

## An Actor-Network Theory (ANT) approach to Malaysian e-participation framework

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**Abstract**—This paper addresses the e-participation framework that can be suitable under certain socio-technical settings and applicable to Malaysian environment. The researcher will theoretically and empirically explore on how citizen participation is translated into e-participation framework. The study embraces the socio-technical research paradigm and uses an Actor-Network Theory (ANT) as the theoretical foundation with which to explore the mutual interaction between people and ICTs. This ANT is based particularly on [1] work, as a framework to understand e-participation for public policy formulation. By drawing based on case studies of public policy formulation in Malaysia, the researcher suggest e-participation framework for public policy formulation. The framework is initially presumed to be sustainable since it is designed to fit under any socio-technical conditions of a country and can be initiated by public.

**Keywords**—Actor-Network Theory (ANT); e-participation framework; socio-technical; public participation; public policy formulation

### I. INTRODUCTION

All Over the last decade there has been a growing study of the need to develop new tools for citizen participation that enable wider viewers to contribute to the public policy debate and where contributions themselves are both broader and deeper [2], [3], [4] and [5]. The innovative version of participation has been proposed to change conventional bureaucratic systems to participatory, democratic, open, transparent and trustworthy. Electronic participation or e-participation is the new means of participation and sub-set of e-government and e-democracies. It is based on present Information Communication Technology (ICT) to facilitate participation in the government's public policy formulation.

E-participation has the potential to establish more transparency in government by allowing citizens to use new channel of influence in which is capable to reduce barriers to public participation in policymaking [6]. Online communities are being created on a daily basis on themes such as environment, politics, education, social and economic issues among others. An increasing number of citizens are becoming bloggers and are posting their views on these and other subjects for the world to see and react to. They are creating their personal forms of e-participation. Similarly, politicians are creating blogs to reach out to the cyber world constituency that is growing in number and

influence. This direct interaction using ICT tools was unprecedented and ushered in an era of direct dialogue between politicians and citizens [7]. Nevertheless, several studies reveal that utilization of new technologies may not lead to better participation in organizations. To a certain extent, it paves the way to improved informal communication between all existing individuals rather than creating new members [8]. In addition, ICT tools have been proven to be unable to support a participatory technique which may need important modifications of the traditional structure [9].

To normalize and make e-participation a success, governments need to create an environment that allows citizens to voice their views online and more importantly, to create a feedback mechanism which shows citizens that their views are taken seriously. This requires trust between citizens and the governments, as well as a robust infrastructure that allows citizens to access to decision makers. With this motivation in mind, the current public policy formulation in Malaysia's government by using Actor Network Theory (ANT) has been analyzed to propose an e-participation framework in public policy formulation. This paper is organized as follows. Section 2 clarifies on methodology used. Section 3 states the analysis. Section 4, presents the e-participation framework in public policy formulation. Finally, the conclusions and future work are discussed in section 5.

### II. ANT AS A TRANSLATING TOOL

This section presents translation of ANT in current practices of public policy formulation in Malaysia. The concept of Problematization, an element in ANT, is applied in explaining this situation with four steps namely identifying group of user, actors and roles, the cause, and building the actor-network. All steps are discussed as per following.

TABLE I. THE KEY CONCEPTS OF ACTOR NETWORK THEORY

Key concept	Description
Actor/ Actant	any element which bends space around itself makes other elements dependent upon it and translates their will into the language of its own. [1]
Actor Network	a set of relations in which an actor

	constantly influence other actors [1]
Translation	the creation and alignment of the interests in Actor-Network. This process consists of four major stages: problematization, intersement, enrolment, and mobilisation
Problematization	The first process of translation during which an actor defines identities and interests of other actors that are consistent with its own interests, and establishes itself as an obligatory passage point (OPP) [1]
OPP	OPP refers to a situation that has to occur in order for all actors to satisfy the interests that have been attributed to them by the focal actor. The focal actor defines the OPP through which the other actors must pass through and by which the focal actor becomes indispensable [1]
Intersement	It involves a process of convincing the other actors to accept and recognize definition of the focal actor [1]
Enrollment	The third process of translation, where other actors in the network accept (or get aligned to) interests defined for them by the focal actor [1]
Mobilisation	Mobilisation involves maintaining commitment to a cause of action and the OPP.

### III. ANALYSIS

#### A. Identifying Group of User

The researcher has identified group of user as a core component. The developer was surrounded by three different groups of user in creating the external. These groups were Spokesperson Group (SG) who represents the key person of public policy; Technical Group (TG) who represents the technical personal level and Community Group (CG) who represents the entire user community. This layering of user participation is required to be scalable with lots of information and involves different type of user populations. In understanding the current environment, the groups of users have been identified according to the approach.

#### B. Identifying the Actors and Roles

First thing first, the causes that initiated the problem need to be identified. To investigate the current practice of public policy formulation, a survey was conducted through case study and questionnaires. In applying ANT, the term ‘actor’ was used to represent any element that possesses link to this subject. These are central elements in the actor network.

They have been described as any element which makes other elements dependent upon itself. Actors can only do things in association with others and we can see actors as nodes and central points in a network (or networks). Actors can also be seen as entities that interact with other actors or to serve as an intermediary between actors.

The difference between ANT and other network theories is that in ANT actors and entities can be either human or nonhuman. Their properties are also being dependent on their relationships in a network. ANT treats all element of the system equally in understanding the relationship among the actors. The feedbacks from the survey have shown that there are different actors involves in formulating the public policy. Table 2 shows the identified actors together with their roles that can be enrolled as actors in building the actor-network. Each actor has different roles in supporting the operation in public policy formulation.

TABLE II. CURRENT AND IDENTIFIED ACTORS AND ROLES INVOLVE IN E-PARTICIPATION

No	Group of Actors	Roles
1	Citizen	To discuss the suggested public policy
2	Documents	To present the draft plan of public policy, to publish the public hearing report, to provide a draft revision plan of public policy, to provide a public notice, to publish the issues and potential report, to present a suggestion report, to provide final public policy report.
3	Technology	To support the operation of citizen participation process, to provide the infrastructure for citizen participation in public policy formulation
4	Delivery method	To provide a platform for citizen participation communication
5	Organization	To provide a training and supporting to people across Malaysia, to endorse the public policy, to make a decision of public policy, to debate the public policy, to recommend and make decision to table in parliament, to plan and formulate the direction and strategy of public policy, to offer and manage the technical aspect of public policy

Besides identifying the actors in this case, current practices of public policy formulation were also identified through the survey. Although this group has multiple of ways to participate in public policy formulation, yet they still do not have a dedicated platform to enable citizen participation environment. The process of participation is being done in typical approaches such as meeting, discussion, forum, e-

mail, phone call, website, bulletin board, training, workshop and seminar. Those approaches can be synchronous and asynchronous collaboration tools. All approaches above seem to have very limited access. Only certain people might get involved, particularly for meeting and discussion.

Not all information needs to be known by all actors. However, the rest of the actors need to know clearly about the direction of public policy at the very least. E-mail is an effective tool in communication. It notifies the actors that a new public policy will be developed. However, it is not a good platform to discuss about the policy. Many e-mails are sent and received throughout the day. In plenty of organizations, it is very common to see the sender and the recipient to keep sending and receiving emails with the same title of subject though the issue discussed in the email has been already out of the subject. This situation does not really help the actors to manage the information efficiently. Moreover, to search for the information in bulk of emails is a tedious process.

Meetings are conducted by IAPGs to revise, update or initiate a new policy or project. The attendees are usually senior officials from relevant ministries and central agencies. Also, they include representatives from the private sector and civil society, where necessary. During these meeting, factors such as the international scenario, resource availability and constraints and implementation capacity are considered. The information only resides within the scope of people who have attended the meetings. However, majority of folks who have interest in the policy are not directly involved to express their opinion, view, idea, comment, suggestion, information, objection or acceptance. This causes this large group of people to feel uncomfortable in accepting public policies.

### *C. Identifying the Causes*

Problematization is also about defining possible causes that influence the problem. There is none of dedicated official platform to channel the information to public. Despite of the fact that information is being transferred in multiple ways, it is limited to certain boundaries. The information and experience can be transferred if more experienced people join the discussion. For those who are not associated with the key actors, they might be left behind. The physical location is also contributed to the lack of collaboration between the policy maker and the public. The discussion is the only chance for the public from all states in Malaysia to voice out their opinions.

The second source of the problem is originated from lack of citizen participation. IAPGs and TWGs are usually the key persons involved while the citizen sometimes do not even know exactly what is public policy direction and strategy in Malaysia. This culture is not very efficient as this country practices democratic system. The feedback from respondents shows that most of them are satisfied if they can take part in public policy formulation.

A third source of the problem is the lack of awareness among citizen on the public policy formulation. From the survey conducted, not all respondents were aware of how important their participation in public policy formulation is.

In this situation, there were two groups of users; Group A were respondents who agreed that participation among citizen is important and Group B is respondents who were unaware of the importance of their participation in public policy formulation. Media, politician, NGOs and interest group and a few individuals belong to Group A. Their roles were to focus and define public policy based on their idea and feeling. They were aware of the fact that it crucial to share the information to policy makers and to be responsible of formulating group of public. While, roles people in Group B were to focus and define the public policy direction in Malaysia and executing the strategy. However, they were not really aware of the importance of public participation in formulating the public policy. Besides, Group B should be dependent on Group A to formulate the public policy. Therefore, it is not easy for the IAPGs and TWGs to manage the information and to let public to get involved in formulating public policy.

To enable information transfer in public policy formulation environment, a platform where Group A and B can communicate, discuss, and share their voice and experience is needed. A dedicated web platform with suggested electronic participation (e-participation) framework that can be accessed by all in Malaysia is proposed as a solution to this problem.

### *D. Building the actor network*

Actor-network diagram is fundamental in understanding the relationship of actors in their own network. ANT diagrams are an efficient tool that can reveal the interaction of actors in the scope of network. These basic diagrams are illuminating in that they begin to map out the available people, places, and things that participants may encounter in a given system. This mapping helps developers to understand the available nouns that their users could leverage. To begin understanding the context in which participants use these systems, designers must first understand who and what are involved in these scenarios.

Mapping out all of the possible actors in any given network is a vital first step in designing these systems, because it helps designers to catalog all active participants. Figure 1 shows the interaction of all actors involved in e-participation web platform. If one actor fails to interact or does not act according to its roles, the system may fail. To understand the relationship among actors and to actually believe that all actors need to work together are two important elements of ANT concept.

### *E. Interestment*

The combination of different actors with different roles contributes to different interest among them. Table 2 above shows the different actors with different interest in enabling citizen participation in public policy formulation environment through a dedicated e-participation web platform. One of the main ideas of ANT is that we should not only look at the human entity, non-human entities such as objects, organizations and technology should be taken into consideration as well. To address the problem in this case, focal actor namely IAPGs and TWGs need to convince other

actors with the idea of dedicated e-participation web platform. The idea is to try and rationalize the citizen participation environment. Other actors must become aware of the problematization and contributing thought that lead to the creation of a participation environment.

- Identify the obligatory passage point (OPP)  
As mentioned, the obligatory passage point is a stage that has to take place in order for all the actors to achieve the interest. As in this study, the OPP is referring to a question on the capacity and responsibility of TWGs to manage and implementation the e-participation platform.
- Identify Obstacles and Enrolment  
The researcher has created and developed the appropriate e-participation platform for community group with the contents. As we know, the physical location serves as a challenging factor. This team needs to clearly understand each role in contributing to the success of participation in public policy formulation. Realizing this issue, the IAPGs have created one committee (TWGs) to manage and maintain this platform. This committee is responsible to manage and maintain the platform. Another challenge that should be considered in implementing the e-participation platform is the role of this platform to act as a one stop center for citizen participation in public policy formulation. The e-participation might fail if only a few from community groups participated. In order to get full participation, IAPGs and TWGs are ought to promote the e-participation platform and include a representative to assist a community group. A framework of ANT has to be illustrated for easy understanding of problem and case translations. This framework captures the elements of ANT which are element of problem that affect all actors in the system. Therefore, focal actor has identified the goal which is to improve participation among the community groups through the e-participation platform. All actors then aligned their interest and roles in achieving the goal. However, this process needs to go through OPP first. Obstacles have been identified and mechanism such as creation of the committee is a part of interessement mechanism in achieving the goal. Using an actor network approach, the main actors were identified, and the relationships between them were mapped. In this research, contents, documents, group of users, personal interviews, focus groups, and participant observations have been utilized. The results of the analysis indicate that, there are significant differences in the types of actors and the networks that they exist in. But what exactly ANT contributes to this research? ANT highlights the relationship of actors which does not distinguish between human and non-human. A network should contain both of

the elements. When talking about a citizen participation in this case, we should see it as one heterogeneous network which binds all actors that require each other and have to work together to strengthen this network. By looking at the relationships between actors, contents, delivery method, organizations, it identifies “actor networks” as the fundamental building blocks of technology. Normally, a failure of IS research or IS development is either depends on the user or the system factor. This failure usually emerges when a few aspects are overlooked during the progress of the research or development. ANT does touch all single aspect of element by considering all related actors even the element may be outside from the project’s scope. Normal approach of IS does not really touch on the relationship and social connection between actors while in ANT, this aspect in being emphasized as it believes that failure in understanding the social connection may contributes to the weak network.

#### IV. THE E-PARTICIPATION FRAMEWORK IN PUBLIC POLICY FORMULATION

Therefore, in reflection to the above ANT concepts and findings, this paper suggests the following e-participation framework. The framework is initially to be sustainable since it is planned and designed to fit under socio- technical conditions and can be initiated by public agencies. The proposed framework has five main building blocks, based on the translation of ANT to support the e-participation pillars as shows in Figure 2.

Generally, the e-participation framework proposed is focusing on “achieve a public policy which occupy to people will”. To achieve the objective, three main components were identified namely community, e-participation pillars and supporting tools. All components will be supported by five building blocks which result from a translation process of ANT namely Citizen, Organization, Document, Delivery Method and Technology. All five building blocks are then divided into 2 parts namely community and supporting tools components. Community component is supported by Citizen and Organization building blocks, where both building blocks will be sharing similar mission, vision and value to formulate a public policy which is accepted by society in general. On the other hand, supporting tools component is hold by Document, Delivery Method and Technology building block to sustaining an e-participation platform. All building blocks will support a public participation process to formulate a public policy together.

United Nation through their report states that there are three major levels in general e-participation framework namely e-information (low level), e-consultation (middle level) and e-decision making (high level). Each different level shows the level of citizen participation. Participation will increase a standard point of openness value by the government to their citizen in public policy formulation. Therefore, relationship and supports formed by every

building block shall enable e-participation to link citizen with government in public policy formulation.

### V. CONCLUSION AND FUTURE RESEARCH

ANT is a part of social theory that highlights on relationship of actors. Nowadays, social theory is seen as an translator and analyzer tool for researcher to discover the cause and solution of a problem. These theories also help researcher to variously explain and analyze how social action, social processes, and social structures work. Actor-Network Theory is being used and implemented not only in the field of technology but in information technology and system as well. A case study was chosen to apply ANT concept. There is lack of dedicated collaborative platform for IT Personnel in polytechnic. The problem is related to ANT as this issue requires an association of multiple elements to resolve the problem. ANT as a translation tool is embedded into the life cycle of information system methodology as stages and phases. Upon completion of this research, the researcher found that the translation of ANT is closely related to information system methodology. ANT as a sociology theory is proven to be able to adapt to information system. Through this research, the researcher has found that most of government organizations in Malaysia do not promote e-participation concept, to be precisely; lack of knowledge and collaboration effort. In few public policies such as in transportation, health and agriculture, lack of participation is a huge issue. For future, an in depth analysis or research can be conducted based on idea that involves citizen in all levels of public policy formulation and processes.

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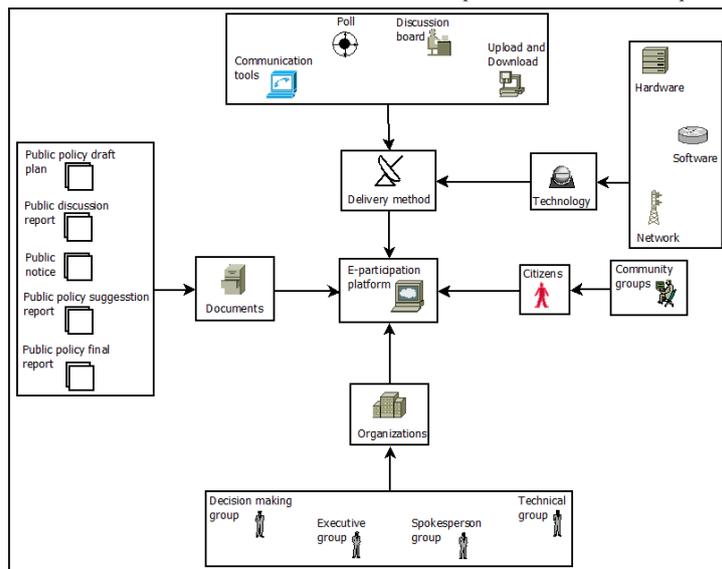


Figure 1. The e-participation platform actor-network for citizen participation in public policy formulation E-participation for public policy formulation

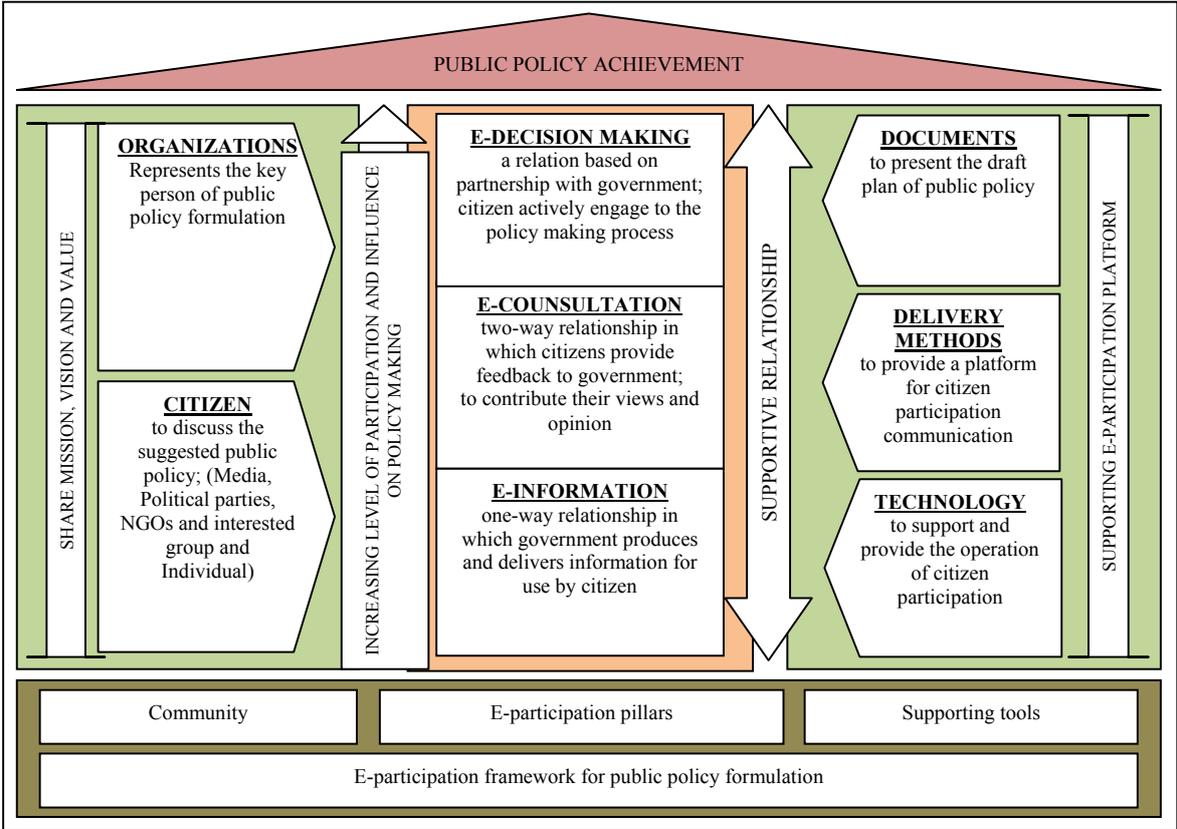


Figure 2. E-participation framework for public policy formulation