Chapter 15

THE DIFFUSION AND ADOPTION OF MOBILE COMPUTING

PANEL 4

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INTRODUCTION

Two major disruptive innovations in telecommunications- internet and mobile telephony- were both driven and enabled by extensive standardization work. Both of them were not invented nor standardized within the existing standardization organizations (SDOs) like ITU or CCITT. In fact, both of the created over time their own standardization bodies and regulatory regimes which have due to their success become global and very influential (IETF, W3 vs. ETSI and 3GPPP, 3G2PPP). Both of these were also largely driven by new inventions in computing and microprocessors, and later on in software capabilities. The main difference is that while Internet was adopted largely through grassroots development, the innovation and adoption in mobile telephony was initiated and driven buy large operators and alter on manufacturers. Moreover, the deployment of all mobile telephony generations involved heavy governmental intervention in frequencies, licensing, tariff setting and standard adoption policies. Now when they are merging a set of new challenging issues which relate to the nature of standardization and the diffusion of services need to be examined.

According to a recent survey, conducted by Merrill Lynch in December 2000 [Tarter et al (2001)], wireless e-business enabled by the coalescence of these technologies will be the top investment priority for large Fortune 500

companies. Solomon Smith Barney [Margolin, M. (2000)] estimates that wireless access to these Fortune 500 companies will comprise 10% of all Internet traffic by 2005. Adherents believe that the real power of wireless e-business is in its potential to optimize communications, thereby improving responsiveness to customers, improving the ability to accelerate and process decisions within and between organizations, and by blurring conventional device boundaries, to truly enable the conduct of transactions at any time and in any place [Martinez, P. (2000), Tarter et al (2001)].

The purpose of the panel is to explore the evolution of mobile internet and telephony as an interplay of three major forces: market needs and learning from use, technological innovation driven by computing capability change, and regulatory intervention as dictated by the infrastructural nature of the deployment due to resource allocation, licensing and demand creation, and industrial policy. The panel will consist of offer four distinct view points to standardization and mobile internet diffusion:

1. how mobile telephony standardization has been driven by and enabled by the different institutional configurations that govern the relationships between markets, innovation system and regulatory bodies. These relationships are radically different in Scandinavia, US and Japan and largely influenced the evolution of the standards and the scope of the standards and the further deployment of wireless internet. In particular the analysis will discuss the changing nature of "telephony services" from fixed wired universal service into personal, variable and wireless service and how this has been reflected in the standardization efforts. (Kalle Lyytinen)
2. how wireless internet standardization efforts embed designs can be interpreted in the light of theories of design and implementation- especially how theories of design, social construction of technologies and politics of technological changes need to be interwoven in the analysis of mobile internet standardization that seeks to achieve infra-structural status (Vladislav Fomin)
3. How wireless internet standardization and standard setting has influenced the garnering and development of technological and industrial capabilities and how the standardization focus and context affect specific regional and industrial policies (Bengt Dalum)
4. what factors in the market may influence the adoption and diffusion of such technologies and what are the important inhibitors to the diffusion and adoption of mobile internet? Through the literature, we identify four main potential inhibitors to mobile commerce and determine whether these potential inhibitors were in fact genuine inhibitors impeding mobile commerce diffusion in Australia. The research model helps explore how

each of the purported inhibitors impacts usability, usefulness and relative advantage which had been identified through the literature in combination with the practical perspective, as specifically relevant to the rate of diffusion of mobile commerce technology in Australia. (Deborah Bunker).