

THE COLLABORATIVE MODEL TO SUPPORT DISCRETIONARY DECISION-MAKING IN E-GOVERNMENT

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Abstract

Good governance is the ultimate goal of e-government in an information society. Discretionary powers of administrative officials are often viewed as a major obstacle to good governance in which bureaucratic decisions may be made by whim, caprice, chance, or ritual. Thus, in an attempt to alleviate discretionary problems, it seems natural to deprive officials of discretionary powers by replacing human interactions with citizens, with information and communication technology. However, hollowing out discretion of administrative works may not always achieve good governance as the use of discretion could optimize the individualized services based on citizen's specific needs and unique situations. Thus, the applications of e-governments are still essential in various types of administrative decision-making. Contrary to the legal artificial intelligence approach, which attempts to model discretionary domains using advanced algorithms in programming, this paper proposes a collaborative discretionary decision-making model. The model, which comprises three layers: a knowledge layer, a coordinative layer, and a collaborative layer, aims to restrict an unfettered and undirected discretionary powers based on various concepts of the administrative science theory. A sample application using the proposed model is also illustrated.

Keywords: Collaborative model, Discretionary decision-making, Open-government, E-government.

1 INTRODUCTION

E-government should be considered a key to good governance in the information society (Leitner, 2003). In the context of administrative laws, good governance encompasses four imperative principles, i.e. reliability and predictability, openness and transparency, accountability, and efficiency and effectiveness (SIGMA, 1999). Discretionary powers of administrative officials are often being viewed as a major hindrance to good governance where officers may abuse their bureaucratic discretionary power in an arbitrary manner (Feldman, 1992). This has raised several crucial social concerns, such as discrimination or bias against citizen economic status and race, unfair procedures, and corruptions (Stapenhurst and Langseth, 1997). Thus, in an attempt to alleviate discretionary problems, it seems natural from both political and technical points of view to deprive officials of discretionary powers using information and communication technology to replace human interaction with citizen as it is the case in the movement to transform street-level bureaucrats to system-level bureaucrats (Reddick, 2005; Bovens and Zouridis, 2002; Svensson, 2002). In addition, an endeavour to use legal decision support systems in discretionary domains by converting legal frameworks into concrete algorithms is most active in the field of legal and artificial intelligence (Zeleznikow, 2002a). Legal decision support system is expected to reduce legal 'open-textured' interpretations and improve

the lack of decision-making procedure, which could lead to consistency, transparency, efficiency, and enhanced support for dispute resolutions (Zelevnikow, 2002a; Santos, 2003).

Nevertheless, this study argues that to entirely hollowing-out public authority discretion using predetermined decision-making rules might be problematic for two reasons. First, as asserted by Lenk et al. (2002), one of the specific natures of administrative action is the role of laws, which confines official decision-making and subsequent actions. Legal norms may be strict and clear or may be of so-called "open-textured" language, which leaves room for interpretations and forces officers to make decisions in the absence of previously fixed, relatively clear, and binding legal standards (Gardner, 1987; Leenes, 2003). From the legal theory point of views, elimination of discretion is an impossible dream (Hart, 1961; Galligan, 1990). It should be noted that the discretionary powers are important in any system of authority. There are good reasons for having discretion, and that discretionary powers are neither necessarily nor typically in some way arbitrary and beyond law (SIGMA, 1999; Galligan, 1990). Second, laws always leave room for human discretion to interpret an indeterminacy of rules in order to deal with unforeseen circumstance that may arise in future situations (SIGMA, 1999). Therefore, it is important that officials must have more freedom as to the way they are to be exercised than a detailed set of rules might allow (Galligan, 1990). In addition, from citizens' perspective, people desire discretion in determining the merits of their individual cases and want a high level of interaction with the government to receive the best government services with respect to their situation. Hence, the use of discretion in administrative services is still inevitable and a human intervention is still necessary, especially when a citizen emits some kind of signal or the information system cannot handle non-routine decision premises (Reddick, 2005). In fact, not all legal arguments in 'open-textured' language should be automated as Zelevnikow and Hunter (1994) coin an 'impossible cases' concept which are cases that a society cannot afford to leave to computers, even if they ever become capable of resolving them. Indeed, designing e-government services based on the assumption that every legal argument can be automated requires the use of caution (Varavithya and Esichaikul, 2005).

Instead of attempting to model discretionary domains as in the artificial intelligence field, this study introduces the collaborative model as a new approach to eliminate an unfettered discretionary decision-making to bring about good governance in e-government services. The paper commences in Section 2 with an overview of discretionary decision-making theories from the points of view of judicial and administrative discretion. In Section 3, the advancement of legal artificial intelligence in dealing with discretionary domains is examined. In Section 4, various types of discretionary decision-making in e-government services are illustrated. The collaborative discretionary decision-making model and processes are proposed in Section 5. A sample application of the proposed model in e-government services is illustrated in Section 6. Section 7 concludes the paper and discusses directions of future work.

2 AN OVERVIEW OF DISCRETIONARY DECISION-MAKING

Despite the fact that the main concern of this paper is with the administrative discretionary decision-making in e-government services, it is worthwhile to explore the judicial discretion theories as a point of departure, considering that there are several pertinent concepts and issues that confront judges as well as administrative officers.

2.1 Judicial discretion

In a non-technical language, the term discretion has two meaning: first, it connotes certain personal qualities, such as sensibility, reasonableness, caution and good judgment. Second, it refers to the freedom to decide what is the thing to do in a particular situation. However, legal theorists recognize that the demand of a good judgment and reasonableness arises from the difficulties to understand law and legal languages in cases where abstract or imprecise standards apply (Vila, 2001). Focus on the judicial discretionary decision-making, the analysis of discretion was made in the course of debates

between two prominent legal theories: Hartian positivism (Hart, 1961) and Dworkin's interpretivism (Dworkin, 1978). Both theories have paid particular attention to whether legal reasoning is only deductive reasoning applying rules or justificatory discretion. The issue has been thoroughly examined by legal philosophers and has brought forward two separate discretion models: strong and weak discretion. Strong discretion is defined as the possibility to choose among different equally valid or legally admissible course of action. Weak discretion refers to those situations in which although law offers an answer to the case under consideration, the answer is not obvious (Dworkin, 1978). The important distinction is between the discretion involved in creating one's own standards (strong), and that requires interpreting a given standard in order to apply it (weak). The core feature about discretion is the possibility for choice. Choice is a voluntary act that entails opting for one, and only one, course of action. Each choice also entails the existence of different alternatives. This derives to the concept of easy cases and hard cases. If the justification decision can be achieved by simple deduction from clear establish rules, it calls easy cases (Dworkin, 1978). Hartian positivism views easy cases, as the very possible of normative communication requires that there exist non-controversial instances of the used terms. In easy cases, rule-following is possible because the contents of rules are determinate. Dworkin's interpretivism also agrees that an easy case is possible if the interpreter's conclusion about the contents of law is not controversial.

With respect to hard cases, it's influenced by a pre-eminent concept of 'open-textured' language under the context of law. According to Hartian positivism, legal language is inevitable of 'open-textured' where rule-following is not possible because the contents of rules are indeterminate (Hart, 1961). Vila (2001) defines vagueness and ambiguity as sources of semantic indeterminacy. Whereas vagueness entails widespread doubt or uncertainty about the truth-value of proposition, ambiguity involves disagreement in the qualification of a proposition as true or false (Villa, 2001). Thus, in dealing with hard cases, rules and facts have to be interpreted and interests have to be balanced (Leenes, 2003). For this reason, the solution to hard case is difficult and can be influenced by several external factors apart from legal rules, such as political impacts, sufficiency of evidences, and experience and knowledge of decision makers (Vila, 2001).

2.2 Administrative discretion

Public administrative (or a street-level bureaucrat) discretion refers to the degree of latitude or flexibility exercised by public administrators when making decisions or conducting any agency business (Warren, 2003). Discretion can be viewed as power belonging to an officer who has an authorization to determine one's own reasons for acting in relation to dealing with others. This enables officials as 'discretion-holders' who can affect unilaterally the position of other persons in society (Bell, 1992). Galligan, *et al.* (1998, pp.14) define discretion as:

Discretion means some degree of latitude regarding the decision to be taken within an area of power defined by law. Discretion connotes an element of choice where one or more possible decisions or courses of action are open. Discretion does not mean unlawfulness; on the contrary, legal discretion is a legitimate exercise of authority within a given context. Discretion should not be seen as entirely subjective; there is inevitably an element of subjective judgment, but the exercise of discretion must also meet certain legal requirements. It must be reasonable, it must take into account relevant considerations and avoid irrelevant ones, it must be conducted for the purpose set out in the governing law, and it must be exercised in good faith following relevant procedural requirements.

Discretion is a necessary part of many bureaucratic jobs (Feldman, 1992). Since discretion is an act of choice, knowledge of the decision-making process is vital to understand the discretionary decision-making. The rational actor model or the classical rational model encompasses fundamental notions of a simple decision process (Downs, 1957 and Allison, 1971). The model consists of five steps. First, a problem is recognized. Second, goals are established for the solution of the problem. Third, alternative solutions are proposed. Fourth, information is gathered to assess these alternatives. Finally, a choice is made amongst the alternatives that maximizes efficiency. However, Simon (1956;1997) has rejected the classic economic assumptions of managers as "economic maximizers" making optimal decisions

based on acquiring full information. Instead, he believed an "administrative man" was more descriptive: managers are "satisficers" who seek the first satisfactory solution, based on limited information or the so-called bounded rationality.

The rational support of the use of discretion by officials can be varied depending on the context of laws and environmental situations. Schneider (1992) identifies four types of discretionary authority as follows:

- '*Khadi discretion*' The decision-maker decides each case individually, on the basis of ad hoc decisions involving legal, ethical, emotional, and political considerations.
- '*Rule-failure discretion*' This type of discretion is found where discretionary authority is created in anticipation of cases that are so complex, varied, and hard to anticipate and it is difficult to envisage rules that will guide decision-makers to right results.
- '*Rule-building discretion*' This type of discretion occurs when decision-makers are granted discretionary authority in the belief that they themselves will develop better rules with experiences. It is useful during times of rapid and great social changes in which rules are hard to write because of the rapidity of changes makes them controversial, the direction and extent of change are uncertain, and the rules must be replaced frequently.
- '*Rule-compromise discretion*' This type of discretion is found where the legislature or other rule-making body cannot agree on appropriate rules and consequently passes the responsibility on to individual decision-makers.

The limitations of capricious discretion have been proposed by Feldman (1992) who strongly suggests exerting social context limits to control the use of discretion instead of the formal limits such as rules. With the goal to eliminate the discretionary decision-making by whim, caprice, chance, or ritual, Galligan (1990, pp.6) asserts that officials should exercise discretionary powers in compliance with standards of rationality, purposive, and morality. At minimum, they require:

- (a) that any exercise of powers be based on reasons, and that the reasons be applied consistently, fairly, and impartially; (b) that the reasons be intelligible related to a framework of equally intelligible purposes, policies, principles, and rules (in general standards) which can be seen fairly to fall within and be the basis of the delegated authority; (c) that in matters of procedure and substance there be compliance with general critical consideration of morality.

The first imperative point of concern here is that knowledge, i.e. legal, regulations, policies, principles and rules are of importance to decision makers in order to make intelligent reasons. The second point is that, in the case of absence or unclear standards, an officer who is a decision-maker has a tremendous responsibility to create his own standard based on appropriate procedures in order to promote consistency, fairness, and impartially. The third point is in order to make a reasonable discretionary decision-making, a collaboration and participation amongst parties should be exercised in order to provide a moral and rational means for arriving at whatever outcome is sought. These three main points of concern will be revisited again in details in Section 5.

3 ARTIFICIAL INTELLIGENCE AND DISCRETIONARY DOMAINS

Lawyers and computer scientists have a vision of using information technology to predict, facilitate or emulate legal decision-making, and have conducted extensive research to investigate how to realize this vision. The central assumption in the realm of legal artificial intelligence is that by modeling the legal framework including discretionary domains, judges could make better decisions by getting support from legal decision support systems. The great challenge in the modelling effort of discretionary domain is the 'open-textured' language of law where the lack of clear norms and unspecified facts cause a great difficulty in the design of legal decision support systems (Bruin et al., 2002; Stranieri and Zeleznikow, 1996). The rule-based expert systems, which assume that the laws consist of clearly-stated, published rules, and that the task of the judge is merely to identify the application rules and then apply them is proved to be insufficient in dealing with open-textured of law (Yannopoulos, 1998). As such, several non-rule based reasoning techniques, such as case-based

reasoning (Skalak and Rissland, 1986; Kerner et al., 1999), reasoning by analogy (Ashley, 1990), and neural networks (Zeleznikow and Stranieri, 1995; Bench-capon, 1993) have been developed in order to tackle the modeling problems in discretionary domains. The web-based legal discretionary decision support system has also been constructed in an attempt to make law more accessible and to make decision processes transparent (Zeleznikow, 2002b).

In the process of modeling of discretionary domains, separate “hard cases” from “easy cases” still depend on human “sense”, such as lawyers’ judgments and opinions. Gardner (1987) proposes the use of heuristics approach in which a computer program ought to be able to resolve at least some questions on its own and the rest are hard questions that would be left to human judgments. Similarly, Yannopoulos (1998) detaches hard cases from easy cases during the legal decision process by the ‘feels’ of the lawyer if he or she needs to interpret the meaning of laws. The interpretation is defined as the logical procedure performed by lawyers in order to identify the meaning of law i.e. syntactic, semantic, and pragmatic dimension. The difficulty arises when lawyers encounter one of the three main shortcomings: vagueness, conflicts, and gaps. In dealing with these interpretative problems, Yannopoulos (1998) also suggests that the lawyers perform linguistic and teleological interpretation of the meaning of the rule in order to remove vagueness, select the applicable rule by using the three axioms of legal hierarchy in order to exclude conflicts, speculate similarities, and use analogy or legal arguments to establish similarity with regulated cases in order to eliminate gaps.

Whereas most artificial intelligence researches had successfully supported the judicial decision-making, the limit of modeling of discretion domains depends predominantly on the degree of open-textured and decision factors provided by laws. Zeleznikow (2000) observes that there are four distinct ways in which discretion can be exercised in legal domains.

- *No discretion domains* This type of domains has no discretion because laws leave no room for interpretation. The rule-based reasoning is useful to model this type of domains. The sample of e-government services in this domain can be viewed in a study by Varavithya and Esichaikul (2005).
- *Narrow discretionary domains* This type of domains has well enunciated norms that are clear from legislation, cases and/or legal opinions. Judges have the ability to deviate from these decisions (but not by significant amounts). This domain is bound and primarily well defined. A sample of computer-support in this domain is the Scottish Sentencing Information that aims to aid the discretionary judicial decision-making in sentencing (Tata, 1998).
- *Bounded discretionary domains* This type of domains has no norm. Legislation or cases specify what factors judges must take into account. However, judges are not told what weight to attribute to each factor. The predicates in bounded discretionary domains are open-textured but bounded. The constructed of Split-up systems to deal with Australia Family Law is a sample of computer systems in this domains (Zeleznikow and Stranieri, 1995)
- *Unfettered discretionary domains* This type of domains has no norms and judges are not even told what factors must be taken into account in reaching a decision. This domain is both open-textured and unbounded. A classic legal sample of this type of domain is given by Zeleznikow (2000) in the determination of the custody of children in Australia Family Law. According to the Family Law Act (1975), the only factor to be taken into account is the paramount interests of the child.

The major problem of the legal artificial intelligence still remains in the unfettered discretionary domains where Zeleznikow (2000) believes that it is not wise to model these domains.

4 DISCRETIONARY DECISION-MAKING IN E-GOVERNMENT SERVICES

It is clear that the transformation from governmental manual-based to e-government services inevitably involves discretionary decision-making to a certain degree. To articulate the potentiality of discretion related applications in e-government services, Table 1 illustrates examples of e-government applications based on each type of decisions classified by Galligan (1990). In addition, the type of administrative action in terms of cooperation (coordination, mix, and collaboration) as described by

Lenk et al. (2002) is also incorporated into the table in order to identify the nature of cooperation of each type of decisions.

- In the paradigm of *adjudication*, it can be considered as a no discretion domain where an official follows a strict procedure with less scope for discretion. According to Lenk et al. (2002), coordination is applicable to a well structure process where processes are legally controlled in a strict way and formalized to a large extend. Thus, the use of rule-based reasoning and data exchange between relevant public agencies is imperative in the design of this type of decision-making in e-government.
- *The modified adjudication* represents a large portion of decisions entrusted to an official of which the combination of adjudicative and discretionary elements is generated. On-line citizen interactions combine with an off-line human intervention in e-government services is inexorable where open-textured of rules or evidences demand only human's judgments. The use of advanced algorithms, such as neuron network or case-based reasoning is possible but should be done with great care. A mix between coordination and collaboration is necessary where an official must follow procedures and simultaneously need to collaborate with relevant parties in order to solve unclear issues, such as legal terms, evidences and facts of the case (Lenk et al., 2002). Finding a right mix of coordination and collaboration is a challenging issue in the design of e-government systems (Wimmer et al., 2001).
- *The specific and general policy issues* involve a policy formulation and democratic deliberation. The policy-making is complex and represents weakly structured processes where the divergence of interests and positions of parties are not very clear and need to be negotiated in order to reach a policy agreement (Lenk et al., 2002). Therefore, this type of decision can also be viewed as unfettered discretionary domains where modeling discretion is difficult and computer systems can only support a part of decision-making process, such as electronic voting, collaborative writing, or documents retrieval. The level of collaboration and negotiation with interested parties in this type of decision is high.

| Classification of decisions* | Nature of issue | Normative framework | Example of applications in e-government services | Type of cooperation in e-government** | |
|------------------------------|--|---|---|---------------------------------------|--|
| Adjudication | Individualized: determination of rights and duties | Standards settled with reasonable precision | One-stop vehicles registration services that need a highly coordinate of data exchange with other agency, such as Tax Revenue Department and Department of Insurance. | Coordination | |
| Modified Adjudication | Individualized how person or situation to be treated | Standards less settled: some discretion in deciding | On-line social security applications mix with an off-line communication with a citizen who needs a social welfare assistant. | Mix | |
| Specific Policy Issue | Individualized: how to act, what to do | Some standards but substantial discretion | e-Rulemaking (Coglianese, 2004) where citizen can use of information and communication technologies provided by government agencies in the rulemaking process. | Collaboration | |
| General Policy Issue | Formulation of general standards for application in individual cases | Some abstract standards but substantial discretion | | | |

Table 1. Example of applications in e-government based on the classification of decisions, and type of corporation in e-government (* adapted from Galligan 1990, pp.114; ** adapted from Lenk et al. 2002, pp.71)

5 THE COLLABORATIVE DISCRETIONARY DECISION-MAKING MODEL

Administrative work is based on making decisions in processes, which serves to provide solutions of problems in constantly changing situations (Misra, 2003). W.N. Nelson (1990) introduces the central concept of 'open government' where participation contributes to open government, open government contributes to the need to justify official actions in terms of morally acceptable principles, and the need to justify contributes to better decisions. In light of the open government concept, this paper doesn't aim to automate discretion decision-making using new algorithms but to introduce the collaborative approach in order to put constraints, or if possible, to eliminate the unfettered and undirected decision-making by an officer and simultaneously attain good governance principles. This study views that, at the minimum, the use of discretion by an officer in e-government services must promote two pillars of good governance principles. First is the openness and transparency principle of which citizen can access or participate in the administrative decision-making for the purpose of scrutiny and supervision. Second is the reliability and predictability principle, where compelling reasons from discretionary decision-making should be in the scope of laws and follow a legal doctrine of administrative discretion, such as the act in good faith, follow fair procedures, uphold equal treatments, and respect the notion of proportionality. Based on administrative science theories, the collaborative discretionary decision-making consists of three important aspects: coordination, which contribute to a fair procedure as means for achieving outcomes, collaboration to promote 'open-government' concept, and knowledge, which are necessary to support intelligent discretionary decision-makers. Figure 1 depicts the proposed collaborative discretionary decision-making model, which consists of a knowledge layer, a coordinative layer, and a collaborative layer.

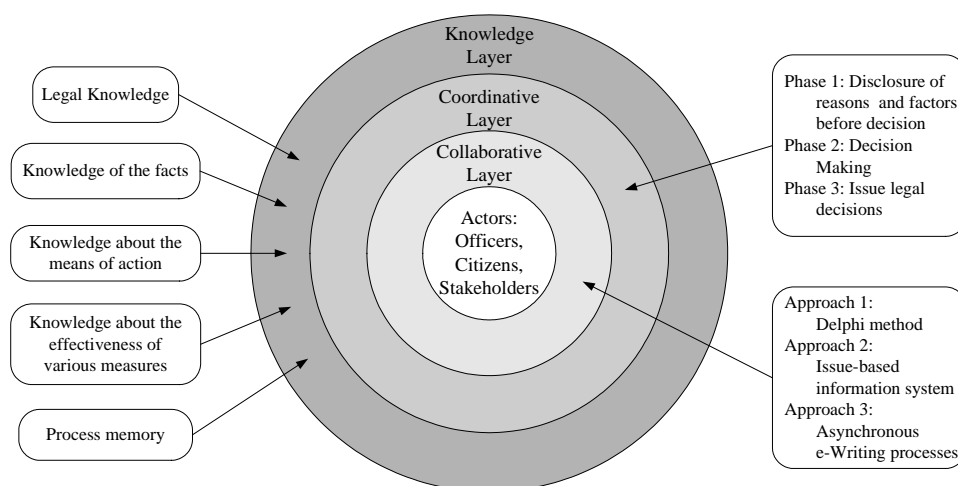


Figure 1: *The proposed collaborative discretionary decision-making model*

5.1 Knowledge layer

With regard to a complex decision-making, knowledge is of particular importance to government (Lenk et al., 2002). The consumer of knowledge can be not only an official as a decision maker but also a citizen, domain experts, and relevant parties. In the e-governance era, the highly "aware citizen" will not only demand accountability and transparency as a matter of rights but will also start questioning the very basics of the established norms of the government (Misra, 2003). Lenk et al. (2002) classify five types of knowledge on which administrative decision making normally utilize at the operative level as follows:

- Legal knowledge. Public authorities, citizens, and domain experts should be able to search for sufficient legal knowledge to make decisions (Yannopoulos, 1998). Wimmer et al. (2001) view legal regulations in a twofold manner: first are laws, judicial decrees as well as administrative

directives, guidelines, and instruction; second are legal considerations which exert a descriptive influence on business processes, such as rules for international trade, customs clearance procedures, etc.

- Knowledge of the facts given in a special case to be decided upon. The facts of the cases can be in the form of information (structured or unstructured type of information), policy directions, narrative text, social related facts, legal facts, evidences, etc.
- Knowledge about the means of action that government has at its disposal. The administrative procedures in the context of coordinated steps, time, place, and person and the alternative of decision choices are an imperative knowledge to arrive at decisions for the discretionary decision-maker.
- Knowledge about the effectiveness of various measures. The consequence of decisions is of importance to decision makers as knowledge of the “aftercare”, such as evaluation, citizen feedback, complaints can be learnt and mistake made in the past can be avoided.
- A ‘process memory’ which is gradually built up while working on a decision cases. Menne-Haritz (2004) states that administrative work is based on collaborative making decisions. The processes brought together by the need to communicate inside the organization use the personal capacities provided by the organization. The emerging decision making processes serve to collaboratively find solutions for external problems in constantly changing situations. The archive of administration decision-making processes may be used as large reservoirs of experiences that an administrator can consciously learn as lessons for the future.

5.2 Coordinative layer

Citizens expect a reliability and predictability of decisions from authorities. A way of restraining the exercise of unfettered discretion common to both courts and bureaucrats is to require that decision-makers follow a set of procedures (Schneider, 1992). A consistency of decision-making can be achieved by replicating the manner in which decisions are made (Zeleznikow, 2002a). Ideas of good and fair procedures, or due process, concern primarily with achieving given outcomes rationally and effectively. However, the concern is not only with positively achieving outcomes, but also in ensuring against arbitrariness in doing so (Galligan, 1990). Thus, the coordinate procedure of discretionary decision procedure aims to provide a structure of decision actions for a decision maker to be guided by. The coordinate phases of the discretionary decision-making processes based on the analysis explained by Galligan (1990) can be described as follows:

- *Phase I: Disclosure of reasons and factors before decisions.*

The disclosure of reasons and factors is important in the discretionary context in removing ambiguity and uncertainty as to why a decision was made. With disclosure of the reasons in the sense of the standards and considerations that will govern the decision, an official is likely to enhance rationality. Disclosure also tends to make an official reflex more carefully on his task, to be more diligent in identifying and specifying objects and purposes, and to take greater care in applying them to the circumstances. In addition, disclosure of reasons and factors before decisions would provide an opportunity for affected parties to gather a body of knowledge and opinions about how to settle the issues likely to arise, on the basis of evidence and facts, from impressions and views which are likely to be relied on in decision-making. The outcome of this phase should be; first, ascertaining of the purposes and legal interpretations, second, identify the constraints and background considerations which derive from the laws and from sources outside it, third, deciding whether specific reasons, and the policies on which they are based, come within and constitute an acceptable working-out those general purpose, and fourth, certain that the decisions are being supported by good evidences.

- *Phase II: Creating standard and make discretionary decisions*

An officer who is forced to exercise discretionary powers must formulate some general policies, standards, or guidelines, including a body of knowledge and opinion about the case. Under the normative framework within which discretionary decisions are made, Galligan (1990) introduces two

directions in dealing with discretionary standards: the no-fettering doctrine direction and the formulation of standards direction.

- *Direction A: no-fettering doctrine.* The no-fettering doctrine is based on two ideas; first any standards formulated must not be regarded as binding and conclusive rules, second, the past exercises must not be regarded as generating binding precedents for the future. This provides that an official exercising discretion must retain himself the poser and the willingness to modify, extend, or take account of the merits of actual cases. Discretionary powers are conferred in order to achieve in individual cases the best results of which tightly drawn rules may be prevented. The procedures in the no-fettering doctrine can be summarized as follows:

Step 1. An authority in the exercise of discretionary powers may adopt or create a set of standards upon which its decision may be based.

Step 2. Those standards must not be treated as rules to be applied automatically to situations that come within them, but must follow consideration of the merits of each cases

Step 3. Consideration of the merits of each case means that the authority must direct itself to the case, and then design whether the standards should apply, whether they should modified, or whether, in the circumstances, an exception should be made for them.

Step 4. An authority has the duty to allow an interested party to direct arguments against general standards in the present case, or why they should be modified or not relied on at all,

Step 5. Where an authority does set itself standards and discloses them, it may be under the duty to apply them and to depart from them after giving parties an opportunity to be heard.

- *Direction B: the formulation of standards.* In the case that laws assign a duty to an officer to formulate standards for decision-making, a process may be carried out with additional duties to consult groups with interests in the matter. The formulation of standards touch on the extent to which discretion ought to be translated into standards, principles, and rules and on the extent to which past decisions ought to be regarded as guiding or binding precedents for the future. The point of imposing duties along these lines would be to enhance the rational basis of decisions and to reduce arbitrariness, to provide guidance upon which expectations might be built and hence to satisfy a sense of fairness, but without forcing administrative bodies into a rigid rule-governed framework. The procedures of formulation of standards can be outlined as follows

Step 1. An officer should direct himself or herself to the issue of standards, and formulate at some level and the basis upon which it will proceed in making decisions.

Step 2. Where standards are left at a highly abstract level so that substantial discretionary assessments have to be made in individual cases, reasons should be given for adopting that approach.

Step 3. Once standards have been set, an authority would be expected to follow them unless it considers that the standards should either be modified in order to avoid an unacceptable result in a particular case or were simply no longer appropriate.

Step 4. Where decisions are made on an incremental basis, efforts should be made to articulate the standards that are implicitly relied on, and in this way to create general standards.

- *Phase III: Issue legal decisions*

In the last phase, decision-makers will need to draft the final legal arguments and conclusions. The explicit explanations must be comprehensible to all parties involved, even to laymen. The output of decision-making is the legal decisions, which could be in the form of the statement of reasons as a part of due process requirement (SIGMA, 1999).

5.3 Collaborative layer

Collaborative layer aims to achieve an openness and transparency principle. E-government can be viewed as a potential collaborative revolution among government stakeholders (Lowry et al., 2002). Wimmer et al. (2001) identify the collaboration as a vital element in public administration and define the collaboration as a selected set of necessary conditions to be fulfilled, i.e. working together as a group, understanding the subtasks of other members, and sharing the data. Unlike coordination, which do not allow for human discretion because the process is planned and structured in a pre-defined sequence of action, the collaboration sequencing is suited for a discretionary decision-making where decision is decided on the spot and not a priori. In dealing with the discretionary decision-making, collaboration can bring informal practices and experience, handle exceptions, and master unanticipated events, and amplify individual skills by combining them in action or in common considerations. Galligan (1990) introduces the notion of 'consultation' as a mode of participation where consultation connotes the presentation of arguments and proofs in order to influence the way issues are to be settled. The decision-maker has a duty to hear and consider, but may decide for reasons which go beyond the submissions of the parties, and may act according to standards which are defined only broadly or settled in the course of the decision. The common features of consultation are:

- The participating parties are able to ascertain the matters that are to be decided, the general policy choices that have been made or are in the balance, the empirical evidence, and the expert advice upon which the official is acting or proposing to act.
- The participating parties are able to put before the decision-maker arguments and evidence directed towards any of these matters
- The official considers the arguments and evidence, and finally gives a reasoned explanation for the policy choice he makes.

A collaborative decision is the results of an open-ended process (Menne-Haritz, 2004), which is applicable to the unpredictable outcome nature of discretionary decision-making. Means of collaboration could be in the form of oral or writing. However, writing is preferred because of the stability, and volatility co-exists.

On the collaborative discretionary decision-making activities, the Delphi method (Okoli and Pawlowski, 2004) can be applied as the collaborative activities for phase I. The issue-based information system (IBIS) can be implemented as advised by Lenk et al. (2002) to structure arguments amongst participants and to derive decision-making in Phase II. In Phase III, the asynchronous e-writing process proposed by Lowry et al. (2002) could be adopted in order to collaboratively write the statement of reasons. The Delphi approach, the issue-based information system (IBIS), and an asynchronous e-Writing processes approach can be summarized as follows:

- *Approach 1: Delphi method.* Delphi studies outlined by Okoli and Pawlowski (2004) involve three general steps: (1) brainstorming for important factors; (2) narrowing down the original list; (3) ranking the list of important factors. In the case that it is not appropriate to use questionnaires, Wagner (2004) suggests that the approach of brainstorm-aggregate-feedback, which is analogous to the Delphi method, be adopted.
- *Approach 2: Issue-Based Information Systems (IBIS).* The IBIS is a structured argumentation method that dictates the pattern of arguments and counterarguments amongst the multi-participant decision maker members (Kunz and Rittel, 1970). The key issues of IBIS are articulated as questions, with each issue followed by one or more positions that respond to the issue. Each position can potentially resolve or reject the issue. Arguments either support or object to a position and evaluate each position based upon the validity and strength.
- *Approach 3: Asynchronous e-Writing processes.* Lowry et al. (2002) suggest that people prefer to do a collaborative electronic writing in an asynchronously manner starting from (1) preplanning and fact to fact (F2F) group formation; (2) F2F planning; (3) asynchronous research; (4) asynchronous, anonymous brainstorming; (5) F2F convergence deciding on

which brainstormed ideas should be in the paper; (6) asynchronous outlining; (7) asynchronous commenting on initial outlining; (8) asynchronous drafting; (9) asynchronous reviewing; (10) asynchronous revising; (11) F2F group review of the final document (preferable read aloud to the entire group); (12) asynchronous final copy editing by one group member. Step 6 to 10 are iterative and repeated as necessary.

Figure 2 illustrates the proposed collaborative discretionary decision-making processes and demonstrates the mix between coordinative phases and collaborative activities, and expected outcomes of each coordinative phase.

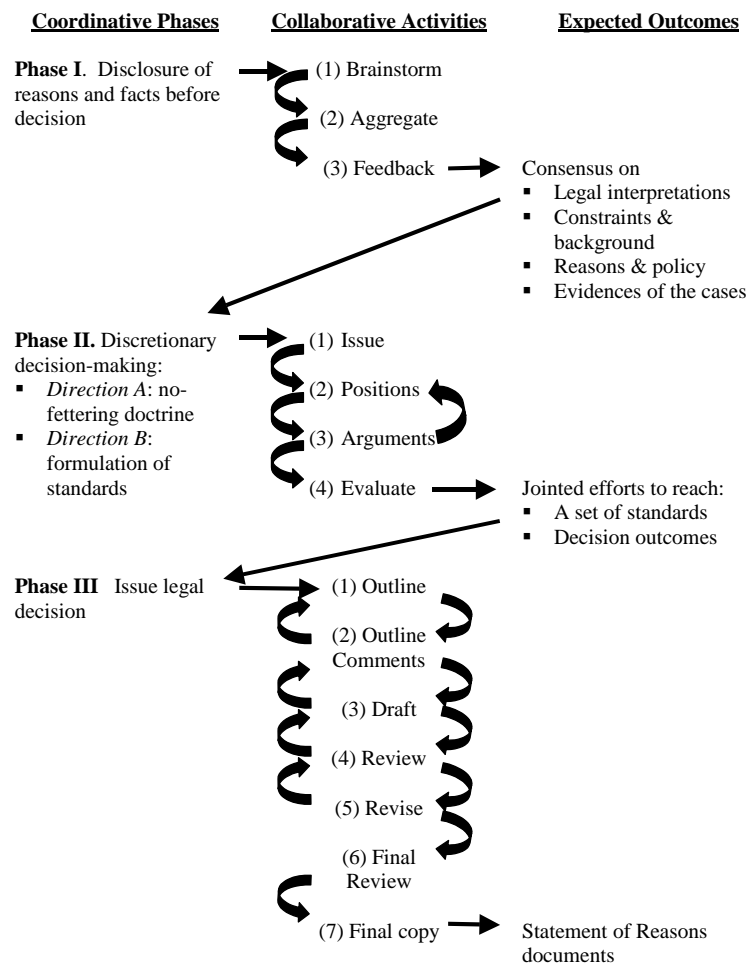


Figure 2. The proposed collaborative discretionary decision-making processes

6 APPLICATION

The application of the proposed model can be best illustrated using the author's research in progress. The research involves the development of collaborative decision support system for the modify adjudication type of discretionary decision-making in e-government services called the Rule of Origin Verification systems (ROVER) under the Ministry of Commerce, Thailand (Varavithya and Esichaikul, 2005). The basic goal of ROVER is to provide the rule of origin verification services by confirming whether a product under consideration originates in Thailand in connection with applicable rule of origin criteria under specific trade agreement, e.g. Free Trade Agreement. The modify adjudication decision occurs when an official needs to use discretion in the determination of circumvention of export product (i.e. measures or means taken by exporters to evade anti-dumping or

countervailing duties). This has caused several problems to citizens, such as the lack of transparency, inconsistency of discretionary decision-making, possible use of arbitration and corruptions, and lack of knowledge base to capturing, sharing and reusing amongst stakeholders, and corruptions etc. In light of the open government concept, the collaborative discretionary decision-making model is adopted and designed as depicted in figure 3.

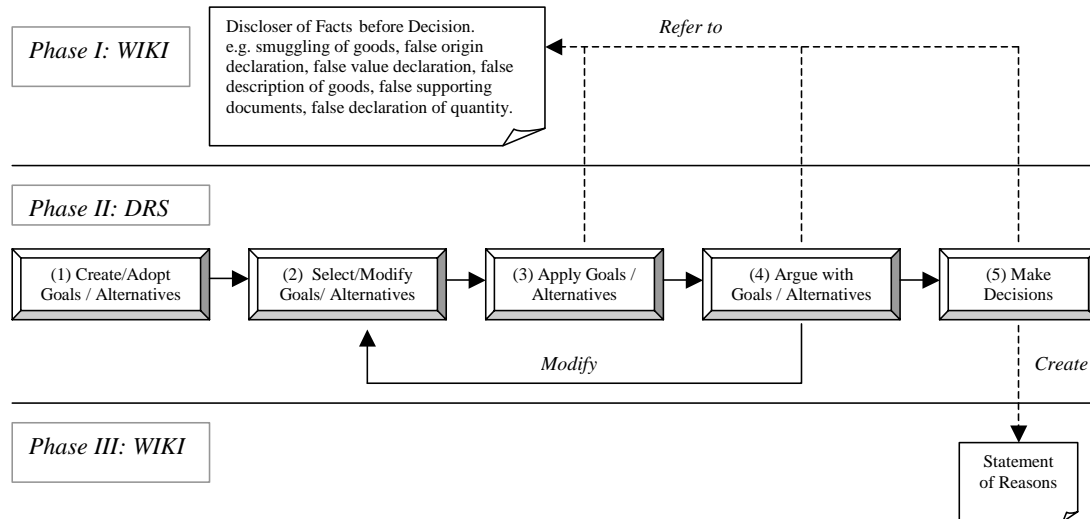


Figure 3. The ROVER collaborative discretionary decision-making workflow

To prevent reckless prosecutions of citizens without solid facts or specific purposes, the disclosure of facts and reasons in *phase I* is aimed to bring about rationality and fairness to citizens. From the fact that the circumvention determination is not an easy case (an officer usually ‘smells’ through data and applies tacit knowledge, such as experience or intuition to fetch a ‘suspicious’ case from trade statistics), the disclosure of fact causes an official to reflect more carefully of the case and give an opportunity to citizens who might want to add more information which is highly relevant to the decision. Wiki (Wagner, 2004) is implemented via the department website to allow parties to reviews and argue with facts of the case. Delphi method is applied and controlled by an officer who administrates and manages the case scheduling and the collaboration process.

Phase II intends to promote the transparency and consistency of the unfettered discretionary decision-making. This phase comprises of complex activities in which participants must be able to participate and put forward arguments and counterarguments without difficulties or causing unexpected chaos. In ROVER, the no-fettering doctrine is applied where an officer can follow steps shown in figure 3. From step 1 to step 3, an official can create, modify and apply standards, which comprise of three elements: problems, goals, and alternatives. In step 4, citizens, domain experts, relevant parties are invited to participate and argue on standards based on facts and evidences of the case and, if necessary, the process can loop back to step 2 to modify standards as appropriated. Every argument proposed by participants must be structured and captured in a knowledge-based and process memory in order to support reasoning mechanism of decision support systems in step 5. The decision outcome in ROVER is selected from choices or alternatives that best solve the problem, such as sanction, fines, and withdrawal of permissions or carry out criminal investigations for more serious cases. The web-based collaborative internet-based subsystem called Discretion Rationale System (DRS) is developed to support workflows in *Phase II*. DRS applies various extensions of IBIS techniques, i.e. the Decision Representation Language (DRL) proposed by Lee and Lai (1991) as the discretionary knowledge representation schema and the Argumentation Framework (Karacapilidis and Papadias, 1998) as an argument structuring and reasoning technique. The design challenges of DRS are reasoning decision support from a process memory and the assessment of arbitrariness decision-making, which still remain future works.

In *phase III*, after reaching a decision, an officer and domain experts apply the asynchronous e-writing processes technique using Wiki to write the statement of reasons based on facts, evidence and reasoning from *phase I and phase II*. In order to give a full accountability to the public, only an official and domain experts are allowed to participate in the writing processes while citizens can view the progress of writing and communicate with the officer via e-mail if needed.

7 CONCLUSIONS AND FUTURE WORK

This paper restates that the objective of e-government service is to achieve good governance principles. Despite the fact that arbitrary actions of discretionary decision-making could impede good governance to a certain degree, to do away with discretion of administrative works might not always achieve good governance as the use of discretion could optimize the individualized decision-making based on citizen situations. Since e-government provides services based on the rule of laws, which leave rooms for interpretations, the use of discretion in e-government services is inevitable. The applications of e-governments in various types of administrative decision-making suggest the mixture of coordinate procedures and collaborative activities in the modified adjudication type of decisions. Contrary to the legal artificial intelligence approach, which attempts to model discretionary domains using advanced algorithms and programming, this paper proposes a collaborative discretionary decision-making model. The model aims to restrict an unfettered and undirected discretionary decision-making in e-government based on an administrative science theory. The model comprises three layers: a knowledge layer, a coordinative layer, and a collaborative layer. ROVER application is illustrated as a sample of the proposed model.

The evaluation of the model in e-government application domains is necessary for the future work. The implementations and evaluations of the model may involve the following activities: (1) select an appropriate discretionary domain in e-government; (2) assess the target discretionary decision-making 'open-textured'; whether it is narrow, unbound, or unfettered discretionary domains; (3) investigate and analyze relevant legal requirements and ways in which administrative decision-making is conducted, and the decision-making key actors, i.e. an officer, citizens, domain experts, in order to determine the scope of implementation; (4) develop a closed virtual community using a collaborative knowledge management technology or conversational collaborative tools and assign an officer to act as an administrator to manage, coordinate, and collaborate decision-making processes; (5) evaluate the impact of the collaboration discretionary decision-making model on good governance, i.e. openness and transparency principle and reliability and predictability principles.

As concluding remarks, the collaborative model proposed in this paper promotes the 'open-government' concept, which encourages citizen to participate in government decision-making at all levels. The model contributes to the instrumental rationality of discretionary decision-making, and follows the commitment to democratic government. Most importantly, the model fosters discretionary decisions based on reasons, which serve the purposes of the statute in an intelligible and reasoning manner.

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