Higher order change: a transorganizational system diagnostic model

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Abstract

Purpose – Transorganizational systems (TSs) are a collection of organizations that have agreed to work interdependently to accomplish a task too large in scope for a single organization. TS are organizational structures capable of addressing large-scale problems, and are vitally important. However, relative to the stand-alone organization, TS theory is under-developed and currently no comprehensive diagnostic model exits for managing TS change. Theoretically constructed diagnostic models are essential ingredients of any planned change effort. The purpose of this paper is to propose a comprehensive model for diagnosing TS.

Design/methodology/approach – In this paper a comprehensive model for diagnosing TS is proposed. In constructing the model existing literature is integrated with the enduring organization development work of Cummings and Worley (2015). These authors developed a comprehensive model to diagnose organizations at three levels: individual, group, and organization. This paper proposes adding a fourth, higher order level – the TS level.

Findings – The resulting diagnostic model offers theorists and practitioners a comprehensive framework for use in diagnosing TS functionality and performance.

Practical implications – The results of quality diagnosis are essential in managing change leading to improved TS effectiveness.

Originality/value – Currently no comprehensive diagnostic model is available for managing higher order change in TS. This paper aims to fill this void.

Keywords Collaboration, Coalition development, Diagnostic methods, Inter-organizational networks, Transorganizational development, Transorganizational systems

Paper type Conceptual paper

Introduction – the overlooked and ignored transorganizational system (TS)

A TS is a collection of organizations that have agreed to work interdependently for a period of time to attain a commonly held goal that is too large in scope for any single organization working alone (Cummings and Worley, 2015). (In this paper an "organization" includes an entity held together by a common goal such as a corporation, sole proprietorship, government agency, community group, and organized volunteers.) TS are found everywhere and vary along a number of dimensions – longevity of duration, degree of formality, purpose, and number of members (Chisholm, 1996). They go by many names – coalition, collaboration, inter-organizational network, consortium, alliance, partnership, TS, or association.

Half a century ago Evan (1965) pointed out that research on organizations was mostly focussed on intra-organizational phenomena, and little attention given to

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inter-organizational relations. Though there has been progress in examining TS (Cropper *et al.*, 2008), one can argue that not enough has changed. Trist (1983) pointed out that complex problems – sometimes called wicked problems or messes – are "[…] too extensive and too many-sided to be coped with by any single organization, however large. The response capability required to clear up a mess is inter- or multi-organizational" (p. 270). Given the wealth of wicked problems throughout society, the TS stands as an important organizational type.

Given its significance, it seems ironic that the TS is not given more attention by theorists and practitioners while the stand-alone organization is seen as the primary unit of large-scale activity. Relative to the stand-alone organization there has been limited research that examines the determinants of TS success or methods to measure results of TS activities. For example, unlike the consistently cited standards of small group success noted by Hackman (1987) and the Triple Bottom Line measurement paradigm (Hart and Horton, 2003; Lawler and Worley, 2011) that is widely accepted as a measure of organizational success, TS literature is relatively devoid of accepted and agreed upon performance measures.

The need for a comprehensive diagnostic model for TSs

This dearth of information limits the tools leaders and practitioners working in TS have at their disposal to support TS functionality and performance, including diagnostic models. Diagnostic models are essential ingredients in any planned change effort. These conceptual frameworks help practitioners and theorists develop methodological ways to examine complex phenomena (Burton *et al.*, 2001; Harrison, 1994; Nadler, 1980). Through this exploration one's understanding of that which is being observed is expanded. This knowledge can be used to promote more effective practices to ensure TS fulfill their potential, including addressing wicked problems.

Theorists (Chisholm, 1996; Culbert *et al.*, 1972; Cummings, 1984; Schermerhorn, 1979; Sink, 1991) have demonstrated that TS are different than bounded, over-organized systems like stand-alone organizations, and that these systems demand more than traditional organization development (OD) strategies to effect change. As a result, many conceptualize TS development as a distinct field of inquiry and practice within the larger field of OD. Though different approaches to assess TS functionality have evolved into practice over time, no comprehensive diagnostic model currently exists for use in TS planned change efforts. Schermerhorn (1979) developed what he called a "working model of interorganizational development" (p. 31), yet he stressed that the model needed further refinement and called for the development of newer models. Further, Cummings (1984), and later Cummings and Worley (2015), offered a model for use in forming and evaluating TS performance, yet the model lacks components of TS functionality that are important during implementation.

This paper aims to add to the body of TS knowledge by offering a comprehensive diagnostic model of TS functioning and performance. Though conceptually similar, the model reaches beyond those used in stand-alone organizations, which typically diagnose organizations at three levels: individual, group, and organization. Organizational theorists and practitioners agree that these three levels are appropriate units of analyses (Gordon, 2002; Griffin and Moorhead, 2014; Robbins and Judge, 2011). However, Cummings (1984) pointed out "that because transorganizational systems constitute a distinct logical type higher than that of single organizations, they require a theory and practice of planned change

commensurate with that higher level" (p. 367). Hence, the need for the addition of a fourth, higher level – the TS level. Using a logical progression, the individual is the building block of the group, and the group is the building block of the organization. Likewise, the organization can be thought of as the building block of the TS.

Existing methods to diagnose TS functionality and performance

There are existing methods used to assess TS functionality and performance, each with its limitations. Some theorists have examined the core ingredients or inputs that account for TS functionality (D'Amour *et al.*, 2008; Goodman *et al.*, 1998; Huxham and Vangen, 2005; Mattessich *et al.*, 2001; Sink, 1991). These theorists have determined that certain core ingredients must be present in the TS to assure success. Yet this approach offers little in helping practitioners understand how these ingredients are processed or combined to produce various outcomes.

Other researchers and practitioners have examined the nature of TS member relationships have determined that the quality of these relationships is related to TS effectiveness (Provan and Sydow, 2008; Schermerhorn, 1979). Similar to social network analysis, in this diagnostic approach one can evaluate the characteristics of member relationships, such as trust and the quality of interactions. Yet, quality relationships alone do not determine success, and this approach fails to account for the many other determinants of TS achievement.

Some theorists have examined the TS through stages of growth and maturation (Cummings, 1984; Das and Teng, 1997; Kanter, 1994; Gray, 1989; Schermerhorn, 1979). These theorists have crafted developmental continua to diagnose a level of TS maturity. Based on the results of diagnosis appropriate interventions can be developed to facilitate continued TS growth. Yet this approach is limited in helping practitioners understand the mechanisms that promote healthy TS development.

TS can be diagnosed from a process point-of-view as well. In an open systems model processes are the means by which core ingredients are transformed into outputs, and include both social and technological components (Cummings and Worley, 2015). Process indicators are those measures that describe the nature of the social and technical processes TS use to convert core ingredients into outputs. Social processes include the working relationships among TS members. Technical processes include techniques and mechanisms used by the TS to accomplish its goals. Yet, while process indicators are descriptive of phenomena that occur during TS functioning, they often lack any explanatory value to help members understand the causes of these phenomena.

While each approach is useful, each has its limits as noted. Further, none take into account all the dimensions of TS functionality and performance over its lifespan. Hence a more comprehensive approach to diagnosing TS is warranted.

The diagnostic model for TS functionality and performance

In constructing the TS diagnostic model, existing research was integrated with the enduring work of Cummings and Worley (2015). These theorists developed a comprehensive model to diagnose organizations at three levels: the individual, group, and organization. The Cummings and Worley model is depicted in Figure 1, and is described in detail.

Each level is described using an open systems model. Each level has specific inputs and the key design components of the transformation processes used to convert input into outputs. Some inputs for each level are those of the larger embedding system in which the level is operating; the general environment is an input for the organization level, while the design components at the organization level are inputs to the group

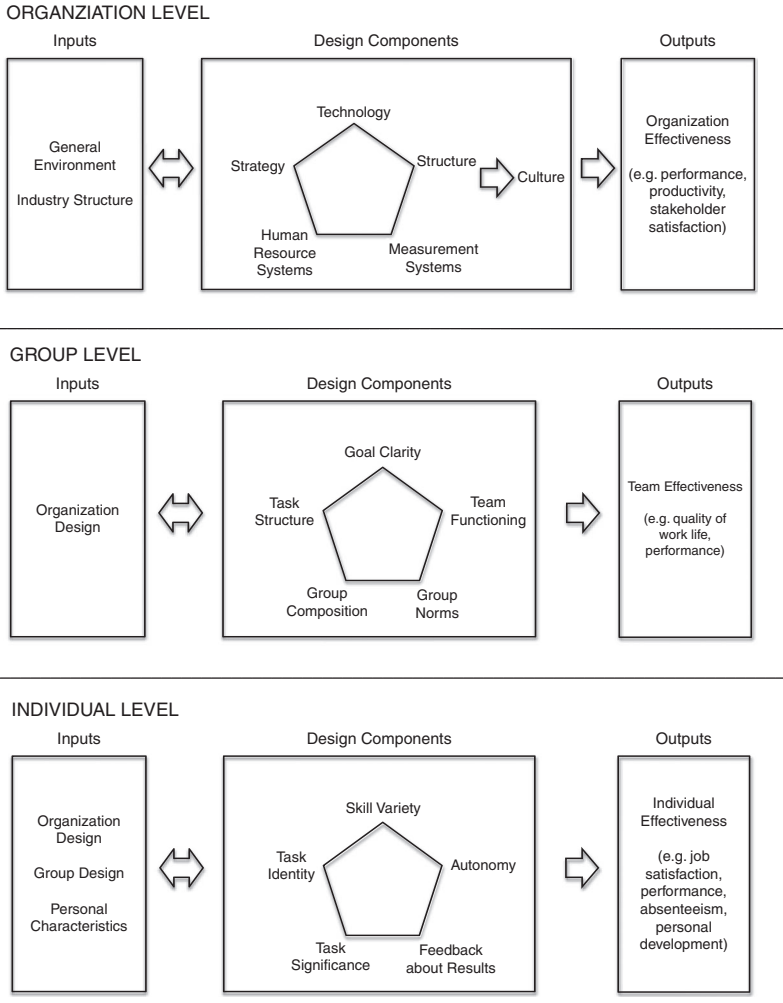

Figure 1.
Comprehensive model for diagnosing organizational systems

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level and the individual level. Likewise, group design components are inputs to the individual level. This design is intended to convey the systems aspect of any organization and a general principle of systems theory – that any system operates in a state of exchange with its larger embedding environment, and both the embedding system and sub-system effect one another.

The model also describes the design components that each level uses in developing transformation processes – those processes a system uses to convert inputs into outputs – and are composed of both social and technological components (Cummings and Worley, 2015).

Design components include specific elements that have been identified as being determinants of system functionality. For example, the components at the organizational

level are similar to many widely accepted models articulated by other theorists such as Galbraith's (2002) star model, Kotter's (1978) organization dynamics model, and Weisbord's (1976) six-box model. Design components for groups include determinants of group success that have been validated over time by theorists and practitioners (Katzenbach and Smith, 1993; LaFasto and Larson, 2001). Likewise, the five design components included at the individual level are those empirically identified by Hackman and Oldham (1980), and have been validated over time.

Each level also has outputs, described in the model in terms of effectiveness. Here the assumption is that both the quality and character of inputs and the design of transformation processes have an impact on the effectiveness of the organization, group, and individual. Therefore quality inputs and a functional design of transformation processes at the individual level can produce individual effectiveness that can contribute to team effectiveness. The opposite can also occur where poor-quality inputs and design of transformation processes can produce a degree of individual, team, or organizational ineffectiveness.

Feedback loops (not shown but are a part of open systems models) distribute information for future use throughout the system. Feedback can be used to help the system maintain the status quo, or adapt to changing circumstances if the system is experiencing unwanted outcomes. Feedback can come from any number of sources including formalized, sanctioned reports that display certain results, or informal, anecdotal type information from sources.

The diagnostic model of TSs

While Cummings and Worley (2015) focussed on planned change at the individual, group, and organizational levels, the proposed model adds the next higher order level – the TS level. The TS diagnostic model described below, and depicted in Figure 2. Like Cummings and Worley, the model is based on an open systems model and includes inputs, design components, and outputs. Each aspect of the model is described in detail.

Inputs

Wicked mess or opportunity. First, as Trist (1983) pointed out, the basic input into any TS is a wicked mess or opportunity that exists within a specified domain that is beyond the scope of any organization working alone. As with any organizational system, the TS is formed to accomplish a specific purpose. However, TS membership exacts steep costs for member organizations. Such costs include the added effort to participate in the TS, as

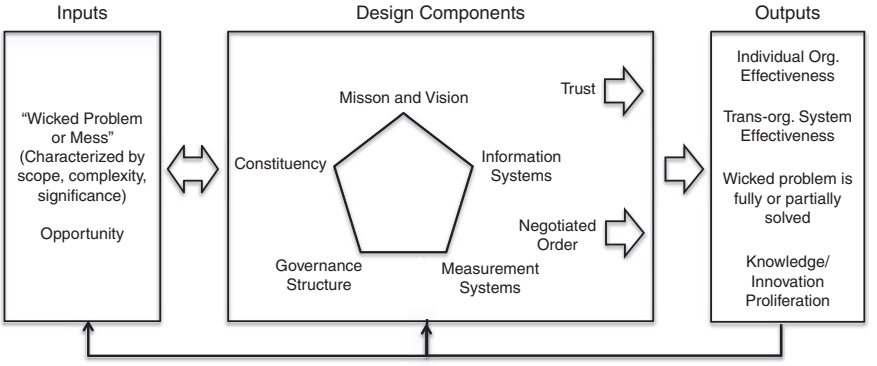

Figure 2. Comprehensive model for diagnosing transorganizational systems

well as the loss of organizational power and autonomy (Lawson, 2004; Sink, 1991). Therefore void of a compelling reason – a wicked problem or opportunity – the TS should not be formed (Chisholm, 1996; Huxham and Vangen, 2005).

Design components

For the TS to function systems and structures must be in place to allow for coordinated action among TS members. As noted in Figure 2, these design components include mission and vision, constituency, governance structure, information systems, and measurement systems. Also, the model demonstrates that trust and negotiated order are both design components, and, similar to the manner culture is framed in the Cummings and Worley (2015) model, these can also be thought of as intermediate outputs. The rationale for inclusion of each of these is discussed in more detail.

Mission, vision, and goals. Mission, vision, and goals refer to the TS having a stated purpose and clear goals that are shared, or at a minimum, compatible among TS members. Goal clarity is an essential ingredient that promotes TS functionality. Prior research and practice has demonstrated that the lack of goal clarity is a predominate reason why large-scale change efforts fail (Kubisch, 2010; Sink, 1991). The absence of clarity results in variations in TS members' ideas of success and leaves them uncertain of basic activities they should undertake. Moreover, theorists (Cummings and Worley, 2015; Huxham and Vangen, 2005; Sink, 1991; Worley and Parker, 2011) argue that the nature of wicked problems make goal setting difficult given their scope, complexity, and unfolding nature. Wicked problems present a challenge when trying to articulate root cause, hence it becomes difficult to decide what needs to happen to improve the situation or solve the problem. Chisholm (1996) suggests that developing and embodying a higher order, broad vision and clear goal may be one of the most important functions TS carry out.

Constituency. Constituency involves ensuring that the right stakeholders are identified, recruited, and engaged to participate as active members of the TS (Cummings and Worley, 2015; Cummings, 1984). "Right" in this context means that TS members represent an appropriate cross-section of the domain in focus (Mattessich *et al.*, 2001) and that each member has the competences to contribute to TS goal attainment (Maclellan-Wright *et al.*, 2007). As importantly, TS should have the legitimacy to exclude inappropriate members (Goodman *et al.*, 1998). Because wicked problems are domain based, they transcend jurisdictional boundaries (Williams, 2002). As a result multiple organizations from the various jurisdictions that form the domain of concern must be active members, and in the interest of efficiency, those that cannot contribute should be excluded.

Like TS goals, membership evolves over time, therefore identifying potential members requires a cyclical stakeholder analysis function that should continue as the TS matures (Worley and Parker, 2011). Without representative and engaged constituency with the power to make and enact decisions to the scale needed to accomplish TS goals, effectiveness is unlikely.

TS governance structure. Governance structure refers to the design of basic organizing and governing mechanisms that allow for the coordinated actions of TS members that result in goal attainment. These include a facilitative leadership function, a decision-making process, the assignment of individual TS member roles, and basic resources needed to keep the TS functioning.

TS leadership is unique from that of traditional stand-alone organizations (Chisholm, 1996; Schermerhorn, 1979; Sink, 1991). Huxham and Vangen (2005)

note: "[…] it is far from straightforward to translate mainstream theories of leadership to collaborative settings" (p. 202). Positional power does not automatically translate into primacy in TS; rather leadership is often embodied in actions – those that can be carried out by any member. Feyerherm (1994) reported similar findings in her examination of leadership in collaborative settings. Specifically, she examined how leadership was carried out in collaborative problem-solving groups working to address the wicked problem of air pollution. In these settings leadership was not embodied in a defined position, but described as a "web of influence, shared among many people throughout the group" (p. 260).

Several theorists argue that this type of facilitative leadership is the work of a "referent" or "backbone" organization (Trist, 1983; Turner *et al.*, 2012; Worley and Parker, 2011). These organizations are those that are concerned with the development and functionality of the TS, and not operational activities that are carried out during implementation. Their function includes facilitating a shared understanding, direction setting, collective decision making, role clarification, advocacy, and performance monitoring while remaining neutral on divisive ideological and political issues that can splinter groups within the TS.

Measurement systems. Measurement systems include agreed upon methods of measuring the processes and the impact of TS, and play an integral role in planning and implementation. By establishing and maintaining agreed upon measurement systems TS members can monitor all aspects of systems functioning. Cummings (1984) and Cummings and Worley (2015) describe a stage of TS development they call evaluation that includes assessing how the TS is performing, the quality of TS member interactions (a process measure), as well as member satisfaction. Goodman *et al.* (1998) describe a dimension of community capacity – the ability of a community to identify, mobilize, and address social problems – as that of critical reflection. This self-analysis function allows TS to monitor progress toward goal attainment and make adjustments as needed.

Information systems. Distinct from measurement systems, information systems include the methods and tools used to collect, categorize, organize, analyze, and distribute information throughout the TS. This is particularly challenging in TS environments due to the loosely coupled nature of TS member relationships and the ambiguity that is characteristic of TS operating environments. Compared to the well-established, robust information systems found in many stand-alone organizations, these formal information systems do not exist in TS, or are under-resourced and inadequate. This can result in the absence of real-time information being distributed and accessed among TS members, and this can impede functionality and have a detrimental affect on performance.

Trust – a design component and intermediate output. Trust is viewed both as a design component as well as an intermediate output, and an essential determinant of TS success (Goodman *et al.*, 1998; Huxham and Vangen, 2005; Mattessich *et al.*, 2001). Individual TS members cannot function without trust, yet, as Huxham and Vangen note, in TS "trust is frequently weak (if not lacking altogether), and suspicion is rife" (p. 153), as some members fear others will act opportunistically at their expense.

In the context of TS functionality, trust can be thought of as the ability to predict another's behavior with reliability and consistency, and the belief that a TS member will not act opportunistically (Huxham and Vangen, 2005), as well as confidence in members' basic competence (D'Amour *et al.*, 2008). However, this confidence or belief emerges in small degrees as a result of a "trust-building loop" (Huxham and Vangen).

In the loop, TS members take incremental risks to advance the cause of the TS. Exposing oneself in this manner results in measured vulnerability. If the risk-taking member experiences positive, reinforcing responses of other members, they begin to develop higher levels of trust, and in turn these can lead to actions that entail greater risks. Trust among members can vary over time, based on individual TS member actions. Further, because of ever-evolving TS membership, the trust-building loop is never exhausted.

Negotiated order – a design component and intermediate input. Negotiated order is a determinant of TS success and can be thought of as both a design component and an intermediate output. Negotiated order exist "when organizations have jointly determined the terms of their future interactions with one another" (Nathan and Mitroff, 1991, p. 164). Negotiated order theory asserts that TS member organizations both explicitly and implicitly agree to norms that govern interactions with one another. In this context, order can emerge organically or with deliberate intention. Negotiated order also includes socially constructed, shared views, and perspectives concerning the issue the TS is working to address (Worley and Parker, 2011; Kreuter *et al.*, 2004). Developing these socially constructed, similar world-view allows TS members to predict how fellow TS members will act going forward.

Given, some degree of negotiated order must exist for the TS to function and this order must constantly be re-negotiated as circumstances evolve. When there is an inadequate amount of order the TS becomes mired in the inertia that results from a lack of shared understanding of the "rules of the game."

Outputs – primary

Outputs are the results of inputs being transformed through various interaction processes, and these are influenced by the design components discussed above. In the Cummings and Worley (2015) model outputs are framed in terms of effectiveness to describe their nature and quality. Likewise TS outputs can be assessed along a continuum of effectiveness, with some being more or less effective.

Primary outputs occur at three levels. First, through participation in the TS individual member organizations are affected. Through direct experiences these organizations fulfill their individual missions by impacting their domain of interest. Second, the TS can experience goal attainment and effectiveness. Third, the domain of interest is affected from effective TS activities. Secondary outputs are produced as well. Individuals that represent organizations gain skills while accomplishing their organizational objectives, and this knowledge proliferates both within the organization, the TS, and ultimately the domain.

Measuring TS effectiveness is problematic (Ariño, 2003; Provan and Sydow, 2008). Nearly two decades ago Provan and Milward (1995) noted that TS research largely focussed on the properties and structures of TS, and that "issues of network effectiveness and outcomes are mostly ignored" (p. 2). This appears to remain a valid point. The challenges of effectiveness emerge when examining TS outcomes relative to each of the three levels noted above, as well as the contexts in which TS function.

Performance and effectiveness at the stand-alone organization level. While TS member organizations work interdependently with others to affect change in a domain, ultimately they work in their self-interests as change in the targeted domain is consistent with their individual organization's mission (Provan and Sydow, 2008; Schermerhorn, 1979). Drawing from Luce and Rogow (1964), Sink (1991) noted: "Power results from the

collection of agencies acting together in a coalition, although rewards gained actually accrue to the individual agencies involved" (p. 1181). Hence, TS membership must deliver a stand-alone organizational-level benefit that offsets the costs of TS membership. Thus an important output of TS functioning can be directly related to individual organizational performance – when the TS functions effectively individual members also reap this success. Other benefits of TS membership have been uncovered as well. For example, Provan and Sydow note that research in general shows a positive relationship between TS involvement and an organization's financial performance, as well as its survival.

Performance and effectiveness at the TS level. TS goal attainment, or some measure thereof, is an output of TS functioning. Effectiveness can be thought of as the degree to which a TS attains it goal(s), while performance can be thought of as how efficiently the TS functions while working toward the same. Depending on the quality and character of inputs and how these are combined in various transformation processes, the TS may attain only a portion of its goal(s). Failure to attain some degree of a TS goal serves as feedback to the TS that an adaptation should be made – inputs and/or transformation processes must be manipulated in some way to produce more satisfactory results.

Performance and effectiveness at the domain level. Domains can be thought of as a "societal problem area" for which individual organizations operating in a particular jurisdiction share a common concern (Trist, 1983). If the TS is successful, the domain of interest is affected – the unwanted effects of the wicked problem are reduced or altogether eliminated. As noted, measuring the impact of TS activities to affect changes in a domain is problematic. Because wicked problems are the result of the interaction of smaller problems producing compounding effects, it is difficult to understand root cause. Further, because changes in domains occur at a slow pace and multiple interventions, both intentional and unintentional, may be underway at any given time, it is often difficult to isolate the effects of a particular intervention undertaken by TS at any given point in time.

Outputs – secondary

Innovation and knowledge proliferation. A number of authors note that participation in a TS results in organizational learning and innovation (Chisholm, 1996; Nooteboom, 2008; Provan and Sydow, 2008). Provan and Sydow note: "By working closely with other organizations, a focal organization can develop new knowledge and information in a wide range of areas" (p. 699). They classify this learning as both strategic and "unintended," where relationships built around one set of needs result in learning in another, unrelated area. Further, individuals that represent organizations in TS develop skills that they carry with them to other TS efforts of which they become a part. In this way TS knowledge proliferates and is carried beyond the boundaries of jurisdictions and even domains.

A key source of learning results from the diversity of stakeholders comprising the TS, where varied disciplines operating in multiple jurisdictions interact to solve problems (Nooteboom, 2008; Sørensen and Torfing, 2011). Here the differences of focus between TS members become a source of learning as they interact to make joint decisions.

Discussion: utility and application

"There is nothing so practical as a good theory" Lewin and Cartwright (1951) uttered these nine words over half a century ago to describe the utility of theory in helping one

understand and explain observable, empirical phenomena, which can appear perplexing and mystifying. Diagnostic models constructed on conceptual frameworks grounded in theory often serve this important purpose. This comprehensive diagnostic model is offered to those working in and with TS to accomplish important tasks and take advantage of significant opportunities. The proposed model has several applications.

First, the model can be useful during the start-up phase when TS are in the early stages of formation. The model can serve as a blueprint to guide TS members and practitioners supporting the TS. During start-up TS members can use the various design components to guide the construction of needed infrastructure that allows the TS to function in the pursuit of its goals. TS members can also use the model to help develop evaluation and measurement systems to provide feedback on TS efficacy.

Second, the model can be useful in conducting periodic assessments of TS functionality after the TS begins working toward goal attainment. The model can serve as a framework to develop or evolve evaluative assessments to better understand where TS performance can be improved.

Third, the model can be used to diagnose causes of TS inertia. A diagnostic scale could be developed and used to collect information from TS members and other key stakeholders, and the results of such an assessment could be the foundation of performance improvement planning.

Last, the model can be used to further develop and expand our understanding of the uniqueness of the TS. Any given dimension or component of the TS diagnostic model can serve as an area of inquiry to deepen our understanding of these unique and vitally important organizational structures.

Conclusion

TS are vitally important in today's complex and connected societies. As a structure, the TS is uniquely situated to both solve wicked problems and take advantage of opportunities that are too extensive for stand-alone organizations working in isolation. Given its significance, effective TS practice is not only important, but, as Lawson (2004) points out, a moral imperative. To ensure the TS is most effective in carrying out its goals we must deepen our understanding of these unique structures – how they are constructed, how they perform, the causes of TS failure, and how practitioners and theorists can work within these complex structures to enhance their effectiveness.

The need for theory-based diagnostic models is paramount in any planned change effort, including those efforts aimed at the TS level. These analytical frameworks help organize the way complex phenomena are examined – they tell us what to look for, where to look, and help expand our understanding of that which is being observed. Yet, relative to that of the stand-alone organization, TS theory is under-developed and the tools practitioners have available to them, including diagnostic models, are lacking. Cummings (1984) noted that TS constitute "a distinct logical type higher than that of single organizations" (p. 367) and that these unique structures require "a theory and practice of planned change commensurate with that higher level" (p. 367). Given, the tools used to manage planned change efforts for stand-alone organizations are inadequate when applied to the higher, TS level. To this end we build on existing theory, integrate TS literature, and offer this model for use to both theorists and practitioners focussed on higher order change.

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