, the MOF quickly invited the proposer and other critics together to discuss how to improve the tax e-filing system.

As a result, the Government of Taiwan actively improved the tax e-filing system by adopting the spirit of agile development, public engagement and public-private collaboration. Through the process of co-creation meetings, usability tests, and workshops, they not only successfully reformed the system, but also discovered that the problem actually came from waterfall development. This traditional approach has been used in the public sector for over two decades. Although it can bring many advantages to the public sector, it still has severe constraints. The Government of Taiwan learned that waterfall development caused the following problems in the tax e-filing system: First, as an internal process, waterfall development focuses little on the end user targeted by a project. Thus, the user experience and feedback are reflected into the development cycle often too late and digital services in the public sector are unable to meet users’ demands and expectations. Second, since the waterfall model is based on a strict step-by-step process, the project suffered an inherent lack of adaptability across all stages to changing requirements. If mistakes were made in the planning process, the project would face serious delays or disruption. Third, since the public sector lacks abilities and competences to manage higher threshold projects, nowadays government always outsources the development and maintenance of IT systems to tech companies. Although necessary, outsourcing typically results in communication gaps between vendors and civil servants.

## **4.2 Discussion and implications: agile trials for public engagement**

After the Government of Taiwan decided to reform tax e-filing system, the PDIS and the MOF held several co-creation meetings and workshops. This article using secondary data analysis, in which empirical data was gathered through conference records from the PDIS and other online resources, to explore the Government of Taiwan how to invite critics and associated departments to jointly improve the tax e-filing system through repeated discussions and collaborations.

### **4.2.1 Adopting co-creation meeting to identify and define problems**

Because the tax e-filing system is based on the connection between laws and technologies, the government has to strike a balance between the Income Tax Law and IT system. The co-creation meeting was a place in which associated departments gathered the various needs from critics, end users, professionals and service developers so as to specify the problem. In this meeting, they also brainstormed and discussed what kind of services the government should provide and how to achieve it. The proposer believes that if government wants to improve the tax e-filing system, they must pay attention to more than just the software itself. In reality it involves an extensive and complicated balance between Tax Law and IT. In the online conference record, the PDIS pointed out that the purpose of the co-creation meeting is to bring users to the forefront:

*"Today, many stakeholders attended our co-creation meeting. In fact, the more people participate in such discussions, the more people are going to use what we are discussing. Why? The general processes of policies, digital services, or physical services were always top-down, so the tax e-Filing system has some unsuitable problems. Besides, the content of IT contract is very strict, so it is difficult to improve the system immediately. Although there are still space to adjust, there's not much to do for now. If we can't adjust the problem in a system, people will have to find different ways to accommodate the situation. For example, people using Mac can only access this system through Windows or other operational systems" (the PDIS )*

Furthermore, in the digital era, public management is becoming complex and challenging, which includes the rapid development of ICTs, the changing needs of citizens, and the pressure from external and internal environments. The public sector not only needs to consistently adopt a concept of adaptive governance for day-to-day public services and adapt to dramatic changes in the external environment, but also collaborate with external partners to provide public services (Ojo & Mellouli, 2016; Janssen & van der Voort, 2016). For this point, the designer of proposal pointed out the following:

*"Especially in the field of online tax filing, the government faces people who are skilled in digital technology and have high usability standard for software and applications. If the*

*government continues to use the old government-centered thinking to provide public services, and continue to think that the traditional approach is good enough. The result is that the products or services provided by the government will still be inconsistent with the public expectations. In contrast, if the government actively introduces new user-centered thinking to design tax e-Filing system and other virtual digital services, and focus more on enhancing the user experience in design process, the satisfaction of government services can naturally be improved." (Zhu Zhiyuan, the proposer)*

By this co-creation meeting, the government tried to identify problems in tax e-filling system, giving itself a chance to directly hear the voices of citizens and their suggestions. This new "user-centered" thinking will not only enable the government to understand the needs of the people, but also make people can also understand the various considerations and regulatory restrictions of the public sector. However, the Government of Taiwan still lacked the precisely identified problems in tax filling system, specific resolutions, and the link between problems and resolutions.

#### **4.2.2 Making potential solutions by usability test and workshop(s)**

In the co-creation meeting, although users had based on past online tax-filing experience to identify problems, the lack of operating system practically caused governments had no idea about the truly experience of using tax e-filing system. Therefore, the PDIS and associated departments held usability test and workshops with citizens to reviewed all steps and details in the system, including organizes problems and discusses preliminary solutions in workshops.

*"In order to quickly identify problems, The Fiscal Information Agency and the Ministry of Finance cooperated identify different types of taxpayers, and made taxpayers who had never used before to try out the online tax filing software in practice. After ten usability tests, we found a lot of problems in system quickly. Meanwhile, we also conducted a detailed research on the whole tax filing process including understanding and counting possible problem points. " (the PDIS)*

The Government of Taiwan in this public-private collaborating process not only identified the problem in tax e-filing system, but also understood citizens' need through the iterative discussion. An official said he was very surprised that the government can discuss problems and solutions directly with citizens in workshops; especially the MOF always understood citizens' need from the Minister's mailbox in the past. When all the details were confirmed, the government handed over the prototype to the vender and approved the adjustment. Many meetings with the system developers held in order to fulfill ideas from the former co-creation meetings, usability test and workshops, which also included convincing vender to know that the adjustment is necessary, and discussed how to improve it. It was a

complex process, because waterfall development model, which mainly adopted by government, is step-by-step and results-oriented. Due to the limited by procurement procedures and contracting convention, the tax e-filing system was restricted by the shortcomings of waterfall development and it was impossible to immediately improve the problem in response to the demand. Additionally, compared to traditional development, the communication and coordination between government and vendor is very important in this exigency moment. If the vendor were willing to enter the design process earlier, the system would improve effectively. However, the reality is that the vendor refused to cooperate because of the increased workloads. Furthermore, this article argues that government has to understand the perspective from vendor. Based on the contract, the reason of the vendor were not willing to change is that such requests may be unreasonable for them. As mentioned previously, the public sector has to strike the balance between users' need and additional loading for vendor, and it is also very important that the conscious of the design process should involve users' experience and feedback. In addition, the online document had mentioned the motivation for the proposer and other citizens to be engaged in this process of improve tax e-filling system. The reason of proposer engaged to improve the tax filling system is not envisaged in monetary attraction but seized the chance to change the government. The proposer pointed out the following:

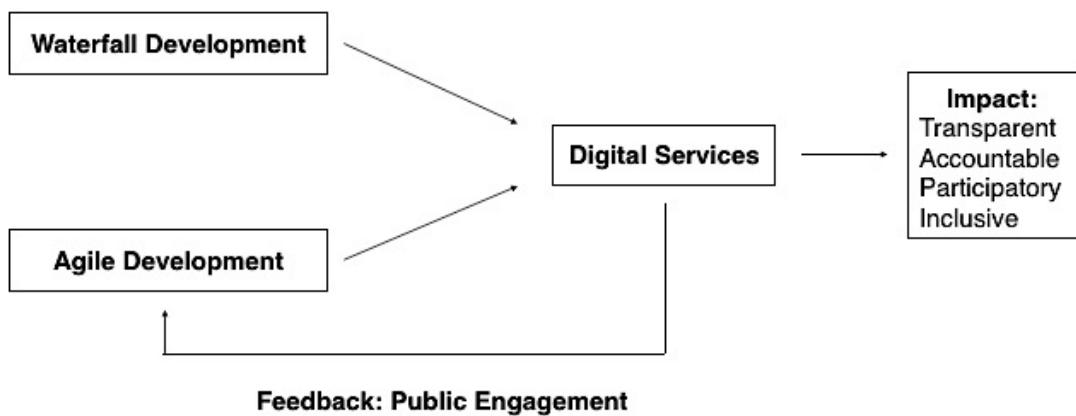
*"I feel that participating in this case is another option for me besides becoming a troll. As an expert in user experience, proposing a proposal on the Join Platform that allows me to have the opportunity to change the government without registering for election." (Zhu Zhiyuan, the proposer)*

#### **4.2.3 Results and Impacts**

After the complaint occurred on Join Platform one year, the new e-filing system was launched in 2018. This adjustment received gratifying compliment from the public. Many journalists who have tried online tax filing with Mac laptops found that the design of the system was improved and online tax filing could be done in 5 minutes as the promise from the MOF. In addition, there is no news about any problems reported which the user of tax e-filing system with Mac or Linux laptops confronted. Furthermore, this project also was a milestone for both Join Platform and Participatory Officer. These two departments collaborating improved their ability to delivering goods and services through the dialogue between the government and civilians. From the above content, it is clear that the Government of Taiwan had successfully combined the spirit of agile governance, public engagement, and public-private collaboration to making government more transparent, accountable, participatory, and inclusive. And in this case, the more important is that Government of Taiwan gradually realized when providing digital services only concern the products or comply traditional approach is not enough, government has to understand the real demands of users and adapt to change quickly.

#### **4.3 New Ideal Model for Public Digital Services: Combining the Spirit of Agile Governance, Public Engagement, and Open Government**

Based on the successful improvement of the tax e-filing system in Taiwan, this article combines the spirit of agile governance, public engagement and open government to construct a new dynamic model. We depict the ideal development and dynamic path of public digital services in figure 2. First, the development approach of online services includes waterfall development and agile development. We have to understand that no one approach fits all. The government should be based on the different characteristics and types of public digital services to choose the appropriate method. Second, while developer tests constantly before releasing the digital services, people still find out many problems in it from time to time. The government should allow citizens access to provide feedback on their user experience, especially for some problems causing serious resentment. In the above case, the Government of Taiwan adopted a public engagement program in connection with the tax e-filing system. By bringing together critics and associated departments to discuss how to resolve problems, the Government of Taiwan gained precious user experience and solutions. Furthermore, this case also indicated that the best approach to remedy government IT projects in the critical situations is adopting agile development. Its benefits, such as fast iterative and rapid delivery, can prototype quickly and minimize the damage effectively. Finally, this case shows that the Government of Taiwan promotes the goals of OGM (transparent, accountable, participatory, and inclusive) in this new ideal model.



**Figure 2: New Ideal Model for Public Digital Services**

Source: own research.

## **5 Conclusion**

This article analyzes the successful improvement of the electronic tax filing system in 2017 by the Government of Taiwan to explore how the public sector can respond to citizens' proposals for tax filing system on the Join Platform and invite interested citizens and associated departments to complete the tax e-Filing system through repeated discussions and collaborations. The results of this case are not only providing a better experience for the public to file taxes online, but also making government go

gratifying compliment from citizens. Furthermore, we believe that after public-private partnerships used in the co-creation meeting, the problems of tax filing system can be identified and defined. This allows the government to directly hear the voices and suggestions of the people via users' involvement. The civilians also can understand the government's varied thinking and regulatory considerations and limitations on governance. After the agile development spirit of multiple usability testing and workshops, the demand of the public and possible solutions can be found. This new "user-centric" thinking not only makes the government understand the needs of citizens but also effectively improves the quality of government services.

Last but not least, this article believes that since the Open Government Movement has been popular all over the world, most countries have vigorously promoted the release of open data. However, in fact, the content of the open government is not only about open data, but also includes collaborative cooperation, public engagement, and open policy decision-making processes. The Government of Taiwan is adhering to the spirit of open government: "transparency", "participation", "accountability" and "inclusion", and expects to reverse the organizational culture of the government structure through offer citizens increased opportunities to participate in policymaking and to provide their Government with the benefits of their collective expertise and information. In this study, the spiritual connotation of the above-mentioned Open Government Movement can be seen in the Join Platform, co-creation meetings, usability tests, workshops and other places that allow different stakeholders to participate in the policy process. Participation Officers play a paramount role in facilitating civic engagement and open government. The open and transparent decision-making process promoted by the PDIS, the accumulating conference verbatim drafts, films, conference records, concept development worksheets, etc. will become parts of the "policy resume". When these files are uploaded to the online platform, they will become open data. This will not only let everyone know the process of policy output, but also let everyone know that the process of policy decision-making is transparent.

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