THE THREAT OF NEGATIVE SYNERGY IN INTERNATIONAL PROJECT MANAGEMENT DECISION-MAKING

Craig Winstead, PhD  
Assistant Professor of Project Management  
Saint Leo University  
craig.winstead@saintleo.edu

Shannon O. Jackson, PhD  
Associate Professor of Business  
Saint Leo University  
shannon.jackson@saintleo.edu

Mayes Mathews, PhD  
Professor of Computer Information Systems  
Saint Leo University  
mayes.mathews@saintleo.edu
Abstract

Presented is a paradigm shift in the effective decision-making processes that evolves as a result of the effect of negative synergy in the ever-growing environment of international project management. The authors introduce the concept of negative synergy as a special case of synergy where the whole is less than the sum of its parts. A discussion of the emerging role of project management in international business, an emerging model of decision making under conditions of negative synergy is suggested, and finally introduced are recommended ways to reverse situations where decision making is sent into a destructive spiral due to the effects of negative synergy. Negative synergy presents an interesting new way to increase comprehension and understanding of the complexities of decision making in international project management that may create more effective group decisions within international management.

Background

Three topical areas are significant contributors to an investigation into the impact of negative synergy upon groups in international project management and the group decision-making process. Indicated first is a summary of the rise of project management in international business and major business decision-making models in order to establish an environment that encompasses decision makers. Indicated second is a likewise review of the fundamentals of synergy and associated applications of synergy in various selected settings. Finally, the third area of discussion indicated is a review of the importance of negative synergy on the international project management decision making processes and protocols. Presented is a paradigm shift in the effective decision-making processes that evolves as a result of the effect of negative synergy on decisions made in international project management situations. A review of the literature centering on project management, the development of global standards, decision-making protocols, and the application of such project protocols to other industries is considered. Several examples of the effect of negative synergy on decisions are introduced. An emerging model of decision-making under conditions of negative synergy is suggested. Finally, ways to reverse situations where decision-making is sent into a destructive spiral due to the effects of negative synergy is introduced. Negative synergy and the application of project decision-making principles present an interesting new way to increase comprehension and understanding of how groups may make effective group decisions.

Introduction
Groups working together to make decisions, to arrive at conclusions, to make recommendations, and to derive policy have made spectacular progress in such diverse fields as medicine, engineering, finance, and project management. The spectacular events and accomplishments seen since the Industrial Revolution and those decisions stand in silent tribute to the efficacy of managers capturing the positive aspects of synergy and synergistic relationships to advance goals and objectives of firms (Buchholz & Roth, 1987). Nevertheless, sometimes things go wrong generating spectacular errors and colossal failures as weaknesses in decision-making occur (Kuhn & Poole, 2000). This paper will examine negative synergy as a proposed explanation for such an event in terms of international project management, will present a model of decision-making under conditions of negative synergy, and will suggest some countermeasures that might be useful to improving the chances for future success under conditions exhibiting features of negative synergy. Among such countermeasures is the potential application of project management standards to the decision-making process in response to an increasingly global practice.

**Literature Review**

The management of projects, defined in part as temporary, unique endeavors to achieve a specific goal within scope, on-budget, and on-time, has grown in significance for industries worldwide (Project Management Institute, 2012). As the international community embraced standards set by the U.S.-based Project Management Institute (PMI), the foremost authority on the subject, other organizations in counties such as China, Japan, and Australia developed their own standards for specific industries that continue to add to the field (Crawford & Pollack, 2008).

The researchers reviewed the existing literature related to the growing significance of project management on a global scale, the creation of various industry standards, and the use of those standards and related processes to aid in decision-making activities. The objective of this review is to link decision-making activities espoused by project managers (PMs) to better decision making for teams experiencing negative synergy.

**Overview of Project Management**

The temporary, unique nature of projects typically creates an environment where the PM forms a project team consisting of individuals who often do not work together on a regular basis.
Their goal is not only to complete the project, but also to connect project results to business goals. Participating in formal processes contained in PMI’s *A Guide to the Project Management Body of Knowledge* (PMBOK Guide), creates a framework from which project teams learn to compete at a higher level within their markets (Project Management Institute, 2012). PMs use numerous tools such as Gantt charts or network diagrams to visualize project progress and to manage time, cost, resources, and quality (Arden, 2008).

Crawford and Pollack (2008) submit that the use of such standards is a clear sign of maturity in any industry. Classic project management processes promoted through the PMBOK Guide occur within the five process groups of initiation, planning, execution, monitoring/control, and closing. Each of these process groups requires in-depth knowledge of such variables as cost, quality, scope, risk management, and communications (Project Management Institute, 2012). Such skills may add to the decision-making capabilities of project and marketing managers alike.

**Increasingly Global Nature of Project Standards**

Organizations worldwide continue to realize progressively the benefits for prescribed, professional standards related to project processes and implementation techniques (Arden, 2008). The mid 1900s saw a noticeable surge of projects with international consequence including ones with global operations and project management. The PMI remains the largest professional organization related to project management and their PMBOK approach is still the most widely used in the field (Crawford & Pollack, 2008). However, PMs have begun to take notice of alternative approaches such as Value-Driven Change Leadership (VDCL) that encourages the measurement of the value/outcome of a project over the traditional budget/schedule measurements. This approach then places emphasis on outcomes of a project as opposed to cost and schedule performance (Nicholas & Hidding, 2010).

VDCL is but one example of a host of alternative approaches to project management in a growing field of study. Other approaches and decision-making activities developed by professionals in organizations across the globe are beginning to take root. Some notable, professional organizations include Project Management South Africa (PMSA), the United Kingdom’s Association for Project Management (APM), the Japan Project Management Forum (JPMF), the Australian Institute of Project Management (AIPM), China’s Project Management Research Council (PMRC), and the International Project Management Association (IPMA), which operates not only in Europe but also in Africa and Asia (Crawford & Pollack, 2008). Members of these organizations number well into the hundreds of thousands and add greatly to the discussion on project management processes and to decision-making techniques in particular.
Project Management Decision Protocol

Frequently, PMs face the challenge of managing both the technical aspects of the project (budget, resources, scope, schedule, etc.) and the human factors of interpersonal relationships among a diverse team. This may include working with team members from differing departments within the firm to those with varying organizational, ethnic, generational, or cultural backgrounds (Wong, 2007). Skills required of PMs include “…problem-solving, teamwork, leadership, critical analytical thinking, time management, managing relationships, attitudes, and expectations, and the ever-critical communications, to the problems raised in the day-to-day managing of projects, programs, and portfolios (Kraus, 2007, p. 3). Adherence to strict project controls and standards to manage the technical and human factors adds to the decision-making capabilities of PMs (Wong, 2007).

Major decisions required by PMs include input into the selection of projects, monitoring/control, resource, risk, conflict, and stakeholder management (Ardren, 2008; Wong, 2007). Regardless of the type of decision required, PMs often follow the project management protocol of a) establishing decision criteria, b) producing and analyzing alternative approaches, c) weighing alternatives to decision criteria, d) determining the favored alternative, and e) implementing the decision. PMs base such decisions on historical data from past projects and previous project outcomes if applicable to the decision criteria (Ardren, 2008). Jankovic, Stal-Le Cardinal, and Bocquet (2010) add that project decisions include realistic objectives that correspond to the market; and that decisions are often made using collaborative efforts as no one team member often has the technological ability to make the decision alone. This common decision-making approach is part of a growing standard that creates a sense of reciprocity between established professional standards in other management fields with the field of project management (Crawford & Pollack, 2008).

Classical Decision Making

There are four widely accepted models of business decision-making: the Rational or Classical Model, Simon’s Bounded Rationality Model, Vroom and Yetton’s Normative Model and the Intuitive or Heuristically based model. In addition, there are a number of protocols for enhancing group decision-making. This section of the paper will discuss the four decision models and various suggestions for improving the efficacy of group decision-making.
The Rational Model. has been the dominate model of decision making since WWII (Prusak, 2005). The model is based on the following eight steps:

1. Identification of the problem
2. Identification of the decision criteria
3. Allocation of weights to criteria
4. Development of alternatives
5. Analysis of alternatives
6. Selection of an alternative
7. Implantation of the alternative

The model, however, has inherent flaws. For instance, it assumes that the exact problem to be dealt with can be clearly identified. Therefore, for example, according to the Rational Model, if the manager sees there is a problem with turnover in the organization, the model assumes that turnover is the problem to be solved, not, perhaps, a symptom of a larger problem in the organization. Possible errors in the identification of the problem can, obviously, lead to problems with the rest of the model since the original assumption in the eight-step process may be erroneous. Other problems with the model lie in its assumptions of rationality; that, for instance, there is only one single-well defined goal to be obtained; all alternatives and consequences can be known; preferences are always clear and those preferences remain constant; there is unlimited time and monies available and that the final decision can be an optimal decision (Robbins & Coulter, 2005).

The Bounded Rationality Model. The problems with the Rational Model, led some, like Herbert Simon, a political scientist, to explore the limits of rationality in the model. Simon suggested, in his investigation of the model, that the Rational model “leaves no room for regrets, second thoughts or ‘weakness of will’” (Simon, 1986). He suggested, instead, that business decisions are made under conditions of “bounded rationality” (Simon, 1947). In this model of Bounded Rationality, the inherent flaws of the Rational Model are taken into consideration in the decision making process and suggests that managers make decisions rationally, but are “bounded” by their inability to process the information required to make an optimal decision. Simon (1947) coined the term ”satisfice” to mean that managers, because of their limitations to process information, are not able to make an optimal decision, but merely a satisfactory and sufficient decision (Robbins & Coulter, 2005).

The Intuitive Model. The third widely accepted model of decision making in the business literature is the Intuitive or Heuristically based model. The Intuitive model also points
to problems in the Rational model. For instance, Nutt said that when managers use the Rational model to make decisions they “struggle to reach the 50% success mark.” (Sinclair, Ashkanasy, 2005). The literature (Wally & Baum, 1994; Tomer, 1996; Kuo, 1998; & Agor, 1984) suggests that the Rational model is being replaced by a more “holistic model” (Sinclair, Ashkanasy) model that takes into account the threat of high decision costs, increased time constraints and more ambiguous, dynamic environments. The Intuitive model suggests that managers make “gut” decisions or decisions based on past experiences so they can “act quickly with what appears to be limited information” (Robbins & Coulter, 2005). One study “revealed that almost one-third of (them) emphasized ‘gut’ feelings over cognitive problem solving and decision-making” (Robbins & Coulter, 2005).

The Normative Model. Whichever the model followed, the individual decision maker is emphasized. Vroom and Yetton’s Normative Model is one of the few business decision-making models that emphasizes consultation and group dynamics (Vroom & Yetton, 1973). Vroom and Yetton based their group decision-making model on the ideas that situational factors cause “almost unpredictable leader behavior” (faculty.css.edu, 2006). The authors explain that five different decision procedures are followed: two autocratic, two consultative and one totally group based:

A1: Leader takes known information and then decides alone

A2: Leader gets information from followers, and then decides alone

C1: Leader shares problem with followers individually, listens to ideas and then decides alone.

C2: Leader shares problem with followers as a group, listens to ideas and then decides alone

G2: Leader shares problems with followers as a group and then seeks and accepts consensus agreement.

Vroom and Yetton (1973) assumes that participation of those involved in the decision-making process increases acceptance of the decision and that increased acceptance increases commitment to the decision.

Nevertheless, even with the increased attention to participation by others in the decision-making process, there are factors that suggest that the results of group decision making are different from individual decision-making. For instance, there “are some decisions which
employees simply accept because they are indifferent to them” (Hoy, Tarter, & John, 1993). In addition, if there is little group commitment to a decision, then participation in the decision making process should be limited because it may influence the direction in which the decision maker wishes the solution to turn (Hoy, Tarter, & John, 1993).

In order to increase the efficacy of group decision making there are several suggested conditions. For instance, giving groups “task–relevant information that simplifies…their tasks…, more cohesive groups tend generally to be more productive, group norms that favor productivity...” (Kerr, Tindale, 2004); group commitment to organizational goals and tasks and group expertise all enhance the quality of group decision making. In fact, even seemingly simplistic suggestions like larger groups allow for more diverse input, having an odd number of people in the group helps to avoid stalemates and having a group large enough to allow for members to “shift roles” but small enough for “quieter members to participate” (Robbins & Coulter, 2005) all enhance the group decision making process.

**Forms of Synergy**

Usually synergy is thought of as getting more done with less (Francis & Young, 1979). In reality, synergy is found abundantly in a variety of natural systems. The idea that the whole is somehow greater than the sum of the subsets of a system and the concept is divergently applied universally across such disciplines as engineering, medicine, chemistry, business, leadership, psychology, and social work. The benefits of shared energies are apparent. For example, a monkey and a gorilla stand under a banana tree each hungry for a piece of ripe fruit. Neither can reach high enough to gather it. However, if the monkey stands on the shoulders of the gorilla, they can accomplish together what neither of them could have accomplished alone.

Doctors know that certain medications are useful in treating diseases. A diabetic may reduce the risk of death through damage to their heart, liver, eyes, nerves and kidneys by taking insulin injections. Alternatively, the patient may reduce the risk of death through blood clots that can induce strokes and heart attacks by simply taking a children’s strength dose of aspirin every day. However, when both are taken together, the risk of death is dramatically reduced to levels that greatly enhance longevity.

A business that has a potential advertising budget of two million dollars might spend the entire amount on magazine ads and expect to gain an additional five million dollars in revenue. Alternatively, they may elect to apply the increase to their personal selling budget by that amount and obtain a four million dollar increase in revenue. However, the more powerful result might be to apply one and a half million to advertising and the other half million to personal selling with a resultant increase of revenue of twelve million dollars. Why? The marketing manager
would say that each promotion method reinforces the other. However, in reality, this is but an excellent example of synergy. The whole is greater than the sum of the parts.

Synergy has an important place in all aspects of systems theory and its application to science, medicine, and business. Understanding when and how to apply synergistic relationships may be a key success factor for implementing strategic, tactical and operational planning at all levels and functions throughout a firm.

**Negative Synergy**

Negative synergy may be thought of as the logical opposite of synergy. (Phillips, 2001) What is often not as well recognized nor appreciated is this reverse effect: represents a condition where the sum of the subsets of a system is less than the sum of the whole. However, this negative synergy concept, too, has widespread but under recognized applications. For example, the loss of a right eye has serious consequences. The beholder may lose peripheral vision, there may be a loss of depth perception, and some disfigurement may exist. Likewise, the loss of a left eye may result in similar serious consequences: the beholder may lose peripheral vision, there may be a loss of depth perception, and some disfigurement may exist. Either eye is obviously a subset of the whole vision system. The loss of either subset is not desirable. Now consider the loss of both eyes. The consequences are much more severe than the loss of either subset alone. The combined loss and concurrent resulting total blindness then has a negative synergistic effect that is much more adverse to the total visionary system than that experienced by the loss of either individual subsystem.

In the Sudan, relief efforts are frustrated for years. The region is characterized by overpopulation, too many people. Additionally, poor soil conditions coupled with low annual rainfall; result in overgrazing by the animal population to the point that herdsmen lose a significant number of animals each year due to malnutrition and drought. Likewise, the region will not provide enough surface crops to sustain the number of people living in there. An epic surge of HIV/AIDS related deaths has left entire generations of children without any surviving parents or home life of any form. Any of these issues would be difficult to overcome but the sum of all is devastating. The cumulative effect of negative synergy is so overwhelming that the solution to the situation in the Sudan is almost beyond human comprehension or understanding. The result of the effect of negative synergy leaves policymakers without a clue as to how to proceed best (Mathews, 2006).

Negative synergy is a force to be reckoned with. Managers must be aware of its potential impact. They must be as aware of the possibility negative synergy appearing in relationships as they are of the occurrence of the effects of positive synergy.
Group Manifestations of Negative Synergy

When someone is involved in making decisions in a group setting, the possibility exists that the group or team may come to a better decision than any one individual may. This approach using the concept of synergy underlies the models previously discussed. However, none addresses the effect of negative synergy. This, and its ramifications, will be discussed in a setting roughly based upon the popular communications model, the JoHari Window (Luft & Ingham, 1955).

The JoHari Window is, “a model named after its creators, Joseph Luft and Harry Ingham (hence Joe/Harry…), and is a way of describing how we give and receive information about ourselves and others”(Team Building Tips, 2006). The metaphorical model is a tool that is used to help people understand better relationships in groups and is used primarily as a heuristic exercise (Chapman, 2006). The model has been adapted into many forms (e.g.; NoHari (Hase, Davies & Dick; 1999) and JoHari (Luft & Klett, 1972).

Figure 1 titled Negative Synergy Group Decision Model, shows one variation that has been developed to facilitate discussions of negative synergy in group decision-making settings. Four quadrants are used to categorize the relationships among self and groups on two dimensions – action and feelings. Hence, the four quadrants may be described as follows:

**How I Act.** This quadrant is where I project myself to the group. It is the outward set of clues as to my identifiable, open communications in either verbal or nonverbal form. If I am attentive, open, strong, secure and engage in imaginative solutions to problems then that message is sent to the group.

**How the Group Feels.** The second quadrant shows how the group reacts inwardly to the actions that I have processed. Such a reaction might be feelings of being conceptually supportive, seeking inward concurrence, striving to remain engaged, or identifying areas of future discourse. The reaction is inward with no outward manifestation of the secret internal process.

**How the Group Acts.** This quadrant gives the external or public response to the internalization that has taken place within the group (minus me). The result might be to convey sympathy of concurrence. Alternatively, the group might convey confusion or a need for clarification. Again, this quadrant represents a public manifestation of the secret internalization that has taken place.
**How I Feel.** Finally, it is here that I process the communications from the group. Inwardly I may either accept or reject an interim decision. I may feel confused and ask for clarification or I may accept a degree of finality towards a decision.

![Figure 1- Negative Synergy Group Decision Model](image)

When a group is in a state of equilibrium in their decision-making processes, it remains stable. How I feel or react is appropriate to how the group has acted. My actions are proportional to how I reacted. The group properly reads my external messages and reacts accordingly. Finally, the group endeavors to continue the decision-making process and working towards an eventual decision.

However, a different reaction occurs when positive synergy is a factor in the decision process. A new element has resulted in a new dynamic that is better than that seen before. A new advertising slogan has been suggested or a new line of products proposed. The key here is that the cumulative effect of the decision making process was as expected. The whole increased over its initial position. However, the shift does not continue indefinitely since such an action is resource constrained. Finite reality serves as a buffer or limit on unbounded increases due to a synergistic effect and such a model is beyond the scope of this paper.

However, there exists a third possibility – that of negative synergy. If How I Feel is smug, cynical, inflexible, or unethical. That reaction is not positive. How I Act then adds to the unfavorable situation. My actions may be loud, cowardly, aloof, or insensitive. Moreover, those actions will not be well received. The group might react in unimaginative, impatient, callous, or insecure ways. In addition, that reaction could be shown through group actions that are selfish, loud, lethargic, or cruel. However, negative synergy does not stop here. How the group acted affects how I react and the cycle continues repeatedly. A spiral of negative synergy may set in and the group decision-making process spirals inward until the system decomposes into absolute failure.
There is a popular model of group decision making gone awry, such as that described in Irving Janis’ *Groupthink* (Janis, 1977). Janis describes how too much group cohesion can result in limited alternatives being considered in group decision making behavior and could result in the incorrect decision being made. However, if Groupthink is but a special case of negative synergy, at least the concept of Groupthink gives cause to consider the possibility for remedies under conditions or situations where negative synergy has resulted in a downward spiral in the decision making process.

**What to do About It**

An examination of the four quadrants in *Figure 1* quickly reveals that three of the four represent states beyond “my” control. The only quadrant that I can effectively influence is How I Act.

How should I act? Avoid situations that increase the probability of increased, unwarranted risk. At least avoid giving an impression of being overly optimistic as to the outcome when, in fact, it is not nearly as certain as it is being presented by the group. Act with caution to defuse risky adventures. Be aware of warning signs. Do not let the groups actions discredit or rationalize away those warning signs for prudent action. The advice to take a deep breath before going forward may be a simple heuristic that might give time to reflect on assumptions made in the decision process to evaluate if they really are as true as they were assumed to be initially. Be careful that the moral actions proposed by the group are indeed also ethical. It is easy for the ethical opinions of individuals to become confused and even accepted as equal to the external ethical standards of a group. You need to raise the criteria to the appropriate group standard.

It is important not to underestimate the competition and the competitive atmosphere that surrounds a firm in decision making. Do not let the group lead you to the assumption that your team in invincible. You probably are not. Also, do not let the group persuade you that expressing an opposing viewpoint represents disloyalty to the group process. In reality, the reverse is true. Giving a good counter argument is a very effective way to turn aside a cycle of negative synergy. In the same regard, do not let your silence be misread as concurrence with the action by the group. Shift the focus. Do not let the group encourage complacency. If you not concur with the signals sent by the group’s actions, stop the spiral.

The only element of negative synergy that you can influence is how you act. Therefore, each action must send a clear signal as to where you see actions going. Otherwise, only you can reverse the effects of negative synergy. You must make the choice.

**Summary**
Presented here has been a small step proposed to advance the decision making paradigm by expanding the original conditions assumed in major models to incorporate negative synergy into the dynamics of conventional approaches. This paper does not attempt to derive proofs for the new models but instead proposes a paradigm shift that would accommodate negative synergistic effects within the framework of the existing body of knowledge. It advances only the concept.

This paper proposes, perhaps for the first time that internationally accepted project management principles might provide a framework for better decision making among those managers experiencing negative synergy. Knowing that numerous project managers make decisions through team consensus or some other collaborative method due to the highly technical nature of many international projects contributes to the concept of synergy directly (Crawford & Pollack, 2008). The researchers suggest additional field research and observations connecting project management principles to negative synergy to increase the value of this observation.

Furthermore, a new challenge in the group decision-making process is the addition of electronic meetings. According to a study done by PricewaterhouseCoopers, cited in Fortune (Fisher, 2004), 45% of “lucrative” ideas come from employees via email and chat sessions; to stimulate that “in-house” gold mine of ideas is a new frontier for managers concerned with decision making. No work is known to exist examining the effect of negative synergy in such a rich environment for decision making in international project management. Therefore, a large balance of the work remains yet to be done in subsequent expanded versions of the material presented here.

References


Kuhn, T., & Poole, M.S. *Human communication research*, 26, 4, 558-590.


Mathews, M. Negative synergy: a macro perspective for environmental issues” *International advances In economic research*, 12, 4, 424+

Mooney, Helen R. “Marketing Mistakes Day” quirkymarketingcalendar.com

Murali, D., (2005). “With synergy, differences are celebrated provided you have the energy” *The Hindu Business Line.*


   Home.att.net/~dwane.phillips/advisors/nsynergy.htm.


Team building tips (2006)

http://www.-unix.oit.umass.edu/~mee.teamsmm6.htm

www.changingminds.org/disciplines/leadership/theories/vroom_yetton.htm

www.faculty.css.edu/dswenson.web/LEAD/vroom-yetton.html