Enterprise IoT for the Defense Industry

A Proposed Leadership and Organizational Structure

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Abstract

As part of an IT strategic management proposal to improve the IT management and planning process in an organization, this paper serves as the first component, which examines a chosen organization an assess the leadership model and organizational structure currently in use. Specifically, two theories in each category are compared and differentiated in general terms and then applied to specific corporate situation.

Keywords: IT, leadership style, organizational model

Contents

[Abstract 2](#_Toc449361216)

[Contents 3](#_Toc449361217)

[Models of Leadership and Organizational Structure 4](#_Toc449361218)

[Leadership Theories 4](#_Toc449361219)

[Organizational Structure Models 6](#_Toc449361220)

[IT Impact on Business Models 7](#_Toc449361221)

[Particular Structure Model 8](#_Toc449361222)

[Leadership Style and Organizational Structure for the IoT 8](#_Toc449361223)

[References 9](#_Toc449361224)

Models of Leadership and Organizational Structure

Although associated with significant hype, the Internet of Things is becoming the next evolutionary expansion of the Internet itself, with numerous of opportunities and trials along the way. The aim of this paper is to propose a dedicated methodology for a small-business defense contractor preparing to migrate towards IoT-based business model. This methodology will include possible leadership styles and associated organizational structure to best manage an IoT in the context of defense contracting.

# Leadership Theories

As stated by Hersey and Blanchard (1993), a prosperous operation has one major characteristic that distinguishes it from an ineffectual operation: adaptive and competent leadership. Esteemed leadership and management expert, Peter F. Drucker, stated that managers are the principle yet scarcest asset to any business organization. Most groups struggle with the lack of people who are both willing and able to lead to get the job done. Definitions of leadership and management abound, and generally focus on influencing people to willingly work towards group objectives and strategic goals, all of which contribute to accomplishing a lofty vision or end state.

Throughout the vision to results journey, assuming that a leader and his followers remain constant, the remaining situation variable changes. As the situation changes, the leader may employ a number of leadership styles. Gupta presents a brief compendium of six classic leadership styles including coercive, authoritative, affiliative, democratic, pacesetting, and coaching. In addition to these classic styles, there are several additional variants that have come into vogue over the years. These styles include situational, transactional, transformational, and strategic. Gupta points out that although most leaders favor a default style, research reveals that effective leaders get the best results by using other styles as the situation changes. An appropriate analogy would be a leader using appropriate tools (styles) out of his toolbox (repertoire). There is no single method that suffices for all situations.

Kendrick (2011) provides a concise guide to transformational leadership, which looks at followers and provides motivation to achieve higher levels of performance and to develop leadership at all levels of the organization. This work expands upon one of the popular leadership styles that have augmented the more classic styles.

Sanders and Davey (2011) revisit the "management theory jungle" documented in the early 1960s, to explore how numerous leadership theories evolved over time. The authors also link these theories with organizational effectiveness to form a "meta-model" of strategic leadership, which signals a paradigm shift from a collection of varying theories.

Triggered by unfortunate corporate scandals including the fall of Enron and near collapse of AIG, the Sarbanes-Oxley Act of 2002 protects shareholders and the general public from fraudulent practices in public corporations. Livingston and Lusi (2009) propose a hybrid model of leadership evolving from complexity leadership and authentic leadership. The goal of this model goes beyond the straightforward cataloging of various leadership theories such as the work of Gupta (2011) or Sanders and Davey (2011) to be more moral, ethical, credible, and people focus. At the same time, this model includes a systematic perspective built upon the complexity of the contemporary situation. Authentic leadership contributes to the hybrid model by addressing self-awareness, self-regulation, and self-development.

When considering the definition of a leader or follower, it is important to note that the definition should not be assumed to be hierarchical in nature. Rather, at any time a person is trying to influence the behavior of a coworker a leader-follower relationship exists. In general, these instances of influence are guided by a desired outcome.

That desired outcome, or vision, embodies results. The leader influences people, teams, cultures, and the organizational environment by way of business ideas, strategy, goals, and tasks. The leader serves as the link between a vision and results. The leadership process is a function of leader, follower, and the situation (Hersey & Blanchard, 1993).

# Organizational Structure Models

The traditional hierarchical organization is based on the manufacturing economy paradigm, but it may be applicable in a large IT organization or even in a large IT development team. A flat IT organization may be appropriate for a small IT consulting firm or for the staff of a CIO or CTO in an organization where the staff members are all highly knowledgeable and skilled at the same level, so they can work independently or together in peer teams and share the same reporting relationship with the manager (Coplien, 2012).

Banker, Hu, Pavlou, & Luftman (2011) discuss management research on the executive position of chief information officer (CIO), considering the reporting structure of management in terms of the CIO's access to senior executives and participation in decision making. The informal assumptions that the CIO should report directly either to the chief executive officer (CEO) to promote the role of information technology or to the chief financial officer to control information technology costs are examined. A hypothesis is proposed that a company's strategic positioning should determine the CIO reporting structure, and longitudinal data is presented supporting the hypothesis.

The article presents guidance to executives on the issue of whether or not to centralize a particular operation or function. The authors posit three questions, at least one of which must be answered in the affirmative to justify a decision to centralize. Questions include whether centralization is mandated, whether it will add at least 10% to net income or firm value, and whether the risks of centralization are low. Two examples of this methodology are given, one involving an equipment manufacturer and a food-services company (Campbell, Kunisch, & Muller-Stewens, 2011).

The authors seek to expand the scope of theoretical approaches and organizational factors that are used in concert to examine the effect of organizational factors on IT business value in the present study. They explore the relationships among IT infrastructure capability, a set of five organizational factors, and IT business value using three dominant approaches in organizational research: the universalistic, contingency, and configuration approaches. The ensuing predictions are empirically tested through interviews with senior executives in 57 organizations (Fink & Sukenik, 2011).

# IT Impact on Business Models

It is difficult to grow a business when the world as the global business landscape changes constantly. Although constant change may seem to hinder business transactions, successful companies will change accordingly to benefit from such change. Operating and building a profitable business demands that executives know how to define and execute strategy. Business models must align with the needs of the customer. However, given human nature, it is not easy to change. Over the past few years IT has significantly revolutionized business models. IT has aided companies in remaining agile (Applegate, Austin, & Soule, IT Impact on Business Models, 2008).

# Particular Structure Model

This proposal will focus on business models that are appropriate for a typical small business defense contractor. A common concern for these companies is how to create value with obstacles such as a sluggish economy and sequestration. A key strategy is reducing costs by streamlining their organizations. They are acquiring more companies through mergers and acquisitions in hopes of strengthening core business capabilities (Goldberg, 2012). Specifically, small business contractors are trying four primary types of business model innovations including,

* Managed services
* Commercialized offerings
* Finding untapped capabilities
* Creative partnering

# Leadership Style and Organizational Structure for the IoT

Slama, Puhlmann, Morrish, & Bhatnager (2015) present a cutting edge overview of the Internet of Things (IoT) and its impact on enterprises. The authors present a number of use cases and explain how these have been implemented within the enterprise. They also explain the technical concepts within IoT and explore their uses and how these can benefit companies in a way which has not been sufficiently explained before.

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