

Regulating the Mobile Telecommunications Industry: The Case of Australia

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Abstract

The adoption of mobile services has achieved a spectacular growth in many countries around the world. However, regulators in these countries are finding that existing regulatory frameworks are not suitable for dealing with these services. This paper employs qualitative evidence to investigate how regulation can affect mobile services in the Australian mobile telecommunications industry and draws from it to propose an innovative regulatory framework. The framework is comprised of five major components: consumer and intellectual property protection, market and resources access, and environmental protection. These components encompass the interests of the stakeholders operating in mobile industry and given its dynamic and complex nature, co-regulation is an effective approach that can be used to minimize costs and enhance compliance.

1. Introduction

A mobile service can be defined as an activity or series of intangible activities that occur when mobile consumers interact with systems or service provider employees with the support of a mobile telecommunications network [1, 2]. Examples of mobile services include mobile e-mail, SMS and MMS services, content downloads, mobile ticket reservations, mobile stock trading, and mobile TV [3]. Mobile services are complex and require the integration of diverse technological and organizational resources which typically cannot be found within a single organization. Consequently, the knowledge necessary for developing and deploying these services may involve several heterogeneous stakeholders who are often embedded in various technological, economic, and social settings. In order to succeed, these stakeholders must interact with each other while complying with legal and societal requirements that balance their diverging interests, motivations, and needs [4]. These requirements constitute a regulatory regime which, by definition, can operate at either industrial, national or international levels and can influence, direct, limit or prohibit any activity undertaken by

stakeholders operating in the mobile industry [5]. Typically, regulatory regimes are set by regulatory and legislative authorities including government agencies, industry and consumer associations.

Regulatory regimes around the globe are ill equipped for dealing with technologies such as mobile services because the “existing policy frameworks have been inherited from specific national, regional, and international histories of regulating broadcasting, telecommunications, and media, as distinct entities, and are not well-placed to deal with contemporary communications technologies that blur the boundaries among these.” (Goggin & Spurgeon, 2005, p. 181). Although limited studies about regulatory regimes are available in the literature they lack comprehensiveness [6-10]. In fact, many scholars argue that research in this area is lacking [11-14]. Further, practitioners believe that a healthy regulatory environment is essential for the growth of these industries [15-18]. With this study, we attempt to address these concerns and the lack of vigorous research into regulatory frameworks. Our objective is to leverage on extant literature and use qualitative evidence collected to explore how regulation can affect the mobile industry. The study culminates with regulatory framework for the mobile services industry. The Australian mobile services industry was used as a setting for investigating this objective.

This study is important for several reasons. First, it can be invaluable to stakeholders in the mobile industry in helping them improve their understanding of the environmental factors that enhance or constrain their positions in their value chain, and industry. A deeper understanding of such factors can help stakeholders in many ways in i) achieving a valuable competitive advantage. Stakeholders that exhibit compliance with regulatory rules that benefit users of mobile services may achieve their trust more effectively than those who do not [12]; ii) providing stakeholders the opportunity to “achieve knowledge on legal issues, to stay away from legal areas in which processes are unclear, and to avoid related risks.” (Kijl, 2005, pp.

66-67) which decreases potential transaction costs [15, 19]; iii) helping avoid unbalanced legal rights amongst stakeholders which can severely threaten businesses by causing otherwise innovative business models to be illicit [12, 15, 19]. Second, regulatory influences can have direct implications on how mobile services and business models are designed and how they operate at organizational, industry and environmental levels. Further, these influences can determine the nature of mobile services that can be offered and their diffusion trajectories amongst end-users [20, 21].

This paper is structured as follows. First, we overview the Australian mobile industry, then, we discuss the research method and elaborate the

proposed regulatory framework before concluding the paper.

2. The Australian Mobile Industry: An Overview

To set the scene, we provide a brief overview of the Australian mobile industry. The diagram in Figure 1 has been adapted from the work of Troshani and Rao (2007a) and summarizes the current structure of the Australian mobile industry. To distribute mobile services to demand-side stakeholders, intense interactions need to occur amongst supply-side stakeholders. These occur in an environment which is being co-regulated by both the industry itself and facilitating stakeholders including the government regulator and various industry associations [22].

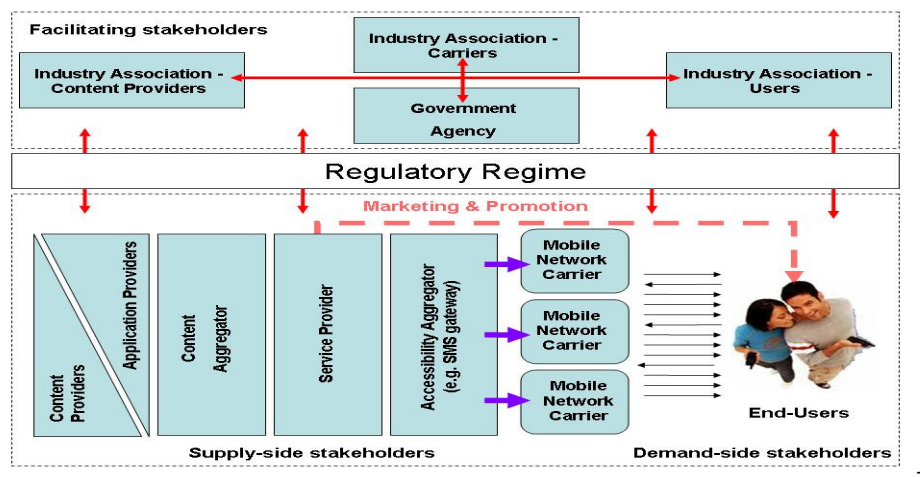


Figure 1 – The structure of Australian mobile industry

The interactions that occur amongst supply-side stakeholders include mobile service development, marketing, distribution and billing. A regulatory regime is meant to stimulate the changing market environment from monopoly to competitiveness, protect consumers, but also to be reactive to market dynamics in order not to over- or under-regulate. On the one hand, over-regulation can bring several adverse outcomes to the industry including, high engagement costs and possible duplicative and confusing rules for all stakeholders including end-users [23]. On the other hand, under-regulation can also lead to adverse outcomes for the industry including unfair market dominance of players which may lead to uncompetitive conditions as well as end-user exposure to unfair and illicit trading practices. The relationship between the regulators, supply- and demand-side stakeholder should be dynamic, mutually responsive, and co-evolutionary, in that the regulatory authorities should match their activities to the issues that arise due to the complex dynamics of the mobile market on an ongoing basis. The manner in which stakeholder interactions are influenced by the regulatory regime has direct

implications on the mobile industry, and thus, constitutes the scope of this investigation the method of which is described next.

The roles of the major stakeholders shown in Figure 1 are briefly described below.

Network Carriers (also known as carriers or mobile network operators) supply a variety of telecommunication services to subscribers who use their network infrastructure. Typically, carriers own network infrastructures or hold licenses for spectrum allocations which are required for providing mobile services to subscribers. Generally carriers control subscriber information and billing.

Accessibility Aggregators typically operate SMS gateway infrastructures that connect to many carrier networks. They purchase end-to-end mobile services from the carriers and act as an interface between these and service providers.

Content Aggregator (also known as publishers) bundle content and services from multiple sources.

They provide wider dissemination by negotiating intricate, complex and time-consuming agreements with network carriers. They also provide mobile content platforms integrating numerous content sources into a single interface for end-users.

Service Providers provide the technology platform for delivering mobile content to end-users by setting up SMS short codes which can be advertised and promoted through various media properties (e.g. TV).

Content Owners (also known as labels, content providers, media owners) create original content from brands, traditional music, films, TV, games etc., and deliver it to consumers via network carriers, service providers or content aggregators.

Application Developers The availability of mobile services is supported by the work of application developers who employ industry development tools to create innovative applications for packaging content offerings.

Industry Association - Content owners are responsible for creating a framework for uniting dynamic and diverse industry stakeholders, hosting networking events, business forums, industry development programs, training sessions, advising government on policy development and promoting industry innovation.

Industry Association - Users represent end users and provide independent views on mobile telecommunications policy and service issues, including competition, regulation, end-user protection. The end-users and their representative should be considered as a legitimate stakeholder in the industry because their lives are likely to be affected by mobile services.

Industry Association - Carriers represent the mobile carriers that operate in Australia. They ensure that the mobile carrier industry as a whole addresses community and government expectations. They also coordinate the deployment of mobile networks, enhance communication and consultation among stakeholders, and liaise with government.

Government Regulator is responsible for promoting regulation and competition in the mobile telecommunications industry while protecting consumers. They also aim at creating an environment where community standards are respected and user concerns are addressed.

3. Method

This research paper is exploratory in nature and utilizes qualitative evidence. We are concerned with the extent to which interpretations of regulation are

sensible in the Australian context and the way in which these influence the adoption and diffusion of mobile services in Australia [24]. A qualitative exploratory approach enables the study of dynamic, intricate, and multifaceted processes as well as the exploration of emerging themes [25-27]. Qualitative empirical data were collected via semi-structured face-to-face interviews, which were used because of their flexibility. In-depth interviews provide rich insights for exploring, identifying, and understanding viewpoints, attitudes, and influences [28].

As indicated in the previous section, stakeholders of the mobile service industry can be categorized into ten groups, namely, carriers, accessibility aggregators, content aggregators, service providers, content owners/providers, application providers, regulatory bodies, and industry associations, including user groups, content providers' association and carriers' association.

The contact details of these organizations were obtained from the Australian Interactive Media Industry Association's (AIMIA) and Australian Mobile Telecommunications Association's (AMTA) websites and who were then approached by phone calls and emails. Twenty two key informant representatives of these organizations agreed to be interviewed. They were considered experts within their organizations on mobile services topics. One of the challenges in selecting participants was to have at least one representative from each stakeholder category so that the views of each stakeholder are taken into account. Some of the organizations that were interviewed carry out multiple roles in the industry as shown in Table 1.

Admittedly, certain groups of stakeholders (e.g. application developers and content owners) may seem to be overrepresented in the interviewee sample relative to others (e.g. network carriers, regulators and industry associations). However, this is because there are many smaller stakeholders in the former groups and fewer larger stakeholders in the latter. Therefore, the sample of the interviewees is generally representative of the Australian mobile telecommunications industry [29].

The interviews were focused on the mobile industry stakeholders and their roles; their perceptions on existing regulation and its impact on their operations; lessons learnt and experiences, and future directions. The contents of the interview transcripts were analyzed thematically. Codes were developed which provided the basis for cross-case analysis and helped identify and analyze emerging patterns of themes [30, 31].

Table 1: Categories of stakeholders interviewed

Interviewee Role	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Network Carrier (2)						X										X						
Accessibility Aggregator (2)											X							X				
Content Aggregator (5)	X	X																	X	X	X	
Service Provider (1)																						X
Content Owner (10)		X	X		X					X				X		X	X		X	X	X	
Application Developer (11)	X	X	X	X	X		X	X		X				X		X						X
Industry Association (Content Owners) (1)									X													
Industry Association (Users) (1)												X										
Industry Association (Carriers) (1)															X							
Government Regulator (1)													X									

We believe that construct validity has been adequately addressed. First, multiple sources of information were used [27]. While interviews constitute the primary source of information, some of the informants provided supporting secondary data which is comprised of archival white papers, professional journal articles and press releases, and web resources. In addition, the investigators themselves identified additional supporting documentation including materials located at the websites of the informants' organizations and industry publications. These secondary data were used for verifying and triangulating the findings of the interviews. Second, the informants belong to different categories of the mobile telecommunications industry. This ensured that different perspectives were provided which constitutes an important type of triangulation of qualitative information sources by preventing biased opinions [32, 33]. Third, two investigators conducted and analyzed all interviews [34]. This kind of triangulation reduces the potential bias which is commonly cited as a limitation of interviews [27]. Finally, the chain of evidence, tracing the conclusions to the interview summary and to the interview transcripts was also maintained. According to Yin (1994), these enhance the construct validity as well as the reliability of the research, thereby boosting its overall quality.

Clearly, the study reported in this paper is based on the Australian context, and therefore, we accept its external validity cannot be ensured. Consequently, our findings may not be readily generalizable beyond this study [35]. To ensure generalizability, further research is required, both in Australia and in other contexts.

4. Analysis

In this section, we use the ideas presented in the work of [12, 19]) as a basis to analyze our findings. Specifically we examine five major regulatory issues, namely, consumer and intellectual property protection, market and resources access, and environment protection. These and the manner in which they operate in the Australian context are discussed in detail in the sections that follow and they form the backbone of a regulatory framework which we propose later in the paper.

Consumer Protection

Privacy has been one of the core issues in the internet environment and it has similar effect in the mobile context [36-38]. All interviewees were consistent in indicating that their organizations have strict policy provisions in place for safeguarding the privacy of consumer information with some even having implemented encryption mechanisms.

However, interviewees also indicated that privacy regulation in the mobile industry has also considerably restricted the range of mobile services that are being offered in the Australian market. For example, Interviewee 7 describes Australian carriers to be “absolutely paranoid about privacy” which has affected the uptake of certain mobile services, including location-based services. In general, regulation can potentially be either a driver or a “big barrier” (Interviewee 7) for the diffusion of mobile services as captured in the following statement:

“...Australia’s prime supervisions of privacy ... have a definite influence on the way that the mobile community has formed, because of what you can do in terms of marketing on a mobile phone, which is different in Europe. So of course they have services there that we don’t have here because their regulatory environment enables that.” (Interviewee 1)

Protection of Minors There was broad agreement amongst interviewees that policies and legislation should be in place for regulating the access of offensive and harmful mobile services and content including adult content, inappropriate gaming, and gambling services from minors. Although certain types of mobile services (e.g. adult and quasi-adult services), have been driving demand and generating substantial revenues for many supply-side stakeholders, the mobile industry is making efforts to provide these services responsibly into the Australian market. For example, Australian carriers have taken initiatives for implementing robust access controls and age verification processes for restricted content in order to eliminate the possibility of minors accessing inappropriate services.

Contractual Relationships refers to protecting the contractual bilateral relationships between supply- and demand-side stakeholders. This includes protecting end-users in their relationships with mobile network operators with mobile retail tariff regulation, mobile number portability, spamming, and product and billing disclosure. Interviewees were consistent in their expectations that the government regulator should collaborate with industry to regulate these issues and create an industry code of conduct.

Interviewee 11 argues that regulating these aspects is particularly important in the mobile industry which may be particularly susceptible to fraud. Interviewee 12 illustrates:

“[some content provider] are running ring tones and screen savers at the moment. They’re targeting the youth market. They send an SMS saying do you want a free ring tone. If you say yes, you’ve found that you haven’t just signed up for a free ring tone, you’ve signed up for a monthly subscription for twelve months for a ring tone at [A]\$7 a month. This just turns up on your bill. This is destroying [consumer] trust and confidence.” (Interviewee 12)

The devious activities of unscrupulous players in the mobile industry have a strong potential of creating mistrust, and in turn, seriously damage the reputation of legitimate supply-side stakeholders. A trusting environment is extremely important to exist in the industry for the mobile services to be widely adopted.

Intellectual Property Protection

A key issue facing creators and distributors of mobile content is protection from piracy and unauthorized use [39]. In Australia, mobile content providers depend on the widespread adoption of digital rights management (DRM) technologies and on the Intellectual Property Rights (IPR) regime [40-43]. All interviewees, content providers and application developers in particular, did recognize the threat that piracy poses to ownership rights. Interviewees were, however, consistent in suggesting that intellectual property protection or lack thereof does influence the decision whether to use a channel for distributing their content or services. In most cases, precautionary measures are undertaken independently intended at curtailing intellectual property violations. These include screening the trustworthiness of distribution channel partners and using technical solutions to curtail piracy.

Market Access

Market access concerns with accessing markets with appropriate mobile frequencies and obtaining the required operational licenses. It also includes competition and antitrust legislation which is aimed at ensuring that competition is not distorted and, consequently, consumers receive quality mobile services. The mobile market is unique in the telecommunications domain. This is because licenses are technically and politically limited [14]. Although licensing is meant to occur in a competitive manner, new carriers are not likely to be on equal footing with incumbent ones as the latter have advantageous starting positions due to prior well established presence and market power often

through vertical integration with other industry players. Consequently, asymmetric market positions of the network operator players may become a source of regulatory concerns. Many interviewees argue that, currently, Australian supply-side stakeholders do not have equitable access to the market of mobile content and services, and that the government regulator should interfere by creating "a level playing field" (Interviewee 1) for all. Government favouritism for one of the mobile network operators was cited as an example that has the potential to create monopolistic and "predatory behaviour" (Interviewee 6) in the mobile market. While there is no evidence that anti-competitive market domination of the larger operators over the smaller ones has occurred, the Australian regulator continues monitoring the market.

Resources Access

Resources access includes knowledge development and deployment. The creation of technical and business knowledge underlying the development of mobile content and services is essential for the success of emerging industries. Currently, many content providers such as digital media organizations, artists, musicians and film makers have exhibited a huge interest for distributing their content via the mobile channel, however, the knowledge concerning the ways that mobile content can be adequately formatted and commercialized for mobiles is limited. Funding research or coordinating taskforces that build this knowledge are two possible options for mobile industry stakeholders [33, 44, 45]. Currently, the content providers' industry association in collaboration with government and a few key players in the industry have jointly undertaken active knowledge building steps, such as research, for developing this body of knowledge.

Once built, development knowledge and technical know-how needs to be deployed and this is important not only for building awareness amongst stakeholders, but also for showing them how business models operate. Therefore, industry associations should become more proactive in undertaking additional knowledge deployment measures including education and training. These measures can help supply-side stakeholders acquire the necessary knowledge and learn about the ways

that they can format mobile content and services for mobile media, and distribute to end-users.

Environmental Protection

Environmental protection is concerned with how developments in the mobile industry affect the environment. The Australian mobile industry has undertaken a transparent, viable and sustainable mobile phone recycling campaign with the objective of preventing used mobile phones, accessories and batteries end up in landfill and as a result minimize environmental burden [46]. With increasing handset replacement rates [16, 29], most interviewees support the mobile phone recycling campaign and hope that this initiative will start a bandwagon effect amongst all stakeholders.

5. Regulatory Framework for Mobile Services

In general, regulation setting is implemented by organizations with legislative powers, such as regulatory bodies. These regulate the context in which products or services are developed, deployed, and used. For emerging industries such as the mobile services industry, regulatory authorities have to deal with a multitude of heterogeneous networked stakeholders. Further, as mobile technology operates in a dynamic environment and undergoes rapid changes, regulatory definitions become a moving target which implies that regulators should constantly acquire industry-specific knowledge over time [6, 14]. Consequently, regulation for the mobile industry becomes an extremely complex and involved undertaking for all stakeholders.

The Australian government policy for the mobile industry is characterized by a co-regulation approach which represents close collaboration with the industry in terms of a mixture of direct intervention through legislation, on the one hand, and complete self-regulation on the other. There is no direct regulation, but also there is no pure self-regulation. Regulatory bodies provide the industry with some parameters concerning the regulatory issues discussed in the previous section in which key problems are to be solved. It is the responsibility of the industry to work out the details that best suits mobile technology and related business models. The role of the regulator is thus to allow the industry to apply its own codes in the first instance and to monitor the effectiveness and enforcement of those codes [23].

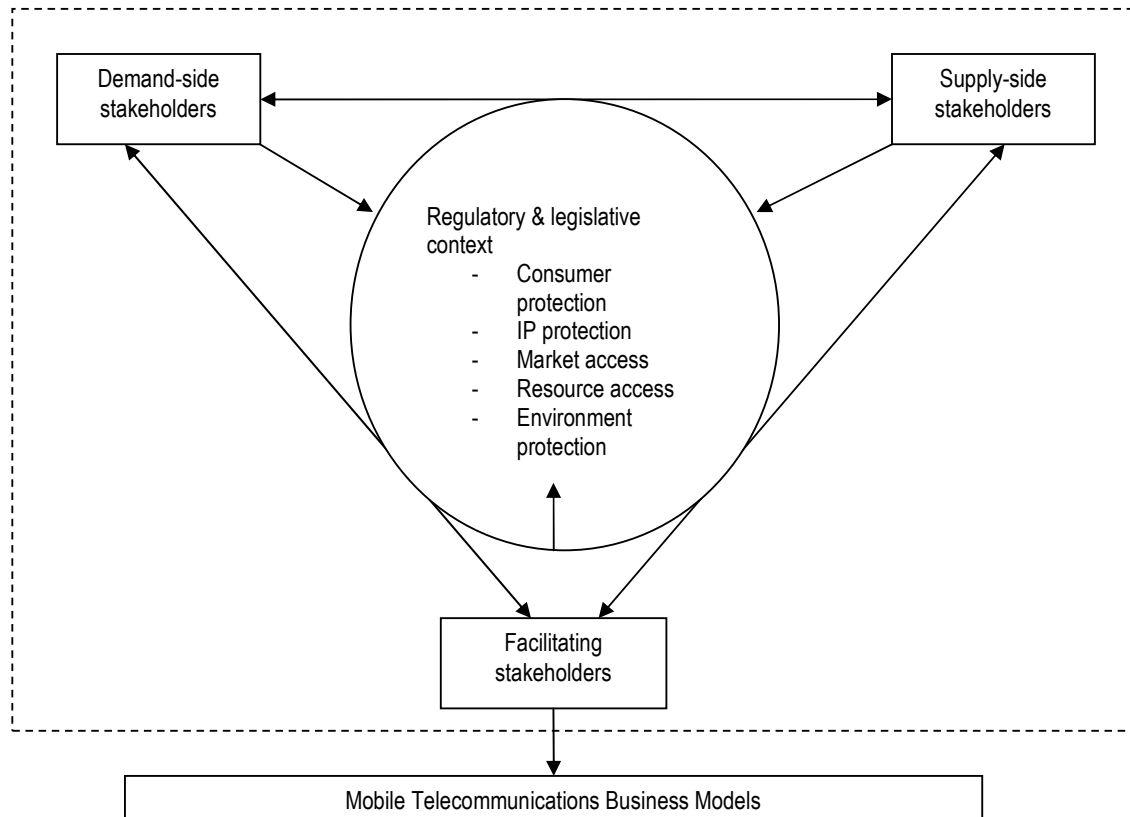


Figure 2. Co-regulation in the mobile industry in Australia

It is important to recognize that, taken together, the regulatory issues considered in the previous section and the manner in which they are applied via co-regulation affect how mobile telecommunications business models operate. However, consideration of specific effects (e.g. value-proposition, revenue generation) is beyond the scope of this paper. The diagram in Figure 2 integrates the regulatory issues discussed previously with the notion of co-regulation to form our regulatory framework for the mobile industry in Australia. With co-regulation, the mobile industry is empowered and takes responsibility for participating in the development of its own regulation. Two major benefits emerge with this approach: first, regulation costs are likely to be significantly reduced, and second, compliance is likely to occur naturally, and therefore, regulation in itself is likely to be perceived to be less restrictive and onerous than in traditional regulation models [46, 47].

6. Conclusion

Regulating the mobile services industry is an extremely difficult task. There are many reasons for this, including the highly complex nature of the networks and stakeholder relationships required to provide mobile services as well as the constantly

evolving underlying technologies. There are growing calls from both scholars and practitioners alike for further research in this area. In response to these calls we have conducted a study which draws both on existing literature and qualitative evidence and have proposed a regulatory framework for mobile services. We have first provided an overview of the Australian mobile services industry which was used as a setting for our investigation. We have subsequently discussed the research method followed by an elaboration of the proposed framework. We believe that this framework is the first of its kind, and, thus, it contributes to the existing body of knowledge which can be employed by both academics and practitioners alike. The framework is comprised of five major components: first, consumer protection including privacy, protection of minors, contractual relationships, second, intellectual property protection, third, market access, fourth, resources access including knowledge development and deployment, and finally, environmental protection. We argue that these encompass the interests of all stakeholders operating mobile industry and given its dynamic and complex nature co-regulation is the most effective approach to minimize costs and enhance compliance.

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