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Projects as Social Movements

Gerardo Zendejas
University of Lancaster, zendejas@unix.lancs.ac.uk

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Gerardo Zendejas
University of Lancaster
zendejas@unix.lancs.ac.uk

Mike Chiasson
University of Lancaster
m.chiasson@lancaster.ac.uk

ABSTRACT

Project Management (PM) is being rethought in light of the continuing prevalence of project failures. A key issue or concern believed to be important when addressing failure is the need to focus on the sociopolitical processes in PM, because of their importance to project issues or contingencies such as complexity, uncertainty, and ambiguity. Such contingencies call for supplementary PM methodologies that embrace and effectively anticipate and manage them. This paper explores the possibilities of Actor Network Theory (ANT) in developing a supplementary PM methodology. An ANT-informed methodology maps the emerging social movements that are possible from the outset, tracks changes as the project unfolds, and aims towards a useful stabilization of actors' relations. We believe that this methodology enhances existing normative approaches by providing PM practitioners with a new lens to manage projects as social movements.

Keywords

Project Management, contingencies, enrollment, translation, social.

INTRODUCTION

We live in an era of "projectification" where every organization is concerned about projects. The implications of this trend involve a substantial managerial evolution from operations-based management to project-based management[1] where an organization's overall success is intimately affected by project successes or failures.

As the importance of projects has increased, so has the visibility of their outcomes, most often characterized by partial or total project failures. As a consequence, a critique of project failure in general and the inadequacy of current normative PM approaches to deal with project contingencies in particular has prompted a "rethink" of PM practice, its current methodologies, and its theoretical foundations.

The most comprehensive, contemporary, and widely accepted critique of normative PM approaches was produced by (Winter, Smith, Morris and Cicmil, 2006)[2] as part of the Rethinking Project Management Research Network, a massive research effort that involved hundreds of scholars and practitioners extending more than two years.

According to Winter et al., the most critical shortcomings of current normative PM methodologies – characterized by a rational, universal, and deterministic approach to PM, also referred to as the "hard" systems model and widely featured in the most popular PM textbooks, professional associations, and bodies of knowledge – have to do with their strong emphasis on planning and control, which includes failing "to deal adequately with the emergent nature of front-end work, tending to treat all projects as if they were the same, and not accounting sufficiently for human issues, which are often the most significant".

While some existing PM methodologies, such as Agile PM (APM)[3], have emerged to deal with sociopolitical complexities, and some partial improvements have been achieved, in practice they do not fully overcome the issues or concerns raised by Winter et al. Existing methodologies also suffer from a lack of theoretical, methodological, and conceptual rigor. This prompts a call for at least supplementary PM methodologies to enhance current normative approaches, including APM itself, in addition to considering completely new PM alternatives.

In concert with the findings of Winter et al. about the insufficient accounting of social issues in PM, we believe there is a need for theory and methodologies to understand and manage the sociopolitical processes as well as the human and nonhuman relations within projects, and the key role they play in addressing important project contingencies such as complexity, uncertainty, and ambiguity. While many social theories could potentially inform a methodology to equip practitioners to manage the social relations in projects, we believe ANT offers a number of advantages beyond what structuration theory and stakeholder theory provide.

Stakeholder theory widely embraces the notion of including all participating actors in organizations in projects using a vast sociopolitical lens that considers power, politics, and ethics and categorizes human actors in predefined groups within a corporate domain. In doing this, however, stakeholder theory introduces an *ex ante* predetermination of who the actors are and leaves out a rich gamut of nonhuman actors commonly found in projects such as artifacts and technologies, which are important in ANT. This is perhaps of particular importance in IT projects, which often feature a large variety of technological artifacts, from software to hardware and everything in between. As a result, we believe that ANT offers theoretical vantage points over stakeholder theory for the analysis of projects in general and of IT projects in particular.

Similarly, a particular stream of structuration theory as revised by Orlikowski (2000)[4] permits one to examine how actors, as they interact with a technology in their ongoing practices, enact structures that shape their emergent and situated use of that technology. Furthermore, overcoming both a lack of consideration for nonhumans in the analysis and the lack of focus on IT projects, a stream of structuration theory called *structuration agency theory*, which allows for the analysis of socio-biological propelled structuration in software applications (Workman, Ford and Allen, 2008)[5], suggests that not only human agents are actors in structuration, but also software agents that can "behave socially to exchange information, receive instructions, react to the effects of other agent actions, and provide responses in a cooperative fashion to fulfill individual and collective goals in an adaptable and evolutionary way".

However, while capable of avoiding extremes of structural or agent determinism and facilitating the analysis of human and nonhuman actors, structuration agency theory does not fully conform to mainstream structuration theory in that the later does not allow for the equal consideration of nonhumans in the analysis. As a result, we believe that ANT offers a stronger theoretical foundation over structuration theory for the analysis of all actors involved in projects.

Our purpose is to explore other sociopolitical approaches to PM beyond the mainstream assumptions in normative PM, with and beyond stakeholder and structuration theoretical views. For this purpose, this paper explores the possibilities of ANT in informing a PM methodology by also moving beyond assumptions held by normative PM methodologies – as linear, objective, apolitical and stable – towards assumptions that consider the complex human and nonhuman interactions, the effects of actors' agendas and political aspirations, and the dynamic nature of actors' enrollment into projects.

LITERATURE REVIEW

Evidence for the continuing prevalence of project failure continues in the literature, including both partial (e.g. cost or schedule overruns) and total project failures (e.g. cancel or rejected projects). (Morris and Hugh, 1987)[6], (Tatikonda and Rosenthal, 2000)[7], and (Johnson, 2006)[8] which provided a comprehensive review that spans over a decade of data about project failure, all report that despite some recent improvements, the prevalence of project failure remains significantly high.

Growing critiques of PM theory and the need for new research to further develop PM practice beyond the dominant view of normative approaches to PM, include the "Rethinking Project Management" network and the work of (Jaafari, 2003)[9], showing that "the normative model has a limited capacity in handling environmental complexity though it can handle a high degree of project complexity. Its limitation has already been reflected in reported project failures in complex IT and software systems, new complex products and organizational transformation (to name a few)"

One of the most prominent issues arising from the normative approach is the assumption that "one size fits all", an assumption that has received substantial criticism especially by Winter et al. and (Shenhar and Dvir, 2001)[10]. In response,

(Packendorff, 1995)[11] suggests that a diversity of theories and methodologies should be employed in field research on "temporary organizations" (a term he used to refer to projects) in order to construct middle-range theories for different types of projects. This view motivates a need to recognize the unique nature of projects and to have different and alternative theories and methods to explain and manage them.

Following a similar conceptual line, (Pich, Loch and De Meyer, 2002)[12] considered how particular project contingencies such as uncertainty, ambiguity, and complexity raise issues about the project's information adequacy and how such adequacy affects the project's outcomes, suggesting that the appropriate PM strategy is contingent on the amount and type of complexity, ambiguity, and uncertainty exhibited by the project.

In addition to contingency models, others have suggested various principles and ideas for dealing with social complexity. (Jaafari, 2003) called for producing a creative-reflective PM model able to deal with high levels of environmental complexity. (Lynn, Morone and Paulson, 1996)[13] and (Eisenhardt and Tabrizi, 1995)[14] recommended an iterative-experimental PM approach when environmental complexity and uncertainty are high. (Sobek and Ward, 1999)[15] suggested pursuing multiple project solutions "in parallel" and selecting the best resulting one. However, none of these authors provided detailed enough methodologies to implement their suggestions.

Other more detailed methodologies include the APM alternative that was designed to overcome some of the most common weaknesses reported during software projects and is the result of successfully combining Agile methods and normative PM methods. APM prescribes that customers are at the center of the project and that "adaptive" teams are created to respond quickly to changes in the project's "ecosystem".

While the literature shows a variety of approaches to manage contingencies, none of them provides a comprehensive methodology to define contingencies in terms of sociopolitical relations and therefore lacks the depth of analysis required to fully account for actors and their relational effects on projects. Although stakeholder and structuration theories could inform a supplementary PM methodology designed to uncover each project's uniqueness and to effectively account for the human factor, given the assumptions mentioned above we explore ANT next.

ACTOR NETWORK THEORY

There are many definitions of ANT, but probably the best one is also the shortest: ANT is the science of associations. It provides a methodological basis upon which human and nonhuman actors (i.e. technology, methods, managers, engineers, etc.) can be enrolled and associated into networks, engaging in collective action by translating the various actors' interests into a common force that will help transform initial claims into facts and innovations (Latour, 1999)[16].

Within a project context, using ANT provides a way of identifying and analyzing the set of human and nonhuman actors fused together into networks that mobilize attention and action in realizing collective and individual interests. Therefore, as actors, related interests, and resulting associations are identified, it becomes possible to *map* the initial project's environment as an evolving project network.

PM practitioners can then use the "quandary of the fact builder" definition (Latour, 1987)[17], as a methodology and perspective for "enrolling others so that they participate in the construction of the fact" and for "controlling their behavior in order to make their actions predictable". Following his resulting notion of translation as "the interpretation given by the fact-builders of their interest and that of the people they enroll", practitioners can use the two most effective strategies for translation defined by Latour – reshuffling actors' interest and goals entirely and becoming indispensable – to *track* and influence the often complex sociopolitical settings offered by projects. In doing so, managers can realize that "other allies have to be brought in and most of them do not look like men or women" in order to *stabilize* the network and reach project closure.

Finally, it is the task of the project manager, using enrollment strategies, to minimize project complexity by stabilizing actor's relationships. Managers can achieve this by reflecting and acting on the understanding of the network-stabilization process, which results in what is called the irreversibility of network relations or "the specific interplay among actors in a network that results in a black-box – socio-technical ensembles that are no longer in dispute due to their reliability" (Cordella and Shailch 2006)[18]. According to (Latour, 1987): "When these strategies are successful, the fact which has been built becomes indispensable; it is an obligatory passage point (OPP) for everyone if they want to pursue their interest."

In summary, given that ANT offers such an ample body of knowledge, we have focused on demonstrating ANT's theoretical and methodological possibilities to build an ANT-informed supplementary PM methodology to normative approaches so that practitioners can *map, track, and stabilize* project networks.

ANT-INFORMED PM METHODOLOGY

This paper proposes a supplementary PM methodology to normative PM approaches called *MTS*, based on the three sub-methods it comprises: Mapping, Tracking, and Stabilizing. MTS is built using ANT as a theoretical framework, following (Zendejas and Chiasson, 2008) [19] previously developed ANT-based problem solving methodology and considering three main project contingencies: complexity, uncertainty, and ambiguity as defined by Pich et al. All three are considered to be directly related to the sociopolitical aspects of projects.

The resulting MTS methodology attempts to enable practitioners to embrace and manage perpetual change and the complex sociopolitical processes and outcomes in projects so as to effectively deal with the correspondingly high levels of project and environmental contingencies.

To develop a particular methodology informed by ANT, we would need to follow and observe the language and actions of actors in convincing and engaging other actors, using as our lens the strategies of translation. In other words, the dynamics of gaining (or losing) actors can be documented in terms of these strategies, each of which provides guidance as to how enrollment can be further promoted and burdens gradually overcome

MTS METHODOLOGY

Mapping

The main objective of this phase is to "map" all fundamental sociopolitical contingencies across actors, as to their current or potential association with other actors in a project. The initial listing of these actors will be based on preliminary perceptions of the human and nonhuman actors needed to make the project "work", realizing that what may work will change during the course of a project as actors are enrolled or leave.

An ANT-informed mapping method is to identify actors as to the certainty, uncertainty, or ambiguity they bring to the project with respect to their roles and *associations*, which are defined as follows:

a. Those actors with a clear role that produces consistent associations with other important actors in the project are considered to be *certain*.
b. Those identified actors who are known to be important to the project, but their role and the resulting associations have yet to be determined, are *uncertain*.
c. Finally, there may be a need for actors to fill particular roles, but we cannot identify who these specific actors will become and what their specific role and corresponding associations will and should be. These potential associations are said to be *ambiguous.*

The resulting map, with all of the various relations, indicates various characteristics about the network:

a. *Complexity* assesses the number of actors involved in known relationships. This may include users who are already participating actively in a project in well-defined roles and who recognize and interpret the project's direction in a heedful way. In ANT terms, these are actors that have been successfully enrolled into the project by means of having their interests translated into the project's interests.
b. *Centrality* measures the number of key actors that are connected with most of the other actors. A few key actors would produce a high centrality, whereas a large number of key actors would produce a low centrality. From an ANT perspective, centrality measures the contingencies related to the degree of relational separation between actors, within the associated network.

Once the network is mapped, nodes can be tagged in terms of certainty, uncertainty, and ambiguity, which results in actions over the life of the project to incrementally change these relations from higher to lower levels of ambiguity and uncertainty by enrollment and translation. This process then increases the complexity of the network, based on the sheer number of actors and relations. Complexity is also increased as a result of low centrality and vice versa.

The end result of the mapping phase is a graphical and editable representation of the initial network of human and nonhuman actors participating with the project. The resulting network structure can be analyzed quantitatively and qualitatively to determine both individual actor-related metrics and the total network metrics. *Mapping the network* is the first method of MTS.

Tracking

According to an ANT-informed view of PM, the purpose is to produce stabilized relations among actors by means of enrolling and translating their interests into a project in order to achieve intended results. Given this, it becomes essential to update the "map" from the initial stages of the project, when new actors are enrolled (or not), an existing actor is given a role, or a new translation is devised and applied to already enrolled actors. This process will be referred to as *Tracking the network.* This is the second method of MTS. The objective of this method is to track and influence the following contingency-based transformations for specific actors:

a. *Uncertainty* will decrease when an actor takes on a role that produces associations with other actors. Either before or during the establishment of roles and associations, the actor may reveal to others his or her agenda, political aspirations, and stake in the project, which is a necessary part of the translation and enrollment moments in ANT.
b. *Ambiguity* will decrease as new actors join the network with or without specific roles assigned to them. If a role is associated immediately, then both *ambiguity* and *uncertainty* disappear. If no role is given, then only *ambiguity* becomes *uncertainty*.

As for the network, this method will track the following contingency-based transformations:

a. *Centrality* – if the entry or updated actor creates associations with actors other than central actors, centrality decreases and becomes an issue that needs to be monitored and dealt with. The converse holds true.

Changes in *complexity* are, as mentioned previously, due to increases in the number of actors involved in known relationships with well-defined roles, the centrality of the relations, and the fragility of particular relations. Therefore, this method tracks revisions to *complexity* only if all these conditions are met by the new or updated actors.

Stabilizing

The purpose of mapping is to identify the contingencies that depict the project's environment through an understanding and shaping of actors' relations. The goal of tracking is to follow and influence the actors and their effects on contingencies, so that the ongoing reshaping of the environment incrementally fits the project. Consequently, the goal of *Stabilizing the network*, the third method of MTS, is to reach closure and to seek a stabilized position in the evolutionary process facilitated by the tracking method so that an OPP is established by and through the actors in producing outcomes and effects that are irreversible. As a result, the following contingency-based transformations are anticipated:

a. Almost all actors across the network are *certain* ones and are closely associated to the OPP.
b. *Ambiguity* and *uncertainty* are no longer the rule but rather the exception. In other words, given their recently gained proximity to the OPP, actors are no longer subject to the communications distortions normally caused by inefficient associations.
c. New actors incorporating into the network immediately recognize the value and permanence of the socio-technical artifact produced by the OPP, in a way that serves their purposes and reciprocally makes them willing to associate to the OPP by devoting time and effort to further authenticate and acknowledge it.

As for the network, this method aims to achieve the following contingency-based transformations:

a. *Centrality* – actors have produced the irreversible establishment of an OPP, so it becomes necessary for actors to reshape current associations and establish direct links with the OPP. Centrality is then the ultimate measure of how successfully and incrementally translations have been used.
b. *Complexity* would likely reach a maximum point just prior to the establishment of the OPP, as *certain* actors reach their maximum count and then decrease to a minimum by the time centrality maximizes. Actors can be seen as one stable network and therefore their associations are no longer contributing to increase the networks' complexity. The OPP transforms the network's artifact into a black-box.

In summary, we have presented an ANT-informed MTS supplementary methodology to normative PM approaches that aims to solve PM issues or concerns raised in the literature.

DISCUSSION

Our review of the literature over the past ten years related to PM articles issued by the International Journal of Project Management suggests that the mapping method proposed here is unique to PM. In fact, most often methodologies leave project managers making educated assumptions about complexity, ambiguity, and uncertainty, and their corresponding effect on project goals and desired outcomes based on information available at the project's onset. This somewhat deterministic, preliminary, and oversimplified view of the sociopolitical processes involved in PM is often accepted by project teams because it facilitates the generation of a project plan and the overall project progress.

An alternative to the normative planning process without these assumptions is the initial conceptual and theoretical methodology identified in this paper. MTS can be used for mapping the sociopolitical network, and then tracking and influencing it throughout the life of the project. We argue that MTS methodology can be used to reassemble and supplement the normative planning process by means of both conceptually and practically formalizing the process of depicting the project's environment in terms of its contingencies and by providing a management strategy to reduce such contingencies so that subsequent project activities are incrementally less affected by them.

While a number of contemporary PM approaches, including Agile, might to some extent address issues related to project contingencies, these approaches generally suffer from a lack of theoretical, methodological, and conceptual rigor. Therefore, while some seasoned PM practitioners might be able to depict a project environment in terms of core contingencies and even produce managerial recommendations to deal with them, more often than not a great majority of PM practitioners are ill-equipped to determine how the social and political relations affect the project plan.

In summary, we reach the following conclusions regarding the key problem with current representations of the project's environment:

a. The environment's representation is often a *snapshot in time* of what the perceived environment is at the time of the assessment, and therefore ignores the highly dynamic and evolving nature of environments.

b. Since it is believed that all project's contingencies are sufficiently represented within the instantaneous project's depiction, a causal model emerges, supporting a *deterministic* view of project events.
c. The causal model is not only ill-conceived but *incomplete* because it often lacks consideration for core contingencies or a measure of them.

The mapping method, we argue, is a valid vehicle to tackle *b* and *c*, but it needs to embrace an evolutionary approach to address *a*. Therefore, and in order to simplify the methodology presented here, a second method has been presented to embrace an evolutionary planning strategy through the tracking method, which is offered as a vehicle to produce an ongoing appraisal of the project's environment through effective managerial action, primarily characterized by the optimal mobilization of actors through enrollment and translation and by sufficiently measuring the impact of such activities on project contingencies.

In the end, we argue, by means of depicting and planning through the mapping method and managing through the tracking method, the project's environment is to a great extent a project's network and is therefore subject to many of the concepts in ANT. Drawing on (Neyland, 2009)[20], this "strategy could be considered as a matter of overcoming distances and that what the actors usually thought of as external factors beyond their control (they often referred to environment, culture, context issues) could be drawn into the process of strategizing as entities among the connected network".

Much can be gained by using the mapping and tracking methods, yet methodologically we haven't reached closure. What does it mean to finish a project? Which environmental responses are available in the end? What is the future of the actors no longer needed by the temporary organization created around the project? Answering these questions is not easy, but we argue that ANT provides theoretical vantage points to find some answers. Drawing on (Latour, 1987), reaching an OPP has great effects on the project and its environment, or in other words, the project's network. Therefore, the stabilization method presented here aims to help managers establish OPPs while identifying environmental responses that indicate the end of the tracking activities and the "project end".

The reader might think at this point that we have not discussed the many normative project methods that are well established with PM associations, bodies of knowledge, practitioners, and supporters of the normative model. Questions such as these might arise: How do you manage scope with MTS? What is the effect of MTS on project schedule? This paper does not deny the value and usefulness of normative project tools and methods, but rather suggests that they can be initially produced, staying away from poor or incorrect representations of the project's environments and its contingencies, and that they can be constantly evolved as new actors come into play, modifying the project's environment and perhaps engulfing it so that the context and the project get fused into the project's network.

If such is the case, then MTS becomes a supplementary strategy that effectively addresses the lack of managerial direction characteristic of normative PM methodologies and tools, particularly in what practitioners might commonly refer to as to stakeholder management and shareholder management. PM education is, for the most part, geared towards a mechanistic retention of methods and tools, while lacking an emphasis on the managerial strategies that are essential for successfully performing PM.

Instead, we have argued that the theoretical and conceptual foundations around MTS are sound and that our selection of social theories, primarily ANT, is adequate and relevant for these reasons:

a. MTS addresses the singularity of projects, as suggested by Winter et al. and Packendorff, by providing a theoretical language to explore ontology through actors, networks, relations, contingencies, translation, and enrollment.
b. MTS addresses the important sociopolitical issues in projects and is consistent with attempts to address the social through stakeholder and structuration theories. However, it moves beyond these by (in the case of stakeholder theory) not excluding the nonhuman actors from the analysis and (in the case of structuration

theory) by expanding the possibilities of nonhuman actors "acting" more freely, originating contingencies and constructing their own realities.

Given its high-level, conceptual, and preliminary stage, we must admit that MTS is faced with some limitations. The methodology does increase the complexity of analysis in simple projects, where other methodologies may be more immediately relevant. For example, the normative model seems adequate in cases where sociopolitical contingencies are few. And for the production of emergent technical artifacts in simple sociopolitical settings, Agile fits better. However, for complex IT projects, we strongly believe that MTS would significantly enhance the possibilities of project success.

CONCLUSIONS

ANT facilitates, better than other social theories, the detailed examination of social and technical actors involved in social movements. ANT therefore greatly facilitates studies of science and technology in general and PM in particular. However, we recognize that the work so far has only begun to address this sociopolitical complexity.

We provided a particular ANT-informed supplementary PM methodology to normative PM approaches, called MTS, and have shown how project managers can use MTS to map, track, and stabilize projects through revised views of complexity, uncertainty, and ambiguity.

We conclude that the MTS methodology usefulness is maximized when project managers find themselves in *complex-uncertain-ambiguous* social and technical situations as found in complex IT projects. Therefore we suggest that future research focuses on case studies of MTS in a variety of IT settings to determine if and how the methodology might help to improve the chances of successful IT projects and how MTS might mingle with existing normative methods and tools that practitioners are and will likely continue to use.

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