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E-Government Collaboration Research: A Theoretical Mapping

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ABSTRACT

This research aims to reviews existing theories to be more complete and contain more contextual material, therefore it can be used as one of the references or guidance for the complex and dynamic e-government collaboration. This research tries to reviews a theory using theoretical mapping to various experts' theories. In reviews theory, the researcher constructs a theoretical mapping based on some experts' theories. Theoretical mapping is completed by looking deeper to the theory, then comparing the idea and concept of one theory to others, and creating the conclusion. If some experts share the same ideas, the researcher will compile the ideas into one indicator. In contrast, if an expert has an idea which is not delivered and recommended by others, then the idea will not be deleted or forcedly included to ones' indicator, instead it will become a separate indicator. The result of the development theory which is done through theoretical mapping suggests some fundamental processes such as basic collaboration, planning, commitment and trust, leadership, communication relationship, and technological environment in carrying out e-government collaboration. The concept can be used as one of the references or guidance for developing, managing, forecasting or researching e-government collaboration, which currently has increasingly complex and dynamic problems.

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Introduction

The development of digital technology in various parts of the world has led to significant changes in the way public administration works in terms of communication (Vie, 2010), leadership patterns (Reddick, 2011), government work patterns (Nograsek and Vintar, 2014), work orientation (Tassabehji et al., 2016), work digitalization (Mergel et al., 2019). The changes in the way public administration works that take advantage of the development of digital technology are called e-government (Yuan et al., 2012; Gomes and Laureano, 2018; Mensah, 2018). E-government is the use of digital communication information technology for the benefit of the government (United Nations, 2001). E-government is closely related to the use of electronic devices or information and communication technology by the government to improve the quality of providing public services (Gomes and Laureano, 2018; Mensah, 2018). The presence of e-government is an answer to the new paradigm of public service that utilizes information and communication technology (Yuan et al., 2012; Nurdin, 2018). E-government gives the government opportunity to be able to carry out public services more actively and dynamically (Gunadi, 2019). Every country has a different way of using e-government, as in Japan, it is use used to support economic investment (Tanaka et al., 2005), in Singapore, it is used for government branding (Chan et al., 2008), in Latin America and Africa, it is used as a medium for disseminating public information (Lau et al., 2008, Rorrisa & Demissie, 2010), in United State of America and Sweden, it is use for public participation in development (Nygren, 2010, Ganapati & Reddick, 2012), in Italy and Canada, it is used to modernize public

services (Arduini et al., 2010; Reddick and Turner, 2016), in Russia, it is use for integrating central and local government (Kalinina & Borisova, 2013), in South Korea, it is used for bureaucratic reform and modernization of governance (Sangki, 2017), and others. However, not all governments are able to develop and implement e-government independently; thus, they must collaborate with other parties in order to be able to implement and present the e-government services (Luna-Reyes et al., 2007; Ferro and Sorrentino, 2010), the fact that it is not easy to implement e-government (Heeks, 2002; Stoltzfus, 2005; Ekelin, 2006; Moody, 2007; Reddick, 2008). Nevertheless, e-government must still be applied for a better future of government and public services (Kolsaker and Lee-Kelley, 2006; Nygren, 2010; Bertot et al., 2012). Collaboration can increase the chances of successful development and implementation of e-government (Luna-Reyes, 2013; Duhamel et al., 2018; Picazo-Vela et al., 2018; Rouzbehani, 2019) and collaboration can increase the public value of e-government (Lönn and Uppström, 2016).

Collaboration is a joint activity undertaken by two or more organizations as a strategy to face increasingly complex public challenges and demands (Linden, 2002; Agranoff and McGuire, 2003; Vangen and Huxham, 2003; Thomson and Perry, 2006; Ansell and Gash, 2008). It can help the organization maximize the provision of accessibility to service and public satisfaction (Ho, 2002; Reddick, 2008). Collaboration can be a source of innovation to generate competitive advantage (Morvillo et al., 2015; Marasco et al., 2018). Therefore, nowadays, many governments in various places apply the principle of collaboration, one of which is implementing e-government. Understanding how collaboration is done is interesting (Joia, 2004; Lu et al., 2010), because collaboration is an essential element in the advancement of e-government (Hu et al., 2006; Reddick, 2008). Collaboration is one of the government's ways to improve the successful implementation of e-government projects (Reddick, 2008). Research on e-government collaboration has many models such as exploring how to collaborate from the institutional side (Luna-Reyes et al., 2007), collaboration in preparing e-government infrastructure (Gil-Garcia et al., 2007), advantages and disadvantages of e-government collaboration (Anthopulos et al., 2007), effectiveness of e-government collaboration (Reddick, 2008), e-government collaboration between governments (Ferro and Sorrentino, 2010), ontology of e-government collaboration (Apostolu et al., 2011), sustainability of e-government collaboration (Ojo et al., 2011), e-government collaboration to achieve transparency (Bertot et al., 2012), triple helix e-government collaboration (Khan and Park, 2013), analyzing e-government collaboration models (Juel-Skielse et al., 2017), and so on.

A theory is needed to find out and research how e-government collaboration is done. Theory is a proposition that is systematically arranged and used as a reference in assessing things, as in quantitative research theory can be used to test the relationship between variables and in qualitative research theory can be used as a tool to map an object to be studied (Creswell, 2014). Many experts have created theories that can be used to conduct e-government collaboration research, and those theories have been published internationally. The theories are from Dawes and Pardo (2002), Thomson and Perry (2006), Luna-Reyes et al., (2007), Ferro and Sorrentino (2010), Chun et al., (2012). Some of the theories are constructed specifically to conduct e-government collaboration research, but some of them as well can be used for general collaboration. The authors obtained these theories through a literature review of various articles on e-government collaboration obtained through mining articles on Science Direct, Emerald Insight, and Google Scholars. All processes and stages of article data mining are explained full in the methodology section

Theories Collaboration

In this session, the researcher describes all experts' theories which can be used as guidance and references to do e-government collaboration. Researchers will conduct a theoretical mapping of these theories.

Theories Collaboration Sharon S. Dawes and Theresa A. Pardo (2002)

a. *Have a clear purpose and realistic, measurable expectations.* Collaboration must be measurable, have realistic and clear goals, and be adapted to the availability of resources and political conditions and the applicable system.
b. *Identify and understand all stakeholders.* Each stakeholder should respect each other and know each other's abilities, in making decisions, should accommodate all members' interests and adapt to the target object.

c. *Commit to serious partnerships.* Must have a strong commitment, high trust in co-workers, and an active relationship. Stakeholders should divide tasks according to ability and should take responsibility. Every risk must be borne together.
d. *Choose a well-skilled and respected project leader.* Having a leader figure who can protect each stakeholder and is trusted by all groups. The leader should be able to reach the psychological and political aspects of each stakeholder, be able to be flexible, have good knowledge, and be able to direct each party to take advantage of every existing opportunity.
e. *Adopt tools and techniques to manage complexity.* Being able to find the best way to manage complexity in a collaborative relationship. It takes a formal and informal touch and the right decisions to manage it.
f. *Recruit a balanced project team.* Have team members that are experts in management, technology, and policy. Those three are interconnected, there will not exist good management if the technology and policies are not well managed, there will not exist good policies if management and technology are not well managed, and there will not exist good technology if management and policies are not well managed.
g. *Expect to assemble a mixture of resources.* Able to unite various parties and resources into a single unit and take advantage of this to overcome problems and complete projects that have been mutually agreed upon to work on.
h. *Communicate as if survival depends on it.* Must have active communication. Try to always provide mutual information regarding project implementation. The communication techniques used must be adapted to their environment.
i. *Pay attention to work processes and practices.* Always pay attention to every work process carried out. When getting new findings, care must be taken in determining the work process steps to be carried out. Instruments that can be used to control work processes are also needed.
j. *Demonstrate and refine ideas before implementing.* Always discuss each step that will be taken to be analyzed to predict the negative and positive impacts that will occur. Besides, in conducting development, the object of the project must be involved. The project implementer must be able to design and implement the project following the needs of the target object or consumer.

Theory Collaboration Ann Marie Thompson and James L. Perry (2006)

a. *Governance.* All stakeholders involved should make mutually agreed rules, divide tasks according to ability, and agree on what may and may not be done. They should have the will to carry out the vision and mission that has been made. Stakeholders are required to be cohesive, but it does not mean they have to be homogeneous. Stakeholders are also required to be able to control themselves so as not to create a mess that can interfere with the collaboration. Stakeholders should also have ethics in collaboration. The collaboration process must be flexible and must not be static. Every stakeholder is encouraged to complete each other. Willing to be jointly responsible for what some things have done.
b. *Administration.* Collaboration is work that must be done together, not individually. Each stakeholder must have a clear role in the team. The division of tasks must be based on ability and must be able to complete the set task targets. Each stakeholder must be able to be professional at work, not to mix personal and group interests.
c. *Organizational autonomy.* Every stakeholder that establishes collaboration should have privacy, autonomy, and authority that have been determined and agreed upon so that they have the freedom to do daily tasks. Each stakeholder should be able to control their ego in establishing partnerships. Stakeholders should be willing to share any information, even if the information risks sacrificing organization privacy.
d. *Mutuality.* The collaboration will become even tighter if there is an element of symbiosis mutualism in the cooperation relationship. In collaboration, that element is very necessary. Although its function is not only to maintain the solidity of the stakeholders, it also aims to develop or expand the market share of the collaboration. The forerunner of mutuality in collaborative relationships is that each stakeholder must be able to share beneficial information. A sense of need for help from one another is needed. Mutuality can overcome conflicts of interest.
e. *Norms of trust and reciprocity.* Trust is the main component of collaboration. Every collaborating stakeholder should be able to build and maintain trust. To maintain the trust of stakeholders, they

must be honest, in good faith, and not break promises. Besides, in partnership of relationships, every stakeholder involved must be able to interact actively, both formally and informally. Do not only interact when you have an interest. Continue to establish relationships even though there is no hidden intention behind them. Automatically, it will change the mindset between stakeholders, and over time, social interaction will become a culture, and the positive effect is the appearance of mutual trust and reciprocity between people.

Theory Collaboration Luis F. Luna-Reyes, J. Ramon Gil-Garcia, Cinthia Betiny Cruz (2007)

a. *Institutional arrangements.* Before e-government collaboration is carried out, the first thing that must be sought is that the activity should have government and legislative support. Support is not only done verbally but also manifested in the form of initiating and making supporting regulatory documents. After these elements are fulfilled, the next step is for every stakeholder involved in e-government collaboration to make a written agreement document, which is mutually agreed upon.
b. *Organizational structures and processes.* The implementer is the spearhead of the executor of every plan that has been made. For this reason, the party invited to collaborate should have the capability to be the executor of the plans that have been made, should work professionally, and not be affected by the intervention of political conditions. Furthermore, the bureaucratic situation of each stakeholder involved in collaboration must be in good condition. Because the bureaucratic climate will more or less affects the collaboration process. If the bureaucracy is in good condition, it will have a positive impact on the collaboration process, and vice versa. All parties involved in the collaboration should be able to think of all ways so that the products produced can be accessed by all groups. Do not let access to the product be limited by groups.
c. *Trust and collaboration among organizations.* Every stakeholder that establishes a partnership should be able to maintain trust. Being honest and transparent is the main requirement to maintain trust. Without those things, it will make the partnership relationship be destroyed.
d. *Inter-organizational information integration.* In a partnership, maintaining information quality is important. Stakeholders are required to provide transparent information and one command. The purpose of one command is that each stakeholder gets the same information, comes from a trusted source, and the information obtained is not biased or reduced. Thus, it can minimize conflicts caused by invalid information that cannot be justified.

Theory Collaboration Enrico Ferro and Maddalena Sorrentino (2010)

a. *Autonomous.* Information and communication technology infrastructure and systems must be developed and managed by individual government organizations.
b. *Standardization.* Stakeholders should build and develop a specific and effective e-government domain, which will be used to implement the outputs of the collaborative activities results. Domain selection will affect the implementation of collaboration.
c. *Framework agreement.* Collaborating stakeholders should make collaborative agreements in which specifically regulate stakeholder tasks, rights, and obligations, as well as what may and may not be done, and stakeholders are required to be able to provide solutions to one another if there are problems in collaboration activities.
d. *Consortium.* Projects undertaken should be managed or controlled by the committee. Stakeholders who manage e-government projects or products should carry out their duties properly and be responsible for these tasks. Never let the work and management of a project or product become neglected.
e. *Central services organization.* Stakeholders involved in collaboration should present information and communication technology services to the project object or product well. Because in essence, the output of e-government collaboration activities should be enjoyed by the target object, which is the community. It does not mean anything if the target objects of e-government cannot enjoy the project or product that has been created by stakeholders.

Theory Collaboration Soon Ae Chun, Luis F. Luna-Reyes, Rodrigo Sandoval-Almazan (2012)

a. *Value-driven.* One of the good products, programs, or policies of the government is born from the will of its people and involves the community in every decision-making process. This public pressure finally forced the government to take innovative steps and find solutions so that public

problems and needs can be addressed and met. So, collaboration can have many benefits, collaborating parties should contribute to a better decision-making process, the collaborating parties have to make the best decision. Afterwards, better service provision and the collaboration result can produce products that have a better level of security than previous products. Better safety/security, the collaboration result can produce products that have a better level of security than previous products.

b. *Technology-driven.* In collaborating on the scope of e-government, stakeholders involved in the partnership relationship are expected to choose and utilize the right technology. Therefore, two things must be considered, which include the selection of collaboration tools, what kind of technology should and will be used, and what platforms are used as a means to implement it. The accuracy in determining some of these things really determine how the collaboration results will turn out.
c. *Economic/cost-driven.* Collaboration has to save resources and optimize the function of resources owned, and maximize productivity. Therefore, collaboration should also think about "economic/cost-driven". Several things need to be considered, including cost reduction, resource/process, and efficiency. Cost reduction, collaboration should reduce the amount of the cost of implementing an activity. For resource/process, collaboration is expected to maximize the resources owned and can produce products and produce new knowledge for those who collaborate through the transfer of knowledge. No less important is efficiency, collaboration must contain elements of efficiency.
d. *Citizen-driven.* Collaboration should involve the community so the activities carried out can be monitored. Collaborating parties must prioritize transparency, participation, and shared governance. Transparency, everything must be done transparently, nothing is covered by the public. Participation, in doing something or making decisions, communities who are the target of the government project must be involved, even if the involvement is only in a small way. Lastly, the community and the government must share governance, share information about various kinds of public problems, so the government can provide solutions by making policies or products that can accommodate the public interest.

The theories proposed by the experts have different main priorities. Some of them emphasize that the collaborating parties should focus on the planning and commitment, planning and technology, communication and commitment in implementing planning, understanding the basic principle of collaboration, and being able to commit in carrying out the planning with the support of the leader, and there is also a theory that emphasizes the collaborating parties to focus on commitment and communication. Although each theory has a different focus, the goal is basically similar, which is to create a good collaboration. Even though these theories have the same purpose of creating good collaboration, but it is suggested to only use theories from Dawes and Pardo (2002), Thomson and Perry (2006), Luna-Reyes et al., (2007), Ferro and Sorrentino (2010), Chun et al., (2012).

This situation puts the researchers on the edge because it may cause them to miss an important issue, the fact that they cannot explore the area due to the theory limitation, which is not recommended as an area for successful collaboration indicators. For example, Dawes and Pardo (2002) and Thomson and Perry (2006) theories do not recommend the element of technology as an indicator of success in the theory of collaboration. Furthermore, the theories from Thomson and Perry (2006), Ferro and Sorrentino (2010), as well as Chun et al., (2012) do not recommend communication as an indicator of collaboration success. Thomson and Perry (2006) theory does not recommend planning as an indicator of collaboration success. Meanwhile, Chun et al., (2012) theory does not recommend commitment, trust, and basic collaboration as indicators of collaboration success. Added to that, Thomson and Perry (2006), Luna-Reyes et al., (2007), Ferro and Sorrentino (2010), Chun et al., (2012) theories do not recommend leadership as an indicator of collaboration success. Following the phenomena mentioned, the researcher is interested in generating the above theories into theoretical mapping; therefore, it can be more comprehensive and contain more contextual material. In addition, it can be used as one of the references or guidance for the complex and dynamic e-government collaboration. Consequently, this theory can be used as a guide for conducting research on e-government collaboration and can be a reference for the governments or stakeholders to collaborate in the e-government sector. Thus, they can plan and create good forecasting.

Using an excessive number of theories and collecting various theories into a new concept is an attempt for deeper research on e-government and for more complete problem solving (Lu et al., 2010; Navarrete et al., 2010). The new born concept which is formed by integrating various theories can be used by larger audiences and multinationals (Navarrete et al., 2010), and also as an answer for a multi-perspective problem (Lu et al., 2010).

Research Methods

Theoretical mapping is a qualitative research type in the document analysis category. It's based on Wolff's criteria on his work entitled Document and Recording Analysis (Wolff, 2017), which mentioned that the manuscript document of the scientific article can be used as an object to be researched (Woolgar, 1980; Knoor-Cetina, 1981; Wolff, 2017) because it's one of the sources of data (Scott, 1990; Hodder, 1994; Wolff, 2017). The document is knowledge; it contains a lot of phenomena (Gusfield, 1976). We cannot be passive and underestimate the manuscript of document data. A manuscript is a type of interpretation of social conditions happening in one's environment therefore it can be used as one of the accurate data sources in carrying out research (Smith, 1978; Wolff, 2017).

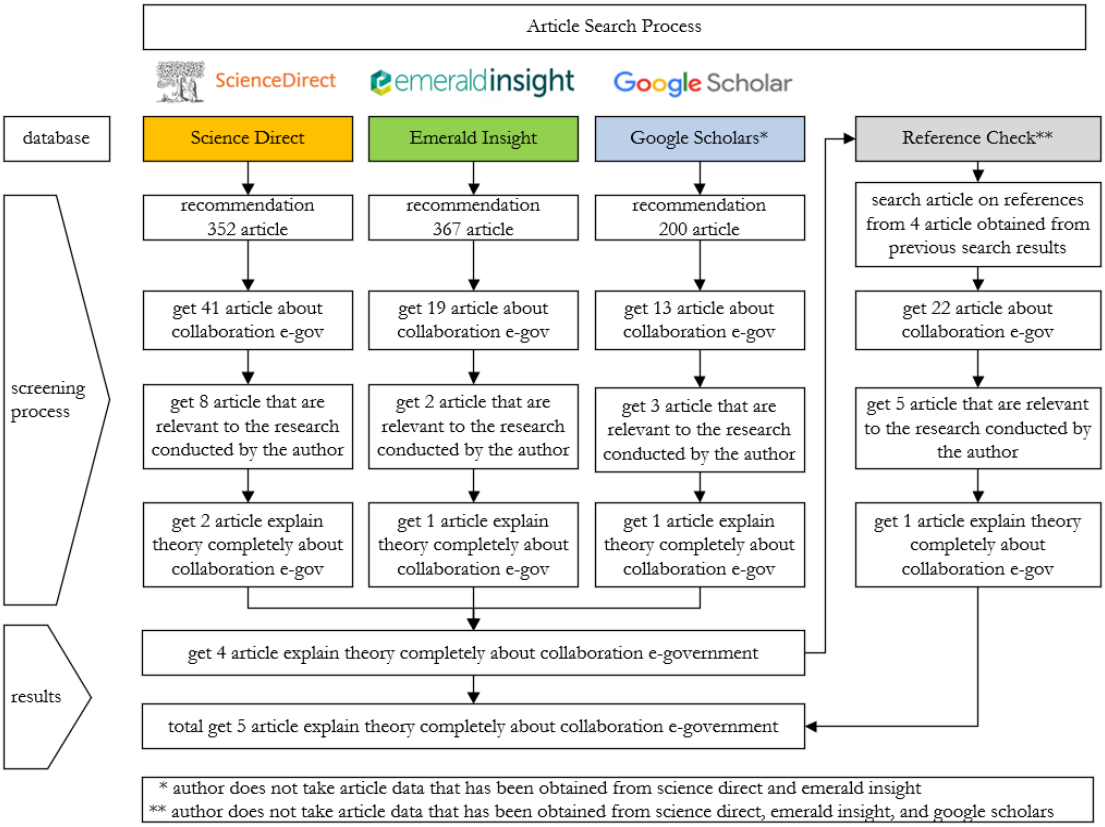


Figure 1. Data Mining Article Process
source: processed by researchers based on the research results

In this theoretical mapping research, Miles and Huberman's concept of analysis data is used; the researcher is required to do a sequence of processes such as collecting the data, reducing the data, displaying the data, and concluding statements (Miles and Huberman, 1992). Data collection is a long process. This current research uses the manuscript of scientific articles as a data source. The first step done by the researcher was gathering abundant scientific articles related to e-government collaboration from various international journal databases. Knowledge exploration is easier to access for each party due to the journal database, so it helps human beings to develop knowledge (Donthu et al., 2021). The researcher explored various articles from Science Direct, Emerald Insight and Google Scholars databases. The keyword used for the articles' search is "collaboration electronic government" in the scope of scientific public administration. The researcher gathered articles that clearly and explicitly discussed electronic government collaboration.

In Science Direct, the researcher found 352 articles related to e-government collaboration, but there were only 41 articles that discussed e-government collaboration. Of those 41 articles, 8 articles specifically discussed e-government collaboration in full and in accordance with the research topic. Of the 8 articles, only 2 articles discussed in detail the theories that can be used for e-government collaboration, the article is (Luna-Reyes et al., 2007) and (Ferro and Sorrentino, 2010). Furthermore, in Emerald Insight, the researcher got 367 articles related to e-government collaboration, but there were only 19 articles that discussed e-government collaboration. Of the 19 articles, only 2 articles discussed e-government collaboration in full and in accordance with the research scope. Of the 2 articles, there was only 1 article that discusses in full the theory that can be used for e-government collaboration, the article is (Chun et al., 2012).

Then, the researcher searched for articles in Google Scholars until 30 Google Scholar pages because the researcher no longer found articles that are relevant to the keywords on the next pages and researcher found 200 articles related to e-government collaboration. From the search results, the researcher got 13 articles that discuss e-government collaboration. Of the 13 articles, only 3 articles that discussed e-government collaboration in full and in accordance with the research topic. Of the 3 articles, there was only 1 article that discussed in full the theory that can be used for e-government collaboration, the article is Ojo et al., (2011) which discusses the theory of (Thomson and Perry, 2006). The search for articles was continued by reference check that the researcher examined the references used by scholars in constructing these articles. From the search results, the researcher got 22 articles that discussed e-government collaboration. Of the 22 articles, only 5 articles fully discussed e-government collaboration and were in line with the research topic. Of the 5 articles, there was only 1 article that discussed in full the theory that can be used for e-government collaboration, the article is (Dawes and Pardo, 2002). From the process of searching for these articles, the author finally got a total of 5 articles that discussed in detail about e-government collaboration that is (Dawes and Pardo, 2002; Thomson and Perry, 2006; Luna-Reyes et al., 2007; Ferro and Sorrentino, 2010; and Chun et al., 2012).

After the 5 final articles have been gathered, the next step was reading the theories referenced in the articles comprehensively. This is called the data reduction process. This process is necessary for theoretical mapping; the theories should be comprehensively understood by the researcher. In the articles Dawes and Pardo (2002), Luna-Reyes et al., (2007), Ferro and Sorrentino (2010), and Chun et al., (2012), recommend their own collaboration theory. The article Ojo et al., (2011) recommends the collaboration theory of Thomson and Perry (2006). After the researcher required himself with a good understanding of the theories, the next step was theoretical mapping. It was applied to find the same ideas from the theories and later on was combined to become one concept. If there is a similarity among the experts' theories, the researcher will combine the ideas into one indicator. But, if there is a single theory said by the expert but not by other experts, then the idea will not be deleted or forced to join others' indicators. The idea will create its indicators. Therefore, the new concept will be obtained thus can be used as guidance or reference for e-government collaboration.

The result of the theoretical mapping is an established theory with more complete and containing more contextual materials; therefore it can be used as one of the references or guidance for the complex and dynamic e-government collaboration. Based on the result mentioned, there are 6 indicators that need to be paid attention to in carrying out e-government collaboration. There are basic collaboration, planning, commitment and trust, leadership, communication relationship, and technological environment. Each indicator has different characteristics and is related to each other. In order to have good e-government collaboration, each party who is involved in e-government collaboration must perform all the recommended processes well. Making the name of indicator is based on the core of discussion put forward by the experts. For example, in indicator planning, the author calls indicator planning because in the discussion the experts discuss a lot about planning, how to make plans so that they can collaborate to develop and implement e-government properly. Based on the essence of material presented by the experts, the author finally named these points with planning indicators. Likewise with the naming of other indicators such as basic collaboration, commitment and trust, leadership, communication relationship, and technological environment. The authors named these indicators based on the essence of the material presented by experts.

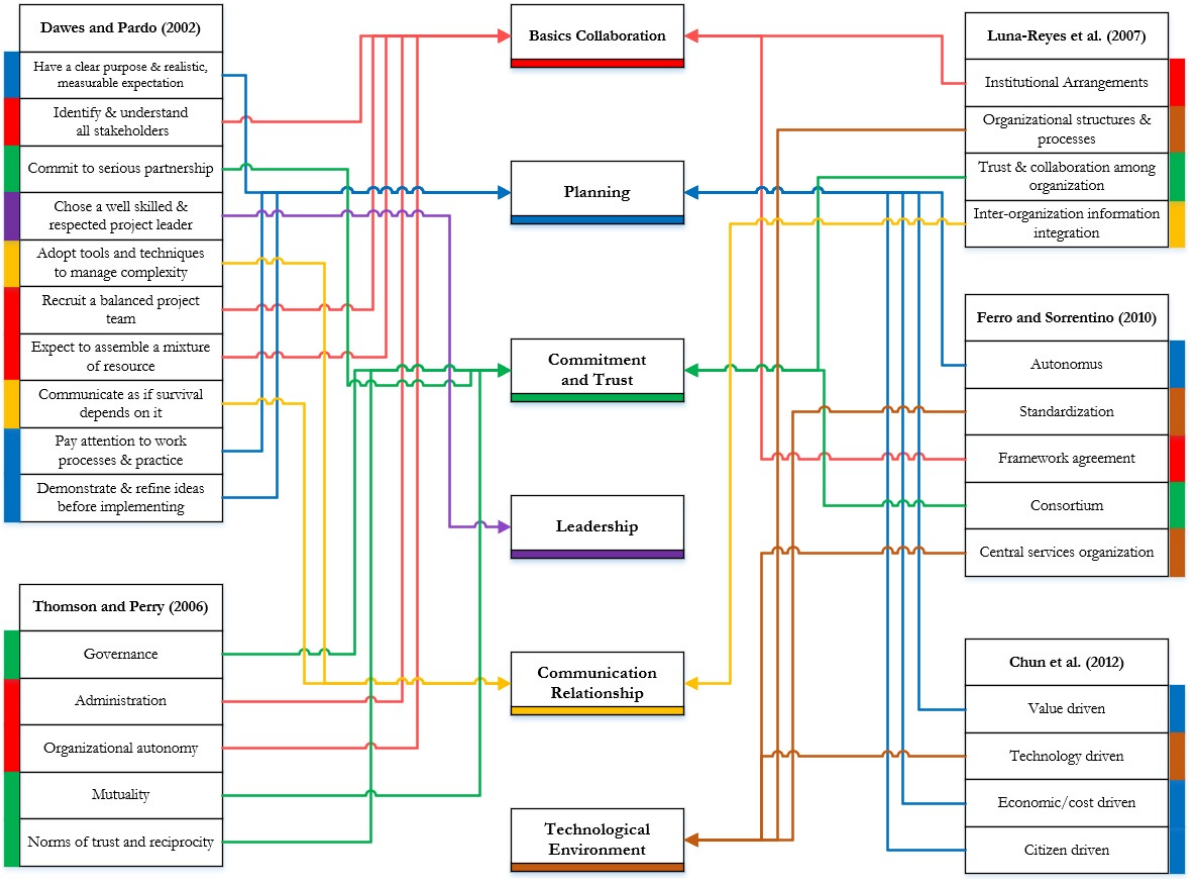


Figure 2. Theoretical Mapping Process.
Source: processed by researchers based on the results of the theoretical mapping

After carrying out data collection and data reduction processes, the next step is data display. Data display is done by describing the detail of what steps must be taken so parties who have an interest in e-government collaboration can understand the basics of collaboration well, make the right plans, have commitment and trust properly, have leadership that supports e-government, communicate and maintain relationships well, and have a technological environment that supports e-government. After all these steps are done, the last thing to do is draw conclusions about the result of the research that has been done. In this paper, both processes will be explained in the result and discussion sessions.

Results

After conducting theoretical mapping from the theories of Dawes and Pardo (2002), Thomson and Perry (2006), Luna-Reyes et al., (2007), Ferro and Sorrentino (2010), Chun et al., (2012), the researcher succeeded in reviews these theories to be more complete and have contextual material composition, so they can be used as reference or guidance in the field of e-government collaboration which is increasingly complex and dynamic. From the result of the theoretical mapping, it is recommended to all parties that to produce a good e-government collaboration, interested parties must pay attention to basic collaboration, which is about basic things that must be prepared before starting to collaborate. In e-government collaboration, the implementor must be able to make careful planning in order to support the implementation of e-government collaboration. Moreover, a leader who can protect and act as a stabilizer to support every stakeholder involved in the collaboration is needed. Each party involved in it must be able to commit and maintain trust, communication, and good relations with each other because if collaboration is not based on those requirements, it will disrupt the implementation of collaboration. This e-government collaboration is a collaboration that involves technology, all parties involved must be able to choose, utilize and use the right technology so that the society as the target object of the e-government project or product can access and enjoy the services. To be created just for prestige must be avoided; it needs to produce a lot of benefits for the community.

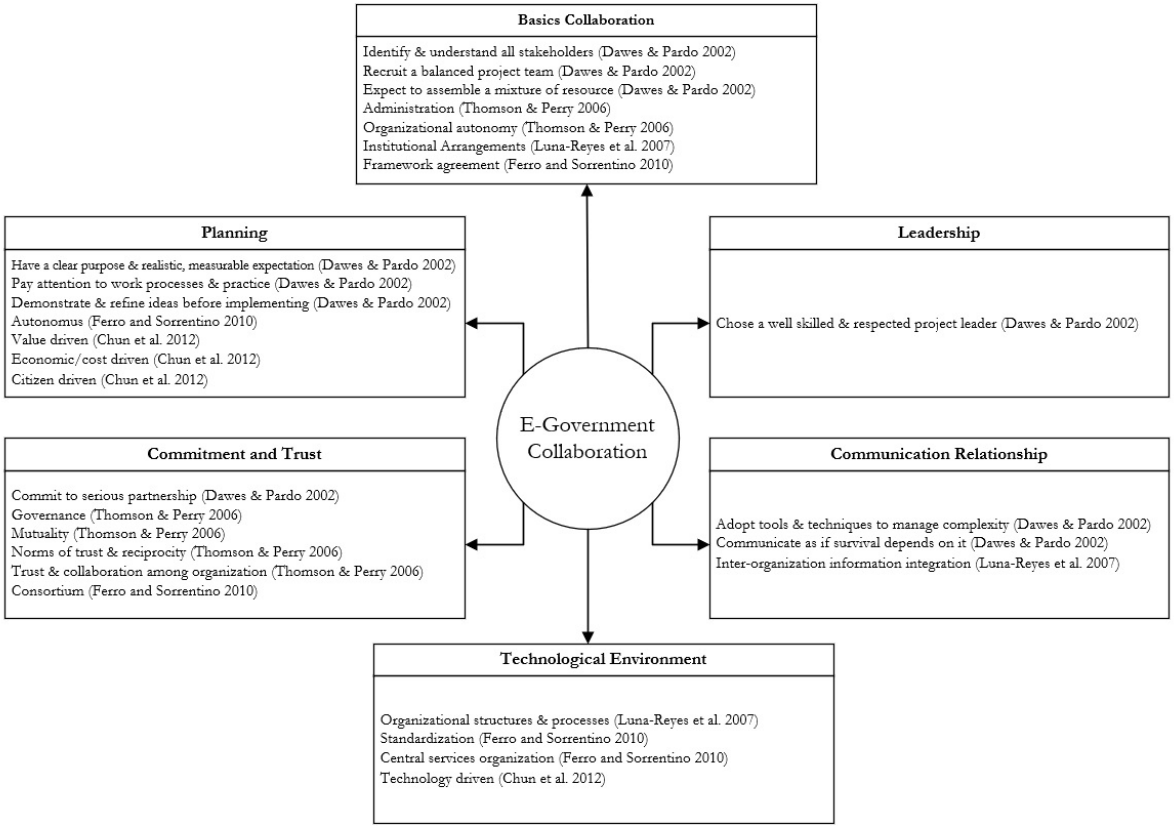


Figure 3. Theoretical Mapping Results.
Source: processed by researchers based on the results of the theoretical mapping

Basic Collaboration. Collaboration cannot be carried out individually. Collaboration have to unite various parties and resources into one unit (Dawes and Pardo, 2002; Thomson and Perry, 2006). All parties involved in a collaborative relationship should respect each other (Dawes and Pardo, 2002). Before starting collaboration, they should make a written cooperation agreement, which regulates everything completely and specifically related to rights, obligations, roles, duties, autonomy, authority, information, and privacy (Luna-Reyes et al., 2007; Ferro and Sorrentino, 2010). The division of tasks must be adjusted based on the abilities possessed by each party (Thomson and Perry, 2006). The involved parties should have expertise in the policy, management, and technology sectors (Dawes and Pardo, 2002). Every decision taken have to accommodate all interests so that no party feels aggrieved by the decision (Dawes and Pardo, 2002). All parties involved in the collaboration must have a clear role (Thomson and Perry, 2006). Stakeholders are encouraged to control their egos and not mix personal interests with group interests (Thomson and Perry, 2006). They have to understand the capabilities and limitations of their working partners (Dawes and Pardo, 2002; Thomson and Perry, 2006; Ferro and Sorrentino, 2010). They also have to provide solutions if problems occur in a partnership relationship (Ferro and Sorrentino, 2010). The partnership relationship that is carried out must get support from the government or the legislature and ensure that the support provided can be actualized in real terms (Luna-Reyes et al., 2007).

Planning. All stakeholders involved in collaboration have to make plans that are measurable, clear, realistic, and adaptable to the conditions of political rules (Dawes and Pardo, 2002). Planning must be made by prioritizing the principle of benefits (Chun et al., 2012). Everything related to work must be carefully planned, made, and carried out following the needs of the target objects or consumers (Dawes and Pardo, 2002). Stakeholders must always discuss every step to be taken so that it can be analyzed to estimate its negative and positive impacts (Dawes and Pardo, 2002). An instrument is needed to be used as a tool to control the work process (Dawes and Pardo, 2002). Collaboration have to reduce the total costs of implementing an activity, contain elements of efficiency, maximize available resources, generate productivity, and gain new knowledge through the transfer of knowledge (Chun et al., 2012). Information

and communication technology infrastructure and its systems must be developed and managed, while its assets are controlled by individual government organizations. However, if it is impossible to do, the private sector can be involved. Despite that, the ideas must come from the government, while asset ownership must still be controlled by the government (Ferro and Sorrentino, 2010). Stakeholders and the public must be willing to transparently share information about various kinds of public problems so that these activities can produce the best solutions (Chun et al., 2012). The target of the projects, such as the public, must be involved in decision-making (Dawes and Pardo, 2002; Ferro and Sorrentino, 2010; Chun et al., 2012). Public pressure is needed to stimulate the government to be creative or innovative so that the government can make the best decisions and produce good and safe products (Chun et al., 2012).

Commitment and Trust. To make stakeholders able to commit and maintain confidence in collaborating, it needs to ensure that collaborative relationships can be established flexibly and collaborative activities must not be static (Thomson and Perry, 2006). Each stakeholder must have a strong commitment to being willing to carry out the tasks that have been planned, made, agreed upon, and mandated, and are willing to be responsible for everything that has been done (Dawes and Pardo, 2002; Thomson and Perry 2006; Ferro and Sorrentino 2010). In other words, every stakeholder must be willing to share the risk (Dawes and Pardo, 2002; Thomson and Perry, 2006). Every stakeholder should maintain trust by being honest, with good faith, and to not break promises (Thomson and Perry, 2006; Luna-Reyes et al., 2007). Stakeholders are also required to be transparent in their work (Luna-Reyes et al., 2007). All stakeholders involved in collaborative activities should actively interact formally or informally. They should not interact only when they need something (Thomson and Perry, 2006). Projects that are being worked on by stakeholders must be controlled by a committee or supervisor (Ferro and Sorrentino, 2010). Each stakeholder must also have ethics, have to control themselves, and understand the boundaries of what is allowed and what is prohibited. Therefore, they do not ruin the cooperative relationship (Thomson and Perry, 2006). As a stimulus to make stakeholders continue their commitment, a collaborative relationship must possess elements of symbiotic mutualism (Thomson and Perry, 2006).

Leadership. In collaborating, stakeholders should have or choose a leader who can lead and is trusted by all stakeholders. The leader is not someone who has an obligation to rule and has an authoritarian role. The leader in collaborative activities is more likely a person, who can reach the psychological and political aspects of each stakeholder, can be flexible, can nurture and motivate, has good knowledge, and can direct each party to take advantage of every available opportunity (Dawes and Pardo, 2002).

Communication Relationship. Communication is an important element in a collaborative relationship. Every stakeholder is required to be able to actively communicate, both formally and informally. Communication is highly important in implementing collaborative activities because it can make all stakeholders have a desire to implement, plan, and commit to the tasks properly. Every stakeholder involved in collaborative activities must be willing to actively communicate (Dawes and Pardo, 2002). Each stakeholder must be able to communicate transparently and be willing to share information regarding the implementation of working projects (Dawes and Pardo, 2002; Luna-Reyes et al., 2007). They are required to be able to maintain the quality of information so that conditions of relationship and communication can continue to be conducive (Luna-Reyes et al., 2007). Communication must be carried out appropriately. Therefore, stakeholders should be able to use communication techniques that are tailored to the environment where they are located. They should understand the moments when to communicate formally and when to communicate informally (Dawes and Pardo, 2002). They must try to create a communication system that is in one commando. This means that the communication comes from the same source, the reference source must be trusted, the content of the information obtained must be valid, and the information must not be biased or reduced. This needs to be carried out to minimize conflicts between stakeholders that often occur in a collaborative relationship (Luna-Reyes et al., 2007).

Technological Environment. In the collaboration in the field of e-government, stakeholders must be able to make good use of technology and be able to choose what technology suits the implementation of e-government programs so that they can provide e-government services properly to the intended target objects (Luna-Reyes et al., 2007). The parties involved in the collaboration must be able to think about and use the right technology (Luna-Reyes et al., 2007; Ferro and Sorrentino, 2010; Chun et al., 2012). In

determining this, stakeholders must be able to work professionally and not be affected by the intervention of political conditions, which is certainly not easy (Luna-Reyes et al., 2007). Stakeholders must be able to think of all kinds of ways so that the produced products can be accessed by all groups. In other words, the products should not only be accessed by minority groups (Luna-Reyes et al., 2007; Ferro and Sorrentino, 2010; Chun et al., 2012). In essence, the output of collaborative e-government activities must be able to be enjoyed by all target objects. It is meaningless if the target object of e-government cannot enjoy the project or product that has been made (Ferro and Sorrentino, 2010).

From the six indicators mentioned, basic collaboration, planning, commitment and trust, leadership, communication relationship, and technological environment, we can see the lesson line core of the theories expressed by those experts. Before collaborating, each party should understand the basics and the essence of collaboration. It requires all parties involved to cooperative, they should not be individualistic and expected to be united as resources. Stakeholders should respect each other. They must make a written cooperation agreement as a valid and legal cooperation contract. In dividing the task, it must adjust to the parties' ability, therefore, in collaborating in the e-government sector it is recommended to recruit colleagues who are experts in the fields of policy, management, and technology. Every decision made must be able to accommodate the common interest. All parties involved must have a clear role and have to control their respective egos. The stakeholders have to understand the strengths and weaknesses of colleagues. When a problem occurs in collaboration, all parties are required to provide a solution. In addition, the e-government collaboration activities must get support from the government, legislature, and other parties in order to have a comfortable working time because their work is supported by many parties.

In order for e-government collaboration to be carried out properly, all parties involved are required to make careful planning. The first thing stakeholders should do is to make plans that are realistic, clear, measurable, adapted to the political situation, and do not make planning impossible to do. It should have the principle of benefits and the work should be planned and done as needed. They should discuss every step and strategy they will take so that it can be analyzed. In collaboration, there must be an instrument as a work process control. Collaboration must be efficient, maximize resources, initiate a transfer of knowledge between the stakeholders, and produce productivity. In order for e-government collaboration to be carried out according to the plan, the technological infrastructure and all assets used for e-government must be controlled by the government. All stakeholders must be transparent and share important information related to all kinds of public problems so that the plans they have made will be able to solve them. In order for planning to be on target, the target object of the e-government project should be involved in planning. Public pressure is needed to stimulate stakeholders to innovate.

Stakeholders involved in the collaboration are required to have a good commitment and maintain trust between each other. In order to do so, they are required to work flexibly and not statically. They must be responsible for all the tasks and mandates that have been given to them. All risks occurring in collaboration must be borne together because collaboration is not individuals but unit work. Stakeholders are required to have good ethics, be honest, be kind, and do not break pledges. They must actively interact formally and informally. Moreover, a system is needed to control and evaluate the work done because transparency in work is very necessary. In addition, collaborative relationships must be able to provide an element of symbiotic mutualism. In e-government collaboration, trusted leaders, protected and respected by all parties involved in the collaboration are needed. The leaders should not give orders but provide positive suggestions to other parties and can be a mediator to neutralize problems when conflict occurs in collaboration because all parties involved in it have an equal position, there is no term superior and inferior.

Collaboration emphasizes dynamic collaboration, to be able to do that every stakeholder involved in collaboration must be able to communicate formally and informally and be able to build good relationships with fellow stakeholders. They must be willing to transparently share any information related to the affairs of the work being carried out. They must maintain the quality of the information that will be conveyed to colleagues, good information will make the relationship good and conducive. In communicating, all parties should always pay attention to the situation around them. They should know when to communicate formally and informally, when is the right time to communicate, and what language is appropriate to use. It is better for them to create a one-command communication system to minimize conflict in collaboration. The last indicator that must be considered in e-government collaboration is the technological environment. The stakeholders should provide e-government services that can be enjoyed by the target object. In order for e-government services to be enjoyed by the target object properly,

stakeholders should utilize technology properly. They should consider how to use the right technology. Moreover, in conducting e-government collaboration, they should not be affected by political intervention.

Table 1. Lesson Line Essence of The Theory

Indicator	How to implement indicators
Basics Collaboration	1. Must not be individualistic and must be able to unite resources. 2. Must be able to respect each other. 3. Create a letter of agreement. 4. The assigned tasks must be in accordance with the ability 5. Recruiting colleagues who are experts in policy, management and technology. 6. Decisions must accommodate common interests. 7. Each party must have a clear role. 8. Be able to control the ego. 9. Understand the strengths and weaknesses of colleagues. 10. All parties must be able to provide solutions. 11. Get support of the government, legislative, institutions and other parties.
Planning	1. The plan must be realistic, clear, measurable, adaptable to the political situation. 2. Planning must have the benefit principle. 3. The project should be planned and carried out as required. 4. Discuss each step of planning for further analysis. 5. There must be an instrument as a work process control. 6. Must be efficient, maximize resources, transfer knowledge between stakeholders, and be able to be productive. 7. Technological infrastructure and all its assets must be controlled by government. 8. Must be transparent and willing to share information. 9. The target objects of the e-government project should be included in the planning. 10. Public pressure is required to stimulate stakeholders to innovate.
Commitment and Trust	1. Working flexibly and not statically. 2. Being committed and responsible for the tasks and mandates are given. 3. Willing to bear the risk together. 4. Being honest, be nice, and don't break promises. 5. Transparent in work. 6. Actively interact formally and informally. 7. Have a control system for work. 8. Stakeholders must have ethics and be able to control themselves. 9. There must be a symbiotic mutualism.
Leadership	1. Have a leader who can protect, be trusted and respected by all parties.
Communication Relationship	1. All collaborating parties must communicate formally, informally and must have good relations with each other. 2. Communicating transparently, willing to share any information related to work. 3. Maintain quality of information so that the relationship can be maintained. 4. Communicate appropriately by considering environmental conditions. 5. Create a one-command communication system to minimize conflict.
Technological Environment	1. Able to use technology well in order to provide services to target object properly. 2. Able to think and use the appropriate technology. 3. Should not be influenced by political intervention. 4. The output can be enjoyed by all parties as to the target object.

Source: processed by researchers based on the results of analysis and theoretical mapping

Discussion

The results of this research succeeded in reviews theory through a theoretical mapping process. The theory can be used as a reference or guidance in the field of e-government collaboration. This theory suggests six indicators to be concerned for success in e-government collaboration, namely basic collaboration, planning, commitment and trust, leadership, communication relationships, and technological

environment. It is expected that, by using the theory, every party can have in-depth exploration related to e-government collaboration. For the researchers, this theory provides a guide to explore the studied cases fully and in-depth. For the stakeholders or government, the theory offers them input related to preparation prior to starting managing or developing e-government. Therefore, they can have proper planning and forecasting. Collaboration in the field of e-government and other fields is slightly different. The difference lies in the technology used since the e-government requires the theoretical indicator related to technology. The indicators are essential to the researchers to help them have in-depth case investigation for the research. For the government or stakeholders, the technical indicators are beneficial for choosing the appropriate technology to support the successful e-government implementation. Additionally, indicators related to leadership are also required. In e-government collaboration, it requires a leader who can protect all the stakeholders, and its implementation should get full support from the government in which the e-government will be implemented.

After the elements of technology availability and government support have been fulfilled, the planning and making basic preparation for the collaboration can be carried out. In order to make the planning well-applied, the involved stakeholders in the e-government collaboration are required to have a strong commitment in carrying out their duties and mandates and be able to maintain trust between each other. Then, good communication is required even in the planning, constructing basic preparation for collaboration to achieve the desired and planned e-government collaboration. The six indicators of e-government collaboration, basic collaboration, planning, commitment and trust, leadership, communication relationship, and technological environment, are related to each other. If one indicator has a problem, the others will be affected and also affected the implementation of e-government collaboration. If the problem is solved immediately; the collaboration can be well implemented. However, the unsolved problem will lead to failed collaboration.

AI Usage Statement

The author did not use artificial intelligence in creating this manuscript. This manuscript was created entirely manually using systematic literature review techniques.

Conflict of Interest

This article has no conflict of interest and was written purely to develop science, especially in developing theories related to collaboration in the e-government sector.

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