

# Agile Holonic Network Organizations

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## INTRODUCTION

Enterprises have been radically altered since the 1980s, so much so that people talk about a new paradigm, which is referred to by different names such as post-Fordism, post-industrial era, mass customization, information society, etc. However, awareness of this paradigm shift is not a new phenomenon since it has been extensively discussed in the literature since the 1970s (e.g., see Kidd, 1994; Piore & Sable, 1984; Savage, 1996; Toffler, 1971). That the world of enterprise is undergoing a paradigm shift is not of great interest anymore. Of more importance are the details of the new and advanced concepts that are required in the longer-term to deal with an ever-changing business environment.

Given the demands of modern business, there is an obvious interest in the topic of flexibility and responsiveness. This interest again extends back across several decades, with the literature showing that the topic has been extensively explored in various contexts (e.g., see Gerwin & Kolodny, 1992; Pine, 1993; Zuboff, 1988). Responsiveness can come in several forms such as an ability to bring products and services to market ever faster, or to handle individual customer requirements, etc. Key to achieving these types of responsiveness is flexibility, which has multiple definitions, for example, flexibility to change work scheduling, flexibility to handle breakdowns, flexibility to handle changes in the volume of work, flexibility to make product specification changes, etc.

Much of the published work relating to flexibly derives from the topic of flexible manufacturing, but the lessons learned about achieving flexibility are far more universal. The key generic point about flexibility is that it is not solely a function of technology, but also of organizational design and people capabilities. It is also the case that the right type of flexibility is more likely to be achieved if it is explicitly addressed within enterprise strategies, which should be aligned with the business environment, otherwise firms end up with flexibility capabilities that are inappropriate to their business needs.

Flexibility is largely a capability to respond to changes that are mostly foreseen, expected, and bounded. However, the problem that many enterprises are increasingly facing is that it is becoming more difficult to foretell what enterprise capabilities will be required, not just concerning flexibility, but also in terms of technological expertise, relationships with suppliers and customers, etc.

The need to continually change enterprise capabilities leads to the question: what sort of organizational design will enterprises need in the future, in the second decade of the 21<sup>st</sup> century, and beyond, to be able to *adapt* to frequently shifting external conditions in the business environment? This is the essence of the subject matter addressed in this article, and it requires consideration of a number of important related questions. What exactly is the difference between flexibility and adaptation? What sort of organizational features enable adaptation? To answer these questions it is necessary to explore the field of organizational concepts, business strategy, and agile enterprises.

## BACKGROUND

### Hierarchical Organizations

A hierarchical organizational structure is normally something that is designed based on some identified requirements, and the design is usually determined in advance by management, taking account of organizational design issues such as differentiation, integration, formalization, and centralization (Majchrzak, 1992). Once the organizational structure has been determined according to some predefined requirements, it tends to remain fixed for a long period of time. The normal assumption is that changes will only occur infrequently so the organizational design remains valid for an extended period. Thus the traditional hierarchical view of organizations is based on static and rigid assumptions and designs, and these work reasonably well so long as the business environment is fairly constant and uncertainties can be eliminated, controlled or managed.

The limitations of hierarchical organizations are of course well understood, and improvements such as the matrix organization have been used to overcome, for example, the functional loyalties and narrow thinking that often hinders cross-functional projects and activities in traditional hierarchies. To deal with problems of poor horizontal communications, often an informal network organization develops within the hierarchy to work around the constraints imposed through the organizational design.

Highly functional organizations with many layers within the hierarchy work well in circumstances where responsiveness is not needed, as was the case in many businesses up to the beginning of the 1970s. Once there is a need for flexibility, it is necessary to begin to remove layers within the hierarchy (a process known as organizational flattening), and to implement a means of increasing and improving cross-functional working, typical methods being team working and multiskilling of employees. This is what has been going on in many businesses since the mid-1990s.

However, flatter organizations, while providing flexibility, are designed in the same way as functional hierarchical organizations; by management in a top-down fashion, based on a set of specified requirements. Underlying this approach is the implicit assumption that organizational change is still an infrequent event, and that once a design has been implemented, apart from minor adjustments, the design will remain valid for a reasonable length of time. As long as this assumption is valid, then flatter organizations will deliver the pre-defined types of responsiveness that they are designed to provide.

### **Business Strategy Under Conditions of Change, Uncertainty, and Unpredictability**

There is nothing new about change, uncertainty, and unpredictability in the business environment. All businesses in all ages have operated in such circumstances, to some degree, and classical business strategy literature addresses this issue. Porter (1985) for example, deals with competitive strategy under uncertainty, with industry scenario analysis presented as one tool to help identify possible industry scenarios and strategic implications. Competitive strategy is then a matter of selecting one, or some combination of, five basic approaches. These are: picking the most probable scenario,

adopting the best scenario given the firm's resources and position, hedging by creating a strategy that addresses all scenarios, postponing resource commitments until uncertainty decreases, and, influencing the factors that cause uncertainty with the intention of making one particular scenario more probable. Withdrawal from an industry or market subject to uncertainty is also a possible step.

However, problems of change, uncertainty, and unpredictability in modern enterprises are far more severe than in the past. This is so, not just because of the scope and pace of change in the business environment, but also because of increasing uncertainty and unpredictability, far beyond levels that have previously been experienced. A significant element causing this uncertainty and unpredictability—a fundamental problem that has not always been fully appreciated—is that of discontinuities in the change process.

Discontinuities are defined as non-linearities that either render aspects of prevailing practices inappropriate, or which provide new opportunities, or open up entirely new ways of working. These discontinuities can render assumptions and practices invalid and inappropriate. This makes extrapolating into the future based on past and present data an exercise of little value. When discontinuities occur, the success stories of yesterday can have little relevance to the problems that the enterprises of tomorrow have to face. In fact, according to Handy (1996), these success stories might even be damaging since the world, at every level, has to be reinvented to some extent.

For these reasons, there is a growing awareness of the need to develop organizations that can adapt by sensing and responding (Haeckel, 1999) to the changes in their business environments with capabilities to effectively deal with the issues of uncertainty and unpredictability. Thus, to prosper in this type of business environment, enterprises need to become more adaptable, so that when their existing capabilities are no longer fully relevant, they can transform themselves into an enterprise that is better suited to the prevailing business conditions.

One possible consequence of the previous considerations is that flatter hierarchical organizational designs may begin to fail when the assumption of infrequent changes and manageable uncertainties becomes invalid. To understand when these circumstances are occurring it is necessary to distinguish between two types of change scenarios: structural and non-structural.

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