

What is Value?  
Presented at CAITR 2006

The 28<sup>th</sup> Conference of Australian Institute Transport Research  
6<sup>th</sup> – 8<sup>th</sup> December 2006  
School of Civil and Environmental Engineering,  
University of New South Wales

By

Dr. David Wilson  
School of Management  
RMIT University  
[dave.wilson@rmit.edu.au](mailto:dave.wilson@rmit.edu.au)

**Abstract:**

This paper discusses various approaches (anthropologic and linguistic) to the use and meaning of the word *value* in transport logistics and supply chains. Value is seen as a metonym for a range of words associated with supply chain and seen as an objective of supply chains. The paper proposes that it is worthwhile (valuable?) to use the act of creation or production as the core or meaning of the word value.

## Introduction

This paper builds on earlier work presented at CAITR 2004 in Melbourne. The current work is still trying to understand what is meant when the word “value” is used in logistics or supply chain.

The paper begins by briefly reviewing some of the literature that the author has encountered over the past two years which describes the anthropological and linguistic analysis of the word value, its meanings and applications in these domains. This is then used to develop a working definition of value in logistics and supply chains.

Why this paper? Well because it is infuriating that the word value is used so often in logistics and supply chain studies (or management literature) without a clear definition. It is clear that it is used with a variety of meanings, each with different shades of meaning depending on the author.

## Literature Review

There is an enormous literature in economics on the theory of value. Indeed it can be said to be one of the fundamental elements of micro-economic theory. Wilson (2004) reviewed this approach. A related area of the value topic is the term “customer value” or “value adding” in the logistics discipline. These extensions to the word value are discussed after the review of the literature.

There are two texts that are worth reading in order to understand the depth and breadth that is associated with value. The work of Graeber (2001) is discussed first introducing an anthropological viewpoint. Next a linguistic approach, Lakoff (1987) is introduced because it provides an interesting and broader framework from which to discuss the meaning and measurement of value.

### ***Graeber and Lakoff***

Graeber discusses three ways of talking about value; values in a sociological sense, values in an economic sense and finally values in a linguistic sense. In this paper and in this forum it might seem reasonable to focus on the economic sense, but then again, perhaps transport and logistics can grow with a broader sociological or anthropological interpretation. Some things are notoriously hard to put a “value” on that are central to transport and logistics. So another perspective can provide a richer, deeper understanding of the use of the word value.

Graeber is worth reading because he critically discusses the economists’ use of value. He demonstrates pretty clearly that each knowledge domain or discipline has a different interpretation or meaning attached to the word. So it seems to be important to define the

knowledge domain when using a word such as value because of its multiplicity of meanings. It is context dependent.

Values in a sociological sense, according to Graeber, have to do with the cultural or sociological meaning of the word. Different societies have different “values” around honesty, fidelity, work or community to name just a few examples. It is best perhaps summarized by the question “what are your personal values?” Depending on the community or society the answer would be different and this is a key subject for anthropologists studying various communities. So to study Graeber is very interesting because we may take for granted our own definitions and application without recognizing they are relative and context specific. There is no absolute or right way of defining values in this ethical or cultural sense. It depends on the community in question. Different communities’ different values.

The second way of talking about value is from economics. Here Graeber (2001) reviews the Marxist and neo-classical views encompassing the idea of the maximizing individual and economic man. Something has value because it can be exchanged and the act of exchange determines the value. The comparison between Marx and Mauss (The Gift Economy) demonstrates that underlying the political-economic model of value is the culture and society being studied. In the case of the capitalist, profit maximizing culture in which transport and logistics is embedded, value seems to be related to utilitarianism. In fact modern economics depends on the concept of an individual’s utility function. The very output of production, a “good”, was probably related to the maximization of *goodness* or happiness which is what utilitarianism is all about.

Graeber points out that during the 1980’s there were two views of value developed in the economics literature. One was to do with a measure of individual desire (utility maximization) and the other as a “meaningful difference”. Debreu (1959) developed an axiomatic view of the utility approach, similar to Hicks (1939) that really epitomizes the value as defined by exchange approach. The meaningful difference approach has to do with choice. This has developed into the area of decision theory Schick( 1997) and began with Von Neumann and Morgenstern (1947). The two views are related if a market is interposed and prices are established. But what is important and learnt in reading Graeber is that many societies (and indeed our own western capitalist society) do not have markets either formally or informally. This theme and its consequences are taken up later in the paper.

The third way of talking about value comes from linguistics or the study of language itself. It is here that one perhaps can delve into the hermeneutic and ontological nature of words that describe subjects or actions. In linguistics words are described as having “value” by and of themselves.

Lakoff (1987) discusses the use of categorization in linguistics and how this might be useful in developing more accurate cognitive models of how we think and perceive the world. How we categorize things reveals how they might be cognitively structured. There are natural categories that seem universal across all cultures and peoples. For example,

the seven basic colors (red, orange, yellow, green, blue, indigo and violet) appear in many different languages and cultures. There also appear to be six common or basic emotions (happiness, sadness, anger, fear, surprise and interest) His main thesis is that we organize our knowledge by means of structures called idealized cognitive models (ICM) and category structures are a bi-product of this organization. One particular aspect or example of Lakoff's ICM is the use of metonymy- where one word can stand for a whole set of related words or a whole category. In this paper it is proposed that "value" is such a metonym that stands for a whole category of economic and marketing related words used to describe objectives and processes of supply chains.

In the study of color, for example, value is a metonym for a set of descriptors that include, purity of color or chroma, the purity of the hue or saturation, intensity and luminance. So in color theory value is an ICM.

### ***Value in Transport and Logistics***

One of the doyens of management, Michael Porter (1985) presented the idea of a generic value chain which identified transport and logistics as key elements that added to the "margin". The following diagram (Figure 1) has been repeated many times and it was instrumental in the development of logistics as an important part of business planning and management. It was either the first, or one of the first, acknowledgements of the significance of logistics in business.

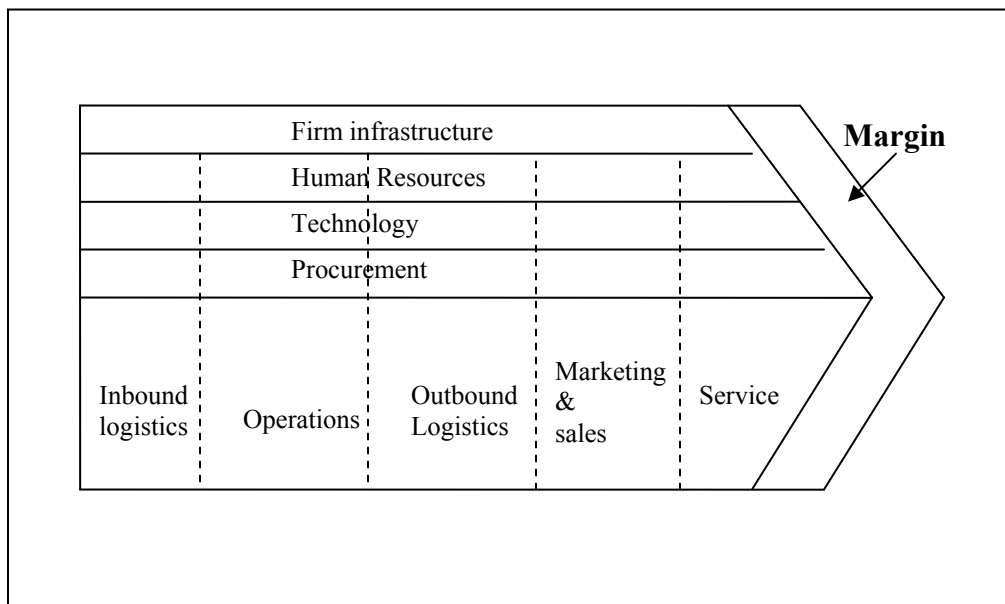


Figure 1: Porter's Generic Value Chain (as copied from Coyle et.al. (2003), page 577)

So in this case, value could be associated with the margin generated by the business. The graphic suggests that transport and logistics contributes significantly to this margin. Firm

infrastructure, human resources, technology and procurement are seen as support activities. Porter says:

*“Value is what buyers are willing to pay, and superior value stems from offering lower prices than equivalent competitors for equivalent benefits or providing unique benefits that more than offset a higher price”* Porter (1985), page 2.

Coyle, Bardi and Langley ( 2003) identify value with types of utility conferred by transport and logistics. In particular they identify utility creation consisting of form, place, time and possession. Form utility is involved with the manufacturing process, but place, and time are related to transport and logistics. Possession utility is created by marketing and sales functions.

This directly equates value with utility creation which is the classical economists approach. Hence when we speak of creating value or adding value in a supply chain we are in this context talking about using transport and logistics to make a good or service more desirable.

From Porter’s perspective we could measure value by examining the economic margin (revenue less cost of goods sold). It would of course have to include the support services. Simchi Levi et al (2003) devote a chapter of their book with an example of measuring the value of technology (information) in a supply chain.

Chopra and Meindl (2007) define the value chain of a company in a similar fashion to Porter, but their diagram is somewhat different (figure 2).

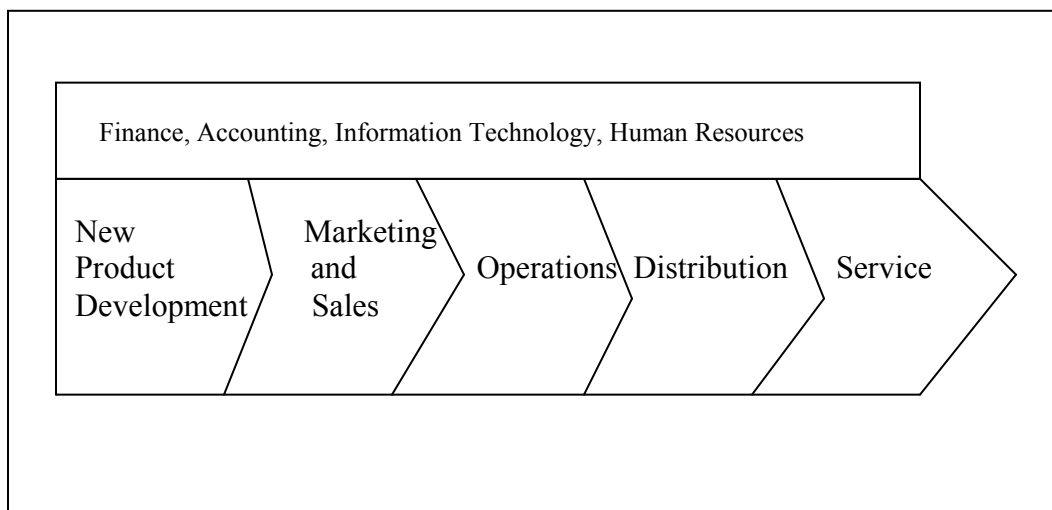


Figure 2: The Value Chain in a Company (after Chopra and Meindl (2007) page 23)

But in all of the examples given by Porter, Coyle et al and Chopra and Meindl, they never actually define what they mean by the word value. It is used and the meaning is derived

by the context or the diagrams but it is not precisely defined. So there is some degree of vagueness or perhaps ambiguity. There is scope for creativity and interpretation in the definition and the measurement of value in supply chains.

Another use of the word value in a related context comes as part of a phrase – creating (delivering) customer value. There is a vast literature on customer service but in this paper the focus is on its use in supply chains or transport. Simchi Levi et al (2003) devote a chapter to this topic and define five dimensions of customer value; conformance to requirements, product selection, price and brand, value added services and relationships and experience. These broad dimensions are expanded and defined in terms of customer value metrics as part of a model known as SCOR. SCOR is the acronym for Supply Chain Operations Reference model that has been successfully developed and marketed by PRTM (a management consultancy begun in 1976, Pittiglio, Rabin, Todd and McGrath), They measure customer value by three over-arching constructs; service level, customer satisfaction and supply chain performance measures. In turn, these constructs have associated metrics (table 1):

Table 1: SCOR Level 1 Metrics (Simchi Levi et al, 2003, page 255)

<b>Perspectives (construct)</b>	<b>Metrics</b>	<b>Measure</b>
Supply Chain Reliability	On time delivery	percentage
	Order fulfillment lead time	days
	Fill rate	percentage
	Perfect order fulfillment	percentage
Flexibility and responsiveness	Supply chain response time	days
	Upside production flexibility	days
Expenses	Supply chain management cost	percentage
	Warranty cost as percentage of revenue	percentage
	Value added per employee	dollars
Assets/ Utilization	Total inventory days of supply	days
	Cash to cash cycle time	days
	Net asset turns	turns

## Discussion

So there are many different uses or applications of the word value. Using Lakoff’s approach involving categorisation a schema or model of the meanings is proposed along the following lines. When value is used in supply chains, it often is related to the idea of productivity. Various processes or actions can “add value” to a thing being manufactured or produced. This is quite distinct from the exchange processes where a price might be put on the output. Using economist’s language, it is a supply side definition. The

relevance of using (meaning or ascribing) value as a measure of productive activity is that it is independent of the market. The model proposed in this paper is that this forms a core or fundamental essence of the word value (Figure 3).

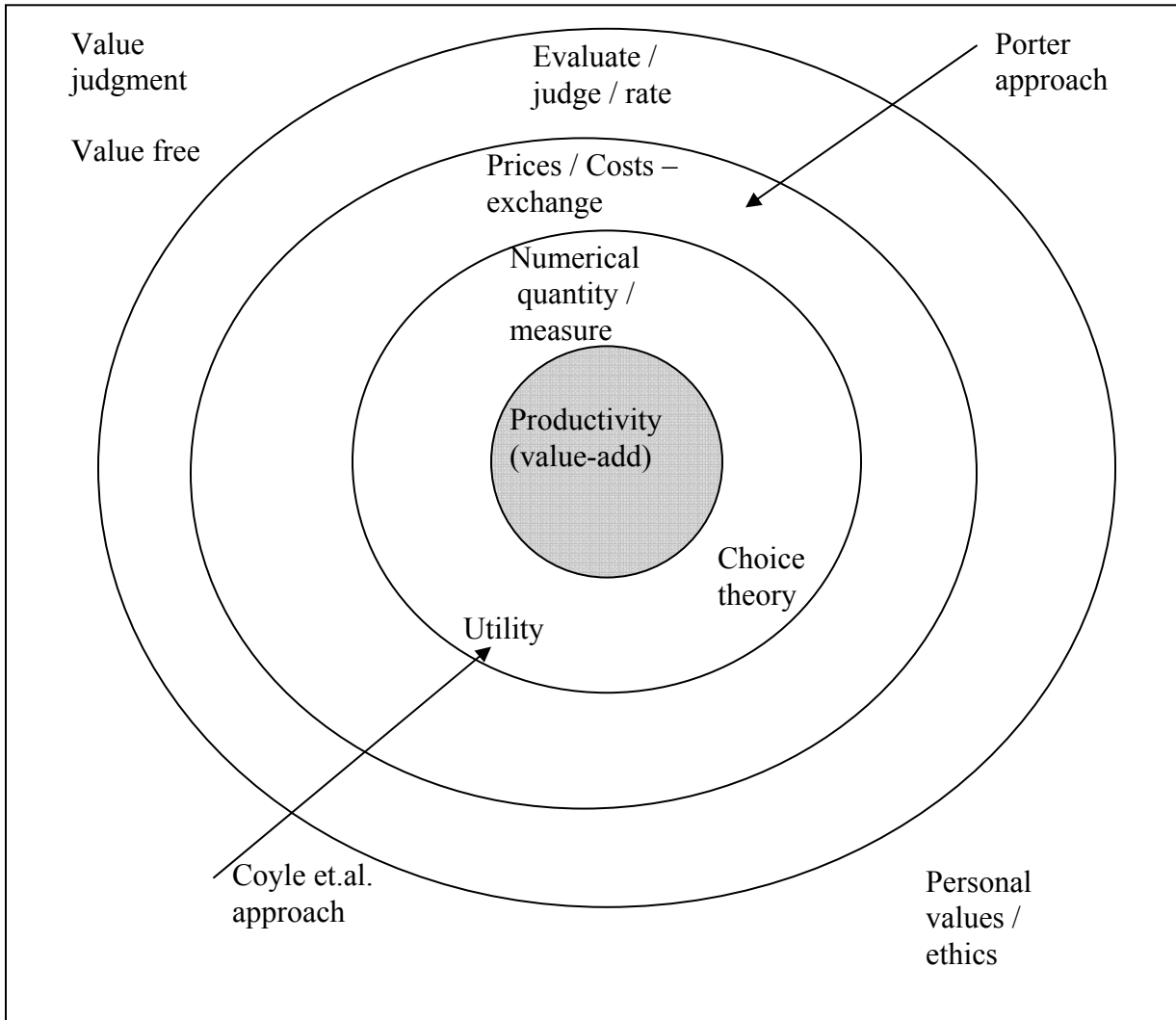


Figure 3: Prototype Schema for Value

In this model “value” is not used in the exchange sense. It is not related to prices but it can be measured by costs of resources, and in particular activity. It might be measured in time, distance, weight or volume.

The reason for this approach using the core idea of productivity – meaning value creation is that it is not dependent on the variation in prices as established by markets. Since prices can go down as easily as up, if value is defined by price, it follows that value can be destroyed or diminished if prices fall. However, the effort or cumulative actions as measured by productivity cannot be destroyed since they have happened.

But let's turn to what happens if what is produced is not desired or exchanged. When there is productivity and something is created and stored in the form of inventory what is the "value" of the inventory if it is not exchanged? It is often the case that there may be too much produced (not enough demand) or perhaps tastes change and the inventory becomes obsolete or passed a use-by-date. In this case, the measure should be cost based reflecting the consumption of resources. The meaning of the word value shifts from its core or essence to an outer shell encompassing measurement and exchange.

The advantage of this schema is that it can be used to describe production when there is no market. In many cases things are produced and exchanged without the transfer of money. Most transport, for example, is produced within the context of a household or a company. There is no formal market. Within a supply chain, the communication of information, critical for function, is often voluntary and informal. Trust and partnership is involved. There may be no formal market as such between different identities or companies. It may only be at the very end of the chain where markets come into play in determining prices. Supply chains involving co-operatives, community based organisations and not for profit organisations don't operate within formal markets. Government bureaucracies can also have supply chains, again operating in the absence of markets (take public education as an example).

## Conclusions

So what might we say is value? Well it depends. It depends on the context, the transport or logistics or supply chain itself and the perspective being taken when discussing or talking about it. What is proposed is that value as a word in transport, logistics and supply chain is actually a metonym for a vast raft of meanings, just reach for a dictionary or thesaurus- an ideal, valuable, value added, estimate or calculate, rate, judge, evaluate, worth or exchange to name some of the common meanings.

In the context of the supply chain domain though, what is proposed is that all these meanings have at their core a creative act that once performed cannot be undone. In the domain of transport, logistics or supply chain, the core meaning or essence of value has to do with production / creation and the measure can be in what we do, move things over distances, carry volumes and weights. There may be many reasons for the action – one of which may be to create usefulness or utility.

## References

Chopra S. and Meindl P. (2007) Supply Chain Management, Strategy, Planning, & Operation, Third Edition, Pearson Prentice Hall, Upper Saddle River, New Jersey.

Colyle J. J., Bardi E. J. and Langley C.J. (2003) The Management of Business Logistics; A Supply Chain Perspective, Seventh Edition, Southwestern, Thomson Learning.

Debreu G. (1959) *Theory of Value; An Axiomatic Analysis of Economic Equilibrium*, Mongraph 17, Cowles Foundation, Yale University.

Graeber D. (2001) *Toward an Anthropological Theory of Value; The False Coin of Our Own Dreams*, Pagrave, New York.

Hicks J (1939) *Value and Capital; An Enquiry Into Some Fundamental Principles of Economic Theory*, Second Edition, Oxford at the Clarendon Press, Clarendon Paperbacks, Oxford.

Lakoff G. (1987) *Women, Fire, and Dangerous Things; What Categories Reveal about the Mind*, The University of Chicago Press, Chicago.

Porter M. (1985) *Competitive Advantage, Creating and Sustaining Superior Performance*, Free Press.

Schick F (1997) *Making Choices; A Recasting of Decision Theory*, Cambridge University Press, Cambridge.

Simchi-Levi D., Kaminsky P. and Simchi- Levi E. (2003) *Designing and Managing the Supply Chain; Concepts, Strategies and Case Studies*, Second Edition, McGraw Hill, Irwin.

Von Neumann J. and Morgenstern O. (1947) *Theory of Games and Economic Behaviour*, Second Edition, Princeton University Press, Princeton, N.J.

Wilson D. (2004) *Meaning and Measurement of Value in Logistics and Supply Chains*, The 26<sup>th</sup> CAITR, 8<sup>th</sup> – 10<sup>th</sup> December 2004, Melbourne.