

Electronic Trading Networks: The Route to Competitive Advantage?

The Centre for Information and Communication Technologies (CICT) at the Science Policy Research Unit of the University of Sussex conducts research on the social and economic implications of technological change. The following article outlines the advantages and disadvantages of the formation and diffusion of Electronic Trading Networks (ETN). It points to concerns about the potential biases in network design which can lead to limited access for some communities of users. The results of the analysis demonstrate the need to ensure that the regulatory environment keeps abreast of the development of ETN in a way that is effective in influencing their structure and use, especially internationally.

The research programme focusses on electronic trading networks (ETN) which combine the collaborative and interactive aspects of electronic trading with the com-

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petitive advantages of a network-based market. Structure and use in the economy is examined using six case studies in the financial, agriculture and horticulture, and distribution and transport sectors [1].

ETN Design

To investigate the development of ETN, the research team identified five phases in the trading cycle: trade information, trade facilitation, trade execution, clearing and settlement, and trade regulation. Each phase possesses distinctive characteristics and specific requirements for network designs and interfaces that enable information to be produced and exchanged appropriately.

The design requirements for ETNs are usually determined by the public and private sector institutions involved in their construction. The economic concerns of these institutions may affect the neutrality of trading which is conducted using an ETN, and various kinds of biases may go undetected by users. Various kinds of compromises may be made with regard to technical parameters such as security, speed, network redundancy, data quality, and gateway protocols as a result of the various trading goals of ETN participants. We suggest that the implications of these compromises need to be assessed and made transparent to network users.

Technical constraints, for example, may be designed into the network which affect the way an ETN interfaces with different network participants. On the one hand, this can create problems for institutions which seek to trade in several electronic markets where different ETNs are in operation. They may be forced to use multiple networks at considerable expense or to limit their trading to one network. On the other hand, the interfacing

capabilities of an ETN may create a competitive advantage for the institution which has designed the network.

Network Accessibility

Accessibility of an ETN is another important factor that influences electronic trading. The value of the trade-related information that exists in electronic form can be enhanced by its wide diffusion or by its relative scarcity, depending upon the specific circumstances. The analysis shows that ETNs can be designed as either open or closed network systems, but that there is a tendency to form closed trading networks which can enhance the value of trade-related information for the network owners and participants.

The case studies show the importance of ETNs in the context of an internationalising economy. These networks are usually formed by multinational firms operating in markets around the globe. Smaller firms are often excluded from these networks for technical or financial reasons and may be competitively disadvantaged as a result. Restricted access to networks in developing countries, for instance, can hinder their capacity to participate in trade-related information exchange that could decrease the costs of trading and increase their development prospects.

Sectoral Differences

The financial services sector consists largely of urban professional companies with easy access to advanced telecommunication networks. The items traded are of high value and firms generally can afford the high cost of technological innovation. Examples of highly sophisticated ETNs are Nordex and Globex.

Unlike the financial services sector, the agricultural sector is comprised mainly of small and medium-sized enterprises that are often remote from the market and from areas where advanced telecommunication services are available. The low unit-value of traded products, coupled with difficulties in describing them and their time sensitivity, has generated innovative trading network designs.

The distribution and transport sector has traditionally relied on networks to

track the movement of goods. However, electronic trading in this sector raises difficult issues with regard to the international regulation of electronic trading, and logistical problems arising from the need to interconnect network users in different geographical regions.

The case studies illustrate the potential to exploit the benefits of linking sectoral electronic networks. The existing degree of ETN fragmentation may be reduced as network operators gain experience in solving the problems of electronic trading and as a result of more effective policy intervention.

Policy Implications

Policies for electronic trading need to be formulated to address biases in electronic trading environments that are beginning to become apparent. Policies can be developed to monitor and influence cross-border electronic trading and to ensure that institutions are responsible for the quality of electronic trade-related information as well as the traded goods. Policies can also be devised to ensure that electronic trade operators do not have incentives to relocate their networks within countries where regulatory environments are most advantageous to their objectives. Results of the research on ETNs undertaken at the CICT provide a framework for formulating policies that will be needed to keep pace with the changing structure of electronic trading activities.

References

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