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The Guided Innovation Model: Messy Human Innovation

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Abstract. This paper outlines the theoretical foundation and framework for the Guided Innovation Model, which puts nonprofit organizations in a position to increase innovation through the application of Knowledge Management tools. This is facilitated by information and knowledge professionals. It also outlines a suggested approach for implementation of the model. The purpose of the paper is to provide an in-depth foundation which future work can build upon in specific contexts. Given the complexity and constancy of social change, nonprofits must continually innovate to meet the needs of their community. This model provides a framework for how they can do this without extensive technological investment. In doing so, it also provides a unique approach to research itself that repositions research roles, modalities and knowledge transfer. Once a social need is identified, representatives from the various nonprofit groups that play a role in addressing the need are brought together. This group is a Complex Adaptive System (CAS), which has implications for how it adapts, the role of the unique agents within it, and the nature of predictability. A Community of Practice is intentionally designed to allow room for the full expression of each of these natural CAS elements. It does this while simultaneously manipulating control parameters that move the system closer to the edge of chaos where innovation happens (Stacey, 1996). The CoP meets regularly to identify existing information about a shared practice, engage in a culture of sharing and knowledge pooling that promotes idea generation, and experiment with these ideas through the shared practice. In doing so, it innovates to better meet the identified community need.

Keywords

Innovation, Communities of Practice, Complex Adaptive Systems

1. Introduction

The current paper outlines the theoretical foundation and framework for the proposed Guided Innovation Model, which puts nonprofit organizations in a position to increase innovation through the application of Knowledge Management (KM) principles. Innovation is still relatively new territory for nonprofits (Choi & Choi, 2014), and research on innovation in this sector is limited (Jaskyte, 2011). Conceptualized in theories of Complex Adaptive Systems (CAS)—and operationalized in Communities of Practice (CoP)—the Guided Innovation Model provides a loose framework that can be applied to cross-organizational innovative efforts. The purpose of the model is to provide a foundation upon which future work can build to help nonprofits increase innovation.

Rather than provide quick answers and a rigid series of steps, the proposed model outlines propositions that link nonprofit organizations, CASs, innovation, and CoPs. It then outlines a loose structure for facilitation—all done in small groups of individuals thinking and acting together to improve their communities. Facilitators of the model identify a social need. Once a need is identified, representatives from the various nonprofit groups that play a role in addressing the need are brought together. This group is itself a CAS, which has implications for how it adapts, the role of the unique agents within it, and the nature of predictability. A CoP is intentionally designed to allow room for the full expression of each of these natural CAS elements. It does this while simultaneously manipulating control parameters that move the system closer to the edge of chaos where innovation happens (Stacey, 1996). The CoP meets regularly to identify existing information about a shared practice, engage in a culture of sharing and knowledge pooling that promotes idea generation, and experiment with these ideas through the shared practice. In doing so, it innovates to better meet the identified community need.

The following are the goals of the current paper and the proposed Guided Innovation Model:

1. Conceptualize and operationalize innovation in CAS.
2. Underscore the role of information and knowledge professionals in addressing community needs and facilitating social innovation.
3. Help nonprofits create contextual and feasible solutions to increase a population's power, agency, and quality of life.
4. Engage nonprofits in more doing and implementation, moving away from the paralysis of over-thinking.
5. Strategically tie nonprofit innovation more closely with critical knowledge needs and organizational goals.
6. Ensure that innovations are guided by a consideration of social justice.
7. Encourage a questioning of simple best practices and the adoption of more complex innovations.
8. Expand the collaborative, working network of nonprofits.
9. Increase a nonprofit's ability to meet its goals and objectives regarding its target population.

Information and knowledge professionals are ideally situated to facilitate the innovation in this model, extending their reach further into the nonprofit sector as leaders and collaborators. Trained in the life cycle of knowledge (McElroy, 2000) and its value within organizational and community systems, these professionals are situated to ensure that each part of that life cycle is fully engaged. For instance, those not familiar with the cycle could easily forget valuable feedback loops or the importance of group refinement of individual ideas. These professionals

are also often situated within a Library and Information Science (LIS) discipline that is intentionally focusing on this type of facilitation in its professional practice—noted in Lankes' (2011) mission statement for librarians: "To improve society through facilitating knowledge creation in their communities" (p. 15). In addition, they are often trained in search and cataloging approaches to help these systems effectively and efficiently locate and organize the existing canon of information about certain topics.

The current paper will first outline the literature related to nonprofits, innovation and CASs. This existing research has important implications for how innovation is conceptualized within these organizations. This conceptualization then directs how innovation is operationalized. As such, the paper will outline literature on control parameters for CASs, productive inquiry (PI), and CoPs. The paper then describes the full Guided Innovation Model, coming out of the prior discussions. This includes an outline of a guidebook for CoPs to encourage innovation. Attention then shifts to the facilitation of the model by researchers and practitioners. This includes an outline of a potential process. Finally, specific measurement approaches are then outlined to guide future research in establishing the validity and effectiveness of the model.

2. Literature Review

2.1. *Nonprofit organizations*

The Guided Innovation Model is intended for application in nonprofit organizations. The nature of these organizations is unique. They are focused on "creating social value for society . . . and do not recognize as their main goal the creation of profit for stockholders" (Lettieri, Borga, & Savoldelli, 2004, p. 16). These organizations seek to "satisfy certain needs that are not adequately met by either the private or public sector" (McDonald, 2007, p. 257). As they fill

these gaps, they face a continuously shifting and changing landscape to which they must adapt. Nonprofits often feel the need to be more innovative than for-profit organizations (Weerawardena & Mort, 2012) and continuously improve (Lettieri et al, 2004).

The innovation that occurs within nonprofits is also unique. They are engaged in *social* innovation, which aims to improve quality or quantity of life (Pol & Ville, 2009). As defined by the John Hopkins Nonprofit Listening Post Project: "An 'innovative' program or service is a new or different way to address a societal problem or pursue a charitable mission that is more effective, efficient, sustainable, or just than prevailing approaches" (Salamon, Geller, & Mengel, 2010, p. 2). This can include new products, new processes, and broader shifts in increased inclusion or changed public perception (Shier & Handy, 2015). Sometimes, innovation is simply reinvention, as it is modified by the adopter as it is implemented, the goals of its use potentially changed, and parts of it rejected (Rice & Rogers, 1980). Other times, it is more radical and moves a system into a new "space of possibilities" (Carlisle & McMillan, 2006, p. 6). The essence of innovation is a move away from reliance on what Brown and Duguid (1991) called canonical practices, and a move toward both the realization and development of noncanonical knowledge (p. 46). It requires the challenging of "traditional methods of service delivery" when "systemic issues in society go unaddressed" (Shier & Graham, 2013, p. 401)

Drucker (1989) established that nonprofits are knowledge organizations, suggesting that they are home to volunteers who are "knowledge workers in the jobs in which they earn their living, and they want to be knowledge workers in the jobs in which they contribute to society" (Drucker, 1989, n.p.). The application of KM to innovation in nonprofits, then, is fitting. McElroy's (2000) knowledge life cycle clearly articulates one model for how knowledge is created, i.e. how innovation occurs. Knowledge creation begins with individuals as they sense a

tension between what they know and what is currently happening. They discuss this tension in groups, where it is refined into an innovative idea or *knowledge claim*. After going through certain structural authoritative processes, it is disseminated and implemented into actual practices and symbols within the system. Feedback about the value and potential success of this implementation becomes fodder for new knowledge claims, thus restarting the life cycle: "So the whole process then repeats itself, continuously and recursively" (McElroy, 2000, p. 47). The Guided Innovation Model furthers McElroy's model by bringing in additional theoretical assumptions. In addition, it outlines an approach for facilitating—rather than merely describing—knowledge creation.

A particularly important element of nonprofit innovation is collaboration. Rathi, Given, & Forcier (2014) found that collaborating nonprofits—as they share practices and expertise with one another—often appear to be different departments within a unified global organization. This is supported by McDonald's (2007) work with hospitals, where one senior VP noted, "I'm not in a competitive business. I don't keep secrets from them, nor do they keep them from me" (p. 264). These collaborative activities tend to be abundant among nonprofits, though some resist because of the perceived loss of autonomy and control (Proulx, Hager, & Klein, 2014). Yet, this collaborative sharing is often insufficient. Given the pace of social change, these organizations often do not have the time to wait for an idea to be created externally, shared with them, and gradually adopted. Instead, "people need to feel sure that they are allowed to spend time on overcoming the difficulties associated with doing things differently" (Corfield & Paton, 2016, p. 94). And this is done collectively, as groups "allow the socialization of individuals and support the solution of doubts and disputes" (Zapata Cantu & Mandragon, 2016, p. 76). Collaboration, then, needs to be innovative.

Nonprofits tend to lack the support structures for knowledge creation that other sectors enjoy (Kong, 2015). Although research into nonprofit innovation is limited, the research that does exist on knowledge creation within nonprofits tends to be less than optimistic. Downes and Marchant (2016) looked at the extent to which community services organizations engaged in various KM activities. Although they scored above the midpoint in all, the composite measure of knowledge creation was the lowest of the KM activities: "Knowledge creation was conducted at a pedestrian level" (Downes & Marchant, 2016, p. 60). However, there is a clear willingness among these organizations to introduce new services and programs (Jaskeyte, 2011). They also lack certain restraints that have allowed them to become a "laboratory for experimentation and risk taking, a place where new ideas are tested and evaluated" (Frumkin, 2005, p. 32). This is the justification for focusing the Guided Innovation Model within nonprofits.

2.2. *Complex adaptive systems*

The Guided Innovation Model, in addition to being directed at nonprofit organizations, is developed in light of the nature of CASs. Nonprofit organizations—like any human social system—can be described as a CAS. A CAS is made up of "living, independent agents . . . [who] self-organize and continuously fit themselves, individually and collectively, to ever-changing conditions in their environment" (McElroy, 2000, p. 48). For the Guided Innovation Model to spark innovation, it must be developed with a clear understanding of the nature of CASs. In particular, three elements that make up their very nature must be considered: adaptivity, unique agents, and unpredictability.

2.2.1. Adaptivity

CASs continuously attempt to increase their fit within the surrounding landscape. This includes adapting to shifting social needs and policy changes. It also includes an awareness of what

similar organizations are doing, in a competition for donations and public awareness that "drives [nonprofits] to achieve greater success" (Rathi et al., 2014, p. 875). These landscapes are rugged, requiring systems to "search the whole space . . . methodically, trying out each square meter, to find the peak (Kaufman, 1995, p. 155). Thus, adaptation is inherently messy and often discontinuous: "Discovering a new peak requires accepting a decline in fitness and efficiency before a subsequent improvement" (Stacey, 1996, p. 83).

This discovery of new peaks is a move away from equilibrium and toward the edge of chaos (Pascale, 1999). As such, it is also a move toward innovation, as "nothing novel can emerge from systems with high degrees of order and stability" (Pascale, 1999, n.p.). This requires that living systems remain open, in that they operate in "a continuous inflow and outflow . . . never being, so long as it is alive, in a state of chemical and thermodynamic equilibrium" (von Bertalanffy, 1968, p. 39). Living systems require external energy to remain alive (Espejo, 2004, p. 673). For human systems, this energy and resource is information (Boisot & Child, 1999). The Guided Innovation Model, then, must consider the role of external information within nonprofit systems.

2.2.2. *Unique agents*

A CAS is comprised of agents, defined by allusion to James Bond: "He has a clear goal, he is autonomous in his decisions about achieving the goal, and he adapts these decisions to his rapidly changing situation" (Grimm et al., 2005, p. 987). Each agent has unique interests, histories, and experiences (Mennin, 2007), and their behavior is based on their own set of rules (Rouse, 2008). Essentially, these agents develop and act based on rules they create from beliefs, mental models, and social pressures—many of which are instinctual (Plsek & Greenhalgh,

2001). And these flexible rules change continuously as agents learn from experiences (Mennin, 2007).

Yet, without interaction, there is no system: "Just having a lot of agents or students does not necessarily make a CAS. There has to be interaction" (Mennin, 2007, p. 307). And because of the diversity of these autonomous agents, their varying goals and behaviors are likely to introduce conflict (Rouse, 2008). It is here that the self-emergent nature of change in these systems is noted, as this interaction "constitute[s] self-organizing processes that produce complex adaptive systems" (Espejo, 2004, p. 672). And this interaction is what enables innovation: "[The] productive interaction of individuals can lead to novel approaches to issues" (Plsek & Greenhalgh, 2001, p. 626). The Guided Innovation Model, then, must consider the unique contributions of—and interactions among—individuals within nonprofits

2.2.3. *Unpredictability*

The agents involved in these CAS interactions have multiple and shifting identities, belong to several other systems, and "observe different rules, rituals, and procedures unconsciously" (Snowden, 2002, p. 105). Because of this, things in the system "can never be quite pinned down" (Snowden, 2002, p. 105), and there are no clear cause and effect patterns that can be observed (Snowden & Boone, 2007). They are nonlinear and unpredictability, and forecasting is extremely limited (Plsek & Greenhalgh, 2001). This is what makes them complex. It is also what enables them to innovate, as the nonlinear experimentation required in an unpredictable world can lead to substantial changes in learning and behavior (Rouse, 2008).

In addition, although a CAS has "temporal limits" (Mennin, 2007, p. 308) to help distinguish it from other contexts, these boundaries are inherently fuzzy (Mennin, 2007; Plsek & Greenhalgh, 2001). Given the interconnected nature of a nonprofit's work, it can be difficult to

determine what is within the scope of its mission and practice and what is not. It is similar to attempting to identify the boundaries in consensus building, where "it is difficult to define exactly what activities count as part of the consensus process or who is part of it, much less what out- comes can be attributed to it" (Innes & Booher, 1999, p. 416). The Guided Innovation Model, then, must not attempt to predict how innovation will occur.

The previous discussion concludes in the following proposition, which is noted in the model depicted in Figure 1:

Viewing nonprofits in light of the assumptions of CASs brings out Nonprofit CAS Assumptions (List 1)

2.3. *Innovation in nonprofit systems*

An understanding of nonprofit organizations, combined with the application of CAS assumptions, reveals a unique conceptualization of nonprofit innovation that is central to the Guided Innovation Model. Innovation is defined in light of adaptation, unique agency, and unpredictability.

2.3.1. *Innovation and adaptation*

To innovate within an adapting CAS, the nonprofit system must continually experiment within its surrounding landscape. The external information retrieved from this experimentation is the system's energy and primary resource. It keeps it alive and focused on the purpose of innovation—a better fit within the rugged landscape. Rather than sit in a conference room and think of innovative approaches, innovation requires rapid prototyping, where ideas get immediate feedback through experimentation and application in the external environment: "Complexity science suggests that it is often better to try multiple approaches and let direction

arise by gradually shifting time and attention towards those things that seem to be working best" (Plsek & Greenhalgh, 2001, p. 627).

2.3.2. *Innovation and unique agents*

Because of the central importance of unique agents to innovation within a CAS, nonprofit systems must respect individual autonomy and the expression of uniqueness. This diversity must then be combined. Although knowledge begins in the minds of individuals, it cannot be validated in any meaningful way without social refinement (McElroy, 2000). Thus, innovation requires collaboration as agents contribute and pool their unique information. This pooling of unique information is more effective than the tendency of agents to contribute only information that others know (Larson et al., 1998). Often, the advantages of unique information are not noticed due to dynamics "that militate against the discussion of [unique] information" (Larson et al., 2002). This pooling goes beyond merely the interacting of agents within one organization, extending to the interaction among agents across several organizations with a similar objective. Shier and Handy (2015) found that the extent, quality and interconnectivity of collaboration among nonprofits was significantly related to increased engagement in most types of social innovation. Adding more structure to interactions can help increase information pooling: "Unstructured group discussion is a less-than-optimal means of pooling members' unshared information and why groups often have difficulty accessing the very information that such discussion is intended to elicit" (Larson et al., 1998, p. 104).

2.3.3. *Innovation and unpredictability*

Because of the inherent lack of predictability of a CAS—and the discomfort that exists at the edge of chaos—nonprofit systems must avoid the tendency to oversimplify in an attempt to increase a sense of predictability. Although there are problems and domains within these systems

that have simple and identifiable cause-and-effect patterns, most of it is complex (Snowden, 2002; Snowden & Boone, 2007). The search for simple best practices in these complex systems results in what Stacey (1996) called a Vicious Cycle. This oversimplification represents a "learnt instinct" within human systems, as they try to "break down the ambiguity, resolve any paradox, achieve more certainty and agreement, and move into the simple system zone" (Plsek & Greenhalgh, 2001). Innovation, then, requires the patience and holding onto ambiguity that comes with complexity. If leaders fail to do this, they risk being "blinded to new ways of thinking by the perspectives they acquired through past experience, training, and success" (Snowden & Boone, 2007, n.p.)

The previous discussion concludes in the following proposition, which is noted in the model depicted in Figure 1:

Considering Nonprofit CAS Assumptions within the requirements for CAS innovation leads to Nonprofit Innovation Requirements (List 2)

2.4. *How to innovate within complex adaptive systems*

This section outlines the how-to of innovation within CASs—though still at a conceptual level. Although innovation cannot be forced, it is possible for information and knowledge professionals to guide it and develop an environment that supports it: "The behaviors of complex adaptive systems can usually be more easily influenced than controlled" (Rouse, 2008, p. 18). Leaders need to "seed the emergence of patterns," prodding the system to provide the solution (Snowden, 2002, p. 106). This is done through the manipulation of the systems Control Parameters, and the development of a culture of Productive Inquiry (PI).

2.4.1. *Control parameters*

Stacey (1996) outlined three control parameters for a CAS that can be used to guide a system along the "edge of chaos" (p. 64), neither too comfortable nor too uncomfortable. There are critical points within each parameter that provide the "space for creativity" (p. 70). Turning these parameters up or down can get a system at this contextually determined critical point—and the need to increase or decrease each parameter cannot be prescribed a priori by the model.

- The levels and rates of information flow concern the "information or energy being pumped around the system" (Stacey, 1996, p. 56). This can be at a rapid or slow rate, the latter "easy to retain in formal systems" (Stacey, 1996, p. 179).
- Rates of diversity concern the characteristics that make people different, and increased levels of nonconformity within the system. A system "characterized by conforming members produces stable organizational dynamics" (Stacey, p. 180).
- The level or richness of connectivity concerns the nature of the system's social structure. Strong ties develop when "people spend much time together, are emotionally involved, are mutually confiding, and provide reciprocal services" (Stacey, 1996, p. 180). Although he admits research that suggests strong ties lead to "receptive and uniform" behavior (p. 180), Stacey (1996) suggests that, by increasing feeling of security, these strong ties increase the willingness of individuals within the system to change. Thus, "strong ties may be more associated with variety in behavior" (p. 181)

2.4.2. *Culture of productive inquiry*

Another opportunity for nonprofits to seed the emergence of patterns is through the move toward a culture of Productive Inquiry (PI). As outlined by Cook and Brown (1999), Dewey defined PI as "actively pursuing a problem . . . to seek an answer" (Cook & Brown, 1999, p. 62). Innovation

is, thus, a product of inquiry, as it is only as people question the status quo that new ideas emerge. It is akin to Double Loop Learning— a "questioning [of] the underlying policies and goals" (Argyris, 1977, p. 116). Through PI, questions are asked to intentionally initiate a search for answers. The result of this inquiry-inspired search is "the production of knowledge" (Cook & Brown, 1999, p. 62). Because innovation requires "identifying and questioning assumptions" (Beckman & Barry, 2007, p. 36), it follows that it requires PI. This does not always occur naturally, however, and so Freeburg (2015)—in his study of openness to inquiry about beliefs in religious groups—outlined the characteristics of a culture that values PI. Hallmarks of this culture include a looser attachment to beliefs, an acknowledgement of the imperfect nature and ambiguity of the information that supported these beliefs, an intentional external positioning, a desire to increase relevancy, willingness to engage in debate, and a celebration of diversity (Freeburg, 2015).

Particularly essential to innovation is the ability of this PI culture to motivate the contribution of unique information—the result of active information seeking by individuals that is separate from the rest of the group (Lehtinen, 2005). As part of the initiating of this inquiry and the search and production of answers for this inquiry, participants must contribute unique information. This comes from experiences, expertise, and information participants may come across separate from the activities of the system itself. Pooling this information increases the quality of decision-making (Mojzisch & Schulz-Hardt, 2010; Larson et al., 1998), and it is expected to increase innovation. Control Parameters and PI are ways to spark innovation, making up the next part of the model depicted in Figure 1—*Innovation occurs as* (List 3).

2.5. *Operationalizing the guided innovation model*

It is with the understanding of Control Parameters, PI, CAS, and nonprofit innovation that a CoP can be designed to facilitate innovation. CoPs represent an ideal vehicle for the operationalization of innovation within a CAS. These are "groups of people who share a concern . . . and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger, McDermott, & Snyder, 2002, p .4). They represent "a vehicle for increasing knowledge creation" (Saint-Onge & Wallace, 2003/2015, p. 15), and they "actually make things happen" (Brown & Duguid, 1991, p. 50). This occurs as they allow members to "step outside the organization's inevitably limited core world view and simply try something new" (Brown & Duguid, 1991, p. 51)—putting them in a position to critique existing structures and develop innovative ideas.

CoPs are part of a knowledge architecture that puts the "collective knowledge" of any organizational system "at the disposal of every individual in real time" (Saint-Onge & Wallace, 2003/2015, p. 16). This includes both explicit information and tacit knowledge, as PI "draws out tacit knowledge to give meaning to explicit knowledge" and becomes a driving force for innovation (Saint-Onge & Wallace, 2003/2015, p. 17). In this way, they can develop and access Brown and Duguid's (1991) noncanonical knowledge—or system workarounds.

CoPs are made up of a domain, community, and practice (Wenger et al., 2002). The domain articulates what the group is about, and "gives meaning to their actions" (Wenger et al., 2002, p. 28). It comes from the shared expertise and experience of group members. The community is the trust and relationships that develop through group processes, governance structures, and mutually agreed upon rules for conversation. It is the group's "social fabric of learning" (Wenger et al., 2002, p. 29). Practice includes the things members do together, which includes the gathering and sharing of information, and the experimentation of innovative ideas. It

is what helps the group "proceed efficiently in dealing with its domain" (Wenger et al., 2002, p. 29)

Rather than assume a CoP will naturally engage in all elements previously outlined for innovation, the current model assumes a certain broad structure for a CoP. A guidebook was developed to ensure that the CoP asked the questions and considered potential issues deemed essential for innovation. This intentionality in CoPs is supported by existing literature: "The extant literature provides evidence which demonstrates that CoPs can be intentionally deployed which is contrary to the common view that CoPs need to emerge naturally" (Agrawal & Joshi, 2011, p. 9). This following outline of the guidebook according to the three components of a CoP can aid in the deployment of the Guided Innovation Model in future research and practice. It enables a facilitator to guide participants through each element of a CoP with "a light hand, with an appreciation that the idea is to create liveliness, not manufacture a predetermined outcome" (Wenger et al., 2002).

2.5.1. Community

To encourage the open and honest discussion necessary for information pooling and innovation, the Community section of the guidebook asks the group to consider how it would "[remove] barriers to relationships" (Wenger et al., 2002, p. 34). Rather than highlight "sameness," they consider how the CoP could express itself as made up of "people who differ, having different skills and knowledge and 'mutually defining identities'" (Cox, 2005, p. 532). This includes the consideration and development of a superordinate identity (Gurin & Nagda, 2006) that helps members keep their unique identities while also considering their shared mission, and intentional discussions about handling debate and conflict.

Members are asked to outline member roles. Although CoPs lack a hierarchy, it is still advantageous to designate roles to motivate collaboration (Probst and Borzillo, 2008). This is also hypothesized to increase the contribution of unique information. Saint-Onge & Wallace (2003/2015) outlined some of these roles, including sparkers who engage in Productive Inquiry questioning, planners who coordinate events, and synthesizers who help summarize and bring about convergent discussion.

2.5.2. Domain

The domain section of the guidebook helps the group identify the knowledge areas they will focus on. The group is asked to identify the knowledge required to fulfill its shared mission. They map the activities, projects, and products associated with this mission, and the knowledge necessary to develop or carry them out. Similar knowledge maps have been used as decision support tools in other contexts (Ermine, Boughzala & Tounkara, 2006). They then prioritize the areas in need of innovation. Following Snowden's (2002) *Cynefin* model—which outlines domains in increasing complexity from simple to chaotic—members are asked to consider the complexity of each knowledge domain as well as their current approach to problems within that domain. They prioritize those domains with a higher mismatch—e.g. a complex problem was approached with simple best practices—as these are more likely to fall into chaos.

Each time the group considers a specific domain to focus on, each member is asked to provide a profile of themselves as it relates to that area. This sharing is a central component of Saint-Onge and Wallace's outline of CoPs: "Members of the community respond [to PI] by calling upon the knowledge at their disposal and the experience they have from similar situations" (p. 17). It is also one important step toward increasing information pooling (Larson et al., 1998). Members are also asked to consider the domain in context, i.e. who is impacted and

how? This discussion recognizes that CoPs operate within socially structured worlds (Lave & Wenger, 1991, p. 51).

2.5.3. Practice

The Practice section of the Guidebook helps the group outline what they will do, i.e. what does it mean to be a practitioner in this area? They are asked to restate the mission as they consider the question, *What does this pooling of information and knowledge help us do better?* They are encouraged to engage in an action regularly so as not to be paralyzed by over planning and a need for predictable outcomes. This is essential for a CoP to be innovative: "The source of new knowledge and knowing lies in the use of knowledge as a tool of knowing within situated interaction with the social and physical world" (Cook & Brown, 1999, p. 54, italics original). Strategic rapid prototyping is how the group stays agile—as it represents the middle ground between a catatonic state of overthinking and a spastic state of over doing (Dove, 2003).

Included in the Practice section of the guidebook are explicit conversations of the research teams documentation practices—important elements of the living curriculum (Wenger et al., 2002) for the group. This documentation gives form to experiences "by producing objects that congeal this experience into thingness" (Wenger, 1998, p. 58).

The previous discussion concludes in the following proposition, which is noted in the model depicted in Figure 1:

The ways in which innovation occurs in nonprofit CASs suggests a structure for a designed CoP (List 4)

2.6. *The model*

The full model outlined in Figure 1 shows how innovation can be facilitated within CASs using CoPs. It comes out of the literature review and the propositions stated throughout the current paper.

The model can be read from top to bottom and is numbered to show the flow of the argument. Viewed as a CAS, there are three assumptions about the very nature of a nonprofit—list 1. These three assumptions suggest three requirements for innovation within the nonprofit—list 2. This first box makes up the conceptual part of the model. The second box indicates what this conceptualization means for how innovation is operationalized. The actual act of innovating occurs as PI is increased and the nonprofit's control parameters stay at their critical point—list 3. This is accomplished through a structured CoP with a domain, community, and practice that supports innovative activities—list 4. This CoP—structured according to a guidebook that comes out of CAS theories—is then both a means of innovating and a way to keep the system alive as it supports its assumptions (List 1).

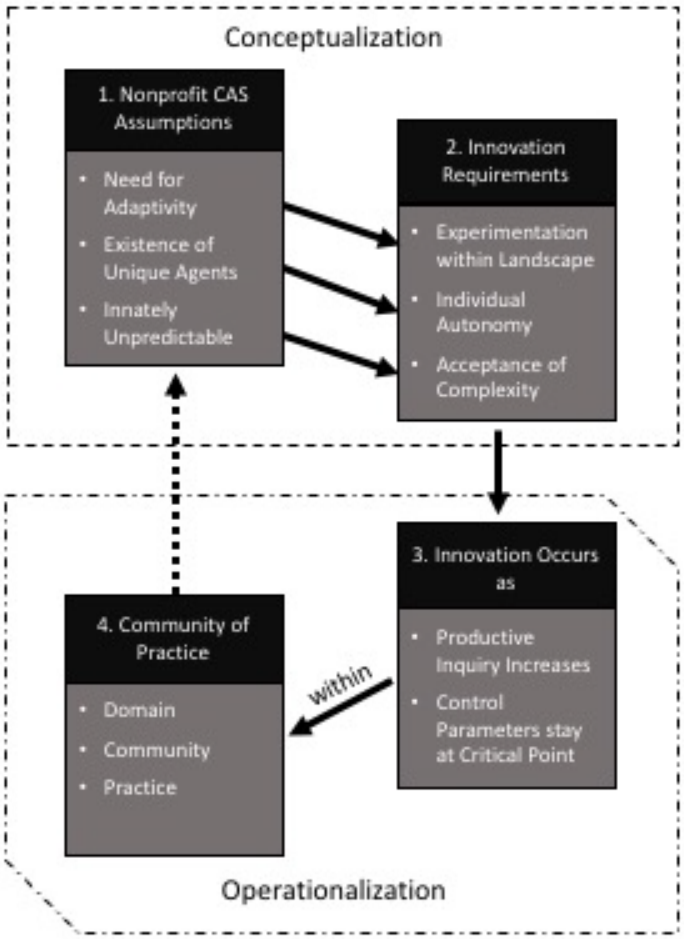

Figure 1: The Guided Innovation Model

3. Facilitation

The previous sections outlined the Guided Innovation Model. This section will propose processes and measurements that can be used by researchers and practitioners in the application of this model in their own contexts. This is included to help further operationalize the model so it can be replicated.

3.1. *Process*

Armed with the theoretical grounding of the Guided Innovation Model, a facilitator first identifies a social need. They then identify and bring together individuals who play a role in meeting that need. This consideration and discussion with community members helps place the efforts of the facilitator in areas of true need, guided by contextual considerations. Next, the facilitator needs insight into the current condition associated with this need and the stated goals of the Guided Innovation Model. A baseline is needed to gauge the nature of success. This can be accomplished through a focus group (FG) with members intended to elicit answers to questions of interest to the facilitator. A second FG conducted several months later can reveal the success of the model. Following the stated goals, members can first be asked to list the innovations they implemented in the previous year according to type—administrative, product, and process (Jaskyte & Lee, 2006)—and how these innovations helped meet the needs of the populations they serve. This provides insight into the baseline for Goal 3 and Goal 9, as it concerns the group's ability to create new things to meet a population's needs.

Members can then be asked about the implementation process, i.e. whether or not all ideas are given an equal chance of success, are evaluated fairly, and the general openness of the participants' organizations to new ideas (McDonald, 2007). Asking members about innovations

they wanted to implement but could not provides insight into the baseline for Goal 4. Goal 5 concerned the need to tie innovation more closely with the areas most in need. To gauge this in the initial FG, participants can be asked about their sense that innovative ideas come out of attempts to fulfill the mission, and whether or not that the mission directs decisions about adoption of innovative projects—elements of McDonald's (2007) Focus on Mission-Supporting Innovations scale. Goal 8 concerned an expansion of collaboration among these nonprofits, as collaboration is a known variable of importance to the work they do. Participants can be asked to consider the activities they engaged in during the previous year, and the percentage of those that were conducted as a single organization, and the percentage that were conducted by multiple organizations.

The facilitator can then direct members in the CoP guidebook outlined previously. The nature of the group must be determined by them, with only light facilitation. They determine their domain, community, and practice. Nevertheless, a broad outline of this process (Figure 2) can be provided to aid in the model's implementation. The group must first meet to identify a domain area to focus on and potential information sources to draw from. To further narrow the domain, members share insights about themselves as it relates to the domain. This helps increase individual autonomy. In the weeks between the meeting, members find and share information virtually to begin collated the *canon* of that domain. In addition, they maintain personal diaries of their own experiences, insights, and expertise related to the domain. This is used as fodder for PI. They then meet to pool the information they gathered with the insights they wrote about. Here, members continue to express their agency and autonomy as they also increase complexity through increased information flow, diversity, and richness of connectivity. This enables the pooling of unique information in a way that supports PI and innovation. Members are asked at this meeting to

consider what this information and knowledge helps them do better. They identify a practice they want to engage in and use the next few weeks to plan and eventually engage in this practice. This ensures that the group is rapidly prototyping ideas and receiving feedback as they experiment within their landscape. This feedback is then used to identify new topics and repeat the process. Each time, the community and practice elements strengthen.

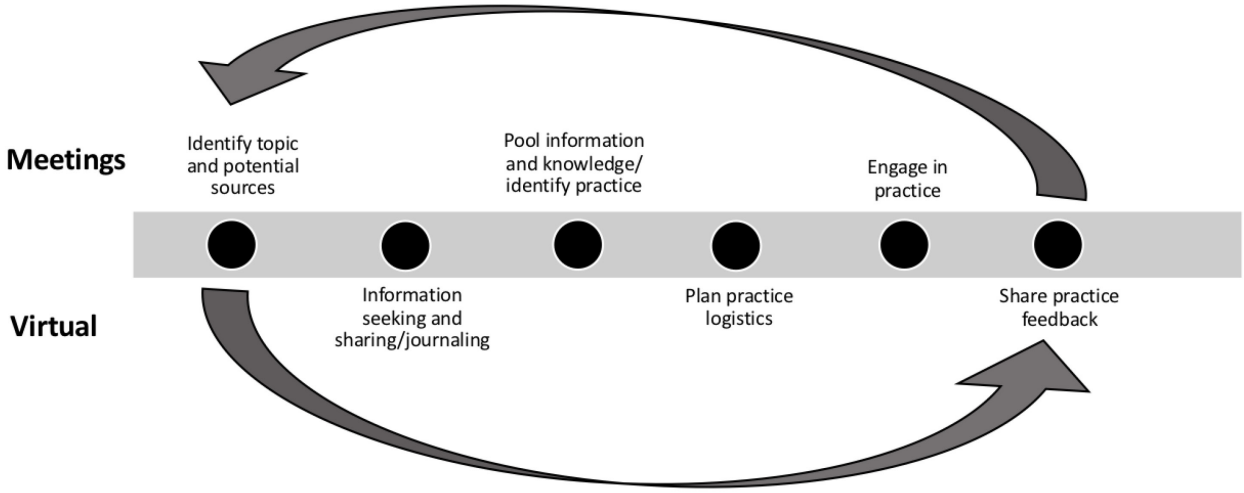

Figure 2: Outline of Guided Innovation Process

3.2. *Modality*

It is intentional that this section is titled *facilitation* rather than *research.* In addition to increasing social innovation within nonprofits, the Guided Innovation Model represents a new model for knowledge translation. Research modalities are shifting to give more control to participants (Kaushal et al., 2014), and more people are contributing to the world's knowledge base. One goal of scientific research is to have a positive impact on those impacted by research findings. Models of how this research knowledge is translated (Canadian Institutes of Health, 2007) identify various points at which knowledge must be converted—or translated—to ensure research has this impact. Translation occurs as research questions are determined, as results are written and transmitted through publication or contextualization within cultural norms, and as actionable decisions are

made based on this knowledge (Canadian Institutes of Health, 2007). One primary drawback of traditional research is that it is governed by single academics. Although academics attempt to let populations speak for themselves, they are still the ones determining what is to be studied, how, and what it means. In the Guided Innovation Model, practitioners involved daily with the need under investigation are the drivers of the research questions, methodologies, and findings. Within a loose framework, they determine their practice. Here, the researcher is transferring control of inquiry to those directly impacted by what is uncovered. This model recognizes that these practitioners have considerable knowledge that is not being extracted effectively. They want the opportunity to do research but often lack the resources. In addition, traditional research modalities place peer review at the end of the research process. In the proposed model, peer review comes first from immediate reaction by others in the CoP, and second by the feedback about what works and does not work in practice. This is dependent, not as much on someone's biased opinion, but more on the reality of what parts of a proposed idea work and what parts do not. It is thus more valid and obtained much more quickly.

4. Conclusion

The Guided Innovation Model outlines an approach to innovation that accounts for the messiness of human social systems. The current paper outlined the conceptualization and operationalization that undergirds the model, as well as ways to facilitate its implementation and measure success according to several stated goals. This is founded on CAS theory and CoPs. It is particularly suited to the greater risk preferences in nonprofit organizations (Frumkin, 2005), yet is applicable to any social system. As these systems learn to work with the system tools that mark what they inherently are, and create an environment that inspires innovation, they will be in a better position to meet the complex and shifting needs of populations that rely on them. This is

particularly suited to facilitation by information and knowledge professionals who help develop the existing canon and spark the environment for the development of a new and innovative canon. As information and knowledge professionals facilitate the application of the Guided Innovation Model, they extend their reach into society. They also fundamentally alter research modalities. In a knowledge society, it is essential that more voices are included in the conversation about what is known. The proposed model is a necessary outcome of the recognition that existing information is insufficient, and knowledge creation is necessary.

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