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Enhancing enterprise agility by deploying agile drivers, capabilities and providers

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ABSTRACT

Agility is perceived as the dominant competitive vehicle for all organizations in an uncertain and ever-changing business environment. When embracing agility, important questions must be asked. What precisely is agility and how can it be measured? How can one adopt the appropriate agile enablers to develop agility? How can one effectively assist in enhancing agility?

For an enterprise to achieve agility, it is critical to create an effective integrated procedure within the business that coordinates and ensures that the agility providers can satisfy the agility capabilities and cope with drivers, ultimately transforming all of these attributes into strategic competitive edges. However, the existing literature on enterprise agility has failed to sufficiently address the relevant perspectives in such analyzes. The relationship matrix in the quality function deployment (QFD) method provides an excellent tool for deploying important concepts and linking processes. This report suggests a new agility development method for dealing with the interface and alignment issues among the agility drivers, capabilities and providers using the QFD relationship matrix and fuzzy logic. A fuzzy agility index (FAI) for an enterprise composed of agility capability ratings and a total relation-weight with agility drivers was developed to measure the agility level of an enterprise. This report also describes how this robust approach has been applied to develop agility in a Taiwanese information technology (IT) product and service enterprise. This development project revealed that the proposed framework and procedures can enhance the agility of an enterprise as well as ensure a competitive edge.

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1. Introduction

At the beginning of the twenty-first century, the world faces profound changes in market competition, technological innovation and customer demand. The world-wide growth in education and technology has led to intense and increasingly global competition and an accelerated rate of innovative change in the marketplace. There is a continuing fragmentation of mass markets into niche markets, as customers become more demanding with increasing expectations. This critical situation has led to major revisions in business priorities, strategic vision and the viability of the conventional and relatively contemporary models and methods [41]. To cope with these changing competitive markets, as well as the ability to meet customer demand for increasingly shorter delivery times, it is critically important to ensure that supply can be synchronized to meet the peaks and troughs of the demand [1,53]. Companies now require a high level of maneuverability encompassing the entire spectrum of activities within an organization. Agility in addressing new ways to manage enterprises for quick and effective reaction to

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changing markets, driven by customer-designed products and services, has become the dominant vehicle for competition [56].

Agile enterprises are concerned with change, uncertainty and unpredictability within their business environment and with making an appropriate response. Therefore, these enterprises require a number of distinguishing attributes to promptly deal with the changes within their environment. Such attributes consist of four principal elements [43,54]: responsiveness, competency, flexibility/adaptability and quickness/speed. The foundation for agility is the integration of information technologies, personnel, business process organization, innovation and facilities into strategic competitive attributes.

The embracing of agile strategies has several benefits for companies, including quick and efficient reaction to changing market requests, the capability to customize products and services delivered to customers, the capability to produce and deliver new products in a cost-efficient manner [45], decreased manufacturing costs, increased customer satisfaction, removal of non-value-added activities and increased competitiveness. Accordingly, agility has been advocated as the business paradigm of the 21st century. Agility is considered the winning strategy for becoming a global leader in an increasingly competitive market of quickly changing customer requirements [2,17,54]. Some researchers [4,11] further claimed that agility is the fundamental characteristic for survival and competitiveness. However, the ability to develop and measure agility has not been built as rapidly as anticipated, because the technology for managing and enhancing enterprise agility is still being developed [43,56]. Thus, in embracing agility, many important questions must be asked, such as: What precisely is agility? What methodology exists that can provide firms with the means to develop entrepreneurial agility? What are the appropriate agility enablers? How should the appropriate agile enablers be adopted? How can agility be measured? How will companies know when they possess this attribute because no simple metrics or indices are available? How and to what degree do the attributes of an enterprise affect its business performance? How does one compare agility with a competitive enterprise? To improve entrepreneurial agility, how does one identify the principal unfavorable factors? How can one assist in more effectively achieving agility [20,43]? Answers to such questions are critical to practitioners and the theory of agile entrepreneurial design. The purpose of this research is therefore to seek solutions to some of these problems with a particular focus on agile development planning and measurement, as well as identifying the principal obstacles to improving agility.

The purpose of agile development planning is to unite the resources of an enterprise to create business value. According to previous studies [3,6,9,49], the value of a firm can be maximized and competitive threat minimized only by selecting a strategy based on all facets of the business, such as new-market requirements as well as competitive and operation strategies, not merely as isolated organizational strategy islands within the company [37]. Thus, for a successful organizational strategy such as enterprise agility, it is critical to create an effective integrated procedure within the business to ensure that the agility providers can satisfy the agility capabilities and cope with agility drivers, ultimately transforming all of these attributes into strategic competitive edges [33,57]. Although alignment among competitive drivers, agility capabilities and providers are all very critical in making an enterprise agile, it is difficult for an enterprise to achieve agility because of the lack of an efficient approach for agile development planning. The focus of recent research [15,18,38,41,42] has been on setting enterprise agility. However, there is a lack of sufficient details on how these objectives are translated into action plans. These approaches do not deal directly with the interface and alignment issues among competitive drivers, agility capabilities and the choice of appropriate agility providers.

The relationship matrix in the quality function deployment (QFD) method provides an excellent tool for aligning important concepts and linking processes. Fuzzy logic is a useful tool for capturing the ambiguity and multiplicity of linguistic judgments required to express both the relationships and ratings of agility attributes. To compensate for the lack of an efficient approach, which can deal directly with the interface and alignment issues among competitive drivers, agility capabilities and the choice of appropriate agility providers to assist managers in more efficiently achieving agility, a new systematic methodology for agile development planning, based on fuzzy logic and the relationship matrix in the QFD, is devised to align the overall relationship from the agility drivers in the business environment down to the agility providers (with guidance and direction for realizing enterprise agility). A fuzzy agility index (FAI) for an enterprise is developed for measuring the agility of an enterprise as well as for identifying the principal obstacles for improving agility. As an illustration, this report demonstrates how the proposed approach was applied to develop agility in a Taiwanese information technology (IT) product and service enterprise.

The remainder of this report is organized as follows. Section 2 reviews the related research. Section 3 discusses fuzzy logic and its applications in decision making. A conceptual model of an agile enterprise is described in detail for developing a systematic evaluation methodology in Sections 4 and 5. A practical case is presented in Section 6. Section 7 presents concluding remarks and suggestions.

2. Review of related research

2.1. Methodology for enhancing agility

Numerous conceptual models for agility implementation have been proposed to assist managers in enhancing agility. For example, to promote a new understanding of cooperation as a vital means of survival and prosperity in the new business era, Preiss et al. [38] developed a generic model for agility. The first integrated framework to achieve agility was proposed by

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