SYMPOSIUM ON E-COMMERCE AND THE INTERNET

Understanding the Digital Divide

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This issue of *Prometheus* contains four papers that were presented at the International Telecommunications Society's Asia–Indian Ocean Regional Conference held in Perth, Western Australia, 2–3 July 2001. The general theme of the Conference was Telecommunications and E-Commerce: Trade and Development in a Knowledge-Based Economy. Three of these papers (Gassmann, Singh and Bajaj) were part of a special plenary session on the second day of the conference devoted to the theme: Information and Development—Experience and Prospects. The fourth, Cook and Joseph, was presented at a session dealing with regional development. While the themes and titles are varied, all four papers are united by a common concern with a term that has gained increasing currency in recent years—the digital divide. This term, while commonly understood as denoting the difference between digital technology 'haves' and 'have-nots', either within developed countries or between developed and developing countries, is far from simple to explain in policy practice. The value of these four papers lies in the different perspectives that their authors provide, each highlighting an aspect of the digital divide. Taken together, they provide an eclectic mix of views, ranging over: recent international policy developments and institutions; new institutional economics and property rights analysis; government expectations based on the potential of telecommunications and electronic commerce technologies; and the limitations of modelling as a formula for policymaking. As a result, the four papers provide readers with a vantage point from which to extend the notion of the digital divide beyond its more limiting interpretations that confine it to a form of technological instrumentalism with associated simplistic 'tech-fix' policy remedies.

    H. P. Gassmann, formerly the Head of the Information, Computer and Communications Policy, and Industry Divisions, at the Organisation for Economic Cooperation and Development (OECD) in Paris, provides a review of recent policy developments at the international and supra-national level affecting telecommunications and electronic commerce. Gassmann is cautious in the way he interprets the impact of international policy developments on developing countries. While there are many unknowns, he is fundamentally optimistic about the contribution that

information and communications (I&C) technologies will make to development. The 'irrational exuberance' and resulting market 'rebalancing' following the dot.com boom prior to April 2000 is seen as potentially providing an opportunity for developing countries to catch-up. However, the spill-over of this exuberance into the telecommunications sector (which manifested itself in huge investments in 3G mobile licences by European telcos) could have an overall dampening effect on growth rates. The same is true for the International Telecommunication Union's recent deliberations on Internet Protocol (IP) Telephony. He concludes that developing countries are in a dilemma about the possible beneficial outcomes of this trend. Likewise, the gradualism exhibited in the World Trade Organisation (WTO) has equally ambivalent outcomes for developing countries. On the one hand, increasing pressure for investment dollars is tempting countries to lock into an agenda of multilateral liberalisation (especially through the General Agreement on Trade in Services). On the other hand, in many developed countries, governments still own a good share of their ex-monopoly incumbent Public Telecommunications Operators (PTOs). Despite these uncertainties, Gassmann emphasises the role of the OECD in 'clarifying' these complex issues for member states. He is, in short, a devotee of the view that I&C technologies will lessen the digital divide.

   J. P. Singh, from Georgetown University, Washington DC, provides an institutional and historical perspective for the contemporary policy debates discussed by Gassmann. He draws on the work of New Institutional Economics (e.g. North, Olson, Williamson). Singh asks: what can history tell about property rights for electronic commerce? His approach is extremely useful in that it provides an analytical framework for understanding some of the uncertainties noted in Gassmann's paper. The link to Gassmann's paper is provided by Singh's observation that 'Electronic commercial activities demand property rights resulting in the creation of new infrastructure and institutions, often in macro political–economic environments undergoing radical change themselves'. Singh provides a theoretical frame for Gassmann's contemporary review.

   Singh is uncompromising in his message: infrastructure is important but it can only be properly utilised if it is embedded in organisations, institutions and societies. Electronic commerce, the predecessor of telecommunications as the development panacea, runs the risk of being hailed as a magic wand for developing countries. For Singh, this is a lapse into a dangerous form of technological instrumentalism. Without ignoring technological requirements, efficient property rights are the key to development. There are five require-ments of efficient property rights that Singh believes are important: inter-operability; enforceability; transparency; inclusion; and impartiality. For develop-ment to succeed, these property rights will need to enable an electronic commerce network that is predicated on three crucial layers: information infrastructure; commercial services; and trust. The success of each country will depend on many factors but technology is only one of them: 'The foremost lesson over the last 50 years is that infrastructures do not bring about progress and growth; the institutions in which they are embedded do'. Singh surveys the progress of telecommunications reform in a range of countries including India, China, Korea and Singapore and observes: 'The institutional lesson is clear: property rights take a long time to evolve and to be implemented and enforced'. His analysis is essentially optimistic for developing countries in that he believes that sufficient lessons have been learnt over the past 50 years to

provide some hope. However, the burden of history, which precedes both telecommunications and electronic commerce, may be too great for some countries to overcome.

Kamlesh Bajaj's paper 'Asia's Leap into E-Commerce' provides a thorough review of electronic commerce developments in India and China specifically. He also covers telecommunications in Sri Lanka and Bangladesh but notes that these two countries are only just beginning their journey on the road to electronic commerce. The content of Bajaj's paper reflects his position as Deputy Controller (Technology) of Certifying Authorities in India's Ministry of Information Technology. The paper has a heavy emphasis on the role of telecommunications and information technology in development and, as such, provides an interesting contrast to Singh's observations. Bajaj observes that China will lead the push for electronic commerce in Asia and this is partly due to that country's heavy level of investment in telecommunications and Internet infrastructure. As if in corroboration of Singh's position, Bajaj notes the importance of the concomitant development of institutions with infrastructure in China and India, but is much more at home emphasising the technological side.

Finally, Ian Cook and Richard Joseph of Murdoch University in Western Australia reflect on the problem of regional development—specifically the interest that many Southeast Asian economies have shown in trying to replicate or recreate Silicon Valley. They are scornful of simplistic attempts by policymakers to replicate Silicon Valley (such as technology parks) and its perceived benefits, citing an inadequate appreciation of the role of information in the innovation process and an all too eager approach to copying or modelling as a rationale for policymaking. Cook and Joseph note that rather than trying to replicate Silicon Valley, there may be more value in trying to model Silicon Valley effects. The encouragement of these effects will vary from country to country. The traditional Silicon Valley model eschews the role of the state in the development process but Cook and Joseph observe that in the context of Southeast Asia this seems unlikely. What is needed are novel ways of encouraging state involvement. Factors that will be important here include: universities; firms; and culture. This, of course, is a traditional mix, but Cook and Joseph are not arguing for a continuation of the technology park approach that is now widely entrenched in many Southeast Asian countries. Rather, the information aspects of universities, firms, culture and states will need to be 'rethought' and delicately harnessed to contribute to Silicon Valley effects rather than Silicon Valley models.

If there is one message that comes from these four papers, it is that the digital divide will not be understood if it is viewed purely as a technological phenomenon. It will certainly not be lessened if the only solutions put forward are 'tech-fixes' advocating an 'irrational exuberance' on the part of developing countries to embrace I&C technologies. The way ahead will rely on a deeper appreciation of the interconnections between information and development and we have in place now a sufficiently broad set of theoretical perspectives from fields such as information economics, institutional economics, sociology, law, politics and information studies in general to advance this. From the four papers presented in this issue of *Prometheus* it is evident that a broader interpretation of the digital divide is necessary. The evolving supra-national regulatory and institutional structure will be an important determinant of outcomes. Property rights, market and regulatory institutions and information infrastructures (in their broadest sense, not just technological) will be crucial too. So too will be a sharper appreciation of the

informational and political aspects of policy modelling and decision-making in developing countries. Last but not least, we must temper the enthusiasm for the supply of I&C technologies with a greater appreciation of the demand for the services these technologies will provide. Providing what developing countries really need and allowing them to develop institutions that can articulate this would be a step in the right direction.