

Towards Living Networks

Industry Leadership Through the Active Reconfiguration of Economic Flows

Ross Dawson

CEO, Advanced Human Technologies

Author, *Living Networks* and *Developing Knowledge-Based Client Relationships*
www.ahtgroup.com

Abstract

Advances in management practices can be categorized as shifts in reference frames; resource productivity enhancement; or reconfiguration of economic flows. The nexus of technology-business innovations is in changes in the *structure* of economic value flows, whether these stem primarily from technological or management advances. Current emerging technologies enable increasing integration and flexibility of information and knowledge flows, creating an economic landscape that is extremely fluid in the reconfiguration of value flows. The most relevant reference frame is becoming that of "living networks," in which ongoing shifts in complex sets of economic relationships can best be understood as analogous to living systems. Moving forward, managers must enable the highest possible degree of flexibility in the reconfiguration of value flows in internal and external relationships.

Introduction

In 1977, US gross domestic product hit \$4.5 trillion, and the weight of goods produced was 1.24 billion tons. Just over twenty years later, in 1999, US GDP had almost doubled to \$8.9 trillion, while the weight of goods produced had increased by just 10% to 1.37 billion tons.¹ In other words, virtually all of the doubling in the value of the economy in this period was from things that weighed nothing: information, knowledge, ideas, and services. Based on historical trends, we can confidently predict that in the next 20 years or so, the economy will again double in size, and that probably all of this growth will be weightless.

It is critical to understand that this new value creation doesn't come from information and ideas in isolation, but from how they flow. The current extraordinary pace of growth in the Internet and other communication technologies is allowing the economy based on the flow of information and ideas to come to life. Unless you are in a business in which value creation is based mainly on the flow of information and ideas, you are in a shrinking part of the economy.

Disruptions in the business landscape always correspond to changes in the *structure* of economic value flows. If there is no change in the structure of how value flows, then the fundamental existing business landscape is being maintained. When the economy was based primarily on the flow of physical goods, the introduction of canals and railways created major disruptions, as new structures of economic value flows emerged. Now that the global economy is based primarily on the flow of information and ideas, information

communication technologies are enabling dramatic, ongoing disruption to the structure of business.

Given this context, in this paper we will briefly examine the major domains of management advancements, and make projections for the remainder of this decade on the key management advancements in each of these domains.

Management advancements

We can usefully divide management advancements into three key domains:

- Reference frames
- Resource productivity enhancement
- Reconfiguration

Reference frames.

Managers view the world and act on the basis of their reference frames. These reference frames diffuse from and through scientific, social, and business domains, as shown in Figure 1. For example, a changed view of the world based on the advancements of quantum mechanics, such as the existence of an irreducible level of uncertainty, diffused from the scientific domain into the social domain, far beyond those who understood the underlying science. These reference frames—which guide behavior by providing a basis for understanding how action produces results—can be either useful or less useful. This is context-specific, in that an individual manager's reference frames need to be reasonably aligned with the prevailing reference frames in business and society. Progress is achieved by managers moving beyond the current accepted reference frame, however if they move too far, they are not able to function effectively. Shifts in dominant reference frames most often happen from within.

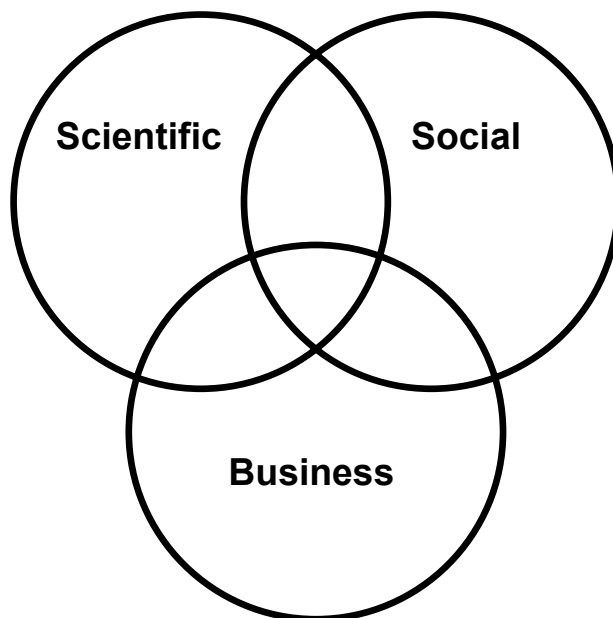


Figure 1: The diffusion of reference frames across domains.

Every management historian will have his or her own view of evolving reference frames. Certainly there are no clear transitions between dominant reference frames, with substantial overlap between them as they shift. A brief overview of the evolution of management reference frames over the last century is shown in Figure 2.

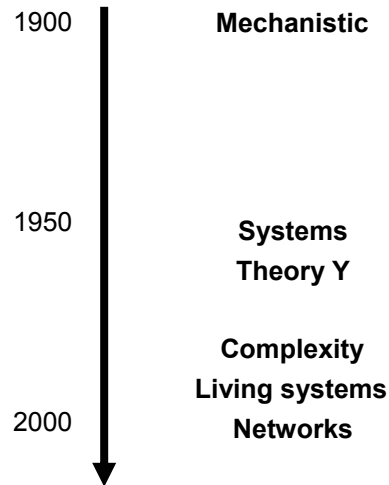


Figure 2: Evolution of management reference frames.

Resource productivity enhancement.

One view of management is maximizing the productivity of resources such as capital, labor, or knowledge. Many management advancements have enabled greater productivity from resources, without reconfiguring value flows. Examples of management advances in enhancing resource productivity include:

- **Financial and capital management:** Capital Asset Pricing Model (CAPM) and Economic Value Added (EVA)
- **Processes and people:** Total Quality Management (TQM), Business Process Reengineering (BPR) and Knowledge Management (KM)
- **Supply chain:** Just In Time (JIT), Supply Chain Management (SCM), and Collaborative Planning Forecasting and Replacement (CPFR)

What all these have in common—aside from neat acronyms—is that they don't in themselves change the flows of value. In their respective domains, they enable firm resources to be managed so as to be more productive. Resource productivity enhancement is an important aspect of management advances, but they are not disruptive unless they actually change the flow of value. This can happen if their impact on business processes is sufficiently large. To take one example, on the face of it Just In Time supply chain management simply made existing manufacturing and distribution processes more efficient, however its implementation significantly changed several business-to-business relationships in these economic networks. Just one aspect was the shift of transportation companies to become logistics providers, taking part of the inventory management role previously performed by its clients.

Reconfiguration.

The most important form of management advancement is reconfiguring economic value flows. This is the most challenging domain for business leaders, as usually the bulk of profits are made in stable industry configurations. Reconfiguration of industry structure will only happen if it creates more value for some participants. The primary beneficiaries are usually customers, however at least one other participant needs to benefit in order to drive the change. Recognizing how to create greater value for customers in fact provides the incentive to create a new position within reconfigured value flows that extracts part of the value created. Reconfiguration is usually enabled by technological advances, however does not require them.

The technological advances that result in economic reconfiguration usually are ones that enable changes in flows. As mentioned above, the shift in primary value flows in the economy from physical to informational has created very different dynamics around industry reconfiguration. The recent surge in information technologies and connectivity are enabling extremely rapid reconfiguration of flows.

Every industry has experienced reconfiguration on some level over the last decade, due to communication technologies. There are many obvious instances of Internet-based distribution and disintermediation, such as Amazon.com or eBay. Just to take one different example, retail investment products are now being distributed by a far wider range of institutions, including online discussion boards, accountants, and banks. This considerably impacts on the locii of value creation within the industry.

Projections

To usefully look forward at how business and technology may coevolve in the next 5-10 years, we shall briefly examine each of the three key domains of management advancements—reference frames, resource productivity enhancement, and reconfiguration—and what is likely to emerge in each of these.

The rise of living networks.

The most relevant and useful management reference frame moving forward is that of “living networks”. This frame—or variations on it—have gained significant traction in the business community in the last year or so. One of the most important drivers is the recognition that networks are fundamental to business in an intensely connected world. These networks can be viewed on five levels. At each of these levels the networks can be usefully considered as “living”. The complexity of each of these systems results in manifold emergent behaviors, and effectively taking action within these systems requires treating them as having the characteristics of life.

The five levels on which the living networks are evident are:

- **Economic:** Value is created in evolving networks of organizations (economic networks), including supply chains, industries, and regions.
- **Personal:** The connections between individuals within companies describe the “invisible organization” of how knowledge and work actually flows, while personal networks transcend organizations. Increasing connectivity and visibility of personal networks are creating new dynamics in this domain.

- **Brain:** The human brain is a neural network that learns by forming connections with previous experience and ideas.
- **“Global brain”:** In the metaphor of the global brain, the people on the planet are as the neurons in a brain—the recent rapid growth in connectivity has allowed this domain to come to life. This is the space in which ideas flow and procreate, both within and across organizations.
- **Technology.** All of the above—up to now except our brains—are enabled by the pervasive network of communication technologies, which are clearly manifesting characteristics of life as they evolve.

Emerging resource productivity enhancement.

In looking forward at how managers will endeavor to enhance the productivity of their resources, much of this will be enabled by network frames and technologies. Two examples of emerging domains are:

- **Social Network Enhancement.**
Social Network Analysis (SNA) is currently one of the hottest trends in management practice. SNA practitioners gather information on which staff communicate with whom about what, who they go to for information, and so on. This information is then mapped and analyzed to gain insight into hidden organizational dynamics, and the roles played by key individuals. However at the moment SNA practitioners are just beginning to experiment with a range of organizational interventions based on the information they glean, and to discover the results they produce. The next phase will be gaining a deeper understanding of how to enhance the performance of the work and knowledge networks within and across organizations that are at the heart of value creation.
- **Collaborative Workflow Reallocation.**
Emerging collaboration platforms, together with technologies such as XML and web services that allow the integration of systems and information flows, are enabling entirely new ways of reallocating workflow. Workflow will increasingly take place using these collaborative tools, allowing work to follow less linear structures, and the ability to reallocate workflow across clients and suppliers as well as internally. These shifts will require substantial development of both technology platforms and culture, as well as restructuring business processes. When workflow starts to be mapped across organizational boundaries—as will increasingly be the case—then this will move into the domain of reconfiguring value flows within industries.

Active reconfiguration of economic flows.

Already a substantial majority of the economy is information and knowledge-based. As we gain both greater bandwidth across multiple communication channels, and increased ability to integrate information flows across systems, it will be ever-easier to reconfigure value flows in the economy.

The most successful companies will be those that are successful in actively reconfigure value flows within their economic networks. We can confidently forecast that henceforth there will be continual flux in the structure of value flows within and across industries. Those that are engaged in creating this ongoing reconfiguration will be best positioned to

take advantage of it. The ability to do this better than others in turn depends on the ability to reconceive industry structure, the strategic flexibility to create it, and the leadership to take other participants into new roles within emerging structures.

Conclusion

Significant changes or disruptions in the business landscape correspond to shifts in the *structure* of economic value flows. Some management advancements simply allow for more productive use of firm resources without changing the structure of value flows. Today the economy is increasingly based on information and ideas, and connectivity and emerging technologies are allowing those value flows to be reconfigured far more easily than ever before. In this context, the most important advancements are those that enable managers to usefully reconceive business, and to reconfigure value flows. The key emerging reference frame for managers is that of “living networks.” This implicitly supports useful perspectives of the systemic and emergent properties of value flows within and across organizations. Those firms that move actively to reconfigure the industries in which they are positioned will reap the bulk of the rewards.

¹ GDP figures in constant 1996 dollars. Based on information in Chris Meyer, “What’s the Matter?”, *Business 2.0*, p.88, April 1999, and from the US Department of Commerce.