New Inquiring Systems as Kernel Theories for Knowledge Management: The Case of the SenseMan System

James L. Parrish, Jr.
Nova Southeastern University
jparrish@nova.edu

James F. Courtney
Louisiana Tech University
courtney@latech.edu

Abstract
This paper details a conceptual extension of inquiring systems to help in environments of high complexity and uncertainty that is based on the concept of sensemaking. The conceptual inquiring system was then used as a kernel theory to guide the design of a knowledge management system designed to assist a local government agency with knowledge management issues in a complex, uncertain software environment. Both the conceptual system and the knowledge management system are discussed as well as an evaluation of the systems efficacy in promoting sensemaking in the organization.

1. Introduction
The debate on whether or not information systems (IS) research is relevant to practice is a long standing one in the field that has yet to be fully resolved. This is evidenced by fairly recent articles where some senior scholars in the field fear that IS researchers are not keeping pace with the technology-supported transformational efforts in practice [1] and where others feel the field is adequately addressing issues important to practice, but more research needs to be done to study how that knowledge is best transferred to the practitioner audience [2]. While this is not the place to recount the entire legacy of the “rigor versus relevance” argument, we bring it up here to introduce a piece of IS research that was transferred into practice as a way to solve a particular knowledge management problem for an organization.

The idea behind the research was inspired by the issues that a local government entity was experiencing related to the high levels of complexity and uncertainty related to changes in their software systems. This complexity and uncertainty lead to the researchers to first propose an extension to the long standing notion of inquiring systems that could be used as a kernel theory for the design of a knowledge management system (KMS). This kernel theory then, in turn, was utilized to create an IT artifact named “SenseMan” that was designed to assist with their software change management issues.

As stated earlier, the organization in question is a local government entity that is charged with keeping the records for the courts and for the general public for a county of about 150,000 residents in the southeastern United States. In addition to the record keeping function they also served the function of comptroller for the county, thus having the responsibility of the county’s finances. To fulfill these responsibilities, the organization took on a functional structure that included different departments for finance, court records, and public records. These departments tended to perform their work from a silo perspective given the focus of their responsibilities, meaning that each department functions on its specialty while paying little attention to what goes on in the other areas. This silo perspective was exacerbated by the fact that each department was located in a different geographic location within the downtown area of the city in which the agency was located.

The silo perspective was also evident in the IT decision-making of the agency. Each department was responsible for choosing the software that it would use to carry out its responsibilities. IT personnel were brought in to consult on the choices of software, but the final decisions were made by the departments. When updates were made to the software packages that the departments had chosen, the testing was performed by the users of the application, and overseen by a supervisor from the departmental area and a project manager from IT. While the testing for the application updates was robust, because of time and resource constraints, the application was not generally tested to see if it impacted the applications of the other functional areas unless it was specified in the release notes for the update.
While the organizational and IT structures of
the agency could lead one to believe that the different
functional areas had little interdependence, the reality
of the situation was much the contrary. Many civil
court documents were also placed in the public
record. Additionally, fines and fees generated by the
Court and Public Records groups were accounted for
by the Finance group. This interdependence of
functions coupled with the silo perspective lead to an
IT architecture of disparate proprietary information
systems that were loosely coupled via middleware
and application interfaces. Thus, each change to one
application could almost be viewed as a unique event
with the result of making a change in one of the
systems possibly having unintended and unforeseen
consequences in multiple other systems. This is why
knowledge management related to the changes to the
software applications were of such importance to the
organization.

As this particular track is dedicated to
“reports from the field,” much of the focus in this
paper will be dedicated to a description of the design
artifact and not on a detailed description of the
conceptual foundations and methodologies that we
used to extend inquiring systems that would be
typical in a more theoretically-focused paper. That
being said, the next section of this paper will discuss
how the SenseMan system came into being by
presenting a brief discussion of the theoretical
foundations of the system and the inquiring system
that served as the kernel theory for the creation of
SenseMan We will then discuss the system itself and
its efficacy in assisting with the knowledge
management issues related to changing and updating
software applications in the complex environment in
which it was implemented.

2. Theoretical Foundations

From a theoretical perspective, the
SenseMan system is founded in the idea of inquiring
systems. Inquiring systems have been advanced as
kernel theories for knowledge management systems
(KMS) [3, 4] and templates [5] for KMS design. Additionally, frameworks have been based on the
inquirers to guide research in knowledge
management [6] and to improve the success of
information systems development projects [7]. While
an inquiring system does exist to assist with
knowledge management in complex situations (a full
review of the inquirers can be found in [3, 5]), the
feelings of the people in the organization that each
time one of the software applications was updated
presented a unique set of circumstances leading us to
believe that all of the five inquirers presented in [8]
were not sufficient to guide the construction of an
effective artifact and that a new inquirer would have
to be created.

Of course, this meant that we would have to
seek out a new epistemology on which to base our
new inquirer. After an extensive search, we felt that
the notion of organizational sensemaking as espoused
by Karl Weick [9] was best suited for the task. In the
remainder of this section, we discuss each of these
concepts in more detail.

2.1. Inquiring Systems

Because the central figure in The Design of
Inquiring Systems is the designer, Churchman leaves
it up to the designer to choose whether something is a
system or not. However, according to Churchman,
for something to be conceptualized as a system, it
must at least meet the following basic criteria [8, 10]:

1. It must be teleological, meaning that it must
   exist to serve some goal.
2. It must have a measure of performance that
   describes how well the system actually
   performs with regards to its goal.
3. It serves a client in such a way that the better
   the system performs, the better the interests
   of the client are served.
4. It is comprised of goal seeking components
   that have their own measures of
   performance and that together serve to co-
   produce the measure of performance for the
   entire system.
5. The system has an environment that also
   serves to co-produce the measure of
   performance of the whole system.
6. It has a decision maker that can produce
   changes in the measures of performance via
   system resources, and by doing so, can
   produce changes in the measure of
   performance for the whole system.
7. It has a designer that conceptualizes the
   system in such a manner that the concepts
   that the designer presents could cause the
   changes to be made by the decision maker
   and, therefore, affect the measure of
   performance.
8. The goal of the designer is to design the
   system in such a way that it maximizes its
   value to the client.
9. There is a guarantee that the goals of the
designer are ultimately realizable.
After presenting this list of criteria, Churchman states that even though they are all necessary for something to be called a system, he wonders if they are also sufficient. He states that the question of sufficiency is one of the basic questions addressed in [8]. As we move forward in this paper we will revisit these criteria in order to see if the work of Weick can be considered an appropriate basis for an inquiring system.

2.2. Sensemaking

Weick’s concept of sensemaking quite literally means “the making of sense.” More specifically, it attempts to rationalize what is happening through the ongoing retrospective development of plausible images of the world [11]. Sensemaking occurs when there is a variance between the expected and perceived states of the environment or where there is no obvious way to engage the environment [11]. Weick’s variation of sensemaking is built on the application of evolutionary epistemology to social life by Donald Campbell [12] which proposes that the evolutionary process of sensemaking involves the construction of retrospective interpretations through the interdependent interactions of an actor with its environment.

In [9], Weick does not provide any hard and fast procedures for how sensemaking should be performed. He does, however, give us seven guidelines for the sensemaking. The principles of sensemaking are summarized in Table 1 below.

Table 1: Principles of sensemaking [9, 13]

<table>
<thead>
<tr>
<th>Grounded in Identity Construction</th>
<th>A sensemaker is needed and the results are based on the perspective of that sensemaker.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrospective</td>
<td>Accounts of the present are made possible by reflecting on the past.</td>
</tr>
<tr>
<td>Enacts Sensible Environments</td>
<td>The sensemaker can partially influence his or her future environment.</td>
</tr>
<tr>
<td>Social</td>
<td>Our interactions with others shape the results of our sensemaking.</td>
</tr>
<tr>
<td>Ongoing</td>
<td>There is no stopping rule for sensemaking.</td>
</tr>
<tr>
<td>Based on Extracted Cues</td>
<td>We will choose to focus on certain cues out of the many potential cues that exist in our environment.</td>
</tr>
<tr>
<td>Focused on plausibility rather than accuracy</td>
<td>Finding the exact true answer is not the goal in sensemaking, we just need to find something that is plausible.</td>
</tr>
</tbody>
</table>

In addition to being a relevant foundation for dealing with the type of complexity and uncertainty faced by the organization in this paper, sensemaking also has a rich history in the IS literature. Choo [1996] states that it is one of the three strategic uses for information in organizations, along with decision making and knowledge creation, and is used to assign meaning to organizational actions and events. Swanson and Ramiller [14] posit that sensemaking is central to the creation of what they call an “organizing vision” that guides the diffusion of an IS innovation through both its early and late stages. Taking a line from Weick, they state that the organizing vision that is based on sensemaking “talks the walk” with regard to the IS innovation and, without it, the IS innovation is doomed to be misunderstood [14].

The argument has been made for the expansion of the paradigms governing the development of artificial intelligence and expert systems to include the human sensemaking processes that he believes are complementary to the learning processes of machines [15]. This argument advocates a knowledge management paradigm that includes sensemaking and allows for the construction of meaning and action based on human creativity and interpretation instead of accepting the static meaning of the information in knowledge management systems based on the old paradigm. This static meaning leads to pre-programmed actions and is not reflective of the reality of today’s organizational environments. Malhotra [16] argues that non-reflection of reality is a reason why KMS fail. Weick and Meader [17] stated that the varying results in studies of Group Support Systems (GSS) may be because of misplaced focus instead of the methodological shortcomings that had often been deemed the reason. They believed that the focus should not be on the decision, but rather on defining the questions. Because the focus has always been on the decision, most GSS only peripherally support sensemaking. Weick and Meader offer five strategies that can be employed in GSS to enhance sensemaking: action, triangulation, deliberation, contextualization, and affiliation. These strategies, described in Table 2, were incorporated into SenseMan in order to help reduce complexity and uncertainty.

Table 2: Strategies to enhance sensemaking [17]

<table>
<thead>
<tr>
<th>Sensemaking Strategy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>Trial and error experimentation to learn</td>
</tr>
</tbody>
</table>
about the environment and how it behaves.

<table>
<thead>
<tr>
<th>Theory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangulation</td>
<td>Using data from a variety of sources to overcome deficiencies in the single perspective presented by a single data source.</td>
</tr>
<tr>
<td>Affiliation</td>
<td>Resolving confusion and learning about the environment by reconciling others views of the environment with their own.</td>
</tr>
<tr>
<td>Deliberation</td>
<td>A slow process that involves processing feedback and using more recent events to reinterpret earlier ones. The process eventually leads to a clear picture of an environment that was once quite confusing.</td>
</tr>
<tr>
<td>Contextualization</td>
<td>Relating organizational events or environments that are better understood to those that are not as well understood to provide meaning. Labels, metaphors and platitudes are often the tools used to achieve this process.</td>
</tr>
</tbody>
</table>

As stated earlier, these two principles formed the theoretical foundation for a new type of inquiring system. In keeping with the tradition of naming the inquiring system after the person whose epistemology it was built upon, we named our new system the Weickian inquiring system. In the next section, we describe the Weickian inquiring system at a conceptual level.

4. The Weickian Inquirer

The Weickian inquirer works from the epistemological premise that knowledge is created through taking in cues from our environment and formulating retrospective accounts to explain some phenomena. This process begins with the sensemaker [individual or organization] coming into contact with some overly complex or dynamic situation that precludes taking action, either because it is uncertain how or where to begin taking action or because the situation is far away from what it is expected to be. This causes the sensemaker to engage in one or many sensemaking strategies (action, triangulation, affiliation, deliberation, or contextualization) proposed by Weick and Meader [17] in order to create a plausible account that will allow action to be taken.

However, much like the Singerian inquiring system, the process does not end here. The plausible account is refined through the social interactions of the sensemaker and the increased experience the sensemaker has with the environment, which allows for the extraction of more cues and reinterpretation of existing ones. This process differs from the Singerian inquiring system in that there is not a defined measurement model that is used to evaluate the phenomena and then refined by “sweeping-in” new variables after it has been found to be inadequate. Rather, the Weickian inquiring system creates an approximation in the form of a plausible retrospective account that is continually refined that is not just confined to the “sweeping-in” of new variables. So, it can be said that this conceptualization of the Weickian inquiring system is true to its epistemology in that it is constantly evolving. The Weickian inquiring system is depicted graphically in Figure 1, below.

5. The SenseMan System

As presented earlier the SenseMan system is a KMS created to assist a local government agency with managing changes to disparate yet interdependent software applications. This section presents the application in the context of the features of inquiring systems (given, input, process, output, and guarantor) and more specifically how the KMS is illustrative of the features of the Weickian inquiring system kernel theory which guided its design. In general, the system is designed to communicate events happening in the computing environments of the disparate applications as well as those that are happening in the general environment to the users of the system via information feeds and to collect plausible accounts related to those events, which are then rated by others as to their plausibility.

In the terms of the Weickian inquiring system, the system takes in the inputs of the change management events that are happening in the organization with respect to the applications and information about what is happening in the organization’s environment. Examples of these inputs could be a scheduled update of the software (a change management event) or construction in the area (an event in the organization’s environment). The given in the system is that the system’s users possess some level of retrospective knowledge that
they can draw upon. This knowledge could be in the form of experiences that they have had that relate to the change management event, or in the form of data stored in the system about earlier change management events.

The inputs and the given in the system provide the fuel for the sensemaking process to take place. For example, an employee in the Finance group may see via an information feed that an update in a program used in the Courts area is scheduled to be updated at the same time as their end of period reporting. They triangulated the data from the feed about the update with the data about the end of period reporting and created a plausible account of the environment that stated that proceeding with the update to the Courts software may cause issues with the reporting because they knew that the Courts software reported financial data. They then input this account into the system to be shared and reviewed by others in the organization, who would rate the plausibility of the account. The organization would then take action based on the account if there was general majority consensus that it made sense to do so.

Other sensemaking process strategies are supported by the system as well. The events and their associated accounts are kept in a shared, searchable database to allow for deliberation and contextualization. The searchable database makes deliberation possible by allowing users to access earlier events so that they can be reinterpreted in light of more recent ones allowing for a clearer picture of the past event. Once these events are better understood, they can be accessed to assist with contextualization. This is accomplished by relating the better understood events that result from deliberation and other sensemaking processes to those events that are not understood to provide some form of meaning. Additionally, affiliation is supported by allowing other employees to view the sensemaking accounts of the users of the system, thus assisting them with reconciling the accounts of others with their own accounts. Action is not explicitly supported in the system, since the intent is to avoid change management lessons via trial and error.

The outputs of the system are the sensemaking accounts that were provided by the users. These accounts are subject to the system’s guarantor, which is a general level of consensus that the accounts
that are created by the users are indeed plausible. This is accomplished by allowing everyone in the organization to rate the accounts as to how plausible they feel the accounts are. We feel that this is an appropriate method of assuring the plausibility of the accounts given that Weick deemed that while sensemakers were individuals, the majority of sensemakers in the community ruled on whether the sense that they made was valid [18]. Having provided this overview of the implemented system, we now move on to a discussion of its efficacy in reducing the uncertainty and complexity associated with the software updates of the organization.

6. System Effectiveness

6.1. Methodology

Sensemaking is designed to assist with tasks that are filled with uncertainty and complexity [19]. Additionally, in describing sensemaking, Maltis [20] states that “…sensemaking allows people to deal with uncertainty and ambiguity by creating accounts that enable action (p.21)”. So despite the fact that there is no measure for sensemaking, we can use the reduction in complexity as a proxy measure to evaluate the ability of the KMS to support sensemaking.

The measure that was used in our study is a measure of perceived uncertainty from Boyd and Fulk [21]. Boyd and Fulk used their measure to build a model to evaluate the effects of perceived uncertainty on environmental scanning, which has been noted as a sensemaking process [22, 23]. The measure separates the construct of perceived uncertainty along two independent dimensions. The first dimension is perceived variability which is concerned with the rate and strength of change in the context being studied. The second dimension is perceived complexity which is a complex construct comprised of the following items discussed earlier in the introductory section and presented here again:

- Perceived Adequacy of Information – Do the participants believe that they have access to enough information about the environment to reduce complexity?
- Perceived Analyzability – This measures the participant’s perceptions on their ability to understand the cause and effect relationships that take place in an environment as a result of taking some action.
- Perceived Predictability – How do the participants feel about their abilities to identify environmental forces that may affect the organization and about their ability to know what those effects may be?

To assess the reduction in perceived uncertainty and complexity, the users of the system were evaluated via survey research involving a pretest to assess levels of the variables being measured before treatment and then a posttest after a period of 6 weeks to assess levels of the measured variables after the treatment. Participants in the study were allowed to self-select participation in the experiment. Since the sample is not based on full random assignment, the study is classified as a quasi-experiment.

In addition to providing the measure of perceived uncertainty used in this study, the results of the Boyd and Fulk [21] study greatly assisted in the formulation of the hypotheses that will be tested. In their study, Boyd and Fulk found that the sensemaking process of scanning decreased when complexity increased. This is consistent with the writings of Weick [9, 24] who found that in complex environments sensemakers tended to turn to familiar data sources that would eventually mislead them. Additionally, as Boyd and Fulk deconstructed the measure of perceived uncertainty into the components of perceived variability and perceived complexity, this study has deconstructed the perceived complexity measure into its constituent parts to examine the effect that our system design has on perceived adequacy of information, perceived analyzability, and perceived predictability individually as we thought it better to assess the efficacy of the design [21].

This being the case, the hypotheses for the study are:

- H1: System use will cause a posttest increase in perceived adequacy of information for understanding with regards to software updates over the pretest levels.
- H2: System use will cause a posttest increase in perceived analyzability of events with regards to software updates over the pretest levels.
- H3: System use will cause a posttest increase in perceived predictability of events with regards to software updates over the pretest levels.

Since Boyd and Fulk found no connection between perceived variability and environmental scanning, it can be inferred that there should be no connection between sensemaking and scanning as well [21]. The fact that there should be no change in the measure of perceived variability allows us to use it as
the non-equivalent dependent variable in the analysis and also leads us to our final hypothesis.

- H4: There will be no difference between the pretest and posttest levels of perceived variability of the software updates.

Since the same instrument and sample population were used to assess both pretest and posttest levels of the measured variables, repeated measures ANOVA was deemed to be the appropriate statistical methodology to analyze this type of panel data. Much like the regular ANOVA procedure, repeated measures tests the equality of means. However, because the standard ANOVA procedure fails to measure the correlation between the repeated measures because it violates the assumption of independence of the procedure. Therefore, repeated measures ANOVA is used because it does not have this assumption. Moreover, repeated measures was deemed appropriate because it is less sensitive to large error variances when there variation in the sample population and it is more efficient when participants are difficult to recruit [25].

Our data collection efforts resulted in a sample population of 66 completed pre-test and post-test surveys. The next section will detail the results of our analysis for each of the measured variables and also any interaction effects with the nonequivalent dependent variable.

6.2. Results

6.2.1. Perceived variability

To effectively carry out our experimental design with the nonequivalent dependent variable, we first examined pre-test and post-test levels of perceived variability as reported by the survey participants to see if it was not affected by the treatment. Despite our expectations, the participants did have a change in their perceptions of variability regarding software updates to a statistically significant degree (F = 6.716, p = .012).

Now that we have seen that the participant’s perceptions on the variability of software updates have changed, we can now refer to the descriptive statistics in Table 3 below to determine how they changed.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest_PV</td>
<td>2.6040</td>
<td>.71549</td>
<td>66</td>
</tr>
<tr>
<td>Posttest_PV</td>
<td>2.8128</td>
<td>.74507</td>
<td>66</td>
</tr>
</tbody>
</table>

An examination of the pre-test versus the post-test means of the participant responses regarding their perceptions on variability show that despite the fact that they still somewhat disagree that there is not much variability with their software updates, they do feel that it is more variable now than before their experiences with the system. That being said, H4 is not supported by the data that we collected.

6.2.2. Perceived adequacy of information

The analysis for perceived adequacy of information was not nearly as interesting as it much more closely followed our expectations. The repeated measures analysis did reveal a statistically significant difference between the participant’s perceptions on the adequacy of their information regarding software updates after using the SenseMan system (F = 11.011, p = .001).

An examination of the descriptive statistics for this construct supports the hypothesis that the users of the system would perceive an increase of their adequacy of information as evidenced in Table 4 below.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest_PAI</td>
<td>3.0367</td>
<td>.85376</td>
<td>66</td>
</tr>
<tr>
<td>Posttest_PAI</td>
<td>3.3568</td>
<td>.85951</td>
<td>66</td>
</tr>
</tbody>
</table>

According to the change in the mean for PAI, it seems that the participants are more likely to feel that the information that they have regarding software updates is at least acceptable, whereas they were almost neutral on the subject when they responded to the pretest assessment.

6.2.3. Perceived analyzability

The analysis results for perceived analyzability also were in alignment with our expectations. The participants in the study reported a statistically significant change in their perceptions about their ability to detect cause and effect relationships regarding their software updates (F = 10.990, p = .002).

To determine the direction of the change, the descriptive statistics were consulted in Table 21 below. An examination of the means shows that the participants feel better about their ability to detect cause and effect relationships in software updates after
using the system. In fact, participants feel fairly neutral about their ability to detect these relationships whereas they had a more negative feeling about the same ability on the pre-test. Because there was a significant change in in perceived analyzability and because the change was in the hypothesized direction, we can say that there is evidence to support the second hypothesis, H2.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest_PA</td>
<td>2.8226</td>
<td>.97009</td>
<td>66</td>
</tr>
<tr>
<td>Posttest_PA</td>
<td>3.0970</td>
<td>.83408</td>
<td>66</td>
</tr>
</tbody>
</table>

6.2.4. Perceived predictability

As described earlier in the paper, perceived predictability is a measure of the participant’s feelings about their ability to detect items in their environment that may affect a software update. In the context of this study, the participants did report a statistically significant change in their ability to detect these items in the environment ($F = 13.493, p < .001$). A review of the pre-test and post-test means for the construct reveals that the change that the participant’s reported was in the hypothesized direction, thus providing evidentiary support for H3.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest_PP</td>
<td>2.6248</td>
<td>.66997</td>
<td>66</td>
</tr>
<tr>
<td>Posttest_PP</td>
<td>2.9091</td>
<td>.74436</td>
<td>66</td>
</tr>
</tbody>
</table>

7. Discussion

The results of our study show that the system did have a positive effect on all of the variables in question with respect to all of the variables measured in the study. We can then conclude that the SenseMan KMS was at least effective in reducing the perceived complexity associated with software updates in the survey respondents that interacted with it over the 6 week period. This seems to indicate that the system did facilitate sensemaking in the users to some degree.

One surprising finding from our study is that the users also perceived that there was more variability in their updates after using the system over the 6 week period. One possible explanation for this is that they may have not been aware of every update that was scheduled to take place before using the system. If this is the case, we might expect that this is a short-term effect and that the perceived variability of the users with respect to software updates might return to near pre-test levels after a longer period of time. However, more data collection would be required to validate the plausibility of that rationale.

8. Conclusion and future work

As stated earlier, this study was not intended to serve as a contribution to the “rigor versus relevance” argument. Rather, we hope that it will stand as an example of how theoretical information systems research can be applied to inform the design of information systems that can assist organizations with solving difficult problems. That being said, this study makes contributions to both theory and practice.

The contributions to theory can be found first can be found in the extension of inquiring systems. While inquiring systems have received much coverage in the IS literature, little has been done to build upon the original five inquirers. While we feel that the underlying systems concepts of Churchman’s inquirers are timeless, we also felt that it was time to expand the epistemological foundations of the inquiring systems, especially given the dramatic increase in the complexity of the business environment since Churchman originally conceived his inquirers. Given this dramatic complexity, sensemaking seemed like the perfect vehicle to make this extension happen.

A second contribution can be found in the demonstration of an inquiring system as a kernel theory for KMS design. Other studies have taken existing KMS and mapped their elements back to the inquirers, thus demonstrating their potential utility as kernel theories. This study, to our knowledge, is the first to take an inquiring system and use it to create a new type of KMS. Therefore, this study makes the contribution of demonstrating the actual utility of inquiring systems as kernel theory for KMS.

With respect to practice, our study makes the contribution of a new type of KMS designed to facilitate sensemaking in individuals and organizations. Furthermore, it may help practice to look differently upon IS research as a vehicle on which to base future system designs.

As far as future research is concerned, we would hope that this study will make the call to other researchers that the notion of inquiring systems are still very relevant in the IS research arena, if we broaden our horizons beyond the original five inquirers and look to new epistemologies to increase their relevance in today’s hypercomplex and hyperconnected world.
Of course, much of these expansions fall into the realm of design science research or theory building, which are very difficult areas to work within, indeed. However, we feel that this type of work is necessary in order to advance our discipline into the future and we hope that others will heed this call.

10. References