IIDE Proceedings 2011 – Dealing With Differences In Framing In Multi-Actor Interactions In Water Management

Abstract
The development of water policy is characterized by the involvement of many actors. These actors have different interests, knowledge, values, cultural backgrounds, perceptions and so on. Often, these differences result in policy controversies that interfere with the implementation of water policy. Controversies arise and are dealt with in multi-actor interactions. The communication of water managers directly influences the development of these controversies. However, the literature on environmental policy and governance does hardly address the dynamics that occur in the interactions between stakeholders. This paper gives insight into the communication strategies that water managers apply in conversations with other actors and how these strategies affect the course and outcome of an interaction. A case study reveals that the observed water managers use two different types of strategies to deal with different and incompatible views of their conversation partners: frame amplification and frame incorporation.

Keywords
Interaction, Framing, Alignment, Conversation, Change

1. *Introduction: policy controversies*
The development and implementation of water policy involves the involvement of many actors. The need for collaboration is based on the notion that the resources, responsibilities and competencies for water management are scattered over a multitude of institutional layers and private actors (Rault, 2005). The collaboration between actors comprises the discussion of issues, the transformation of relationships and responsibilities, the connection of

competences, the formation of networks and the development of a collective memory (Forester, 1999). During the collaboration, it is most likely that policy controversies arise, because of the many differences between the actors involved (Schön and Rein, 1994). Actors have different interests, knowledge, values, cultural backgrounds, perceptions and so on. As soon as actors start to communicate, these differences start to complexify their interaction. In this paper, we consider the policy implementation as an on-going negotiation process where actors negotiate alignments (Aarts and Leeuwis, 2010). This process shapes the development and implementation of policy. During their interactions, actors give rise to policy controversies and feed and settle them. As the initiator and owner of the policy process, a water manager has find a way to deal with the differences that drive the policy process. Issues are fragmented and sometimes conflicting, the roles and responsibilities of the participants are not clear, as is the policy process itself. Furthermore, the multi-actor interactions take place in different institutional contexts, which means that the social rules to deal with differences are not shared among the participants. Instead, the participant themselves co-develop their roles and the rules for engagement. This implies that the communication of a water manager matters. It can create or close spaces for change in the process. This paper aims to gain insight into the communication of a water manager as a representative of a public authority and how this affects the policy implementation. However, the literature on environmental policy and governance treats these interactions as black boxes. A common approach in this literature is to consider the policy process as a learning process, whereby actors fill in knowledge gaps (Agyris, 2003) and start a deliberation (Habermas, 1981) on conflicting societal values supported by effective means of communication (Newig, 2010). It remains unclear however, how such a learning process functions in the every day practice of environmental governance.

By this study, we make a start to open up this black box in order to gain insight into the course and outcome of interactions. This involves a shift from a macro level that considers institutions and organisations towards a micro level that considers interacting individuals. The theory of interactional framing suits our aim. The framing concept ‘draws the attention to the concrete interactions where actors bring in their conceptions of problems and possible solutions, and how they affect each other’s frames in and through a developing relationship’ (Dewulf et al., 2005: p.117).

Interactional framing

According to Goffman (1974) people frame a situation when they answer the question: 'What is it that is going on?' Our interpretation of a situation is based on 'principles of organization'. These are the principles we see at work, when we enter a situation. For instance, when we enter into a conversation we use social principles when we introduce ourselves to the conversation partners. Or we use linguistic principles when we want to make ourselves clear to the other conversation partners. These principles shape our actions; they 'govern social events and our subjective involvement in them' (Goffman, 1974: 10).

The concepts of frame and framing have been applied by researchers in several fields including psychology (Levin et al., 1998), sociology (Benford and Snow, 2000), communication (Scheufele, 1999) and decision making (Schön and Rein, 1994). The concepts have enabled researchers to grasp differences in meaning between individuals, groups and organisations and to explain course and outcome of interactions on an individual and institutional level. The literature on framing can be divided in two strands (Dewulf, 2009). The strand of 'cognitive framing' considers frames as cognitive representations or mental structures that guide the actions of people. The source of the frames is between the ears. There is also a strand that considers framing as the continuous effort of interacting people to align their frames. Frames are interactional co-constructions that shape short term and long term situations. (Dewulf, 2009). The source of the frames is between the noses. Our conceptual model of interactions builds on this second strand of literature.

Frames shape situations. This brings in a strategic element. 'To frame is to select some aspects of a perceived reality and make them more salient in a communicating text in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment' (Entman, 1993: 52). Out of innumerable possible definitions, people choose specific descriptions in order to accomplish goals through interaction in a specific context (Van Lieshout and Aarts, 2008). These goals might be 'goals in interaction' such as the definition of a problem, its causes and accompanying solutions. People also use frames also to attain 'interactional goals', such as the acknowledgement of their identity by the other conversation partners.

We regard the framing of people-in-interaction as a dynamic, iterative process. On the one hand, interactional frames shape situations. On the other hand, co-constructed situations shape the frames of the people in interaction (Aarts and

Van Woerkum, 2006). This creates a dynamic whereby people continuously (re)construct the content and process of their interaction. This approach stresses the discursive aspect of interaction. The communication of conversation partners highlights certain aspects and thereby indicates how a situation should be understood (Drake and Donohue, 1996). The interactional frames that people put forward function as communicative devices to negotiate meanings and alignments (Aarts et al, 2010). People use language to accomplish things. Interactional frames are actions that 'shape how issues are keyed and what dimensions are channelled for discussion' (Putnam and Holmer, 192: 147). In this way, conversation partners define and delimit the context for their interaction.

Types of frames

So far, we have defined the concept of framing and now turn to the question: What's getting framed?'. In line with Dewulf et al. (2009), we distinguish three general types of frames that enable to gain insight into the content of interactional frames. Firstly, we distinguish issue frames that aim to negotiate the meaning of issues in interactions. These frames define and delimit problem definitions and accompanying solutions Secondly, we distinguish relation and identity frames that aim to shape the relationship between conversation partners. Conversation partners use these frames for identity work. The frames can take the form of statements of one's own identity (identity frame) or they can take the form of the identity of the other conversation partners (characterization frame). Both identification and characterization develop a certain relationships. Moreover, interlocutors can employ relation frames whereby they explicitly qualify their mutual relationship, for instance in terms of trust or power. Thirdly, we distinguish process frames by which people negotiate the meaning of their interaction, for instance as a dispute, as an effort for joint problem solving, or as an informal meeting. This conceptual distinction enables us to grasp the sense making of participants in an interaction. It helps us to identify what frames a water manager uses when he interacts with other stakeholders.

Dealing with differences: frame alignments

In this paper, we focus on the interactions that take place in policy processes. In these interactions, the representative of a public authority has the interest to find support for the implementation of policy. This implies that he has to deal with the differences that arise in these interactions. In this paper, we consider the framing of the representative as an interaction strategy in order to deal with different, and

often incompatible frames. While asking questions, making objections, or making jokes the representative co-defines the issues to be discussed, co-develops his relationship with the other participants and/or co-constructs the meaning of the interaction. This involves labour. Thus, we understand the framed categorizations, and thereby constructed similarities and differences with previous frames, as situated boundary work (Horton-Salway, 2001). We express the agency of a frame with the concept alignment, that we define here as the discursive labour of a frame on a previous and incompatible frame. Examples of such strategies are: the incorporation of a previous frame, the ignorance of a previous frame or the accommodating to a previous frame. In this manner, we can use the concept of alignment as a suitable indicator to gain insight into the way a representative of a public authority deals with differences in particular interactions.

The research on interactional framing is primarily aimed to study interaction patterns and how these patterns raise, persist, or reduce conflicts (Van Lieshout, 2008; Idrissou, 2011). This study brings the research on frame differences a step further by developing a typology of alignments and using this typology to interpret the communication of a representative of a public authority and how this affects the interaction. We characterize alignments by the extent in which they are sensitive to previous and incompatible frames. Benford and Snow (2000), who study the development of collective action frames of social movements, argue that frames are created by two basic interactive, discursive processes. The first is frame articulation. This involves 'the connection and alignment of events and experiences, so that they hang together in a relatively unified and compelling fashion' (Benford and Snow, 2000: p.623). The second is frame punctuation. This involves 'accenting and highlighting some issues, events, or beliefs as being more salient then others' (ibid). Both articulation and punctuation are ways to deal with differences. They differ in the sensitivity for differences. High sensitiveness creates a connection between two incompatible frames. As such, the framed differences can become part of the interaction. Instead, low sensitiveness leads to the disconnection between two incompatible frames. We performed a case study to find out whether the sensitivity of alignments makes sense as an indicator for the communication of a representative of a public authority and as an explanation for the effect of this communication.

Research methodology

The central research question in this paper is: what are the frame alignments of a

water manager-in-interaction and what is the effect on the course and outcome of the interaction? Our aim is to gain insight into the way a water manager makes sense of these interactions and how this affects the course and outcome. In order to answer this question we performed a case study in The Netherlands. In this case we observed the interactions of a project manager of a water board, a regional water authority responsible for both water quantity and water quality management. This project manager is responsible for the realization of a 'high water zone' around a village in a polder area. This measure is one of the outcomes of an interactive policy process, described by Lamers et al., (2010). The high water zone enables the water board to lower the water level in the polder area without damaging the houses in the village. The dams prevent the decrease of the ground water level underneath the buildings in the village. Otherwise, there is a risk of serious damage to the older buildings in the village that are built on wooden piles. Once the piles come above the ground water level, they start to rotten and this causes the buildings to subside, or even to collapse. However, this threat only counts for the older buildings in the village. The more recent buildings are built on concrete piles. The zone is created by the construction of dams in watercourses on the properties that lie at the border of the village. The decision of the water board to lower the water level is necessary to maintain a dry zone in the peat soil of the polder area between the ground water level and the surface level. The peat soil continuously settles down, which causes a decrease of the yield of the farming land in the polder area. The challenge of the project manager is to find support by property owners (both farmers and private house owners) to construct dams on their properties. The project manager brings in colleagues and a consultancy bureau to support him in the negotiations with the farmers and private persons.

Our case study is a type of discourse analysis, or the close study of language in use (Wetherell, 2001). We analyzed two negotiations. The first one between the project manager who is accompanied by a colleague and a farmer. The second one between a consultant (representing the water board) and a house owner. In these negotiations, both the farmer and the house owner mention their difficulties with the construction of dams on their property, which is incompatible with the framing of the representatives of the water board. We performed a comparative analysis to interpret the frame alignments of the water managers and to compare the effects of these frame alignments on the course and outcome of the interaction. We focussed our analysis on pieces of the interaction, where the

stakeholders mention their difficulties. Then we identified for each utterance the frames that the speaker puts forward: an issues frame, an identity frame and/or a process frame. Consequently, we analysed the function of the frame by relating it to previous frames. Next, we indicated the type of alignment and finally we studied the effect of these frame alignments on the subsequent framing by both conversation partners. Our interpretation of the frames, is based on six semi-structured interviews: with the project manager, with his colleagues, with a farmer and a house owner. The observed interactions and interviews were audio-taped and transcribed. Also, we had informal talk with the three representatives of the water board we followed in the negotiations. The internal validity of our claims is enhanced by their plausibility for the development and outcome of the negotiation processes. Moreover, our findings have been discussed with and were recognized by the project manager. This internal validity is sufficient for our aim to gain insight into the processes by which a water manager creates and represents his frames and how this affects the interaction in a unique case.

Results

In the case study, we found that the water managers in both negotiations used different types of frame alignment: *frame incorporation* and *frame amplification*. In the sections below, we argue for these findings. Thereby, we use two illustrative and symptomatic fragments.

Frame incorporation

The first fragment illustrates how the project manager (P) extents his frame, and thereby incorporates the frames of a farmer (F). In this fragment, also a colleague (C) participates in the discussion. The fragment starts with F, who explains his concern with the planned dam on his property. Then, we see that P en F jointly reframe this issue, careful but determined. They bring forward alternative frames, that construct the issue as an unpleasant but insurmountable side-effect of a necessary action for the higher, that is public good.

(1) F: At a certain point you only have at the on end edges of the pastures, you may have probably only 20 centimetres…
(2) C: Drainage…
(3) F: Drainage. And these are the most important pieces of your property since, well, with all the traffic of farming machines, that always passes 10 times the on end edge […], I am a little concerned with that.
(4) P: Yes, that's always difficult of course, since you separate the water system. And this doesn't imply that we ever will find a perfect solution, because of course that separation, you maintain that. […] The on end edge will be in the high water zone. And that's in fact to some extent an appraisal between the land and the buildings and in this case mostly the buildings have a higher economic value if you ask someone to estimate, so therefore it is decided to include these ditches in the high water zone. It is always a discussion of how do you do it? En private house owner says: we do it for the farmers that they have a good drainage for their crop, however we prefer that the current situation remains. But a farmer says: we do it for the buildings since the water level keeps on descending if you look at the history, and now we are not allowed to lower it further because of the buildings. Therefore, we do it for the residents. Thus, that's always a little, for whom do you do it?
(5) F: But, I understood that a difference is made with the age of the buildings. Back here, there are two villas. Yes, you can name it that way, But these are quite new […].

We start our argument by an analysis of how P and C manage to reframe the issue brought forward by F. Subsequently, we proceed our argument by an examination of how P and C extend the alignment of their issue frame by the construction of the identities of both themselves and of their conversation partner.

Alignment of issues

In (1) and (3) we see that F puts forward his problem. He fears that the dams on his property will raise the ground water level in the access area of his pasture. In their response, both C and P make clear that they recognize the concern of F. In (2) C supplements the utterance of F and thereby signals that he understands the issue. Besides, P confirms in (4) the difficulty of the matter at the start of his response. The recognition is the first stage of their alignment with the issue frame of F and creates a common point of departure for the interaction that follows.

In (4) P continues the reframing by managing the expectations of F: "This doesn't imply that we ever find a perfect solution". This is the second stage of the frame alignment. In this utterance P makes clear to F that he intends to hold on to the realization of the high water zone in this village, despite unpleasant and prohibitive side-effects. In this way, P reframes the issue of F without discrediting the seriousness of this issue. It is interesting to pay some attention to the way P introduces his point of view. As we have seen above, P started in (4) to confirm the difficulty of the matter. However, P did not specify the difficulty. In his utterance, he copies the word "always" which F might give the impression that P confirms

the difficulty of his issue. However, a closer look learns that P relates the difficulty to another issue, i.e. the separation of the water system. According to P, the primary issue is not that the edges of the pastures become wet. Instead, the issue is to realize the high water zone, despite negative side-effects such as the effect on the drainage of the edges of the pastures within the high water zone. This is a typical water management issue. P cannot agree with the issue as framed by F, since the logical solution of this issue is to abandon the intended construction of a dam on the property of F. The very reason for this interaction is to find support for this dam. Thus, P bridges his different and incompatible issue frame by taking over the notion of the 'difficulty' of the matter. In conformity with F, P makes this 'difficulty' also his personal concern when he says: "since you separate the water system." He thereby equals the personal involvement to solve the issue. Then, P turns his attention to solve the incompatibility of their frames.
In the third stage of the frame incorporation, P elaborates the legitimacy of his issue frame over the issue frame of F. In (4), he involves F in the decision making process of the water board. He frames the consideration between the advantage of the high water zone for the buildings and the disadvantage for the farming land. In this way, P connects the private problem of the farmer to a public assessment framework. P chooses thereby for an economic 'principle of organization' (Goffman, 1974). The (intangible) benefit of the high water zone to prevent damage to the buildings in the villages outweighs the costs of the damage to the on end edges of farming land. The wording of P subtly underlines the legitimacy of this argumentation. P says: "If you ask someone to estimate" (4). In this remark P introduces a neutral party who confirms his statement. Furthermore, P says: "Therefore, it is decided to" (4). In this remark P does not specify the decision-maker, to underscore that the application of the economic criterion is universal and therefore self-evident.

Alignment of identities

P and C accompany the frame incorporation in (2) to (4), with identity frames and characterization frames. In the analysis below, we distinguish the identities and characterizations they use to support their frame of the issue, and which they use to support their discussion.

The identities and characterizations related to the issue frame

When P develops the public assessment framework, he thereby puts forward the identity of the water board as a transparent and accountable decision maker and

as such has to make appraisals in complex situations. P introduces the water board as a third party at the background of the discussion. Later on, we see how P uses this separation between himself and the water board to extent his frames beyond the frames of F. When P stages the water board, he also constructs an identity to F. This is the identity of a good citizen, who understands that the public return in terms of the prevented damage to the buildings in the high water zone, outweighs the costs of individuals. This characterization matches the issue 'to maintain the separation of the water system' as framed by P. F is linguistically pulled out of his role as a concerned farmer, the identity he put forward in (1) and (3). Then, P proceeds the characterization of the farmer F as a stakeholder, who benefits from the lowering of the drainage level by an increase of the yield of his land in the polder area. He says in (4): "…a private house owner says, *we do it for the farmers*…" The message is that as a farmer, he has to take into account the benefits when he considers the costs of the high water zone. P mentions this characterization indirectly, since he presents these house owners in his reply. The included voices of this fourth party, underscore the validity of the characterization of the farmer F as a stakeholder. When P puts farmers and private house owners on stage, he constructs the identity of the water board as a spectator of their struggle. With that, he shifts the responsibility for the decision to create a high water zone to the 'real' problem owners. In his rhetorical question "for whom do you do it?" (4), P already indicates the problem ownership. By this question, he pictures a relationship between problem owners and problem solvers. In other words, by making a decision the water board has solved the problems of both farmers and private house owners. Then it is not fair to hold the water board responsible for the negative side effects of the high water zone. In fact, P refers F here to the private house-owners to discuss his issue.

The identities and characterizations related to the discussion of the issue

In addition of the analysis above, we find that P develops identities and characterizations that support their discussion. This already starts with the short supplement of C to the introduction of the issue by F. The word "drainage" in (2) does not only functions as a part of a problem description. More importantly, it constructs the identity of an understanding and helpful listener, who takes the concerns of F seriously. This is a functional identity, when a frame needs to be fit in a larger frame. P develops in (4) the identity of an accessible discussion partner, who shares his considerations and dilemmas. In this way, F can identify himself with P as someone who is concerned. When P asks the rhetorical

question: “How do you do it?” (4), he constructs himself as an executor of the decision of the water board. This question also characterizes F as an emphatic conversation partner who is able to consider an alternative point of view. However, P does not tie himself up with this willing and reasonable identity. He also puts himself forward as a dyed-in-the-wool project manager, who is acquainted with the strategies of stakeholders by which they try to push away their responsibility. In this way, P discourages F identify himself as a victim; an identity that F easily can elaborate from the identity of a concerned farmer.

Language at work

Our analysis shows that C and P strategically use frames to find support from F to realize a dam on his property. In utterance (4), P does quite some linguistic work to extend his frames beyond the frames of F. The kernel of his strategy is to separate the issue from the discussion of the issue. With regard to the issue, the farmer (and the private house owner) is constructed both as a problem owner and as a stakeholder who benefits from the high water zone. The water board is constructed as a problem solver, with the task to decide on struggles between the stakeholders in the public interest. With regard to the discussion, P identifies himself on the one hand as an experienced executor of the decision of the water board and on the other hand as an understanding listener who takes the concern of F seriously. This strategy enables him to be both hard on the matter and soft on the relationship. P summarizes and confirms this strategy in a semi-structured interview. P mentions both the shift of the responsibility for the high water zone and the personal touch in discussing this responsibility. “It becomes more a kind of service of the water board. It is more like: you might not be aware of it, but you are going to have a problem. We recognize that en we warn you and we offer a solution. That’s quite a different approach then: the water board wants to realize here dams for a high water zone.”

What is the effect?

Our final step in the analysis of this fragment is to consider the effect of the frame incorporation. Does P succeed to persuade F in this way to agree with the construction of a dam on his property? Again, we discuss issue frames and identity frames. In his response in (5) we find that F appeals to a rule of exception. This implies that he confirms the general rule of the realization of the high water zone. In other words, F indirectly acknowledges the frames of P where the zone is in the public interest and in his benefit. These frames discourage F to

identify himself as a victim of the initiative of the water board. As a victim, F could easily ignore the request of the water board to construct a dam on his property. Here we find that frames shape what action should be taken by whom (Gray, 2003). P has succeeded to start negotiations with F on the realization of the dam. The framing of P has influenced the framing of F.

Frame amplification

The consultant in the second negotiation uses another type of frame alignment that we identify as frame amplification. Just like the previous fragment, the consultant (R) has to overcome an objection against the realization of a dam on private property, in this case the property of a house-owner (H). We see that R responds by amplifying his own framework of reference for the issue addressed by the house-owner. This causes an alienation between the participants, which is exemplified in the fragment below.

(1) H: With my limited view, the water always flows to the lowest point. According to me, this means there will be a considerable flow underground this way.
(2) R: Yes, but still the difference is minimal.
(3) H: Sure enough, but look, it is all very weak soil and it belongs to us, to a piece of our garden. […] But yes, this is something we have to inform ourselves about. I wonder if this is desirable for us. I can imagine that in this case you could also
(4) R: Since, for the house itself, in fact we consider, well, where is approximately the theoretical border, that is about 25, 30 meters.
(5) H: Yes, you consider the house, but for us here is also a garden and I can even imagine […] that if you construct a culvert over here, we do not have any problem.
(6) R: These are wishes from your position also.
(7) H: Yes precisely, but we want these, we want with someone at our side… You of course are as an… But let me say, we want to inform ourselves about that.

We start our argument by an analysis of how R contrasts his issue frames with that of H. We proceed by an examination of how R aligns his identity to the identity of his conversation partner.

Alignment of issues

The fragment starts when H carefully formulates his problem with the planned dam. In his view, the measures of the water board on his property will cause “a considerable flow underground” (1). Then, R extracts this strip of talk (Goffman, 1974) as the cue for his response: “…the difference is still minimal”. Here R refers to a difference in the water level as a result of the dam that the water board has planned to realize in the water course on the property of H. According to R, the height of the difference determines the ground water flow. Since the difference

will be small, also the flow will be minimal. Thus, R brings forward in (2) an alternative frame, by which he reasons away the issue of H. R already announces the frame amplification when he says: “Yes, but…” However, H is not satisfied with the response and does a new attempt to clarify his concern for the stability of his garden. H copies the frame amplification in (2) that he introduces with: “sure enough” (3). In (4) again R reasons away the concern of H for his garden. He points to a principle used by the water board to determine the minimal distance between a house and a dam. This distance is necessary to prevent a lowering of the groundwater level beneath the house and thereby possible damage. In (5) H names the frame amplification, when he mentions their different points of view. In this way, he brings their discussion of the issue to the discussion. This intervention invites R to discuss the differences, instead of maintaining his framing of the problem at hand. Thereby, H proposes a solution, i.e. the construction of a culvert. However, for the third time in this fragment, R does not go into the issue frame of H. This is a clear case of frame amplification.

Alignment of identities

In the analysis of the identity and characterization frames, we distinguish between the identities and characterizations that relate to the issue and those that that relate to the discussion of the issue.

The identity and characterization frames related to the discussion of the issue

A characteristic difference with the water managers in the first fragment, is that R limits himself to the discussion of the issue. Even though R does not bring up identities, he does align himself to his conversation partner. In this fragment, R presents himself in the discussion as an expert. As such, he relies on the legitimacy of his understanding of the water system. This becomes clear in the casualness by which he applies expert knowledge to the situation: the minimal difference of the water level (2) and the minimal distance from the planned dam to the house (4). Notably, during the whole negotiation, R uses expert language to explain the necessity of the high water zone and the functioning of the planned dam. The presumed legitimacy of his expert knowledge also becomes clear by the authority of his responses in which he reasons away the concerns of H. His undertone seems to be: I know it (better). In contrast with R, H constructs his identity explicitly and speaks in the first person. In (1) he identifies himself as a modest layman, when he says: “With my limited view…” Possibly, this confirms R in (2) in his role as expert. However, when R reasons his concern away, H chooses

a counter position as a future informed stakeholder. The fact that H in this matter identifies himself as a layman, does not mean that he has not an interest. H strengthens his position further when he constructs a we-group with his partner who also participates in this negotiation. Then, H couples his identity frame with a process frame, i.e. to appeal to a third party. This process frame also strengthens his position, since this frame attributes the power to H to decide when and how the negotiation will proceed. Now, H has taken over the control of the negotiation which is acknowledged by R in (6), where he confirms that H has an own position. Then, in (7) H uses the snatched control to characterize R as another stakeholder. With that, he renders harmless the casualty and authority of the expertise of R.

The identity and characterization frames related to the issue

In correspondence with F in the first fragment, H identifies himself as a concerned house-owner. His concern is that his garden will become swampy when the planned dam is realized. The colourful words in his issue frame underline his concern: 'considerable flow underground' (1), and 'it is all very weak soil' (3). These descriptions refer to the vulnerability of his property. In contrast, F leaves out any personal of professional involvement in his issue frame.

Language at work

Our analysis of this fragment, shows that H amplifies his frames. In each turn, H puts his own frames forward, without acknowledging the frames of his conversation partners. We distinguish three coherent characteristics of his communication. Firstly, that he concentrates on the framing of the issue, whereby he draws from his expertise on the water system. Secondly, that he ignores the concern of his conversation partner. His frames leave out any personal or professional relation with the issue. In this way, he constructs an objective expert identity. Thirdly, that he ignores to frame the process to discuss the realization of the dam. Implicitly, H constructs the interaction as an instruction, in which a knowledge-owner explains something to a knowledge-asker. Instead, R frames the process as a negotiation between informed stakeholders who are dependent on each other to realize their aims. In sum, the alignment of H ignores the differences with the framing of R. This is a form of frame amplification.

What is the effect?

Does R succeed to persuade H to approve for the construction of a dam on his property? Clearly not. The frame amplification by R, calls up frame amplification

by H. The result is that the identity and characterization frames and the process frames deactivate the issue frames of R. The mutually developed expert – layman relationship in (1) and (2) creates an imbalance of power between the two participants. This relationship can only work under the condition that R is able to build trust, so that H is willing to accept his expert assurance that the dam will have no negative effects. However, R does the opposite when he takes his own expertise for granted and ignores the concern of H. Thereupon H corrects the imbalance when he proposes to appeal to his own expert in (4) and (7) and when he characterizes R as a pursuer of his interest in (7). Thus, R does not succeed to find support for the realization of the dams on the property of H. although probably the judgement of R is right. Moreover, at least one new round of talks seems necessary to find support. However, in the next round R will not meet a concerned property owner, but a sceptical and informed stakeholder.

Discussion and conclusion – Sensitive communication

In both negotiations the representatives of the water board had to deal with an incompatible frame. We found that the observed representatives of the water board aligned differently: either by frame amplification or by frame articulation. Frame amplification stresses the own representations and marginalizes the representations of the other. The observed water manager took his own definition of the issue at stake and his own expert identity for granted. Therefore he failed to connect the incompatible frames. Morgan (1997) addresses this effect, when he contends that self-reference hinders organizations to detect and respond adequately to developments in the environment. However, all communication is to an extent self-referring. Weick (1995) stresses that self-reference is essential for sense-making, since it enables us to generate tangible outcomes that help us discover what is going on. The point here is that apparently conversation partners can construct their identity in such a narrow way, that they become insensitive for responses that are out-of-frame (Goffman, 1974). This will hamper the connection between two incompatible frames and will stimulate separation and alienation. However, sensitive communication is not simple. Often, a certain identity has proven to be successful in the past (Morgan, 1997). And an identity can still be successful in the present, in other interactions. For example in discussions with peers. Besides, a broad or multiple identity creates ambiguity and it becomes harder for people to decide how to deal with a situation.

Frame incorporation seems an effective strategy to connect conflicting aims. We

identified in our case three stages of incorporation: recognition, management of expectations, elaboration of the legitimacy of the extended frame. The difference with frame amplification is that the incorporation of a frame includes rather then excludes the frames of another participant. Sensitivity recognizes and develops the relationship between the participants. This results in our case study that the project manager succeeds to create a space for negotiation. Clearly, the frames of the consultant lack sensitivity. In sum, the (lack of) sensitivity gives a plausible explanation for the difference in the outcome of both interactions and is therefore a relevant distinction to gain insight into the dynamics of interactions.

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IIDE Proceedings 2011 ~ Exploring Dooyeweerd's Aspects For Understanding Perceived Usefulness Of Information Systems

Abstract
The degree to which people believe using a system will enhance their job performance: this is the definition of Perceived Usefulness (PU), one of the main constructs in Davis' Technology Acceptance Model (TAM). TAM was specifically meant to explain computer usage behaviour and to predict individual adoption and use of new IT to answer the question of why people do not make more use of IT. Over the past two decades many studies reiterated the importance of PU by adding various constructs to it. However PU is regarded as a 'Black Box' that needs to be opened. Barki (2008) draws our attention to the importance of

constructs and approximately 70 constructs related to PU have been collected by Yousafzai et al. (2007). However Barki argues for the reconceptualization of constructs. First we need to know what is important in each construct. Dooyeweerd's philosophy of everyday life assists, by his suite of aspects, to find the meaning of each construct and to show a way of reconceptualizing constructs that overcomes seven problems with Yousafzai et al.'s set. This employs a new approach, which is expected to lead to a more penetrating understanding of IS usefulness.

Keywords:
Technology Acceptance Model, Perceived Usefulness, Dooyeweerd, Aspects, Construct reconceptualization.

1. *Background*

Fred Davis' (1986) Technology Acceptance Model (TAM) was introduced and developed under contract with IBM Canada, Ltd. where it was used to evaluate the potential market for a variety of then emerging PC-based applications in the area of multi-media, image processing, and pen-based computing in order to guide investments in new product development (Davis and Venkatesh, 1995). TAM was specifically meant to explain computer usage behaviour and to predict individual adoption and use of new ITs (Davis, 1989) . It posits that individuals' Behavioural Intention (BI) to use an IT is determined by two beliefs: perceived usefulness (PU), defined as "The degree to which an individual believes that using a particular system would enhance his or her job performance" (Davis, 1989), and Perceived Ease of Use (PEOU), defined as "The degree to which an individual believes that using a particular system would be free of physical and mental effort" (Davis, 1989). It further theorizes that the effect of external variables (antecedents or constructs), such as Design characteristics, on Behavioural Intention will be mediated by PU and PEOU. According to Davis, one of the key purposes of the TAM was to provide a basis for tracing the impact of external factors on internal beliefs, and this has implied that without a better understanding of the antecedents of PU and PEOU practitioners are unable to know which levers to pull in order to affect these beliefs and, through them, the use of technology.

1.1 *Constructs in models of IS use*

Over the last two decades, there has been substantial empirical support in favour of TAM (Lee et al, 2003) by adding various external variables to the salient beliefs

and modifying the original model in different ways. However, TAM has recently been criticized severely by Benbasat and Barki (2007) stating that:

"The intense focus on TAM has led to several dysfunctional outcomes … TAM-based research has paid much attention to the antecedents of its belief constructs and diverted researchers' main focus from Investigating and understanding both design and implementation-based antecedents … Many studies have reiterated the importance of PU with little attention to investigate what actually makes a system useful … That is to say PU and PEOU have been treated as "Black Boxes" and few have tried to open them … Also the effort to "patch up" TAM in evolving IT context have not been based on solid and commonly accepted foundation, resulting in a state of theoretical confusion and chaos."

Over the years, constructs like Trust, Image, Self efficacy, Results Demonstrability, Implementation Gap, System Quality, Computer Anxiety and Perceived Enjoyment, have been regarded as the additions that have been made to TAM. Benbasat and Barki (2007) state that:

"It is clear from extensive work on TAM that usefulness is an influential belief; therefore, it would be fruitful to investigate the antecedents of usefulness in order to provide a design oriented advice. However, to be able to do so in a systematic fashion, we first have to develop taxonomy, or preferably a theory, of usefulness." This paper suggests a way of investigating the antecedents of usefulness.

Towards this end, Barki (2008), points to the importance of well-conceptualized constructs that their contribution to the advancement of knowledge is evident. However, most literature mainly focuses on ensuring and testing the validity of constructs and few guidelines are available for identifying interesting constructs and how to go about conceptualizing them. Too little attention is given to the early stages of construct development, during which they are conceptualized. Therefore Barki calls for attention to be given to clarifying the definition of constructs, specifying dimensions and their relationships, applying them into different context and expanding the concepts underlying them.

In this paper we aim to go through conceptualizing constructs that relate to PU, in hope of opening the "Black Box" of usefulness. Specifically, we make use of Yousafzai's (2007) 70 collected constructs, to argue the need for a new approach. Following Barki's (2008) proposal to reconceptualize constructs, an argument is

made that Dooyeweerd's notion of aspects may provide a fruitful approach. These aspects are then applied to a selection of Yousafzai's constructs, to investigate their deeper meaning. At the end we discuss the results and provide pointers for future research. The readership of this paper is two groups: researchers and practioners interested in conceptualizing constructs and scholars interested in application of the fifteen aspects of Dooyeweerd.

1.2 *Collected constructs of perceived usefulness*

After years in which ease of use and user interface had been the major interest of the human computer interaction community, Davis' (1989) Technology Acceptance Model (TAM) introduced clarity to the intuition that usefulness is fundamentally distinct from ease of use and cannot be reduced to it. As such seminal papers do, it received thousands of citations and spawned a sizeable research into finding such external variables. TAM and its variants have been validated many times by positivist research methods, each time introducing new external variables that determine Perceived Usefulness and/or Perceived Ease of Use.

Taking previous studies into account, Yousafzai et al. (2007) conducted a meta-analysis of the TAM based research, arguing that over the past two decades few studies have attempted to validate the full TAM model with all of its original constructs. From different researchers in different studies and contexts, they collected together many of the external variables, finding 70, most of which were antecedent to PU. To bring a little order to the complexity that 70 variables exhibit, they are categorized into three main groups, and a sizeable 'Other' group:

Organisational characteristics:

Competitive Environment, End-User Support, Groups' Innovativeness Norm, Implementation Gap, Internal Computing Support, Internal Computing Training, Job Insecurity, Management Support, Organisational Policies, Organisational Structure, Organisational Support, Organisational Usage, Peer Influence, Peer Usage, Training, Transitional Support

System characteristics:

Accessibility, Access Cost, Compatibility, Confirmation Mechanism, Convenience, Image, Information Quality, Media Style, Navigation, Objective Usability, Output Quality, Perceived Attractiveness , Perceived Complexity, Perceived Importance, Perceived Software Correctness, Perceived Risk, Relevance With Job, Reliability and Accuracy, Response Time, Result Demonstrability, Screen Design, Social

Presence, System Quality, Terminology, Trialability, Visibility, Web Security

User personal characteristics:
Age, Awareness, Cognitive Absorption, Computer Anxiety, Computer Attitude, Computer Literacy, Educational Level, Experience, Gender, Intrinsic Motivation, Situational Involvement, Personality, Perceived Developer's Responsiveness, Perceived Enjoyment, Perceived Playfulness, Perceived Resources, Personal Innovativeness, Role With Technology, Self-Efficacy, Shopping Orientation, Skills and Knowledge, Trust, Tenure in Work Force, Voluntariness.

Other variables:
Argument for change, Cultural Affinity, External Computing Support, External Computing Training, Facilitating Conditions, Subjective Norms, Situational Normality, Social Influence, Social Pressure, Task Technology Fit, Task Characteristics, Vendor's Co-operation
(Note: Navigation, Objective Usability, Perceived Playfulness and Cultural Affinity are external variables that have been added only to PEOU which is not the focus of this study.)
An opportunity is provided by their study to gain a broad and perhaps deep picture of usefulness. This study begins to critically analyse them. But in order to do this it is necessary to find a sound basis on which to make such critique.

2. *Need for a new approach*
We could, in principle, use all these 70 constructs as criteria by which to understand, judge and evaluate the usefulness of an IS. As soon as we try to do so, however, we find a number of problems.
The first and most obvious is that this set is completely unmanageable, even when categorized into four groups as Yousafzai does. We need an approach by which to manage complexity.
Secondly, even so, the list of constructs is not likely to be complete. Computer Attitude is included, but other attitudes are not mentioned. Religious belief can also play a part, such as with the Amish sect in America, who resist modern technology, but is not included. User Participation (Barki 2008) is also missing from the above list. We need an approach that encourages the discovery of missing constructs.
Thirdly, some constructs are over-specific to a particular author's interest or a particular type of use, such as 'Shopping Orientation'. We need an approach that discourages over-specific constructs.

On the other hand, other constructs are ambiguous, such as 'Terminology' and 'Facilitating Condition'. Barki (2008) argues that 'User Participation' is interpreted in several ways as either behaviour or attitude, so that results from different studies contradict each other. We need an approach that cuts through ambiguity.

Fifthly, there are overlaps between some of these constructs. For example, the Facilitating Condition overlaps with Perceived Behavioural Control in the Theory of Planned Behaviour (TPB), and Social Influence overlaps with Subject Norm in Theory of Reasoned Action (TRA) that is the Origin theory of TAM. We need an approach that, of its nature, tends to avoid overlaps.

Sixthly, it may be questioned whether Yousafzai's three categories (Organization, System, Person plus 'Other') is the most useful or appropriate categorization. Other categorizations are offered, such as near-term usefulness and long-term consequences (Chau 1996b), intrinsic motivation, extrinsic motivation and learning goal orientation (Saade 2007), and hedonic versus instrumental use (Van der Heijden 2004). This raises the question: on what basis is it useful to categorize the constructs, in order to manage the complexity thrust upon us by 70+ constructs? We do not want to arbitrarily select one categorization among many, and to employ all of them brings its own complexity. We thus need an approach by which construct categorization can be grounded on something more fundamental.

Finally, the majority of people exposed to these variables were students and sometimes knowledge workers in laboratory studies. Most studies were undertaken in the USA. It is not clear how well the constructs translate into other cultures and usage contexts. Gefen et al. (2003) suggest that TAM is not just for work-related activity, but also applicable to diverse non-organizational settings, and they redefine PU as "a measure of the individual's subjective assessment of the utility offered by the new IT in a specific task-related context". We need an approach that is applicable across many contexts.

In his article 'Thar's Gold in Them Thar Constructs', Barki (2008) conveys the message that although there is much potential in the constructs, they need reconceptualization. This must occur before attempting to address the problems above. While by introducing new constructs researchers can contribute to research and practice in the IS field, they can also make an equally strong contribution by better conceptualizing existing constructs. He describes four parts to an approach to construct conceptualization:

Providing a clear definition. There are concepts that are often mentioned by researchers, which are either poorly specified or sometimes even undefined. These are candidates to become constructs as long as they are defined clearly and "deliberately and consciously invented or adopted for a special scientific purpose" (Kerlinger & lee 2000).
Specifying a construct's dimensions and their relationship. Many constructs are multidimensional. For example, conflict can arise from disagreement, interference or negative emotion or a combination of these (Barki & Hartwick 2004). In order to reconceptualize constructs we need to identify the dimensions in each and determine the conditions under which all or only some are needed.
Exploring how a construct applies to alternative contexts. The third approach is to reflect how a given construct can apply in different contexts, such as technological, organisational or individual. For example, might each construct be valid in hedonic contexts as much as instrumental ones (Van der Heijden 2004)?

Expanding the conceptualization of a construct. Barki suggests that, instead of seeing constructs in terms of attributes and functions, they could be seen as constituted in human behaviours, which are diverse in kind. For example, system use is better seen as an amalgam of human behaviours: "the more a person engages in [Barki gives a list of behaviours here] the more the person is viewed to be making 'use' of the system" (p.15). System use, when seen in the traditional manner, is very narrow, but when seen as a set of behaviours, as a second-order formative construct, it becomes richer, and "rich measures are currently lacking in the IS literature."
If we are to follow Barki's advice, we need an approach that enables us to identify distinctly what is important in each construct, especially where this is multidimensional, which does not presuppose a certain context, and which can view constructs as constituted in a coherence of diverse human behaviours. One approach that facilitates all these is that based on modal aspects of the Dutch philosopher Herman Dooyeweerd.

3. *Dooyeweerd's philosophy*
IS usage includes humans and IT, and so requires philosophy that acknowledges the possibility of genuine point of contact between technology and human beings. Being mostly of the life world, with the human being in the social context, usage requires a philosophy that affords dignity to everyday life and to what it means to be fully and socially human. Thus materialist and rationalist philosophies are

unlikely to be helpful (Eriksson, 2001). To deal with the constructs of PU that are mostly of human origin but cross cultures, a philosophy is required to transcend and yet uphold the perspective of human stakeholders.

The importance of philosophy in this area is more highlighted by Basden (2001), who differentiated between benefits and detriments of employing IT in human application tasks based on the philosophy of everyday life introduced by Herman Dooyeweerd (1894-1977) who was a Dutch lawyer and philosopher. His philosophy was a reaction against the the Neo-Kantian trend in continental thought prevalent at that time. The result of his work may be organized into five distinct yet interrelated, domains of thought: the theory of religious ground motives, the modal theory, the theory of time, the entity theory or theory of individual structures, and the social theory (Eriksson, 2001). For the purpose of this study we found the modal theory worthwhile in meeting the research objectives.

3.1 *Modal theory*

The Modal Theory emerged from Dooyeweerd's comprehensive studies of theoretical thought and its relation to human reality. Dooyeweerd maintained that our thought is based upon and bound to our experience and that this experience exhibited a number of distinct modalities (or levels, or aspects, or dimensions, or spheres) of organization or laws. Accordingly a modality emerges out of human interaction with reality which includes both perceptions and conceptions (Eriksson, 2001), and it is a particular type of knowledge that has its own unique and distinct characteristics. Dooyeweerd proposed 15 modalities (aspects of everyday life) which are listed below in Table 1 (the left column is aspects and the right column shows their kernel meaning):

Aspects	Kernel Meaning
Quantitative	Amount
Spatial	Continuous Space
Kinematic	Movement
Physical	Mass, Energy, Forces, Material
Biotic	Organism, Life Function
Sensitive	Sense, Feeling, Response
Analytical	Distinction, Concepts, Logic, Pieces of Data
Formative	Goals, Technology, Structure, Processing, History, Construction, Techniques
Lingual	Symbolic Signification
Social	Social Relationships and institutions, roles
Economic	Management of Scarce Resources
Aesthetic	Enjoyment, Harmony, Humor
Juridical	Punishment , Reward, Due
Ethical	Self-Giving love, Generosity
Pistic	Belief, Commitment, Vision, Certainty

Table 1: Dooyeweerd Aspects

TABLE 1 – Dooyeweerd Aspects

Early aspects anticipate the later aspects (for example, the lingual anticipates the social) and later aspects give more meaning to earlier ones. Each aspect is a sphere of meaning that is centered on a kernel meaning. Dooyeweerd believed that kernel meaning of aspects cannot be defined by theoretical thought, but can be grasped by intuition. The aspects cannot be directly observed, but they are expressed in things, events, situations, and so on as ways these can be meaningful. All human behavior involves functionality in a variety of aspects, usually all the aspects. By this we do not mean that aspects are different parts of human behavior, but rather that they are different ways in which it occurs meaningfully. To Dooyeweerd "each aspect plays different but necessary part in making life richly good" (Basden, 2008). Therefore, all things within our experience make sense by reference to one or more of the aspects.

IS usage is everyday human experience with the system and so can be thought about in terms of aspects. Basden (2008) suggests that any software might be used for a wide range of purposes, each meaningful in various aspects. To give an example, although we might play a computer game for fun (aesthetic aspect), we might sometimes play it as a social activity (social aspect), sometimes to boost our image of ourselves (pistic), and so on. Basden (2008) introduces the concept of Human Living with Computer (HLC) as "what the users experience when employing the computer in everyday living. Aspects of living that might somehow be affected by, or affect, the use of the computer beneficially or detrimentally", and to explain the structure of HLC we are concerned with how human being function in the aspects that are their everyday living.
Basden maintains that Davis (1986) consideration of HLC is narrow because its concern is restricted mainly to the formative and perhaps economic aspects of IS use. Widening the concern to all aspects is likely to enrich it. So the present study uses modal theory as a tool for finding and understanding the everyday life meaning of each construct added to PU.

3.2 *Why Dooyeweerd modal theory is likely to be fruitful*
Each construct has been suggested and devised because it is meaningful to its author. Since aspects are spheres of meaning, the meaningfulness of each construct may be explained in terms of one or more aspects. So we employ Dooyeweerd's suite of aspects for reconceptualizing the constructs and tackling the various problems of Yousafzai's list. Dooyeweerd's suite can uniquely assist in conceptualizing constructs in the way Barki (2008) calls for, for the following

reasons.

To provide a clear definition of a construct requires clear delineation of distinct types of meaning on which the definition can be founded. Discourse analysis can expose meanings but its clarity of delineation depends on the analyst being both highly skilled and devoid of bias so that one type of meaning is not mistaken for another. The former requirement would restrict construct definition to elite experts, while the possibility of the latter is thrown into question by thinkers as wide-ranging as Polanyi (1962), Habermas (1972), Foucault (1972) and Dooyeweerd (1955). By contrast, Dooyeweerd's suite of aspects already provides a good delineation of meaning-types at a foundational level and, since each kernel meaning can be grasped by intuition, meaning-delineation is no longer restricted to experts. Moreover, Dooyeweerd presupposes bias in all human thinkers but aspects of his kind transcend it.

To investigate multiple dimensions of a construct in a systematic way depends on committing oneself to a pluralistic ontology. Those offered by Hartmann (1952) and Bunge (1979) do not easily allow for simultaneous multiple dimensions. Dooyeweerd's aspects, by contrast, are present simultaneously in all things, so can be treated as dimensions, and their mutual irreducibility ensures that the dimensions are othogonal to each other.

To consider constructs across different contexts requires a basis for understanding differences in context. Dooyeweerd's aspects provide this for contexts that are roles or reasons for using the IS. Instrumental use of an IS is dominated by the economic and formative aspects, while hedonic use is dominated by the aesthetic aspect of enjoyment and the psychic aspect of feeling; thus Dooyeweerd's suite accommodates both of the uses highlighted by Van der Heijden (2004). However, Dooyeweerd's aspects can go beyond this because there are yet other aspects, pointing to contexts of, for example, social use, lingual use, juridical use and so on. This avoids having to squeeze the diverse variety of use into only two contexts.

To consider widening the way constructs are conceptualized, from attribute-function concepts to something constituted in diverse human behaviours, requires a shift from a static substance-oriented philosophical foundation, such as emanated from ancient Greek thought, to something more dynamic. One contender is process philosophy (Whitehead) but this does not so easily allow for diversity. Dooyeweerd's philosophy, like process philosophy, sees things as constituted in, and arising from, functioning, but has the advantage that the types of functioning that it recognises, which are aligned with the aspects, are diverse

and distinct and yet inter-dependent. For these reasons, we will employ Dooyeweerd's aspects in conceptualizing the constructs.

4. *Research methodology*

The research of which this study is part adopts an interpretivist rather than positivist approach, because its aim to not to test a theory but to gain understanding and insight: insight into what usefulness is. This study attempts to gain insight into how Dooyeweerd's aspects might be used to gain such insight.

The activity in this study is to reconceptualize constructs from Yousafzai et al.'s (2007) collection. To do this, the source of each construct is sought, so as to obtain a good definition or characterization of the construct in original text. That text is analysed to find what is most meaningful in what it is trying to put across about concepts relating to IS use that are behind the construct and related items in source papers were used to check or fill out the meaning of the concepts. Dooyeweerd's aspects are used as a reference point in this process, as a categorization of ways in which things can be meaningful, with each relevant phrase being subjected to the question "Which aspect(s) best expresses what this phrase is trying to say?" Aspectual interpretation happened based on our intuition. The result is identification of one or more important aspects for each construct. In case of any conflict between the main aspect extracted from definition and the aspect understood from source paper items, we relied on the meaning hidden in the source paper.

5. *Reinterpreting the constructs of PU*

39 constructs are analyzed. For each one the main aspect is given and then possibility of having other aspects for them is examined.

Implementation gap

Implementation Gap in conceived by Chau (1996) as a possible gap between existing skills and knowledge that users have. The gap is meaningful as to be filled, which is a purposive action of achievement, a functioning in *formative* aspect. Other secondary aspects also play their part. The wider the gap between old and new skills, the longer will be the time likely to be needed for individual users to learn new skills and adapt to new work procedure which indicates his emphasize on time as a limited resource; that is a functioning in *economic* aspect. Responsibility for removing the implantation gap is *juridical* aspect and anxiety of users about the gap is a functioning in the *sensitive* aspect.

Internal computing support

Internal Computing Support is defined as "the technical support by individuals or groups with computer knowledge who are internal to small firms" (Igbaria et al, 1997). Little internal support for personal computing is available to users in small firms; however in small firms the lack of resources and technical sophistication precludes the creation of an information centre or PC support function. Informal support, in the form of help from users in other functional areas, manuals, purchased books, and help screens, is often the only form of support available. What seems meaningful to this is the going beyond what is due, a generosity, which is a functioning in *ethical* aspect. Important is the attitude of people who are to support the usage of the system. The quality of relationship among people is important in such Internal Computing Support, which suggests secondary functioning in *social* aspect.

Training

Training is an opportunity to learn about an innovation, thereby reducing uncertainty; also training enables the development of self-efficacy with respect to the innovation (Agarwal et al, 1996). As individuals become more skilled and comfortable in using the IS they better understand the it and its benefits (Riemenschneider and Hardgrave, 2003). This involves deliberate development and shaping of people's skills, which is functioning in the *formative* aspect. Agarwal and Prasad (1999 and 2000) distinguish unstructured from structured training; structured training involves a precise idea of what is due to trainee and others (*juridical* aspect) while unstructured training involves self-giving (*ethical* aspect) and can be more fun (*aesthetic* aspect).

Internal computing training

Internal Computing Training refers to the amount of training provided by other computer users or computer specialists in the company (Igbaria et al. 1997). Prior research reported that training promotes greater understanding, favorable attitudes, more frequent use and more diverse use of applications in small firms. It is also reported that user training had a significant effect on the decision-making satisfaction of small firm managers who develop their own applications. Internal Computing Training is a functioning in the *formative* aspect because it is a shaping of the skills of people. Internal Computing Training also relies on people relationships (*social* aspect) and when it happens users are helped both in formal and in informal ways that shows *juridical* and *ethical* aspects respectively.

Job insecurity

Agarwal and Prasad (2000) report the result of a study focused on the issue of facilitating the movement of experienced programmers to become users of new programming languages. Job Insecurity is associated with the rapidly changing industrial structure and with greater susceptibility to innovations that are well publicized in the media. The main way that Job Insecurity is meaningful is in terms of financial resources, so it meaningful in the *economic* aspect. Also meaningful in Job Insecurity are people's confidence in remaining in the market and being a bread winner (*pistic* aspect) and what should be there for people (*juridical* aspect).

Transitional support

Transitional Support in Chau's (1996) study is about facilitating transition from the old to the new; in their study it refers specifically to software development and its tools. If such support is primarily dependent on generous attitudes then Transitional Support is meaningful in the *ethical* aspect. If Transitional Support is seen as what is due to users, it is meaningful in the *juridical* aspect. It involves a "network of support" involving formal and informal relationships among human beings, and hence has a *social* aspect too.

Accessibility

System Accessibility refers to the availability of resources for accessing the website, such as PC, modem and on-line services (Thong et al, 2002). Resources are meaningful in the *economic* aspect. Also this construct is meaningful in the *juridical* aspect, since the requisite resources are due to the users.

Access cost

Access Cost is defined by Shih (2004) to include the network speed and the cost of accessing the internet. For example the cost of accessing the web is an important part of searching costs for consumers using the e-market. Consumers prefer to evaluate the effectiveness of e-shopping based on its benefit and costs (Shih, 2004). This construct is meaningful in the *economic* aspect.

Compatibility

Compatibility is defined as "the degree to which an innovation is perceived as being consistent with the existing values, needs, and past experiences of potential adopters" (Moore and Benbasat, 1991; Agrawal and Prasad, 1997). This is another way of speaking of harmony in the sense of the *aesthetic* aspect. The

juridical aspect tinge of due and obligation may also be sensed as a secondary aspect.

Convenience

Examining the subjects and constructs added to TAM in a more hedonic type of environment, Childers et al. (2001) believe that perception of Convenience is manifested by the opportunity to shop at home 24 hours, 7 days a week. Therefore interpreting this perception of convenience as an opportunity for users to save time is an *economic* aspect. They also state convenience includes `where' a consumer can shop, which is the *spatial* aspect.

Image

Image refers to the perception that using an innovation will contribute to enhancing the social status of a potential adopter (Agrawal and Prasad, 1997), and Moore and Benbasat (1991) believe it to be one of the most important motivations in adopting an innovation. Social status is mainly a functioning in *social* aspect.

Output quality

In their studies, Davis et al. (1992) assert that "Quality is judged by observing intermediate or end products of using the system, such as documents, graphs, calculations and the like". The perceived output quality was measured by asking subjects to rate the quality of each of the following types of documents: resume cover letters for job applications, class papers and reports, and personal correspondence. For measuring perceived output quality users were asked if the charts and graphs they would make with software X would be professional looking, or if by using software X the effectiveness of the finished product would be high or low. The main aspect that makes this meaningful is the *lingual* aspect.

Perceived complexity

Complexity is defined as "the degree to which an innovation is perceived as being difficult to use and to understand" (Moore and Benbasat, 1991; Thompson et al, 1991). Venkatesh et al. (2003) introduces the concept of Effort Expectancy that is defined as "the degree of ease associated with the use of the system" (Venkatesh et al, 2003) and believe that Perceived Complexity and Perceived Ease of Use capture the same concept. Thompson et al. (1991) see the complexity as a result of time required for learning, doing mechanical operations, and the time that is taken for normal duties of users. All this suggests that Perceived Complexity is

meaningful in the *economic* aspect.

Response time
Response Time of, for example, a web site refers to the time that user spends on waiting to interact with a site. In their study Lin and Lu (2000) believe that Response Time of a web site is an important factor in affecting the user's beliefs about it. They maintain that web page providers not only have to make the content informative and timely, but they also need to design a speedy web page by not putting in unnecessary data that as it might jeopardize the display time. Response Time is therefore meaningful in the *economic* aspect.

Result demonstrability
Result Demonstrability is defined as "the tangibility of the results of using an innovation" (Agrawal & Prasad, 1997), including their observablity and communicability (Moore and Benbasat, 1991). Both 'demonstrability' and 'communicability' suggest the *lingual* aspect. There is also a social aspect by virtue of involving human beings in the demonstration.

Trialability
Trialability is defined as "the extent to which potential adopters perceive that they have an opportunity to experiment with the innovation prior to committing to its usage" (Agarwal and Prasad, 1997). Trialability is involves deliberate formation of the relationship with the innovation, which is a functioning in the *formative* aspect. Secondary aspects include the *lingual*, because such experimentation involves recording and retrieving, and the *juridical* aspect because the opportunity to have a tested system is due to the users.

Visibility
Visibility is defined as "the extent to which potential adopters see the innovation as being visible in the adoption context" (Agarwal and Prasad, 1997; Thong et al, 2002). For instance, when an individual user sees an innovation on almost all desks in all other parts of the organisation, it is obvious enough for them to say they have observed that the technology "is being used" by the colleagues. It seems that this observation is not just limited to our eyes as one of the sensory organs that refer to *sensitive* aspect, but the individual is distinguishing the technology through the process in mind. Visibility is therefore meaningful in the *analytical* aspect.

Computer anxiety

Computer Anxiety is defined as "the tendency of individuals to be uneasy, apprehensive, or fearful about current or future use of computer" (Brosnan ,1999; Roberts and Henderson ,2000). This speaks of emotion, which is meaningful in the *sensitive* aspect. However the apprehension is often caused by a threat to some value that the individual holds essential to her/his existence as a personality, which is meaningful in the *pistic* aspect. The *juridical* aspect could also be meaningful in that the threat might be seen as a result of retribution.

Computer literacy

Computer Literacy is about individual abilities and tool experience (Igbaria et al,1997). This suggests the *formative* aspect, which is further supported by the fact that being computer literate has also a history; basic skills, intermediate skills and advanced skills. 'Literacy' also suggests a *lingual* aspect. As it is playing role in determining user status in the context it is the *social* aspect as well.

Educational level

This construct refers to the level of education that is indicative of the potential adopter's ability to learn (Agarwal and Prasad, 1999). More sophisticated cognitive structures, perhaps acquired through higher education, lead to greater ability to learn in a novel situation (Agarwal and Prasad, 1999), which indicates the *formative* aspect. However, in reality the ability to learn anticipates more sophisticated cognitive structure (*lingual* aspect).

Gender

In their study, above all Gefen and Straub (1997) points to the gender differences and maintain that in socio-linguistic research gender is a fundamental facet of culture. Gender is most obviously of the *biotic* aspect. However, in showing show that mode of communication may be perceived differently by the sexes, there is a *lingual* aspect. Studies show that men and women tend to use and understand language in different ways (Venkatesh et al, 2003) and men tend to adopt a pattern of oral communication that is based on social hierarchy and competition than women do.

Perceived developer responsiveness

Perceived Developer Responsiveness (PDR) is defined as "the extent to which developers were perceived as being responsive to improvement suggestions and bugs reported by users" (Gefen and Keil, 1998). They emphasize the developer's

willingness to invest in their relationship with the users, moving beyond what is due to users and not limited to supporting in a formal way. Therefore PDR is a functioning in *ethical* aspect, with a secondary *juridical* aspect.

Percieved resources

Perceived Resources are "the extent to which an individual believes that he or she has the personal and organisational resources needed to use an IS" (Mathieson et al, 2001). Resources could be either tangible or intangible, and in either type they are treated as limited. This makes Perceived Resources meaningful in the *economic* aspect.

Role with technology

This construct's complete name is Role with Regard to Technology and refers to whether the user's primary responsibility is to be a provider or a user of technology (Agarwal and Prasad 1999). It has implications for their general level of experience with computing technology. Being either a provider or user, they have a social role in their own society and are in relationship with each other. Therefore, Role with Technology is a functioning in *social* aspect. As such Role with Technology reaches out to *formative* aspect due to the level of knowledge and skills that are determinant of different roles.

Shopping orientation

Shopping Orientation in O'Cass and French's (2003) study could refer either to the *economic* aspect of obtaining resources, or the *aesthetic* aspect of recreational shopping. However apart from the O'Cass and French (2003) study it seems that orientation is not just restricted to these two aspects, but also points to the socializing tendency of shopping, which is the *social* aspect. There is also a sense of fulfilling an experience in the online shopping activity, such as is observed in websites like eBay. However, we conclude that in this study Shopping Orientation is of the *formative* aspect since, whatever other aspect is involved, the user is achieving a goal.

Tenure in workforce

Prior work suggests that older workers and those with greater company tenure are more likely to resist new technologies, and workers with less work experience were more committed to the changes caused by the new technology (Agarwal and Prasad, 1999). One could say it is functioning in *formative* aspect that is reaching out to number of days (quantitative aspect), age of employees (*biotic* aspect) and

worth of workforce (*economic* aspect).

Voluntariness

Voluntariness is "the extent to which potential adopters perceives that adoption decision to be non-mandated" (Agarwal and Prasad, 1997). Primarily it is a functioning in the *ethical* aspect since it has a lot to do with willing attitude to choose what is not compulsory for them. However it could also be relevant to our courage (*pistic* aspect), and to what used to be a due before that (*juridical* aspect). It could be joyful (*aesthetic* aspect) or could be symbolic (*lingual* aspect).

Arguments for change

Argument for Change was measured then adopted by Jackson et al. (1997) to be added to Perceived usefulness. Argument in philosophy is the most basic complete unit of reasoning, or an atom of reason, but Argument for Change is more linked with communicating between people. Thus this construct is a functioning in the *lingual* aspect. Since it takes place among people it is a functioning in the *social* aspect too.

External computing training

This construct refers to the amount of training provided by friends, vendors, consultants, or educational institutions external to the company Igbaria et al. (1997). Compared with larger firms, small firms usually cannot afford to employ internal staff with specialized computer expertise, so to some extent they rely on support from outside the organisation. Given the information about the context of study, external computing training is a functioning in *formative* aspect. Also, one could argue that here formative aspect reaches out to the *social* aspect because of the relationships among people, to the *juridical* aspect, because of the contract that exists between two or more parties, to the *ethical* aspect because of the attitude that, for example, friends may show for helping their colleagues.

Facilitating condition

Facilitating condition is defined as "the degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system" (Venkatesh et al, 2003). This construct was measured by asking questions concerning guidance which was available to the users in a selection of the system; specialized instruction concerning the system was available to the users; a specific person or group is available for assistance with system difficulties. These questions indicate that conditions that are facilitating the use of

a system go beyond what is appropriate (i.e. *juridical* aspect) for the users, which suggests we could see this construct is a functioning in the *ethical* aspect.

Situational normality

Situational Normality is defined by Gefen et al. (2003) as "an assessment that the transaction will be a success based on how normal and customary the situation appears to be". Gefen et al. (2003) suggest that Situational Normality is part of System Trust because, for example, perception of what is proper and normal in online shopping situation is helpful for shaping the trust between user and the system. Situational Normality thus assures people that everything in the setting is as it ought to be and that a shared understanding of what is happening exists. This suggests that Situational Normality is a functioning in the *juridical* aspect.

Subjective norm

Subjective Norm is defined as a "person's perception that most people who are important to her think she should or should not perform the behaviour in question" (Fishbein and Azjen, 1975 cited in Venkatesh et al., 2003). In fact the emphasis is on the individual's perceptions of normatively appropriate behaviour with regard to the use of system (Venkatesh et al, 2003; Venkatesh and Davis, 2000). Therefore the *juridical* aspect is an one important aspect that gives meaning to Subjective Norm. However, since social relationship play an important part, the *social* aspect is equally important.

Social influence

Social Influence has also been called 'social pressure' and 'social norms' by Thompson et al. (1991) and Venkatesh et al. (2003). Social Influence has its roots in Subjective Norm in the context of use, as is recognised in many studies. Social Influence, like Subjective Norm, is most meaningful in the social and *juridical* aspects.

Social pressure

Individuals may use micro computers not because of their usefulness or the enjoyment derived, but because of the perceived social pressure. Such pressure may be perceived as coming from individuals whose beliefs and opinions are important to them such as supervisors, peers and subordinates (Igbaria et al, 1996). They use the system because they think they will be perceived by the people who are important to them as technologically sophisticated. Igbaria et al. (1996) use Social Pressure to refer to Subjective Norm (Anandarajan et al, 2000

and 2002; Venkatesh and Davis, 2000)j, suggesting that both the *juridical* and *social* aspects are important.

Task-technology fit

Task-Technology Fit (TTF) is "the degree to which a technology assists an individual in performing his or her portfolio of tasks" (Goodhue and Thompson, 1995). It is the ability of IT to support a task, which implies matching of the capabilities of the technology to the demands of the task. If by fit we assume integration and matching between technology and task then it could bear the meaning of harmony that is the *aesthetic* aspect. However there is also an important *juridical* aspect, in that Task-Technology Fit contains an idea of obligation and appropriateness.

Task characteristics

Tasks are defined as "the actions carried out by individuals in turning inputs into outputs" (Goodhue and Thompson, 1995). Task itself is meaningful in the *formative* aspect, but the emphasis seems to be on distinguishing its characteristics, which means the *analytical* aspect is the main one. Task characteristics are those that inspire a user to rely on certain aspects of the IT, and is for a task of any type with any details and importance.

Self-efficacy

Self-efficacy is defined as "people's judgment of their capabilities to perform a given task, which in turn determines which actions to take, how much effort to invest and how long to preserve" (Yi and Hwang, 2003). Such judgment may be seen as a functioning in the *pistic* aspect since it is a vision by people of who they are. This is confirmed by Yi and Hwang's questionnaire, which mostly asked users about their confidence toward using the system.

Trust

Trust has many different definitions and connotations across research areas and usually takes place in highly uncertain situations between two parties (Suh and Han, 2002). Among different definitions, Trust is defined as "the willingness to depend on another party with having hoped to achieve a blossoming relationship is common" (Suh and Han, 2002 and 2003). Users believe in what they want to achieve and have reasonable confidence for their willingness to engage in using the system. Therefore Trust is a functioning in the *pistic* (faith) aspect.

Perceived enjoyment

Perceived Enjoyment refers to "the extent to which the activity of using a system is perceived to be personally enjoyable in its own right aside from the instrumental value of the technology" (Davis et al, 1992). The sense of enjoyment in using a given system helps people feel confident about their ability to successfully execute the requisite action. The enjoyment was examined by Davis et al. (1992) in terms of whether using the proposed system is fun or pleasant and if users find it enjoyable when they start working with it. Therefore, this construct is meaningful in the *aesthetic* aspect.

5.1 *Summary of findings*

Table 2 brings together the results from the above analysis. The first column shows all the analyzed constructs and the second column shows their main aspects. Main aspects were derived via aspectual analysis an understanding of their kernel meaning plus the intuition of the researcher. Notice that some constructs are the manifestation of two main aspects, which is mainly because the two aspects were considered as equally important to the desired construct. For many constructs there was a chance of finding other aspects.

6. *Discussion*

6.1 *Aspects review*

To have a better view of comparison between the different aspects the bar chart in Figure 1 presents Table 2 visually, showing how many times each aspect has been the main sphere of meaning for different constructs. Since only 39 of the constructs out of 70 were analyzed, these results must be taken as only indicative, so only brief discussion occurs here to indicate the kind of issues that might arise with a fuller study.

The first thing to notice is that three aspects are much more prevalent than others, the formative, economic and ethical. That is, the IS community has a tendency to formulate constructs that are meaningful in those three aspects more than in others. Why might this be? The interest in the formative aspect is easily explained by the fact that 'usefulness' is defined in ways that emphasise the formative aspect, such as "The degree to which an individual believes that using a

particular system would enhance his or her job performance" (Davis, 1989), and we are dealing with technology. Interest in the economic aspect is easily explained by the fact that most construct-generating research has been carried out in the context of business, or at least organizational, requirements, and by the fact that TAM originally had a business purpose.

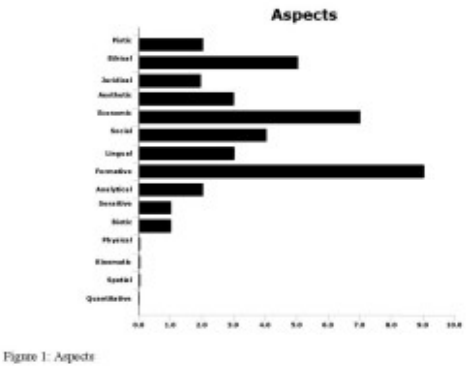

Figure 1: Aspects

The high interest in the ethical aspect is somewhat surprising, in an industry and discipline that is not known for its ethical prowess. It should be noted, however, that 'ethical' to Dooyeweerd does not refer to corporate social responsibility nor what is usually deemed 'ethics' in IS, but refers to self-giving love, to generosity, to going beyond the call of duty, to attitude that is self-giving rather than selfish. The interest in the ethical aspect does not imply good functioning in it, but merely that those who created the constructs recognized its importance. The constructs that are defined mainly by the ethical aspect include Voluntariness, and four constructs by which the user feels supported in their use (Transitional Support, Perceived Developer Responsiveness, Facilitating Condition, and Internal Computing Support). Such support could be deemed of the juridical aspect (a right that users expect) but in practice users find generous support, with a good attitude, much more desirable, and this is of the ethical aspect.

Second, we ask why certain aspects are missing or low, namely from quantitative to psychic. This is explained by the fact that the first three are mathematical aspect and are seldom the most important aspects in human constructs. The physical, biotic and psychic are pre-human aspects, and of less interest when considering usefulness unless the application happens to relate to them.

Then attention may be given to the remaining aspects. That the social and lingual

aspects are slightly higher might reflect the fact that research into usefulness relates to information (lingual aspect) in organizations (social aspect), but the full study might show something else. There seem to be no surprises other than the high interest in the ethical aspect.

6.2 *Quality of constructs*

Table 2 shows that many constructs are allocated one single aspect, but some are allocated several (multi-aspectual constructs). Among them there are constructs for them the main aspect is prone to the change, called 'swinging constructs'.

6.2.1 *Single aspect constructs*

Table 2 shows thirteen constructs that are only one aspect. This implies they are meaningful mainly in one way, which suggests that these constructs are likely to be well-formed and aspectually clear and strong enough to be representative of one aspect. For example, Perceived Enjoyment is the aesthetic aspect, and Access cost is the economic aspect. Dooyeweerd does, of course, hold that all things exhibit all aspects when part of concrete situations, so for example Perceived Enjoyment is also formative (achievement that is enjoyed), but when generalized across situations, it is mainly one aspect that is meaningful in the case of these constructs.

Since aspects are irreducible to each other in their meaning, it follows that constructs meaningful in separate aspects should not be confused with each other; for example, Perceived Enjoyment (aesthetic aspect) should never be explained away in terms of Access Cost (economic aspect), nor vice versa, even though there might be some link between them. On the other hand, as discussed below, constructs that share a main aspect might be considered together.

6.2.2 *Multi-aspectual constructs*

Many constructs have more than one aspect in which they are meaningful, usually main one and some secondary ones. In some of these all aspects are necessary, and we call them multi-aspectual constructs. For example, Subjective Norm (SN) is a about the influence of people's belief in our social environment on our behavioral intention. For this construct there are always at least two people as the prerequisite of shaping SN. So this is about 'we' (social Aspect) rather than 'I'. SN is also about the importance we attribute to other's norm, which demands an appropriate response (juridical aspect). Unlike swinging constructs (below), which lack clear explanation of their context, SN is always both Social and

Juridical aspect in all contexts where it is relevant.

SN is relevant to compulsory use. In a context in which using a system is voluntary, SN does not make sense, because the juridical aspect of it fades away and its Social aspect is not as significant as the willingness (ethical aspect) to use the system. As we move from one context to the other, SN gives place to another construct, Voluntariness. This might account for why Davis (1989) excluded SN from TAM even though it is included in the Theory of Reasoned Action on which TAM is based.

6.2.3 *Swinging constructs*

For some constructs that exhibit more than one aspect it is not possible to decide which the main one is. For example, Transitional Support looks like a pendulum swinging between ethical and juridical aspects, and at the same time there are individuals or group of people with specific role and responsibilities and relationships (Social aspect) poking this pendulum from either side.

Likewise, Facilitating Condition is about factors in the environment that hinder or help the use, we have the swinging between ethical and juridical aspect. Unfortunately, the context in which facilitating conditions are tested is not very well described in Venkatesh et al, (2003), leaving some ambiguity. If help is offered by those who are paid to give it (help desks), this is juridical, but if it is offered generously beyond the call of duty, such as by hard-pressed colleagues, it is ethical aspect.

For Compatibility we chose aesthetic aspect but are not satisfied with it; it might be juridical if we are to match innovation with current needs and values. Internal Computing Supports swings between ethical and social. Job Insecurity swings between economic, juridical and pistic aspects.

The ambiguity of swinging constructs occurs because the sources did not have detailed information about the context, and we were not able to make up our mind what aspect could be the main one.

Quantitative	
Spatial	
Kinematic	
Physical	
Biotic/Organic	Gender
Sensitive/Psychic	Computer Anxiety
Analytical	Task Characteristics, Visibility
Formative	Educational Level, Shopping Orientation, Tenure in Workforce, Implementation Gap, Trialability, Computer Literacy, Training, Internal Computing Training, External Computing Training
Lingual	Result Demonstrability, Output Quality, Argument for Change
Social	Social Influence*, Subjective Norms*, Role with Technology, Image, Social Pressure*
Economic	Perceived complexity , Access cost, Perceived Resources, Accessibility, Response Time, Job insecurity, Convenience
Aesthetic	Task-Technology Fit, Compatibility, Perceived Enjoyment
Juridical	Social Pressure*, Situational Normality, Social Influence*, Subjective Norms*,
Ethical/Attitudinal	Voluntariness , Transitional Support, Perceived Developer Responsiveness, Facilitating Condition , Internal Computing Support
Pistic/Faith	Trust, Self-efficacy,

Table 3: Aspectual Classification of Constructs (* indicates multi-aspectual construct)

Table 3: Aspectual Classification of Constructs (* indicates multi-aspectual construct)

6.3 *Reclassifying constructs*

Yousafzai et al. (2007) groups the 70 constructs into three specific categories (organisational, system and personal characteristics), with many other constructs under ‘Other Variables’. The aspects may be used as more finely tuned categories, in which constructs are grouped according to which aspect makes them most meaningful. Table 3, which is Table 2 reversed, show which constructs have a given aspect as their main one.

This provides a more precise classification than Yousafzai, and has the advantage that there is no ‘Other’ category. Each construct is expected to be meaningful in at least one of the above ways. All three of Social Pressure, Social Influence and Subjective Norms exhibit both social and juridical aspects. It addresses Problem 6, in that it bases categorization on a philosophical reflection on spheres of meaning, from which all other categorizations arise. For example, hedonic versus instrumental use (Van der Heijden 2004) refers to use governed by the aesthetic versus formative aspects. Chau’s (1996) reference to near- and long-term repercussions refer to middle and later aspects since later aspects operate over longer timescales (Basden 2008).

The constructs that share an aspect might have an internal link between them, and this might assist understanding how they relate to each other. Thus, for example, Trust and Self-efficacy sharing the pistic aspect raises the question of whether they are linked. This brings a number of specific questions to the surface. For example, it may be that if users are confident they are able to use the IS, are they likely to trust themselves, trust others or trust the system? Raising such questions about constructs that share a main aspect could provide fruitful material for future research.

6.4 *Towards a method for reconceptualizing constructs*

Dooyeweerd's aspects were applied to understanding the meaning of the constructs added to PU. Each of the 39 constructs has been 'opened up' by finding in which aspects it is most meaningful according to the author who introduced it. The meaning of these constructs has been made clearer and they have been reclassified in a way that brings to the surface some of the links between them. This allows us to reconceptualizing each in the four ways recommended by Barki (2008).

The exercise of assigning aspects to a construct forces us to clarify distinct meanings, which may be used to define it. For a single-aspect like Perceived Enjoyment (aesthetic aspect) this is quite straightforward, though the process of definition cannot cease once an aspect has been assigned. Doing so invites others to question whether other aspects are important – for example, it might also be a social and perhaps even pistic issue – but the clarity of such questioning and debate that follows is enhanced by having initially assigned an aspect.

When several aspects are found and assigned they can indicate the main dimensions of the construct (again making a clear proposal that invites critique). That the aspects are irreducibly distinct and yet also interrelated provides a basis for discussing the relationship between dimensions, and possibly for a richer discussion than even Barki envisaged. In particular, aspects are interrelated in respect of an entity, event or behaviour, since one aspect (qualifying aspect) governs the thing's main reason for existence and another aspect (founding) governs the coming-into-being of the thing. For example, the qualifying aspect of Image is social and possibly pistic while its founding aspect is lingual.

With 'swinging' constructs the multiple aspects might indicate different contexts in which the construct might be applied. For example, Job Insecurity swings between economic, juridical and pistic aspect, depending on whether the main concern is to do with finance, rights or self-worth, which itself depends on context.

That some constructs are not attributes but are constituted as the outcome of human behaviors (Barki 2008) can be made clearer by aspectual analysis that sees the aspects as modes of (human) functioning. For example, social influence and social pressure are both social functioning, i.e. functioning governed by the social aspect. When we ask what is the difference between them, which we feel

intuitively, we find we must bring in juridical functioning: pressure has the connotation of inappropriateness while influence can be more positive in that aspect.

This approach can address each of the seven problems exhibited by Yousafzai et al.'s (2007) collection of constructs.
* The unmanageability of Yousafzai et al.'s set: Dooyeweerd's suite of aspects is more manageable.
* the list of constructs is not likely to be complete: Dooyeweerd's suite of aspects aspires to cover the entire range of meaningfulness that generates constructs.
* Some constructs are over-specific in use or interest: Dooyeweerd's aspects can show what is generic about them.
* Some constructs are ambiguous: Applying Dooyeweerd's aspects helps to clarify meaning.
* There are overlaps between some of these constructs: Aspectual analysis can reveal where the overlap occurs and indicate how to resolve it.
* as centring on an aspect, and there are other aspects.
* Most studies were within a limited culture: Dooyeweerd's aspects transcend culture.

6.5 *On employing Dooyeweerd's aspects*
Applying Dooyeweerd's philosophy to reconceptualizing constructs was not always an easy task. Dooyeweerd's aspects are attuned to everyday experience so they are suited to analysing multi-aspectual situations of human activity because all aspects can be expected to be present. When they are applied to understanding extant constructs, which have been formulated as part of theory of, IS use, it might not be so easy. It is true that even these constructs exist and pertain within the horizon of the aspects, but those who formulated them have deemed certain aspects most meaningful, and the challenge is to find out which ones. Though words with which they are introduced give some indication, words carry many hidden connotations. For this reason it was important to seek out the original sources and try to work out what was meaningful to them.

Knowing the kernel meaning of each aspect was not enough for understanding what meaning each construct was conveying. Having a broader intuition of different central themes of each aspect and differences between neighboring aspects helped to understand each construct. Nevertheless, this study, of about half the constructs of Yousafzai (2007), demonstrates the feasibility of doing this

and that this application of Dooyeweerd's aspects has been fruitful to the new wave of opening PU's 'Black Box' and especially of providing a way of reconceptualizing constructs.

7. *Discussion and conclusion*

7.1 *Summary of research*

This study discussed the possibility of applying Dooyeweerd's aspects to Perceived Usefulness by seeking to understand in which sense the constructs added to PU as external variables are meaningful. When PU was questioned by scholars in the field, its complexity and vagueness became plain and Yousafzai et al. (2007) collected 70 constructs that resulted. To some extent, this opened the 'Black Box' of PU (Benbasat and Barki 2007), allowing us to look at what is inside it and letting all the complexities be revealed. But at the same time, it became a Pandora's Box that released a lot of complexities. This study has demonstrated a way of opening the box that manages the complexities into fifteen aspects, in addition to possibly revealing other constructs which have not yet been discussed in the literature.

7.2 *Limitation of this study and future work*

The most obvious limitation of this study is that it covers only 39 of Yousafzai's 70 constructs. This must be rectified before any sound reconceptualization and reclassification of constructs can be completed, but it is sufficient to show that this aspectual approach is promising, which is the aim of this paper. It might be, however, that some original sources are inaccessible.

Moreover, the analysis has been brief and indicative rather than exhaustive. Some residual ambiguity may be detected even in the aspectual analysis of the constructs. Much of the reason for this is that the original sources contained too little information to make the meaning of their constructs clear. Sometimes it was necessary to read between the lines. Some of the reason is that the exercise of aspectual analysis is ever a learning experience, which changes the analyst's understanding of the very aspects s/he is applying. Dooyeweerdian aspectual analysis is a relatively new technique and a body of expertise is still being built up.

7.3 *Contributions*

The main contribution of this paper is to propose a method for reconceptualizing

extant constructs of IS use, prior to carrying out the full reconceptualization. The method – aspectual analysis of constructs – operationalizes each of the four parts of Barki's (2008) approach. It also potentially addresses each of the seven problems exhibited by the collection of constructs compiled by Yousafzai et al. (2007).

However, as a pilot for the fuller study, this study can indicate what kind of contribution can be made in the area of IS use, and especially in relation to Davis' (1989) Technology Acceptance Model. Specifically, while TAM and related studies are mainly concerned with testing hypothetical links between predefined constructs, this study contributes to preparing the constructs for such testing, by reconceptualizing and even perhaps conceptualizing them. Dooyeweerd's aspects provide the basis for a better categorization of constructs because they are fundamental ways in which things are meaningful. Since Dooyeweerd's suite of aspects aspires to complete coverage of meaning, it provides a basis for identifying missing constructs. In its notion of interaspect coherence and of qualifying and founding aspects, Dooyeweerd's philosophy provides a way of reflecting on the possible relationships between constructs. Finally, since the aspects are also spheres of law, each construct based on them will contain an innate normativity, rather than being purely descriptive, and this can perhaps yield models of IS use that are more useful in guiding evaluation and design. Though this study has confined itself to Perceived Usefulness, the method it explores could be applied to any other construct of IS use.

The study might also make a contribution to Dooyeweerdian scholarship itself, in that it differs from several other studies. The field of information systems is highly interdisciplinary and hence can be an excellent exemplar for applying, testing and refining our understanding of the aspects in Dooyeweerd's suite. Whereas Basden (2008) explores this possibility, it does so at a broad level, while this study is much more detailed. Whereas Basden (2008) generates ideas from Dooyeweerd's philosophy itself, this study begins with the findings of an extant body of research. Eriksson (2001) applied Dooyeweerd's aspects to specific situations, as a case study; this study applies Dooyeweerd's aspects to abstracted, theoretical constructs. Basden & Wood-Harper (2006) apply aspects to constructs, but they are constructs devised by one thinker, Peter Checkland, and so exhibit a coherence and completeness, and also elegance, that comes from good reflective thought. By contrast, this study applies Dooyeweerd's aspects to constructs

arising from many disparate thinkers, a collection which is much more numerous and exhibits incoherence and incompleteness. In such ways, this study might make a contribution to understanding a practice of aspectual analysis.

7.4 *This paper situated among others*

Why is it useful to reconceptualize constructs of IS use that have been discussed in the theoretical literature? The reason is that IS use is still not well understood, (Mishra & Agarwal, 2009). What has been extensively studied, and for which constructs have been formulated, has not been IS use itself but acceptance of information technology, prior to on-going use. Unless IS use as such is well understood, the attempt to gain benefits from IS use will remain ad hoc and subject to high failure rates. As a result, IT gets a bad name and is resisted even when it has been accepted.

Many constructs related to technology acceptance are nevertheless relevant to IS use – for example Usefulness and Ease of Use themselves – even if they need reconceptualizing in such a context. This study is oriented to IS use rather than acceptance and, as a first step, has explored a method by which constructs can be reconceptualized. The next step is to make a fuller study of constructs, more expressly directed towards IS use itself. This can take in not only all 70 collected by Yousafzai et al. (2007) but also those investigated by the usage community inspired by Delone & McLean (1992) and similar thinkers.

However, all these presuppose extant constructs. Basden & Ahmad (2011) in this collection of papers argue that extant constructs are theoretically oriented and are of interest to researchers and managers rather than being oriented to the everyday experience of actual IS users and their work colleagues, and they suggest applying Dooyeweerd's aspects directly to the situation of IS use itself. Ahmad & Basden (2011), again in this volume, explore a method for doing this. So those papers can complement this one. All three papers join together in exploring how Dooyeweerd's aspects can help us understand IS use better.

The approach in those two papers tries to ignore extant constructs, and understand IS use directly, but perhaps at the cost of not being able to hold discourse with extant literature. The approach in this paper might not be so faithful to the actual situation of use, but it introduces Dooyeweerd's aspects in a way that maintains discourse with the extant literature.

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IIDE Proceedings 2011 ~ Using Dooyeweerd's Aspects To Enrich Our Understanding Of Idolatry

Abstract
This paper shows how Dooyeweerd's aspects of reality are related to Goudzwaard's notion of idolatry and discusses how Dooyeweerd's aspects contribute to the understanding of idolatry as a cause of problems in e-government.
NOTE: This paper is a description of ongoing research. Work on the paper could not be completed because of family commitments and the authors request that it should be treated as 'work in progress'. The authors would also like to express their apologies for any lack of clarity in the paper.

Keywords: Idolatry, Dooyeweerd, Aspects, ICT

1. *Introduction*

In relation to IS projects and particularly, e-government projects, several problems have been noted. Some researchers have identified idolization or idolatry of technology as a potential cause of the problems (Gauld & Goldfinch 2006; Heeks 2006). However, what idolization is has not been clearly explained. Krishnan Harihara & Basden (2008) developed Goudzwaard's notion of idolatry to account for many of the problems in e-government projects that are related to idolization, and this gave precision of thought. Krishnan Harihara & Basden (2010) extended this by arguing that each element can take on a positive form, which is valid and may be expected to be present in successful projects. This made Goudzwaard's notion of idolatry more complete as a tool with which to study e-government, relevant to both success and failure, but the tool was not operationalized. The current paper operationalizes the notion of idolatry, using Dooyeweerd's (1955) notion of aspects, so that e-government projects and literature about e-government can be critically evaluated.

2. *Background*

Heeks (2006) identifies several attitudes that might be adopted towards ICT:

* Ignore: ICT is not seen as part of the reform agenda. Even when computers are available, they remain unused.
* Isolate: the procurement and deployment of ICT the sole responsibility of the technical staff.
* Integrate: understanding the potential of ICT, tempered by recognition that ICT can at best play a secondary role.
* Idolise: structuring the reform process around ICT. ICT forms the core of the business of government. We see this in the vision embodied in the term 'transformational government'.

Heeks warns that wherever an attitude of idolisation is noticeable, the possibility of failure is very high. Though he gives some examples, he does not discuss the nature of idolisation.

The research is based on the following passage from Goudzwaard (1984, p.21):

"First, people sever something from their immediate environment, refashion it and erect it on its own feet in a special place. Second, they ritually consecrate it and kneel before it, seeing it as a thing which has life in itself. Third, they bring sacrifices and look to the idol for advice and direction. In short, they worship it. …

Fourth, they expect the god to repay their reverence, obedience and sacrifice with health, prosperity and happiness."

Idolatry is a problem to Goudzwaard because:
* Idolatry "distorts genuine norms and values" (p.24) in ways we might not otherwise wish for. "It defines goodness, truth, justice and love as that which serves the end."
* An idol is an end that "indiscriminately justifies every means" (p.23). Increasingly, the means chosen are ones we would not normally agree with.
* That an idol has absolute authority over our lives means that it "demands that men, women and the environment continually adjust to the new laws of the continually developing means. If some aspect of the environment or humankind is ruined, this is justified as an unfortunate but necessary sacrifice. For the good cause: the happiness of all." (p.25)
* The idol "creates its own false enemies. The ideology declares anyone a traitor who because of his position or past forms an obstacle to the goal" (p.25).
* "Worship brings with it a decrease in their own power: now the god reveals how they should live and act" (p.21). "Soon, however, they become dependent on their own creation. No wonder: having given the creation its own life, it has a grip on them" (p.22).
* Basden (2008, p.332) adds that an idol delivers the opposite of what it promises.
As a result of all these, Goudzwaard says, the earth suffers (p.48), and in particular, "The poor developing countries are hit the hardest by the economic spiral" (p.90).

Goudzwaard's characterization of idolatry contains ten elements, which are reinterpreted by Krishnan Harihara & Basden (2008) in the context of e-government. Krishnan Harihara & Basden (2010) argue that each element can take on a positive form, which is valid and may be expected to be present in successful projects. For example, in any innovation something is likely to be sacrificed, so the question is shifted to the motivation for, and nature of the sacrifice. Table 1 shows the elements and their idolatrous and valid forms.

Element	Idolatrous	Valid
Severing from its environment	e-government as a completely new kind of government	e-government as a improving existing government
Refashioning	Reshaping the content of governance to the demands of e-government	Trying to remove defects using e-government
Treat in a special place	Granting e-government a position of undue power and privilege in society or community; often these are high-profile projects.	Treating e-government as a genuinely good idea and making an effort to adopt it
Ritual consecration	Pronouncing the e-government project as sacred, and expecting all to serve its requirements. Those who question it are treated as heretics.	Realizing the importance or need of the e-government project and proclaiming its value
Kneel before it	Expecting all to submit unquestioningly to the unreasonable demands of an e-government implementation even though its worth is unestablished or non-existent.	Willingly submitting to the reasonable needs of an e-government implementation because it has been demonstrated to be beneficial.
Life of its own	Allowing an e-government implementation control of its own resources so that it can develop and grow, even though it shapes society to further its progress, usually in a way that subjugates people.	Allowing an e-government implementation to thrive and grow in harmony with society so it can bring benefits.
Sacrifices	Sacrificing current good or distorting genuine norms in pursuit of the overriding goal of e-government, all to the detriment of societal good; usually the sacrifice is demanded of citizens and others.	Ethical self giving for a noble cause, usually made by those who initiate and implement the e-government project.
Look for advice	Government and society unquestioningly allows e-government to dictate policy and rationality, blind to its faults and deaf to what others say.	We allow e-government to shed fresh light on principles of justice and equality, and harmonize that with what others say.
Worship	Treating e-government as of absolute worth in itself, with unquestioned fervour and commitment.	The attained worth of a genuinely good implementation is affirmed and celebrated.
Expect repayments	Society expects e-government to bestow easy supposed benefits; usually the benefits prove worthless, or are not attained.	The e-government implementation encourages society to realize worthwhile benefits by its own efforts in line with justice and generosity.
RESULT:	Harm to society, especially to the disadvantaged and those without ICT.	Some benefit in terms of justice and attitude in government and society.

Table 1. Icolatry elements, in idolatrous and valid forms

Krishnan Harihara & Basden (2008, 2010) link these with extant academic literature and with reports of professional experience, and in (2010) examine three cases in detail.

This makes Goudzwaard's notion of idolatry more complete as a tool with which to study e-government as a whole rather than only its failures. But questions remain. How can we use the elements above in practice to evaluate existing projects, critique proposals and plan for e-government? Are all the elements important? Why (not)? How do we know when and whether to ignore some? It is difficult to see how the above understanding can address those questions. It is necessary to understand each element more deeply, especially what it offers to the process of idolatry and why and when it is necessary.

3. *A basis for understanding elements*

Goudzwaard's work was influenced by Dooyeweerd's (1955) philosophical work, in particular its recognition of the religious root of all human activity. By 'religion' Dooyeweerd means "the innate impulse of human selfhood to direct itself toward the *true* or toward a *pretended* absolute Origin of all temporal diversity of meaning" (1955,I,p.57). This innate impulse pervades and affects all we do and are at a deep level; this is why idolatry has a deep effect on e-government and other projects and implementations. Religion in this sense is not confined to formal creeds, but refers to commitment and deep firm belief about who we are and what is most important.

This belief and commitment are one mode or aspect of human functioning, along with fourteen others. Each aspect or mode is irreducible to the others in terms of their meaning and norms, but they are mutually dependent when expressed in our

concrete functioning as individuals in society and world. The fifteen aspects delineated by Dooyeweerd are as follows, with human functioning in each aspect in brackets:

* Quantitative: (functioning with quantity, amount)
* Spatial: (extending)
* Kinematic: (moving)
* Physical: (functioning with energy + mass)
* Biotic: (life functions)
* Sensitive: (sensing, responding; feeling, emotion)
* Analytical: (functioning with clarity)
* Formative: (shaping, planning and achieving; history, culture, technology)
* Lingual: (communicating or recording)
* Social: (relating socially, with roles)
* Economic: (frugally managing resources)
* Aesthetic: (harmonising, enjoying; fun)
* Juridical: (ensuring due; 'retribution', rights and responsibilities)
* Ethical: (self-giving love)
* Pistic: (believing; functioning with vision, aspiration, commitment, creed, religion)

From this perspective, both idolatry and its positive counterpart (e.g. commitment to the good) are primarily pistic functioning, but idolatry is dysfunction that harms while positive pistic functioning brings good.

Our functioning in later aspects depends foundationally on that in earlier ones, but it gives meaning and direction to our functioning in earlier ones. So, for example social functioning largely determines how we use language. So our pistic functioning affects all earlier aspects. Thus whether our pistic functioning in e-government is idolatrous or positive will affect our attitudes, our practice of justice, our view of harmony and fun, our economies, our interaction with people (e.g. citizens), our communication, our planning, our clarity of vision, and so on.

To Dooyeweerd, all human activity exhibits all aspects, though usually one aspect predominates. For example in writing, the lingual aspect predominates, but there are also a social and aesthetic aspects (taking account of for whom we write, and the style of writing). Idolatry or its counterpart, though primarily pistic, also involves functioning in the other aspects. The elements of idolatry might then be

seen as qualified by different aspects as part of this. Therefore we employ Dooyeweerd's aspects to understand the elements more deeply.

Table 2. Aspects and kernel meaning

Aspect	Kernel meaning	Positive impact	Negative impact
Analytical	Distinction, logic	Independence	Confusion
Formative	Construction, structures	Achievement	Destruction
Lingual	Symbolising	Expression	Lack of understanding
Social	Communication, relationship	Bonding, society	Disagreement, disruption
Economic	Resource utilization	Sustainability, optimal use	Reckless profiteering
Aesthetic	Harmony, fun	Leisure, rest enjoyment	Pleasure seeking
Juridical	Due, reward, punishment	Due for everyone going beyond oneself	Partiality, favouritism, discrimination
Ethical	Self-giving	Renounce, generosity	Selfishness, self-promotion
Pistic	Faith	Hope, aspiration	Absolutization

Table 2. Aspects and kernel meaning

4. *Developing the elements of idolatry*

4.1 *Positive and negative*

To apply aspects to elements of idolatry, we ask what makes the element meaningful as part of idolatry or its positive counterpart. From the analytic aspect onwards, there can be both positive and negative. Table 2 shows the positive and negative in each aspect from the analytic aspect onwards; for more detail see Basden (2011).

4.2 *Aspectual analysis of elements*

Each element is analysed with respect to which aspect is most meaningful in its positive and negative versions. Elements of idolatry can exhibit aspects in two different ways – the same aspect for both the positive and negative side; different aspects for the positive and negative sides. In some cases, more than one aspect applies for the positive and negative side.

4.2.1 *Severing*

The positive side of severing is stressing the difference of the concept from its origins in the sense that it is a change for the better. There is no carving out of a new entity. Instead, the unsevered whole has the potential to come out of a previously subjugated state. This indicates the analytical aspect. Basden (2010) stresses that the kernel meaning of the analytical aspect is 'distinction'. Distinction indicates independence. Such independence, Basden (ibid) says, enables us to undertake theoretical thinking so that we are able to conceptualize something as being distinctively meaningful. Such independence does not indicate absolute autonomy but conceptualization and reasoning. In relation to e-government, this enables us to understand that it is a beneficial change attained

through selectively using ICT to meet governance objectives, and not a new entity plucked out of ‘old’ (non ‘e’) government.

The negative side of severing is a deliberate decoupling of the entity from its origins. It involves shunning and decrying the original, while glorifying the new decoupled form. The original is shunned not because it is inherently bad but because of hubris. Similarly, the glorification of the new decoupled form is not because it is inherently good (which it could be, but that has not been examined), but because of a fascination for it. This also indicates the analytical aspect. But the analytical aspect is here combined with the lingual activity of changing the terminology and language. In relation to e-government, this can be clearly seen. Often, the use of terms such as transformational government in relation to use of ICT indicates severing, and thus idolatry.

4.2.2 *Refashioning*

In the positive sense, refashioning is reforming a concept or system to get rid of its defects and inadequacies. This indicates improvement and innovation. At the root of this aspect are human activities such as designing, implementing structures and improving (Basden, 2010). So refashioning in the positive sense is formative. Basden (2010) opines that the good of this aspect offers the possibility that technology could help alleviate some societal problems. In relation to e-government, deploying ICT might help improve governmental functioning and could bring some positive change, but for that to happen there must be reform of the whole system of governance. That would indeed be beneficial.

Refashioning is negative an idolatrous when the context is changed to suit the newly carved out entity. This is also a formative function, but a negative formative functioning. In relation to e-government, this is changing governmental tasks and administrative practices to suit new technology led government. Basden (2010) quotes Schurman (1984) who argues that technology should not be guided by its own norms, which is undesirable. When governments become so technology focussed that, they drastically change ‘old’ government much to the detriment of the citizenry.

4.2.3 *Erect in a special place*

The positive dimension to erecting in a special place is treating a genuinely good idea as unique and special. This involves making a well considered distinction between that idea and others. This is analytical functioning. In positive erect in a

special place, we see the analytical aspect in two ways; one, on the separating out of the ideal from its surroundings and also in the examination of the worth or value of the idea, which leads us to grant it a special place.

In the negative sense, erect in a special place is granting the severed idea or entity a position of power and privilege that it does not deserve. This indicates the juridical aspect working negatively. The juridical aspect opens up the possibility of granting some what is due to it. But that doesn't necessarily involve granting that which is not due at the cost of not grating what it due to others. This is negative juridical. Governments focussed on e-government and the rapid deployment of ICT grant technology such importance that other important issues in relation to organisational factors and some of the adverse impacts of ICT deployment is often ignored.

4.2.4 *Ritual consecration*

Positive ritual consecration is realizing the importance of something and declaring or proclaiming its value. In practice, we see ritual consecration in statement or announcements about the idea; the setting of starting points and in the formal commencement of an activity. This formal activity is symbolic, but an essential preface to what follows and what led to it. This indicates the lingual aspect. In relation to e-government, consecration could be a positive thing if it means public proclamation or formal initiation of a system to further a genuinely beneficial goal.

Negative ritual consecration involves glorifying the idol, combined with castigating those who do not serve it. There are pronouncements about the importance of the idol and why it ought to be served. This is can be seen operating in the prestige ICT projects initiated by some governments. The commencement of such projects are marked by public announcements about how beneficial these projects would be and why they should be accepted and adopted by society. The announcements also declare why resources ought to be diverted from other areas to this project. Anyone who questions the value of the projects is declared as being against progress and development. Thus, negative ritual consecration is also a lingual function.

4.2.5 *Kneel before it*

In the positive sense, this involves submitting to the demands of a noble cause. That means the value of that cause is thoroughly accepted and this brings about

the commitment to that cause. This is pistic functioning. There is deliberate acknowledgement of the value of that cause, and that determines what actions are taken.
In the negative sense, kneeling is both a declaration and an acceptance of the idol's holiness. This is a kind of unquestioned and undesirable submission. It is accepting the mastery of the idol over us, much like slavery to the idol.

4.2.6 *Life of its own*

Anything having a life of its own means it is self-sustaining. On the positive side, where society has accepted the importance of an entity and its value there is the voluntary commitment and provision of resources to that cause. The granting of such resources is done without grudge. This is juridical functioning. The kernel meaning of the juridical aspect is meeting the the requirements of what is due. In relation to e-government, we see this in operation in the allocation of funds, appointment of personnel for the projects and the dedication of time and effort for realizing the project.

Life of its own operates negatively when the idol makes itself self-sustaining by usurping the resources it needs. The steps leading to the idol attaining a life of its own has such an influence on its followers that the idol is now in a position to demand any resources it needs and society grants it unquestioningly. In this manner, the idol is able to determine its own course of development. The idol thus begins to shape society in such a way it is able to progress, which might be in such a way the rest of society might be disadvantaged.

4.2.7 *Bring sacrifices*

If in pursuit of a noble cause, one were to make sacrifices it deserves appreciation. Such sacrifice could be in the form of granting resources and putting in effort in service of the cause. Such dedication of resources often exceeds the minimum resources needed for the project and may involve the diversion of resources from other activities and areas. This indicates ethical functioning. Baden (2010) explains that the ethical aspect presents the possibility of 'extra goodness' and going beyond the requirements of the juridical aspect. Functioning in the ethical aspect includes being hospitable, generous and good even at expense or disadvantage to ourselves.

Idolatrous sacrifice is often forced upon others. Such sacrifice involves renouncing giving up the good in service to the idol. In idolatrous sacrificing, the

followers of the idol may cause much suffering and pain to themselves and to rest of society. They might do this without even realizing the impact of making such sacrifices because of the hold the idol has on them. Thus, the idol causes the bad to happen. This indicates negative juridical. Basden (2010) says the juridical aspect operates negatively when we see partiality and injustice. This we see in operation in idolatrous making of sacrifices.

4.2.8 *Look to it for advice*

Looking to something for advice is a positive thing when the entity is allowed to shed light on good principles. When this happens, policy is set around the noble cause because it helps achieve justice, peace and prosperity for everyone in society. In relation to e-government, this would mean the government listening to society to understand what society needs (and asks for) and working towards achieving it. The government listening to society is giving what is due to it. This indicates the juridical aspect.

Looking to something is a retrograde step when we unquestioningly allow the entity to dictate what we ought to do. Here the idol dictates not only what society ought to do in its service, but also how to conduct life in general. This means that commitment to the idol has blurred our logic and we do not examine the good and bad of the advice granted to us by the idol. Blurring of our logic indicates the lingual aspect, functioning negatively because commitment to the idol prevents proper understanding.

4.2.9 *Worship*

When we uphold the value of a noble cause and are committed to it, this is a positive step. Commitment indicates the pistic aspect. Hosman (2010) describes the case of a school in Uganda which was committed to providing computer training and improving the ICT skills of its pupils'. The school was able to successfully set up a computer lab for this purpose, despite constraints such as lack of adequate funding and unreliable power supply. Such commitment to a noble cause without any idolization of the technology itself brings about positive change.

The negative side of worship is absolutization of the cause. So commitment to the cause is not in service of a further greater good because an end in itself. In doing so, we resist what is good and noble. Here too, there is commitment. But the commitment is akin to absolutization and indicates the pistic aspect working

negatively.

Table 3 - Dooyeweerd's aspects applied to Goudzwaard's notion of idolatry

Goudzwaard's phrase	Aspect on the Positive side	Aspect on the Negative side
Severing	Analytical	Analytical
Refashioning	Formative	Formative
Erect in a special place	Analytical	Juridical
Ritual consecration	Lingual	Lingual
Kneeling	Pistic	Pistic
Life of its own	Juridical	Ethical
Sacrifices	Ethical	Juridical
Look to it for advice	Juridical	Lingual
Worship	Pistic	Pistic

Table 3 – Dooyeweerd's aspects applied to Goudzwaard's notion of idolatry

4.2.10 *Summary*
Table 3 summarises the above, showing Dooyweerd's aspects are related to each of Goudzwaard's phrases

5. *Discussion & conclusion*
This paper has so far shown how Dooyweerd's aspects are related to Goudzwaard's notion of idolatry. In doing so, this paper has sought to further one's understanding of how idolatry operates in relation to ICT and e-government, in particular. This analysis of idolatry is important because it shows how the discussion on the problems and failure of e-government may be taken forward. It has already been shown that Goudzwaard's notion of idolatry provides an excellent explanation of the problems (or negatives) of e-government. That being so, the question arises as to why we need to introduce aspects into this discussion?

To be a suitable theoretical framework for analytical use in the IS discipline, the framework should be able to explain both the positives and negatives. In other words, the framework should be able to explain the problems and show why and how the problems arise. The latter then points to a potential solution. In relation to e-government, idolatry provides an excellent explanation of the problems. It points to a fundamental reason who projects fail. As Krishnan Harihara & Basden (2010) have shown, some ICT initiatives do succeed. ICT and e-government indeed offer the potential to bringing about positive change in society. A common theme in the successful

Table 4 - Clarifying the meaning of Goudzwaard's phrases

Goudzwaard's phrase	Positive impact	Negative impact
Severing	Distinction	Decrying the original
Refashioning	Improvement, innovation	Forcing the context
Erect in a special place	Treat as important	Grant undue power and privilege
Consecration	Declare and accept worth	Symbolic proclamation
Kneeling	Commitment	Slavery
Life of its own	Grant resources	Usurp resources
Bring sacrifices	Self-sacrifice	Sacrifice others
Look for advice	Shed light on principles	Distortion
Worship	Uphold the value	Absolutization

Table 4 – Clarifying the meaning of Goudzwaard's phrases

projects is the lack of idolatry. But we believe that saying that lack of idolatry contributes to success, although quite correct, is only a partial explanation. Bringing aspects into this discussion shows how the positives might emerge through multi aspectual functioning. Thus this paper points to a potential solution to how the problem of idolatry may be overcome.

Yet another contribution of this paper is that it clarifies the meaning of the phrases Goudzwaard has used to define idolatry. The authors believe that the ideas presented in the following table could not have been arrived at without referring to Dooyweerd's aspects.

This paper makes a number of contributions. First, it adds to Krishnan Harihara & Basden (2010) by showing how idolatry explains the negatives or problems in e-government. It also clarifies the meaning of each of Goudzwaard's phrases by using aspects. Finally, it shows how Dooyweerd's aspects enrich the discussion on idolatry in relation to e-government because of its ability to explain both the positives and negatives side of e-government.

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