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What's in a Name?

Conceptual Issues in Defining Electronic Commerce

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Abstract Definitions of electronic commerce are many and varied. They indicate a lack of consensus about what electronic commerce is. 'A 'definition' implies a direct and unproblematic correspondence between the phenomena and the way a researcher identifies it. However, electronic commerce presents a reality that is too complex for a mere definition to extract its true 'essence'. Weber's 'ideal type' provides a construct to interpret complex phenomena at a less simplistic level. The ideal type acts as a yardstick for assessing actual situations but is never seen as a direct definition of that reality. To provide an improved basis for theorising, we attempt to construct an ideal type for electronic commerce and use it to develop closer approximations to reality. We conclude that definitions provide a gauge of current conceptual problems in seeing what electronic commerce is. Once we have applied the ideal type methodology to electronic commerce, definitions provide us with a point of orientation for building features, developing and refining understanding of its complexities.

I. INTRODUCTION

"We are on the verge of a revolution that is just as profound as the change in the economy that came with the industrial revolution. Soon electronic networks will allow people to transcend the barriers of time and distance and take advantage of global markets and business opportunities not even imaginable today, opening up a new world of economic possibility and progress." [1]

Electronic commerce is a very hot topic indeed. For example, we note a schism-in-the-making between the United States and Europe as to whose terminology will win most acceptance. In America, we find the IBM-inspired term "e-business" presented for more general use with "e-commerce" now a term that refers only to buying/selling electronically see [2] and [3]. In Europe, the favoured term continues to be *e-commerce* or *eCommerce* [4].

Yet, despite all this activity, no one really seems to understand just what electronic commerce is:

'The terms Internet, electronic commerce, electronic business, and cybertrade are used often [and] interchangeably and with no common understanding of their scope or relationships. Establishing terms that clearly and consistently describe our growing and dynamic networked economy is a critical first step toward developing useful statistics about it' [2].

The existing plethora of definitions of electronic commerce reflect very different understandings of the subject. The following three examples provide a small but representative sample of these inconsistencies:

'For those companies that fully exploit its potential, electronic commerce offers the possibility of breakpoint changes - changes that radically alter customer expectations that they re-define the market or create entirely new markets.' [5]

'In the broadest sense, "electronic commerce" can be used to refer to any information exchange which occurs over the superhighway (ie. by wire or over-the-air transmission or a combination of the two) and encompasses not only commercial transactions, but also all forms of social intercourse that may take place via the medium of the superhighway; that is, "commerce" in its broadest sense. In a strictly commercial setting, it would encompass all the steps involved in negotiating, confirming and performing commercial transactions electronically and include both the contractual relationships formed in those transactions and the regulatory or administrative steps necessary to the conduct of those transactions.' [6]

'Electronic commerce is usefully defined as: the conduct of commerce in goods and services, with the assistance of telecommunications and telecommunications-based tools...I use two basic models of the electronic commerce process, which

I call 'deliberative purchasing' and 'spontaneous purchasing'. [7]

The first cited definition originates from the European Union which strongly promotes the benefits of electronic commerce applications to member countries. It emphasises the revolutionary possibilities offered by electronic commerce. The second definition originates from a federal government department in Australia. Legislative and administrative applications of this definition are suggested with reference made to contractual relationships. The third definition originates from the publishing conglomerate, Thomson EC Resources. The focus in this definition is on applications of electronic commerce to inventory management.

These definitions are not unusual in the wide range of meanings they attribute to electronic commerce and the freedom with which they are adapted to the theoretical position of the author. There is no guarantee that these three authors would agree on the specific information provided in each of these definitions, nor can we be sure that they are committed to the same conceptualisation. We would suggest that there *is* no general consensus about what electronic commerce really is.

If there is no clear agreement about what electronic commerce is, then what does this imply for the way we, as researchers, are dealing with it? Are the problems in defining electronic commerce simply a manifestation of the problems in conceptualising the phenomenon in the first place?

A variety of conceptualisations is not a theoretical problem if the *reasons* for this variety are clearly understood. But there is a danger that the plethora of definitions, and the meanings attributed to those definitions, in the case of the emerging E-Commerce theory and practice is really a reflection of the general lack of understanding of what Electronic Commerce actually means and is. Theorising can only be done properly if we understand the basis for the various conceptualisations. Improved conceptualisation should increase the quality of the analysis process.

In this paper, we have endeavoured to describe the phenomenon that is Electronic Commerce and to draw parallels between the radical changes which this complex of technological, managerial and societal activities will bring about and those which came into being during the Industrial Revolution. We also discuss the value of using Weber's construct of the 'ideal type', a tool developed for analysing complex concepts such as class and community – which have definite similarities to the sweeping changes of the Information Society. Finally, we provide some examples of definitions which we believe indicate the breadth of Electronic Commerce and its likely future directions.

A. *E-commerce: a technology or a revolution?*

The current lack of a general understanding of electronic commerce has been readily illustrated by reference to some of the widely varying definitions currently in circulation. Having established the existence of such conceptual confusion, however, two questions come immediately to mind:

- Why does this confusion exist?
- Is it possible to develop one definition of electronic commerce that picks up all its elements satisfactorily?

The Blind Men and the Elephant

There is a famous story about six blind men encountering an elephant for the first time. Each man, seizing on the single feature of the animal, which he appeared to have touched first, and being incapable of seeing it whole, loudly maintained his limited opinion on the nature of the beast. The elephant was variously like a wall, a spear, a snake, a tree, a fan or a rope, depending on whether the blind men had first grasped the creature's side, tusk, trunk, knee, ear or tail [8].

The well known parable of the blind men and the elephant we have referred to here may provide a useful clue to the answer to our first question. The plethora of definitions of electronic commerce suggests that their authors are in a similar position to the six men of Indostan. When they see electronic commerce, they see only parts or components of it. Each author of a definition is partly in the right (parts of an elephant **are** like a wall, or a tree, or a fan, or a rope) but all are, in important respects, wrong.

We began this paper with a quotation from Vice President Albert Gore jr. whose opening address states that '*We are on the verge of a revolution that is just as profound as the change in the economy that came with the industrial revolution*'. Rather than seeing electronic commerce as just a trend or a fad or a technology we can consider the consequences of comparing electronic commerce to a revolution.

'The quantitative leap forward resulting from the Industrial Revolution...is of such proportions as to force through in every area of human activity radical qualitative changes....involving a total, drastic change in customs, ideas and belief.' [9]

In countries undergoing the Industrial Revolution, new activities and new forms of life developed while a number of traditional activities and old institutions managed to survive. There was a spectacular increase in output. The period saw a massive growth in the volume and speed of international communications, and this referred to both the movement of merchandise and people, as well as to the exchange of news and information. Continuous and rapid technological change characterised industrial society. The entrepreneurs who facilitated change were a disparate lot: '*the*

economic revolutions of the reign of George III were brought about through the decisions of thousands of individuals each of whom made his own assessment of the present and future state of the country and of the prospects it held for him [9].

Only a casual observer, however, would see the Industrial Revolution as merely an economic and technological problem. Instead it turned out to be a formidable and much more complex problem of political, social and cultural upheaval.

Other similarities to the situation with electronic commerce relate even more closely to our problems in defining it. For example, considerable disagreement still exists concerning fundamental features of this 'leap forward' including :

- when the Industrial Revolution started - *'to date the beginning of the Industrial Revolution of a country is an arbitrary act* [9]
- when full integration of innovations was achieved - *'the course of significant innovation in industry runs well outside the boundaries of the conventional dates of the Industrial Revolution'* [10]
- how or when it concluded - if at all - *'the Industrial Revolution has not ended but is continuing and is only now entering its second stage'* [9]

In all these respects we can draw important parallels with the current confusion and disagreement about what constitutes electronic commerce. For example those commentators [11] or [12], who refer to the "Information Revolution" are probably more nearly correct than any of those who attempt to define Electronic Commerce in terms of technologies or particular applications.

Is it then possible to decide what electronic commerce really is? Electronic commerce is certainly difficult to define. One way we have found to scrutinize the key elements that are the hallmarks of electronic commerce and distinguish it from other phenomena is by applying Weber's ideal-type method.

B. Weber and the ideal type method:

'Proposing a 'definition' implies that there is a direct and unproblematic correspondence between the phenomenon and the way a researcher identifies it. An ideal-type, however, is a construction by the researcher to interpret a reality which is too complex for a mere definition. The ideal-type acts as a yardstick for assessing actual situations but is never seen as a direct definition of that reality.

Weber is careful to distinguish the 'ideal-type' from a scientific hypothesis. He describes it as a *'a purely limiting concept with which the real situation or action is compared and surveyed for the explication of certain of its significant*

components. It is not a hypothesis or an assertion about reality that may be true or false but a means by which the adequacy of our imagination, oriented and disciplined by reality is judged.' [13]

The methodology underlying the concept of the ideal type requires the researcher to emphasise the features that are distinctive about a collective concept. According to Weber, a 'pure' instance of 'class', 'community' or any other collective concept is not something encountered in real life. This is because any collective concept 'represents a series of *conceptually* constructed events' not an ontologically independent entity [14].

Once a researcher has developed a collective concept s/he will accentuate features of the ideal-type or concept which are relevant to theoretical analysis [15].

Weber's concept is not one of classification but of approximation. Unlike the notion of a single 'correct' type based on a systematic, uni-dimensional perspective of reality, Weber's 'ideal-type' offers the idea of conceptual abstractions which only approximate to social reality; but do not and cannot mirror it faithfully.' [16] These constructs were designed to be used as conceptual instruments for comparison with and measurement of reality [13].

The selection of elements that go to make up ideal-types will, to some extent, be influenced by the kinds of problems being investigated and the questions being posed. It would not make much sense to speak of an ideal-type being correct or incorrect. For one type of enquiry it might be best to select one constellation of elements, for another type of enquiry a quite different set of elements might be more appropriate. It is illusory to imagine that we can somehow capture the "real essence" of social reality. Social reality does not possess a real essence because it is always capable of being constructed or represented in various different ways [16].

Weber's concept of the 'ideal type' renders the idea of a 'correct' definition of social reality meaningless. In the case of electronic commerce, it enables an acknowledgment of the complexity of its elements and acceptance that different authors will highlight slightly different aspects of the phenomenon. It represents a move away from a simplistic response to the question of what constitutes electronic commerce.

A better ontological framework for researching electronic commerce is important because such a framework determines in advance what sorts of questions are appropriate and what kinds of answers make sense. When a discipline is at the developmental stage, an important issue is the framework itself and the need to clarify and formulate the ontological presuppositions of the field. In section C of this paper, we propose that

the Weberian 'ideal type' method provides a means of grasping the large, inchoate slippery problems of defining electronic commerce and increased awareness of the processes that are shaping the discipline.

C. *An application of the ideal type construct to definitions of electronic commerce:*

In an earlier section of this paper, we cited some existing definitions to illustrate their diversity. The following examples enable us to see more clearly how definitions and ideal-types can be constructed. Each definition attempts to extract the distinguishing features of what its author sees as electronic commerce. We scrutinize these definitions to determine the key aspects of electronic commerce to which they alert us.

'Electronic commerce – or e-commerce – is the automation of commercial transactions using computer and communications technologies' [17]

This definition highlights computer technologies and the automation of transactions as distinguishing components of electronic commerce. Key aspects of electronic commerce are identified which helps us distinguish electronic commerce from other forms of commerce. The emphasis here is on technology. If we are to use this definition to help us construct the ideal-type for electronic commerce, we may need to ask what the authors mean by terms such as 'automation' and 'commercial transactions'.¹

'This study takes [the] view [that e-commerce] is concerned specifically with business occurring over networks which use non-proprietary protocols that are established through an open standard setting process such as the Internet'. [18]

The type of business and network protocols relevant to electronic commerce are clearly specified and differentiated in this definition. These features are shown to be key aspects of electronic commerce. This definition specifies the nature of the technologies more precisely than in the previous example.²

'Electronic Commerce involves the undertaking of normal commercial, government or personal activities by means of computers and

¹ In their rationale, published on-line, Westland and Clark state their aim is to 'illustrate the advantages of free downloads for authors of textbooks using them as teaching aids'.

² The text from which this definition is taken was prepared for an OECD Ministerial Conference titled "A Borderless World: Realising the Potential of Global Electronic Commerce" Ottawa, Canada in 1998.

telecommunications networks and includes a wide variety of activities involving the exchange of information, data, or value-based exchanges between two or more parties [19].

In this definition the two essential components of electronic commerce are acknowledged. These are: the computer and telecommunication networks and the associated business activity or transaction (described here as *value-based exchanges*). The description of what the technology enables, '*the exchange of information, data or value-based exchanges between two or more parties*', ensures that the *technology* and the *purpose* for which that technology is applied can be distinguished. The social and organisational aspects of electronic commerce are included in this definition.³

'In this report, electronic commerce refers to how the Internet and the world wide web and Internet-converging technologies like Electronic Data Interchange (EDI) and national intranets like the French Minitel and Singapore One, are being used to process and transmit digitised data. This includes text, sound and visual images to complete business-to-business and business-to-consumer transactions' [20].

This definition acknowledges the context from which electronic commerce grew, as well as current developments. It also surveys and highlights technologies currently in use. The researcher is alerted to consideration of these contextual aspects of electronic commerce which distinguish it from other phenomena.⁴

Each of these definitions can be understood as an 'ideal-type'. Each is constructed for particular analytical purposes. Each chooses to highlight particular aspects of electronic commerce, some highlighting the technologies and standards while others emphasise the social and organisational aspects of electronic commerce.

The differences between these definitions are such that we are led to question whether:

³ This definition from a conference paper was prepared by two academics. The potential for future research use is considered in the breadth and elasticity of the terms used. Key elements picked up are the *types* of exchanges and activities that people using electronic commerce are likely to engage in and the organisational range - 'two or more parties'.

⁴ The authors of this report investigate the use of electronic commerce by exporters. In this definition the two essential components of electronic commerce are acknowledged. These are: the computer and telecommunication networks and the business orientation of the activity or transaction (described here as *value-based exchanges*). Electronic commerce is described as including a '*wide variety of activities*'. It is not linked to specific examples so it should remain generalisable indefinitely as a collective concept. The description of what the technology enables - '*the exchange of information, data or value-based exchanges between two or more parties*' - ensures that the *technology* and the *purpose* for which that technology is applied can be distinguished.

- The different foci for analysis and research evident in these definitions can continue to coexist
- A convergence of definitions can be expected with increasing familiarity with electronic commerce.

The strength of the ideal-type approach to defining phenomena is that it provides a clearer understanding of how such definitions are constructed. This can help us understand the diversity of definitions and offers a process for reaching greater consensus about what the study of electronic commerce entails .

II. CONCLUSION

This paper has been concerned with two issues: the relevance of definitions for theorising about electronic commerce and the breadth of the concept described by the term “Electronic Commerce”. Electronic commerce is not a trend or a fad or a technology. It will have a major impact on society and industry. We are just at the very beginning of understanding exactly how big the information revolution is and what its impacts are likely to be. As understanding improves, definitions will come to reflect this better understanding. Currently the sheer number of these definitions seems likely to be a symptom of the difficulty which many contemporary writers find in describing or grasping the concept we know as electronic commerce. Definitions are a way to **gauge** the current conceptual problems of ‘seeing’ electronic commerce for what it is – they are too loose and too incomplete to substitute for rigorous conceptualisation.

Without rigour, research becomes vulnerable to a variety of simplifying assumptions [21,22]. For example, the apparently simple matter of defining electronic commerce by type of transaction is far from straight forward. Many business processes

involve multiple electronic commerce transactions. These transactions can involve many parties some of whom play multiple roles such as both seller and buyer. It may be necessary to define what a transaction is before looking at the type of transaction [2].

The application of Weber’s work on the ‘ideal type’ demonstrates that there are ways of understanding and grasping this sort of complex problem. In order to develop an adequate picture of a phenomenon as inchoate and complex as electronic commerce, the researcher needs to develop a complete typology such as that supplied by the Weberian ‘ideal type’. Once we have come to terms with the complexity of electronic commerce, we are well on the way to being able to describe it – even in as “neat” a form as a definition. Such a definition (based on an ideal type) will be subject to challenge and amendment as electronic commerce develops. However, if the relationship between the definition and the phenomenon is transparent, this will lead to better understanding rather than to confusion.

This paper has presented a number of definitions that reflect their authors’ meanings and purposes with sufficient clarity to be useful in describing at least part(s) of the phenomenon which some call the “Information Revolution”. We believe that this understanding provides a solid foundation upon which we can build a body of sound theory and which can itself be used by others as a jumping-off point for more complex theorising.

This application of Weber’s ‘ideal type’ to Electronic Commerce is the first stage of a longer-term research project, which investigates the issues surrounding the implementation of E-Commerce in organisations both small and large. Future work involving the conceptualisation of Electronic Commerce will be guided and refined by a further extension of this formulation.

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