

## **A typology of organization based on a composite decision rule**

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### **Abstract**

Organizational theorists have long noted two kinds of decisions that take place in organizations: the general, aggregative decisions made at higher levels of the organization and the specific, item-by-item, decisions made at lower levels. In more recent times the microfoundation literature has sought to determine and understand the mechanisms by which activity, including processes, routines, rules and decisions, is generated at the micro-level of organizations although this search has been somewhat inconclusive. This paper puts forward the if-then construct as a mechanism that can be used to link decision making at organizational level with decision making on the ground. It suggests that this construct is created at higher levels of the organization using a combination of thinking and doing skills which we label foresight and design respectively. This decision is at aggregate level and its purpose is to inform later decisions that may be taken at a different time and space. This if-then construct is drawn on by decision makers on the ground to inform their specific decision given their specific circumstances. The decision maker on the ground also uses both thinking and doing skills, which we label judgment and action respectively, to determine how well the current situation corresponds to a previously designed scenario, and the action to be carried out given that scenario. We use these two skills of thinking and doing at both aggregate and specific levels to create a typology of organization comprising sixteen types based on the four elements of composite decision making.

**KEYWORDS:** decision, rule, organization, micro-foundation, typology, foresight, design, judgment, action

## **A typology of organization based on a composite decision rule**

In his paper on organizational decision making, Simon (1964) separates out the general, aggregative decisions made at higher levels of the organization from the specific, item-by-item, decisions made at lower levels. Other authors have also adopted a dualistic approach to decision making. Brennan and Buchanan (2000:10.1.20) distinguish between the process of determining rules and the process of taking action consistent with the rules. Feldman and Pentland (2003) regard routines as having two aspects: an ostensive aspect that describes the rule in its ideal state and a performative aspect which refers to the rule in use. Dopfer (2004) separates out rule creation from rule usage. However, many authors have suggested that the linkage between individual and collective level behaviour in organizations is not well understood (Abell et al., 2008; Felin and Foss 2005; Felin et al., 2012; Hodgson, 2012). In this paper we suggest that examining the general and specific form of rules can aid in understanding the linkage between individual and collective decision-making in organizations. We put forward the if-then construct as a simple mechanism that encompasses general and specific forms and allows the ready integration of the two roles of rules: guidance for the individual and coordination at collective level. It also allows us to consider the separation in time and space between conception and execution and we suggest that a rule may act as a linking artefact between these two processes. We use this if-then artefact as a basis for generating a typology of organization based around the general and specific forms of organizational decision making. The paper is laid out as follows. First, the literature on rules is briefly reviewed. Second, the if-then construct is developed. Third, a typology of organization is derived based on the four elements of the if-then construct at general and at specific levels. The final section provides a discussion and conclusion.

## Rules as a micro-foundation for organizing

Rules have long been recognised as a mechanism for coordinating human action. Goldman (2002) suggests that rules exist for two reasons: first, they provide guidance to the individual actor as to what to do in a particular situation: ‘Genuine rules state sufficient conditions for acting or refraining from acting’ (p. 2); second, rules act as a coordination mechanism among a number of different actors: ‘Another common justification for the use of rules is to coordinate actions of different agents, or of a single agent over time, to provide information about likely actions of different agents or at different times and to render them predictable’ (p. 11). This role of rules in coordinating the actions of individuals plays an important part in creating social order (Brennan and Buchanan, 2000: 10.1.4), ensuring a consistency within society, and leading to some level of predictability of behaviour (Hayek, 1973:43; Ostrom, Gardner and Walker, 1994).

Several authors have examined the use of rule-following behaviour among humans (Kretz et al., 2006; Moussaid, Helbing and Theraulaz, 2011). Rule following has become central to the study of decision-making at the level of the individual (Gigerenzer and Gaissmaier, 2011; Kahneman, Slovic and Tversky, 1982; Klein, 1998). Kahneman (2011: Ch. 6 & 9) gives examples of the use of norms and heuristics by individuals in everyday judgment and decision making situations. Simon (1972) suggests a role for rules and heuristics in his theory of bounded rationality and satisficing behaviour. Gigerenzer and Gassmaier (2011) argue that in situations of significant uncertainty use of heuristics does not necessarily imply loss of accuracy in decision making. Grandori (2010) puts forward a decision making model based on the rational use of heuristics.

Rules have long been recognised as a feature of organizations. Rules were introduced as an organizational mainstay in Weber’s theory of bureaucracy (Morgan, 1989:50; Weber, 1968:956). Since then many authors have pointed out the widespread existence of rules in

organizations (Cyert and March, 1992:120; Kline and Martin, 1958; Schlicht, 1998 and 2008; Zhou, 1997). Rules act as coordination and decision-making mechanisms within the firm (Ioannides, 2003; Langlois, 1995). Grant (2003) suggests that rules can be used to guide and control complex organizations in volatile environments. D'Adderio (2008) suggests that rules are embedded in the artefacts used within routines and routines direct activity in organizations (Lewin et al., 2011; Nelson and Winter, 1982; Pentland et al, 2012). More recently, the critical role that rules play in strategic decision making has been recognised (Campbell and Yeung, 1991; Davis, Eisenhardt and Bingham, 2009; Eisenhardt and Sull, 2001). Weber (1968: 958) also alludes to the use of specific and general form of rules in organization:

The management of the office follows general rules, which are more or less stable, more or less exhaustive, and which can be learned. Knowledge of these rules represents a special technical expertise which the officials possess. It involves jurisprudence, administrative or business management.

The reduction of modern office management to rules is deeply embedded in its very nature. The theory of modern public administration, for instance, assumes that the authority to order certain matters by decree — which has been legally granted to an agency — does not entitle the agency to regulate the matter by individual commands given for each case, but only to regulate the matter abstractly.

Weber recognises that the general form of rule is an abstraction, but one which can be learned and applied by officials to specific matters.

Rules therefore carry out two distinct functions: first, they provide a mechanism to guide the individual agent in its decision making and, second, they provide a mechanism to coordinate action among many individual agents. The former function is specific (Simon, 1964), occurs at individual user level (Dopfer, 2004), and is performative in nature (Feldman and Pentland, 2003). The latter function occurs at the level of the organization and is due to the rule being performed multiple times. The greater the consistency in these performances the more likely

that collective behaviour will be well coordinated. This consistency in performance in turn depends on how well specified are the rules in the first place, how appropriate the rules are to the situation, and how well the rules are enforced. This specification is a representation of the rule in its definitional, ideal, aggregated, generalized form (Simon, 1964). It is the rule in its ostensive aspect (Feldman and Pentland, 2003). It provides a template that guides individuals in their decision making in practice i.e. in their later enactment of the rule. We examine the rule construct in more detail in the following section.

### **The rule construct**

Dopfer (2004) defines a rule as ‘a deductive schema that allows operations’. Hodgson (2006:3) defines a rule as ‘a socially transmitted and customary normative injunction or immanently normative disposition, that in circumstances  $x$  do  $y$ ’. Becker (2004:645) suggests a similar format for a rule: if {condition  $X$ }, then {do  $A$ }. Schlüter and Theesfeld (2010) provide a formal grammar for rules incorporating five elements: a condition, an agent, a prescription (deontic and aim) and a sanction in case of non-fulfilment. These formulations can be reduced to: if  $X$ , do  $A$ ; or, in the negative sense: if  $X$ ,  $B$  is forbidden. This rule construct therefore contains two distinct parts: an evaluation (if  $X$ ) and a prescription (do  $A$ ). The first part of the rule requires the decision maker to assess the situation: that the situation or circumstance is indeed represented by ‘ $X$ ’. This sets the correct context for the decision. The second part of the rule requires the decision maker to do something, given that specific context. In this way, the rule combines two distinct human decision making activities: thinking and doing (Mintzberg and Westley, 2001).

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We adopt Simon's (1964) terminology and suggest that each rule has a general form and a specific form. The general form represents the rule in its ideal state i.e. it is a formal description of the rule; it represents the rule in theory. The specific form is the rule as it is enacted, i.e. an instance of the rule; the rule in use. The two forms work together: the general form providing stability while the specific form handles ongoing activity and change (Parmigiani and Howard-Grenville, 2011). The relationship between the two forms is depicted in figure 1 where the crow's foot indicates that for every general form there exist many specific instances of its use i.e. while the general form is created once it may be performed many times. We suggest that each of these forms has evaluation and prescription elements and these elements correspond with thinking and doing. We have already discussed in the paragraph above the specific form and its two elements: judgment and action. We suggest that the general form similarly comprises two elements representing thinking and doing respectively at the conception stage which we label foresight and design respectively. We now examine each of these elements in more detail.

### **Specific Form**

To follow a rule requires the rule user to carry out a number of steps. The rule user must evaluate the situation in which she finds herself and then determine if a rule exists that is appropriate to the situation. Then she must invoke the rule: that is carry out whatever action is prescribed by the rule. Invoking a rule may require the rule user to make a choice if a selection of possible actions is specified by the rule creator. We therefore suggest that specific performance of a rule comprises two distinct elements: the determination of the nature of the situation at hand, and the carrying out of some action. We label these elements judgment and action respectively. The judgment element draws heavily on thinking skills whereas the action element draws more on doing skills. Obstfeld (2012:1573) and Weick et al (2005:412) recognise the judgment-action duality and the importance of 'acting thoughtfully'

when they put forward the two fundamental questions of organizing: ‘What’s going on here?’ (judgment) and ‘What do I do next?’ (action). Heimeriks et al. (2012) similarly recognised a two-step process of variation (identifying the salient features of a situation) and selection (choosing a course of action) in their study of higher order routines in use in acquisition decisions. Lahno (2007) similarly distinguishes between two closely-related parts of the rule-following decision making process: an initial deliberative part followed by an action part.

### *Judgment*

To properly follow the rule the decision maker must correctly understand the situation in which she finds herself. She must realise that the situation facing her is actually ‘X’, and not ‘Y’ or ‘Z’. If it is X, and she recognises it as such, then she will do A which is the required action. She has evaluated the actual situation in the light of the rule and come up with the prescription: the situation is indeed X and so ‘I ought to do [A]’ (Lahno, 2007:432).

However, if the situation is Y, and she misinterprets it as X, then she will incorrectly carry out action A. Following similar logic, if the situation is X, but she interprets it otherwise, she will not carry out action A which she should have done. This illustrates the critical importance of judgment. If judgment is wrong then the action carried out will be incorrect and a good outcome for the organization is unlikely. At the very least, coordination and knowledge will be lost (Hayek , 1952:91).

### *Action*

The second part of the rule – ‘do A’ – denotes an action. However this action is now carried out in a particular context i.e. in the knowledge that the situation is indeed ‘X’. This may make it easier to correctly carry out the action for two reasons. First, the action has been specifically chosen to address that situation and so should have a greater correspondence with the situation than any other action, assuming good strategy making in the first place: i.e. that appropriate future situations have been envisaged and appropriate actions designed and

specified. Second, having considered the situation and formed a judgment, the context of the action is now better understood and this should increase the probability of a good implementation of the action. The importance of this integration of judgment and action was long ago recognised by Knight:

The business man himself not merely forms the best estimate he can of the outcome of his actions, but he is likely also to estimate the probability that his estimate is correct. The "degree" of certainty or of confidence felt in the conclusion after it is reached cannot be ignored, for it is of the greatest practical significance. The action which follows upon an opinion depends as much upon the amount of confidence in that opinion as it does upon the favorableness of the opinion itself. The ultimate logic, or psychology, of these deliberations is obscure, a part of the scientifically unfathomable mystery of life and mind. We must simply fall back upon a "capacity" in the intelligent animal to form more or less correct judgments about things, an intuitive sense of values... It will at once occur to the reader that this capacity for forming correct judgments (in a more or less extended or restricted field) is the principal fact which makes a man serviceable in business; it is the characteristic human activity, the most important endowment for which wages are received. (Knight, 1921:III.VII.40, 43)

Knight emphasises that this 'capacity for forming correct judgments' is the key skill of the manager. He also emphasises the close coupling between judgment and action.

The if-then format for a rule has been used for many years in the development of information systems. The if-statement is a basic component of automated systems and is found in most programming languages. Indeed the other two basic statement forms, sequence and iteration, can be implemented by means of an if-statement. Sequence can be viewed as: if X or not-X, do A. Iteration can be viewed as: if X less than Y, then repeat. Business rules are coded into software by means of these statement types, for example: if the account balance is greater than \$10,000 use interest rate P, otherwise use interest rate Q. The rule allows the designer to specify in advance an action to be carried out at a later stage should a specific situation arise. The rule provides the specification for an action; the action itself takes place independently of the designer.

In the case of information systems judgment plays a junior role. Whether or not the situation is met is relatively easy to determine. For example, if the account balance is €11,000 then it is easy to work out that it is greater than €10,000 and so the rule is invoked and a specific interest rate is applied. Computers can and do make these kinds of decision. Indeed as more and more business rules are programmed into computer languages, business information systems make more and more business decisions. The online revolution has spurred this process along with many everyday transactions such as booking of flights or accommodation, taking out of house, car or health insurance or purchase of books, music and clothing now carried out by information systems employing rules. However, it is not always easy to determine the nature of a situation and as a consequence many business decisions are not easily programmable or automated.

### **General form**

The general form represents the idea of the rule. It provides the protocol for the enactment of the rule at some later point. The specific form represents the later enactment of the rule in practice. Creation of the general form of the rule requires an envisioning of future situations that are likely to happen and the detailed specification of the action to be carried out should such situations occur. We divide this general form into two elements: foresight, which draws largely on thinking skills in envisaging likely future events, and design which draws largely on doing skills in setting up protocols to deal with potential situations arising.

Maitland and Sammartino (2014) provide a number of examples of the creation of rules in their general form in the case of a foreign direct investment decision by a mining company in a politically hazardous country. One decision rule identified by those authors was: ‘If communities are focused on ethics, then must buy license to operate from them, not focus on government as “authorizer” of rights to operate’ (Maitland and Sammartino, 2014: table 3). This rule will provide guidance to later decision makers on the ground; however, those later

decision makers will still have to form a judgment as to whether or not the local communities that they are dealing with are truly focused on ethics, and whether or not to deal with the community or with the government. Clearly the rule creators will also have to provide layers around the core rule explaining what they mean by ethical behaviour and by community, and the conditions around dealing with the community or with government. This general form of the if-then rule therefore serves to inform the specific performance of the rule, enacted at a later time, possibly in a different place, and very likely by different people. It is feasible that a feedback loop exists: that the general form can be reviewed in accordance with the real-world outcomes that become evident from the specific performance of the rule (Feldman and Pentland, 2003; Holm, 1995).

### *Foresight*

Rules are created in their general form. Such creation requires projection of thought into the future. This examination of the future may be through use of traditional tools such as examination of opportunities and threats, or through visioning strategies or scenario analysis (Rohrbeck and Gemunden, 2011). Whatever its methodology the outcome of this process is an understanding of possible futures facing the organization. This element of crafting we refer to as foresight. It draws heavily on thinking skills. The importance of foresight is also illustrated by Knight:

Like a large proportion of the practical problems of business life, as of all life, this one of selecting human capacities for dealing with unforeseeable situations involves paradox and apparent theoretical impossibility of solution. But like a host of impossible things in life, it is constantly being done. Though we cannot anticipate a concrete situation accurately enough to meet it without the intervention of conscious judgment at that moment, it can be foreseen that under certain circumstances the kind of things that will turn up will be of a character to be dealt with by a kind of capacity which can be selected and evaluated. That large-scale organizations are formed and operate successfully demonstrates that this principle is sound, that for these impossible problems solutions more right than wrong are actually found. (Knight, 1921:III.X.13)

In this quotation Knight also draws attention to the difference between foresight and judgment and the integration of the two: foresight occurs in advance and is anticipatory; it involves working out ‘the kind of things that will turn up’; judgment on the other hand occurs ‘at that moment’ and is necessary for correct intervention in a given situation that is actually taking place. While Knight does not directly anticipate the concept of design he does allude to it when he says that future problems may be of ‘a character to be dealt with by a kind of capacity which can be selected and evaluated’. Selection and evaluation of ‘a kind of capacity’ can be regarded as design work.

### *Design*

Rule creation requires setting down some specification or prescription or protocol as to what to do. This may be in the form of verbal presentations to staff, written procedures, mission statements or visions, or a set of principles. To this element we give the label ‘design’. It draws heavily on ‘doing’ skills. While good design has always been valued as an element of product development, it is now becoming increasingly recognised as a critical component of management processes. For example, Zott and Amit (2010) point out the importance of system-level design in the development of business models; Holland and Lam (2014) demonstrate how design thinking, incorporating holism, creativity and synthesis, can aid the strategic management of organizations. Sanchez (2006) suggests that good design can add value to organizational strategic decision making processes. Bapuji et al (2012) point out the crucial role of the designer in creating an effective organizational routine. Dixit suggests that design provides the critical link between strategy formulation and implementation:

Good strategy by management needs to recognize this [that the way top management plans work out depends on the actions deployed by subordinates in firms] and take into account the constraints on information and action it implies, in other words to engage in good mechanism design (Dixit, 2014:1123).

From the point of view of rule creation, good design will specify the conditions under which the rule is to be applied and spell out the actions to be carried out should those specified conditions occur. Foresight and design together force consideration of the kind of future that may occur and the kind of action that should be carried out should that future occur. This provides a set of rules in ostensive aspect governing future behaviour: if X, do A; If Y, do B; If Z, do C. Foresight is needed to determine that X, Y and Z are possible futures. Design is needed to specify the action appropriate to each possible future i.e. A, B and C respectively. At a later stage, judgment on the ground is needed in order to identify which situation is actually occurring – is it X, Y or Z (or indeed some variation on these, or some future not at all envisaged at rule-crafting stage)? Once the situation has been identified the appropriate action is carried out on the ground i.e. if the situation is identified as X, then A is actually carried out.

It is possible to conceive of the if-then rule as a speaking artefact (Cacciatori, 2012; Whittington et al., 2006) containing a representation of knowledge that is passed from the rule-creator to the rule-implementer with a possible disconnect in time and space between these two agents. The rule is at the centre of this artefact, but surrounding it are the conditions which govern its use on the ground, for example: how rigidly or flexibly it can be applied. An analogy is the packet switching protocol used to manage and control data transmission via the internet. Information is transmitted throughout the internet via self-contained packets: each packet of information is surrounded by a number of layers that specify the destination of the packet, the application in which it will be used, the order in which it will be used in comparison with other packets destined for the same device and application. Each individual packet is sent from its application and device of origin and is switched in whatever way through the network and then re-ordered with its fellow packets at its destination device and application. Packets contain the critical information at their core but outer layers contain all

the information required to route them to their correct destination device and application and reassemble them in the correct order. This multi-layer protocol manages and controls the transmission of billions of packets of information through the internet. We are suggesting that rules are analogous to such packets, with each rule surrounded by layers that assists people in applying the rule.

Putting the general and specific forms together we have a two-stage process of foresight-design with a lag in space and time followed by judgment-action. The first stage of the process, foresight and design, is to do with the setting of a strategy for the future and may be broadly regarded as a planning stage. The second stage, judgment and action, is to do with carrying it out on the ground at some later time or in some different place. The second stage can be broadly regarded as an implementation stage. Each stage involves both thinking and doing although these activities are manifested differently in the two stages.

While it is likely that a number of different people and places will be involved in the decision process, it is also feasible for all four elements to be carried out by the same person, or in rapid succession. This may be so in crisis situations where decisions makers come together in time and space and exercise foresight and judgment and then design and action in rapid succession. Note that the four elements of the model are re-ordered here in order to deal with a rapidly changing situation.

### **A typology of organization based on decision-making**

We now use these four elements of the organizational decision making model to develop a typology of organization. We allow each element to be strongly or weakly emphasised and this gives us a total of 16 combinations of elements. The sixteen combinations are formed into four groups to which we attach labels as follows: effective, flawed, weak and rare (see table 1).

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The effective group comprises approaches where three of the four decision making elements are strongly emphasised and one element is weakly emphasised. These represent the four archetypes of organizational strategy making and are referred to as planned, emergent, traditional and improvised. The terms planned and emergent are borrowed from Mintzberg and Waters (1985) and the terms traditional and improvised from Weick (1993). Examples of these approaches in practice may be useful. Walmart's approach to dealing with hurricane Katrina, where clear guidance was provided by senior management but local judgment and action was encouraged on the ground, can be regarded as emergent (Horwitz, 2009). GE's corporate restructuring under Jack Welch's rule of #1 or 2 is an example of a planned approach. The rule was strictly applied with little consideration of local conditions taken into account: "[if not] #1 or #2 [then] fix, sell, or close". As a result between 1981 and 1990 GE sold off more than 200 businesses (Bartley & Wosny, 2005), each of these actions a specific performance of the rule. An improvised approach was evident at Mann Gulch: Dodge's swift and accurate appraisal of the situation and his impromptu lighting of an escape fire saved his life. He showed strong foresight, judgment and design skills and his action was sufficient to deal with the circumstances in which he found himself (Weick, 1993). With its relatively low emphasis on foresight the traditional approach is suited to well-established organizations in environments that are relatively stable. Universities are examples: they can carry on quite well without much foresight because the organizational processes are well designed and embedded on the ground. However this approach is vulnerable to major discontinuities technological, social, political or environmental. Nokia is an example of an organization that missed out on the technological and social transition from cell to smart phones and paid the

price (Cord, 2014). Universities are also currently struggling to deal with major societal changes, massification of education, and disruptive technologies (Parker, 2014; Pritchard & Thomas, 2014).

The flawed grouping refers to those approaches where two of the organizational decision making elements are weakly emphasised. This grouping is discussed in pairs. The *bright spark* approach represents strong emphasis on foresight and design but weak emphasis on judgment and action. It is indicative of an organization with strong conceptual or strategy formulation skills but with relatively poor skills at executing its strategy on the ground. Start-ups may be such organizations: they may put forward a good concept and design but are lacking in the resources to implement it effectively. However, such a business model may be implemented through acquisition by an organization that is endowed with complementary resources. By way of contrast the *grunt* approach indicates an organization with strong execution skills on the ground but weak conceptual skills. Grunt organizations imply poor leadership. However, provided the environment does not change radically such organizations could carry on relatively effectively for some time.

The two approaches of cerebral and gung-ho also have a correspondence. Cerebral organizations strongly emphasise foresight and judgment but place a weak emphasis on design and action. That is, *cerebral* organizations are strong on thinking skills at both conceptual and executional levels but weak on doing skills at both those levels. This type of organization is likely to know what to do and can weigh up changes in the environment but is poor at moving forward or changing course. On the other hand, *gung-ho* organizations place strong emphasis on design and action and only weakly emphasise foresight and judgment. That is, *gung-ho* organizations are strong on use of doing skills at both conceptual and executional level, but weak at using thinking skills at both levels. Such an organization is likely to move quickly, but not necessarily down the correct path.

The two approaches of feudal and strong middle also have a correspondence. The *feudal* organization places a strong emphasis on foresight and on action but a weak emphasis on design and judgment i.e. strong thinking skills at the top and strong doing skills at the bottom. The lord who looks out for his fiefdom and is supported by serfs who carry out his orders to the letter is an analogy. This implies a charismatic type of leadership that is strong on vision but poor on detailing out that vision, coupled with a set of implementers who are strong on action once told what to do. These are follow-the-leader organizations and certain cults may fall into this category. The *strong middle* emphasises design and judgment with less emphasis on foresight and action i.e. strong doing skills at the top and strong thinking skills at the bottom. This implies an organization that is strong on detailed planning but weak at carrying out those plans, coupled with an ability to assess the immediate environment but with suspect sense of direction. Organizations that have become relatively institutionalised and that have de-emphasised their foresight ability, and also that have over time developed extensive bureaucratic procedures that are implemented without much enthusiasm may fall into this category. Examples may include some public sector organizations, charities, or organizations in long-established industries.

The next four approaches reflect weak organizations. These place weak emphasis on three of the decision making elements and strong emphasis on only one. Such organizations may struggle to survive in the long run. However there may be exceptions. An organization that take a *subsistence* approach strongly emphasises action on the ground but with relatively little design or judgment applied. Small business such as small retailers, trades or crafts may operate in this fashion. In such small organizations there is a strong emphasis on doing the work and relatively little emphasis on the future. Where the environment is relatively stable and technology unchanging such organizations may survive for long periods. However, it is difficult to envisage situations where organizations that use *designer* (strong design skills

only) or *supervisory* (strong judgment skills only) approaches can persist. On the other hand, it may be possible for a *pied-piper* approach (strong emphasis on foresight only) to allow an organization survive for a period, so long as the other skill sets reach some minimum level and there is little internal opposition to the regime. Unpopular dictatorships, small organizations led by a zealot, or households headed by an overbearing parent may fall into this category.

Finally, the rare grouping comprises two approaches, each at opposite ends of the spectrum. An organization that places a weak emphasis on all four elements of organizational decision making is likely heading rapidly for *failure*. It is difficult to imagine how such an organization can survive for long, even in a non-competitive situation. On the other hand an organization that strongly emphasises all four elements is deemed a *superhero*: the organization that is good at everything and has no weakness. Such organizations are rare for two reasons. First, it is in any case rare to be good at everything. Second, it may not always be desirable to place strong emphasis on all four elements: relaxing one of the elements can provide flexibility to an organization. For example, relaxing the judgment element reduces local discretion and this may be desirable in certain environments; relaxing the design element fosters local discretion and allows adaptation to circumstances as they arise.

## **Discussion and Conclusion**

This paper puts forward a simple typology of organization based on four elements of composite decision making: foresight and design representing thinking and doing at conceptual stage and judgment and action which represent thinking and doing at execution stage. The paper proposes the if-then artefact, comprising evaluation and prescription elements, linking the conception and execution stages of decision making and lying at the heart of the typology. Apart from acting as a comprehensive classification system for organization, the typology is useful in that it may encourage organizations to examine their

strengths and weaknesses from a composite decision making point of view. This in turn may encourage organizations to examine more closely how they go about making strategic and operational decisions.

The research is limited in that the paper proposes a conceptual model only. Empirical work is needed to verify the typology, for example in depth case studies of different organizational types. Second, the if-then artefact itself may need further development. The paper alludes to a set of layers around the base decision construct, using the internet protocol as an analogy. These layers refer to the nature and boundaries of the decision situation and the designed action and need further examination. Also, the manner in which the rules are created and enacted within the organization needs further examination. For example, the if-then artefact may be interpreted at execution in a way different to how it was envisaged at conception. Third, the model does not necessarily specify the physical or hierarchical location of decision making at either the conceptual or execution stages. Simon (1964) implies that the conceptual stage takes place at upper echelons of the organization but this need not be necessarily so. However, institutional theory tells us that rules may develop at various levels of organization (Holm, 1995). Further work is needed to determine where exactly foresight, design, judgment and action take place. Fourth, the model suggests a linear implementation of foresight-design followed by judgment-action. In rapidly changing situations such as crises or catastrophes the model could be implemented as foresight-judgment followed rapidly by design-action (see figure 2). This mode of composite decision making reduces the time spent on foresight and judgment as these elements stop as soon as the evolving situation has been recognised; it also allows design to be more realistic as it is focused on a situation that is actually evolving rather than on a situation generically anticipated. Note that the two thinking elements are combined together and placed early in the process allowing a great amount of thinking power to be quickly brought to bear on the situation. The two doing elements are also combined

which may provide execution synergies. Such an approach may be very useful in situations where rapid decision-making is required. Use of the model in improvisation mode may provide another avenue for future research. Fifth, the model could be examined from the point of view of managerial and leadership roles. For example, the upward and downward directed roles of middle managers (Wooldridge, Schmid & Floyd, 2008) could be evaluated in terms of the two central elements of the model: design and judgment. Similarly, the impact of top managers on organizations (Hambrick, 2007) could be examined in the light of the two conceptual elements of the model: foresight and design. Finally, the paper has largely taken a rational, cognitive view of decision making; the research model could be extended to consider cultural, affective and somatic aspects of organizational decision making.

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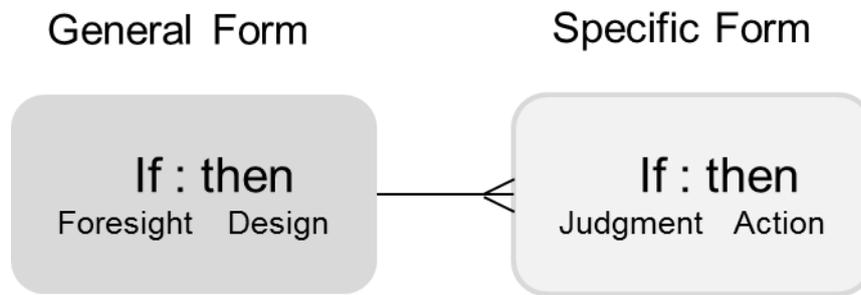
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**Figure 1: Specific and general form of if-then construct as rule**



**Figure 2: Two configurations of the decision construct**

**Table 1: Decision element and strategic approach**

Decision Element → Strategic Approach ↓	General form IF Foresight (thinking)	THEN Design (doing)	Specific form IF Judgment (thinking)	THEN Action (doing)
Effective				
Planned	Strong	Strong	Weak	Strong
Emergent	Strong	Weak	Strong	Strong
Improvised	Strong	Strong	Strong	Weak
Traditional	Weak	Strong	Strong	Strong
Flawed				
Bright spark	Strong	Strong	Weak	Weak
Grunt	Weak	Weak	Strong	Strong
Cerebral	Strong	Weak	Strong	Weak
Gung-Ho	Weak	Strong	Weak	Strong
Feudal	Strong	Weak	Weak	Strong
Strong middle	Weak	Strong	Strong	Weak
Weak				
Subsistence	Weak	Weak	Weak	Strong
Supervisory	Weak	Weak	Strong	Weak
Designer	Weak	Strong	Weak	Weak
Pied Piper	Strong	Weak	Weak	Weak
Rare				
Failure	Weak	Weak	Weak	Weak
Superhero	Strong	Strong	Strong	Strong