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BOOK REVIEWS

Transforming global information and communication markets: the political-economy of innovation, by Peter F. Cowhey and Jonathan D. Aronson, Cambridge, MA, MIT Press, 2009, 368 pp., US$34 (hardback), ISBN 978-0-262-01285-0

The subject of this book is the political-economy of information and communication technology (ICT) markets, from the 1950s to the inflection point we are confronting in the present. As the hyphen in political-economy suggests, the authors do not separate an analysis of political and economic aspects of ICT developments. This approach is very different from the way political and social aspects are often dealt with in the ICT literature as 'stakeholder interests' or 'implementation issues', important but subordinate to the economic/technical logic of systems. By contrast, this book treats the political not as an external 'factor' or 'constraint', but as integral to the economic/technical logic of ICT development itself. ICT governance and with it the interplay between governmental, institutional and corporate policy is brought squarely into centre stage as the 'critical driver of ICT infrastructure's evolution' (p. 8).

Markets are treated here as political phenomena. As a consequence the authors show how the initial dominance of US policy in terms of ICT development had an indelible imprint on the subsequent features of ICT's political-economy. From the IBM 'plug and play' decision of 1954 to more recent anti-trust actions against Microsoft, they explain how anti-monopoly and technical neutrality became the norms of the US governance approach. Interestingly, they also show that these norms of ICT governance which the US was able to impose more globally were not so much the result of any deliberate pro-competitive policy, but of the way the US political system institutionally weakened any decision process which could have picked winners and made positive choices. The resultant complex ICT terrain of diverse and competing network structures was a de-facto consequence of an equally fragmented political structure, a system of decision avoidance, which worked to undermine the dominance of any one platform provider, any one network solution, and even any one mobile spectrum.

It is crucial to the central argument of this book how the subsequent development of the ICT market has increasingly undermined the possibility of any one player being able to use dominance in one market to realise a strategy of vertical integration across the ICT market as a whole. The first part of the book charts this modularity trend that began with the IBM 1954 decision across all aspects of the ICT market. By 'modularity' they mean the increasing need to mix and match separate ICT capabilities, including networking, storage, applications, terminal devices and even content. They acknowledge that this trend does not mean the end of vertical integration strategies which are aided by the way that lowering costs and increasing capabilities have led to the emergence of huge computing centres – the so-called 'Cloud'. But while corporate players such as Google, IBM and Cisco try to play on such capabilities to create captive markets around their platforms, they do not believe these systems integration

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approaches will work. In their opinion, the trend towards modularity, which is fundamental to the operation of the Internet itself, means that all platform providers in order to grow their markets must include the possibility that other system developers could connect with their platform using different operating systems and applications. Because of the growth of modularity, which is built into the policy of technical neutrality structuring ICT markets, they argue that integration will only be achieved through the increasing interoperability of heterogeneous systems in a way that must necessarily escape the bounds of any specific corporate strategy. They believe, for example, that Apple will be forced to allow users to port iPod content to other applications or eventually be bypassed by competitors that will.

What is interesting about modularity, if they are correct, is that it would seem to be undermining a basic tenet of conventional Porterian business strategy: that business can use cost advantages or differentiation advantages in particular markets to grow these advantages across markets. What the authors demonstrate is that an ironic condition of growing ICT mass markets (interoperability) entails the necessary relinquishing of monopolistic advantage. But while this suggests that modularity may be driving the emergence of ICT markets that resemble niche fashion markets, modularity is not conceived by them in teleological terms as an inevitable iron logic driving change because it consists of its intrinsic political dependencies. While modularity is certainly a tendency, the authors show that it is still a work in progress. Achieving full modularity, which is even more necessary given the increasing diversity and pluralism of systems, depends paradoxically on a global interoperability, a standardisation of all system interfaces. As a result, in keeping with their political-economy perspective, much of the second half of the book concerns the key political challenge on which the resolution of the inflection point hinges – the need for new kinds of global ICT governance. The problem here is that modularity requires new approaches to global standard-setting which must transcend not just corporate but even particular governmental strategies.

What their investigation reveals here is the endemic difficulties of resolving ICT governance issues because of political rivalries (particularly between the US and the EU) and because of the inadequacies of current global institutions such as the ITU (International Telecommunication Union) which essentially protect national sovereignties. While the EU appears intent on trying to establish global standards (e.g. GSM/W-CDMA for mobile phone networks), this conflicts with the US policy of technical neutrality, which favours multiple standards; and while the authors see the World Trade Organisation (WTO) as a vehicle for breaking deadlock at the ITU, it is also clear from their description that WTO agreements have gaps and inadequacies that are the product of competing national rivalries. Their detailed discussion of this political arbitrage is interesting and obviously benefits from Cowhey's experience in the heat of battle as an executive in the US FCC, but it begs the question regarding the prospects of a fundamental shift in global governance that is needed to realise the possibilities of modularity. What they show is that while the major powers want integration, they want the integration that suits their interest. If 'full' modularity needs to be realised politically through global standards which require a delegation of national sovereignty, then it is unclear how the US and other governments in view of their national interest and political context can facilitate such a goal. The US/European rivalry suggests there are fundamental philosophical, even cultural, differences over the very need for, and the meaning of, formal standards. Nor is it clear that there are any alternative coordinating institutions waiting in the wings.

One fascinating possibility is presented in perhaps the most interesting chapter – the penultimate one on Internet governance. The Internet is seen as emblematic of a potential new form of ICT governance. Because the Internet evolved in a technological community sequestered to some extent from conventional political or market pressures, it had a relatively free hand in creating a decentralised networking approach and a more open decision process to standard setting. But while the key Internet management institutions, such as the IETF (Internet Engineering Task Force), do have some relative autonomy, they make it clear this has only been granted to them in a *de facto* way because of national rivalries, because of the mutual fear of any government being able to influence key Internet management assets. They also observe that there are current moves to limit this relative autonomy. Furthermore, the IETF, which has depended for its relative autonomy on the voluntary informal peer-to-peer nature of its organisation, is increasingly impeded in carrying out its functions as the sheer size of Internet governance grows. The need for greater hierarchical organisation also spells the possible demise of the current policy of discretion-based delegation.

In sum then, while the first half of the book aptly describes how US policies of technical neutrality facilitated the increasing pressure towards modularity, the second part of the book does not make it clear where the new wave of ICT governance needed to realise the potential of modularity is coming from. By way of a conclusion, the book ends with the articulation of norms of ICT governance needed to further promote modularity and correspondingly realise a new framework of delegated authority hinted at by the nascent institutions of Internet management. It is clear from this how the further growth of ICT is impeded by the dead hand of modernist notions such as national interests and even corporate interests in general, so far as they are formulated in terms of traditional property rights. Modularity requires new flexible forms of ownership which they term 'trading rights'. By promoting trading rights, they want to position themselves against conservative interests favouring property rights over ICT assets and Internet radicals in the open-source movement promoting their abolition, and the expansion of an ICT commons. By supporting new forms of delegated ICT governance, they want to position themselves in opposition to current barriers to modularity created by national jurisdictions, but also against bureaucratic global rule setting, which they feel is a tendency of otherwise worthy EU policies. Their middle ground position appears sensible and pragmatic, but in a persistently modernist environment, still characterised by the exercise of national sovereign power, corporate power, the sacrosanctity of private property, and the acknowledged tenuousness of alternative institutions, it is unclear how even these modest prescriptions will be achieved. Ultimately, it is unclear why, if modularity is essentially a political reality and not just an economic/technical reality, the current impasses in ICT governance could not stall innovation in the direction of full modularity itself. Since modularity implicitly challenges the sacred cows of modernism (national rights, property rights), it may even favour the other pole of the inflection point – a pragmatic recourse to systems integration strategies around Grids or Cloud based systems. Their own account suggests we may be facing a crisis of ICT governance in which these possibilities are still up in the air. Policies of technical neutrality have created the need for modular approaches that require new global institutions of governance, but it is also clear that these policies are insufficient to bring about this new regime. Existing institutional structures may move history in directions more consistent with existing structures of power.

In this respect, the book could have explored more thoroughly the paradoxes of modularity which affect not just the current historical inflection point, but more directly the proposed end result. If the growth and differentiation of ICT markets via modularity involves increasing layers of pluralism and heterogeneity of systems depending on deeper layers of underlying standardisation, this raises the spectre of new kinds of technocratic control of which national politicians are rightly fearful. Have we nothing to fear from new institutions of delegated ICT governance based on peer-reviewed technological democracy, beyond the reach of existing forms of democratic representation? The authors do not broach these questions upon which the whole point and purpose of 'the way forward' depends. Nonetheless, the description of the modularity trend itself and the empirical charting of the politics of current ICT governance are undoubted strengths of the book. The often subtle counter-pointing of the political and economic/technical aspects of ICT development is what makes this book a worthy contribution to our attempts to comprehend the central challenges facing the development of ICT markets. What is precisely indicated by this book is that the very nature of ICT markets requires more political/economic analysis of this type, working at the intersection between political institutional and corporate strategies.

Denis Nettle
Victoria University, Melbourne
denis.nettle@vu.edu.au

Wired shut: copyright and the shape of digital culture, by Tarleton Gillespie, Cambridge, MA, MIT Press, 2007, viii+395 pp., US$14, ISBN-13: 978-0-262-07282-3

This book traces how the entertainment industry has attempted to collude with successive governments and the manufacturers of consumer electronics equipment to tilt the balance of copyright law away from the public benefit and towards private commercial interests. Clearly, such a big argument demands a big toolkit and Gillespie employs an eclectic scholarly approach involving sociology, communications, culture and media studies, economics, law and the history of technology. He is an accomplished writer and has a nose for a good story, especially when it comes in the form of a periodically swashbuckling tale of pirates and pornography. In this endeavour, he has ample assistance from poster villains such as Jack Valenti, president of the Motion Picture Association of America (MPAA) until 2004, who couched the case against peer-to-peer (p2p) file sharing in the following terms:

> … downloading Kazaa, Gnutella, Morpheus, Grokster, etc … can bring into your home and expose your children to pornography of the most vile and depraved character imaginable. Most insidious of all, the pornography finds its way to your children disguised as wholesome material: your son or daughter may 'search' for 'Harry Potter', or 'Britney Spears', and be confronted with files that contain bestiality or child pornography … the business model that current p2p networks celebrate as the 'digital democracy' is built on the fetid foundation of pornography and pilfered copyrighted works. (p. 123)

Valenti variously conflates copyright infringement with cancer, fungus, witchcraft and damnation, all of which *inter alia*, help to finance international terrorism and organised crime (p. 124). Gillespie forensically analyses the language of his