E-BUSINESS IN AUSTRALIA'S MOBILE PHONE MARKET. A CONTEMPORARY REVIEW.

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October 2003

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Executive Summary

The purpose of this report is to provide a comprehensive and contemporary review of e-business in Australia's mobile phone market. The mobile phone industry in Australia is complex with a supply chain consisting of manufacturers, carriers, distributors and retailers. The market itself is mature and dynamic and lends itself to a wide variety of e-business activities.

The report overviews the current market structure including the key stakeholders within the supply chain. It explores the market size, competition and the changing environment for all these players. Once a voice only medium, the mobile phone has transitioned through multiple service extensions. SMS text, web access, FM radio, colour screens, Java games and video streaming are features that now available. These have not only changed the market, they have shaped the way stakeholders do business.

Manufacturers, for example, are now driven by innovation and carriers provide the network infrastructure that has required years of development and large investments. An outsourced distribution model for getting handsets to the retailers was originally chosen by mobile phone manufacturers on a fee for service basis. This model remains in place today. The market also supports a wide variety of retailers from specialist, chain and discount stores through to supermarkets that have more recently entered the sales channel.

A mature, saturated market, a decline in unit sales value, vendor rationalisation, simplification of the sales process and e-business have all significantly impacted the supply chain. Online and e-business activities vary accordingly and these are explored at each level.

Finally, the report identifies some of the more significant future trends and advances that will shape the marketplace. The future remains bright for mobile phone manufacturers, carriers and retailers as new technology drives mobile phone functionality beyond that of voice. As there is a symbiotic relationship for the supply chain players, there is a need for these affiliates to maintain strong business relations to drive future market growth.

Market Analysis

Overview

The mobile phone market in Australia is both complex and substantial. It is characterised by a number of stakeholders who have significant capital invested within the industry and who have differing and often divergent motivations. These stakeholders need to work closely together in a symbiotic relationship if the overall market is to continue to grow. The market has seen strong growth since inception and penetration rates are now estimated to be sitting at around 70%.[1] The market is now considered to be mature and the profile of activity within the market in the near future is anticipated to be quite different from that which was evident in the growth phase.

Stakeholders

Handset Makers

The handset market is considered to be close to saturation in Australia with more than 25 million units having been sold since inception and a current installed base of 15 million units. Consequently mobile phones are becoming harder to sell and the profile of the buyer is changing from the new user to the upgrade user.

Table 1 Mobile Phone Handset Sales Australia [1]

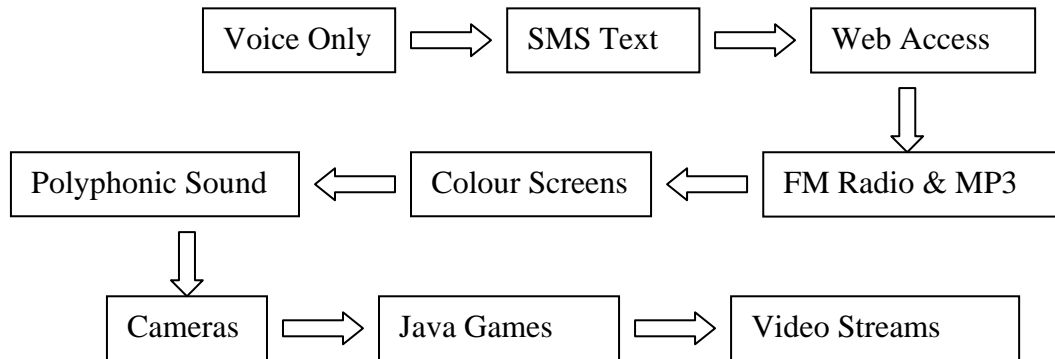| Year	Handset Sales
1999	5.0 million
2000	5.0 million
2001	4.0 million
2002	3.7 million

To operate in the Australian market handset makers need to have close relationships with telecommunication carriers, distributors and retailers.
Major players in the Australian market are:
- Nokia
  http://www.nokia.com.au
- Motorola
  http://au.motorola.com
- Sony-Ericsson
  http://www.sonyericsson.com/au
- Siemens
  http://www.my-siemens.com.au/
- Alcatel
  http://www.my-onetouch.com/worldwide/com/

As growth in the handset market is largely being generated through replacement of existing handsets, there is significant focus on building new features into handsets and encouraging users to embrace and use these features. A time line of handset features is outlined below.

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[1] "Bells & Whistles on the Move" BRW – 24/3/03

Figure 1 Mobile Phone Features Timeline

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┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│  Voice Only  │ ⇒    │  SMS Text    │ ⇒    │  Web Access  │
└──────────────┘      └──────────────┘      └──────────────┘
                                                    ⇓
┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│ Polyphonic   │ ⇐    │Colour Screens│ ⇐    │ FM Radio & MP3│
│   Sound      │      └──────────────┘      └──────────────┘
└──────────────┘
       ⇓
   ┌──────────┐       ┌──────────────┐      ┌──────────────┐
   │ Cameras  │ ⇒     │ Java Games   │ ⇒    │Video Streams │
   └──────────┘       └──────────────┘      └──────────────┘
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Mobile handset technology has advanced to a point where the units are technically complex. Consequently all of the major handset makers now incorporate significant end user information into their websites.

Telecommunication Carriers

There are three dominant mobile telecommunications carriers in Australia. There are also two virtual carriers, Virgin Mobile and AAPT who use the Optus and Vodafone networks respectively.
Major players in the Australian market are:

- Telstra
  http://www.telstra.com.au
- Optus
  http://www.optus.com.au
- Vodafone
  http://www.vodafone.com.au
- Virgin
 http://www.virgin.com
- AAPT
  http://www.aaptmobile.com.au

The mobile phone service market is also considered to be mature in Australia with a penetration rate of 69.5%[2]. In the initial stages of the mobile phone market telecommunications carriers needed to concentrate on customer acquisition. Each of the main three carriers (Telstra, Optus & Vodafone) had expended multiple billions of dollars on radio spectrum and on network build out. Once a network is built there is little marginal cost added in running costs until the network is operating at capacity. These financial dynamics catalysed an aggressive campaign by all carriers to acquire customers to get the networks into profitability in the shortest possible time. The battle

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[2] "Bells & Whistles on the Move" BRW – 24/3/03

for market share in the carrier market has been intense for the past 8 years. The market in 2001 – 2 is estimated to be around $6 billion.[3]
Market shares for the telecommunications carriers is measured in terms of services in operation (SIO's) Market shares for the major carriers in 2001 – 2 is illustrated in figure 2.

Figure 1 Mobile Phone SIO Market Share

Total Mobile Telecoms Market ($6B)

Other 4%
Vodafone 19%
Optus 25%
Telstra 52%
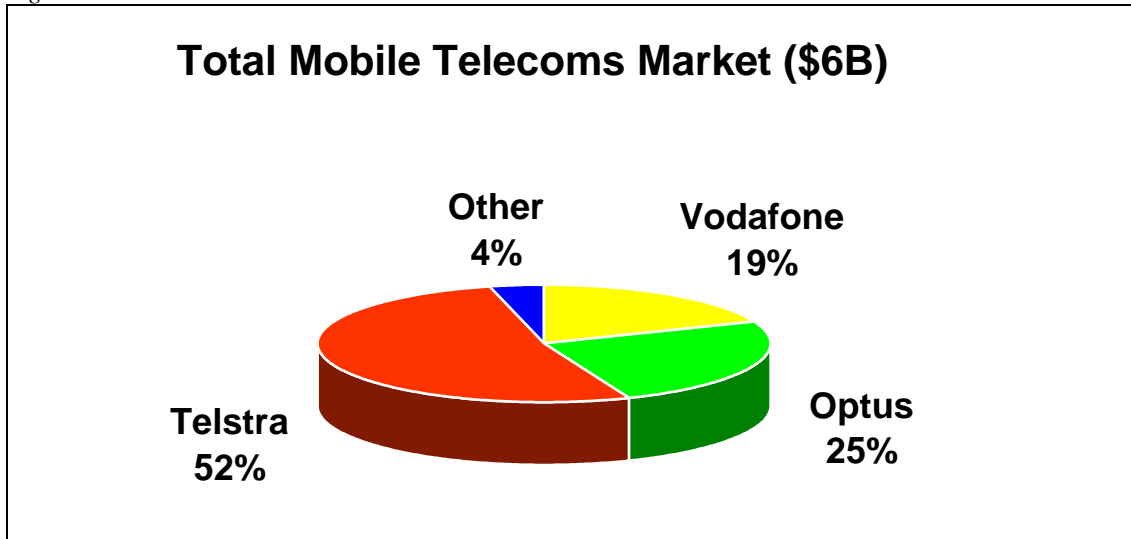
Not only is the number of services critical to a carrier's profitability, but those services need to generate revenue. The industry measure of the quality of service is the average revenue per user per month. (ARPU)

Mobile Service Product Life Cycle
Innovators – Early Adopters 1990 - 1992
In the initial stages of the market (1990 -2) mobile phone handsets were priced in the $1 – 2,000 price range and call rates were $2 – 3 per minute. Mobile phone numbers were tied to carriers and handsets were subsidised and provided by the carrier through a specialised dealer on a post paid basis to the end user under contract for 2 – 4 years. This was a classic innovator - early adopter marketing strategy which resulted in obtaining high ARPU customers who were tied to a network via contract or due to the lack of number portability. (high switching costs)

Early Majority 1993 – 1997
Handset prices fell to around $1,000, carriers continued to subsidise handsets and mobile phone numbers were still tied to a carrier. Distribution channels widened to include specialist retail chains as well as specialist dealers and carriers began to establish their own retail outlet. As most of the initial customers came off contract during this period, churn wars broke out. (Churn is where a customer is induced to change from one carrier to another) ARPU's declined from $200 to $150[4] during the period.

Late Majority 1998 – 2001

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[3] "Telecommunications Market Indicator Report 2001 – 2" ACCC – September 2003
[4] Interview with Sales Director of Optus

Handset prices fell to $500 – 700, fully subsided handsets ($0) were introduced into the market. Carriers introduced pre paid payment type phone accounts. Mobile number portability mandated by the government. Specialist dealer channels contract while specialist retail and mass market retail expands. ARPU's continue to fall significantly effected by prepaid which yields one third of a post paid connection.

Laggards 2002 – present
Handset prices range from $200 – 750. Data services SMS & WAP introduced to drive non voice revenue. Churn rates plateau across carriers at around 25 – 30% of SIO's per annum. Upgrades exceed new connections. 90% of new connections occurring on the pre paid platform. Further consolidation of the specialist dealer and the introduction of discount department stores and supermarkets to the distribution channels. ARPU's plateau at prepaid $20 – 25 and post paid $70 – 80.

Handset Distributors

In the early stages of the mobile market the handset makers chose to adopt an outsourced distribution model. All logistical functions were outsourced to a third party who was remunerated on a fee per service basis. This situation remains today.
The major cellular phone distributors are:

Cellnet
http://www.cellnet.com.au
Techpacific
Tech Link Extranet
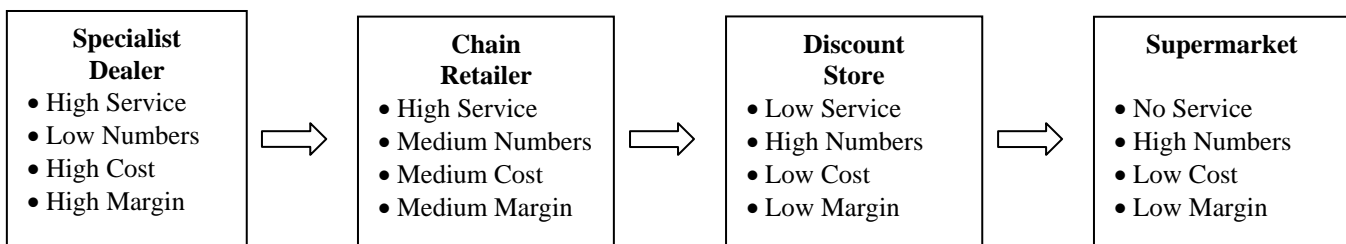Brightpoint
http://www.brightpoint.com
Roadhound

These distributors cover the entire nation and between them cover all brands of mobile phone and all carriers. During the last 8 years the market for distributors has changed significantly. The reduction of the unit sale value, the reduction of number of distribution points (due to retailer rationalisation) and reduction in ARPU has put pressure on the remuneration available to distributors.

Retailers

The retail channel for mobile phones has transitioned through a classic diffusion of innovation distribution cycle.

Specialist Dealer • High Service • Low Numbers • High Cost • High Margin	⇨	**Chain Retailer** • High Service • Medium Numbers • Medium Cost • Medium Margin	⇨	**Discount Store** • Low Service • High Numbers • Low Cost • Low Margin	⇨	**Supermarket** • No Service • High Numbers • Low Cost • Low Margin

The industry is at a point where supermarkets are now beginning to enter into the distribution channel and there has been significant rationalisation of the specialist dealer network. This represents a significant structural change within the industry and can be attributed to the high levels of mobile penetration, falling revenues and the introduction of the prepaid platform allowing for a simpler sale, thus reducing the barriers to entry for low or no service retailers.

From a retail perspective the distribution of mobile phones is a dichotomy based on end user payment type. High service retailers will focus on post paid products where there is the necessity for the customer to complete a contract and the sale duration will be in the order of 20 minutes. Remuneration to the retailer consists of:

- Handset margin.
- Administration fee.
- Plan bonus.
- Ongoing airtime commission.

Typically this will net out to $90 – 150 plus 6 – 10% of the end users monthly phone bill paid on a monthly basis for the duration of the contract.

Low or no service retailers sell only prepaid products where there is no requirement for contract completion and the sale is a simple cash and carry transaction. Margins are typically around 25% on hardware and 12-20% on prepaid recharge cards or vouchers.

Specialist or High Service Retail	Low or No Service Retail
Telstra Shops	Big W
Optus World	K-Mart
Crazy John	Myer/Grace
Strathfield Car Radio	Coles Supermarket
Dick Smith Electronics	Australia Post
Fone Zone	Woolworths Supermarkets
	Convenience Stores

Content Providers

As ARPU's have continued to fall across the industry, carriers have been endeavouring to increase the utility of the network and handsets beyond voice. The most success has come from the introduction and cross carrier support of the SMS (this allows users to send short text messages to individual or groups) service.

The GSM Association (world body representing mobile phone carriers) announced in November 2000 that over nine billion SMS messages were sent over the worlds mobile networks in August 2000. The association predicts that by the end of 2002 this figure will exceed 15 billion.

> *A massive number of SMS information based services and web portals are being launched daily. In addition to basic m-commerce applications, corporate, sports, financial, news or weather based information over SMS, the variety of services now available stretches the boundaries of the imagination. It's now possible to arrange dates, participate in auctions, advertise, gamble or receive*

> *jokes via SMS, there are even special religious SMS services that send text calls to prayer.* [5]

In addition technology has advanced both from a network and handset perspective that will now allow multi media services (MMS) to be implemented on the mobile phone platforms. This technology allows for full color photographs, video clips, polyphonic ring tones, screen logos and games to be downloaded from a server or sent from mobile to mobile. These new services are fueling the establishment of new entrants in the content provision market and phone hardware upgrades.
Examples of content providers are:
Mercury Mobile
http://www.mercurymobility.com.au/
Telstra Mobile Loop
http://www.telstramobileloop.com/index.htm
Vodafone Live
http://www.vodafone live
Go Mobile
http://www.gomo.com.au
Sony
http://wireless.sonymusic.com/

Payment Types

Within the mobile phone industry there are two payment types.
Postpaid services are where the end user utilizes the service and is then sent a bill at the end of the billing period for a flat connection rate and for any calls made during the period. The carrier normally enjoys security of tenure for a contracted period and a minimum monthly revenue figure. The value of this "lock in" is reflected in the call rates charged to the user.
Prepaid services are where an end user will purchase a predetermined amount of call usage and load this into their handset, which will then operate until the time is exhausted. At this time further call usage will be purchased to continue the usage of the phone. End users purchase this airtime via various retail outlets using either cash or credit card.

Prepaid mobile phones have been in the market a relatively short period of time. In this time they have opened up mobile communications to previously prohibited sector of the market. Prepaid services appeal to the following segments of the market:

- Credit challenged users.
- Credit controlled users.
- Infrequent users.

The demographic profile of prepaid users is skewed towards young new users as they are either credit controlled or are unable to enter into a contractual relationship because of age.
Prepaid services are currently the highest growth sector of the mobile phone market and industry estimates are that 90% of all new connections will be on a prepaid basis.

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[5] Rob Conway GSM Association CEO

Industry Issues

Overview

The mobile phone industry in Australia is undergoing significant change. This change is being driven by the maturity of the market and the degree of penetration of the technology. Subsequently as the market enters the mature phase of the life cycle efficiencies throughout the value chain are being pursued. New relationships are being established. Emphasis is being placed on the quality of customer and customer retention.

Structure

- Carrier marketing efforts are now focused on customer retention and customer quality, as opposed to customer acquisition and market share.
- ARPU's are falling, motivating carriers to investigate means of airtime generation other than voice. A new stakeholder (content provider) has entered the market.
- Carriers are reducing distribution costs in line with ARPU reduction.
- Handset makers are trying to increase the frequency of hardware upgrade as this is now the dominant sector of the market. This results in more models being released to the market with a shorter life cycle before supersession.
- Consolidation of the retail channel has resulted in fewer "points of presence" possibly doing more volume.
- High volume low margin retailers have entered the distribution channel putting pressure on existing channel members.
- Complexity of transaction has reduced due to the introduction of the prepaid platform.

Supply Chain

- New business will be generated by existing users either upgrading their service or hardware. There is less need for specialist retail outlets as the end user is experienced.
- New users will be predominantly on the prepaid platform which favours low cost retailers.
- New users will contribute lower value than existing users, resulting in less funds to remunerate the distribution chain.
- Retail points of presence are declining in number, thus diluting the value a distributor to the supply chain.
- Deflation of handset prices is putting pressure on the available remuneration for distribution expense.
- Shortening of handset life cycles is putting pressure on channel inventory levels and clearance problems.

Competitors

- As ARPU's fall, carrier to carrier competition intensifies for high end customers.
- As ARPU's fall carriers compete with distribution channels for upgrade customers where the value added by the retail channel is negligible.
- As penetration increases the pool of available customers diminishes thus intensifying competition at retail to "fight to the death" levels.

Communication

As efficiencies are being gained there are fewer participants within the value chain. Subsequently there is a need for communication links which were once one-to-one or one-to-several (carrier to retailer, handset maker to distributor) to be replaced by one-to-many. (carrier to end user, handset maker to end user)

These communications links can be facilitated through a number of different mediums.
- Mail. (Either direct mail or via bill notification)
- Voice (Call centre based.)
- SMS or MMS
- Online (Web or mobile based.)
- General media.

All carriers are actively using all forms of communication to either establish or fortify links with end users at this present time.

Regulations

There were a number of amendments made to the Australian Privacy Act in the year 2000 which affected the way in which end users could be contacted. The key features of this change in regulation were:
- Retailers could not directly contact (without permission) end users whom they had serviced in the past as the relationship is between the end user and the carrier.
- Retailers could only contact end users who had opted in for marketing purposes.
- Carriers could only contact end users who opted in to promote new services. They could however communicate about existing business issues.
- It became difficult to use competitive carrier's databases to promote services via call centres and other direct communication methods.

The enactment of this legislation had a profound impact on "churn" activity within the marketplace. A number of businesses that were dependant on generating carrier to carrier churn were eliminated from the industry.

E-Business Impacts

Overview

E-Business has the potential to significantly change the structure and efficiencies that exist within the mobile industry today. Communication links are moving from one-to-few to one-to-many as layers are removed from the value chain. This positions the internet and specifically the World Wide Web as an effective and efficient means of communication.

The technology lends itself to communication for e-business. SMS and wireless internet capable handsets have penetrated the market to such an extent that it now offers an efficient means of communicating with the end user.

World Wide Web

Telecommunication Carriers

All of the Australian carriers have significant presences on the web. Not only are these presences customer facing but there are retailer and dealer portals within the sites.

Customer Facing
Carriers focus today is on customer retention and on encouraging the increased use of airtime via either voice or data. To this end the websites are trying to add value to existing customer relationships.

- Online chat rooms – for customer assistance in real time 24/7.
- Phone plan configurators – facilitating new or upgrade users.
- Plan offers – latest offers for upgrade.
- Phone offers – latest offers for upgrade
- Switching offers – information for competitive carrier customers.
- Call rate optimizers – value added service for customer retention.
- Coverage details – is the service in your area reduction in live operator costs.
- Integration of PC and mobile services – tools to get more use out of your mobile.
- Facilitation of phone & plan purchase – direction to closest retailer or connection online.
- Bill payment services – making it easier to pay your bill.
- Personalized home pages – value added service.
- Mobile commerce affiliations – increased usage.
- Handset Utilization tips – value added service for increased usage.

Retailer/Dealer Portals
Carriers are trying to reduce costs associated with the servicing of dealers as ARPU's fall across the industry and the number of new users is declining due to penetration. All carriers have web based VPN's (virtual private networks) set up to assist with retailer and dealer relationships. These networks are designed to provide information to the

dealer that would have previously been accessed via a person to person telephone call or a visitation from either an in store merchandiser or sales representative. The types of information provided from within the VPN are:

- Sales Collateral
  Brochures on phones, coverage and plans are available in Adobe PDF format that can be accessed and printed locally when needed.
- Commission Updates
  Specific details that would have been only available via accounting channels are now made available on line for enquiry.
- Contract Forms
  Where are physical contract form is still required, these are available for printing as required.
- Electronic Forms
  Service activations can be completed using secure channels directly online. This reduces the incidence of manual error and facilitates faster more efficient activations. These can be back-ended into the dealers point of sale systems.
- Phone and Plan Updates
  Latest breaking news concerning plan or phone updates are pushed to dealer sites, replacing either manual or faxstream communication system.

The implementation of VPN's has enabled the carriers to significantly reduce field operatives and call centre headcounts while at the same time either retaining or enhancing levels of dealer service.

Handset Makers

Technology is driven by both the carrier and the handset maker in the mobile phone industry. Handsets are embracing more features and concepts. (e.g. video clip capable phones) With ever increasing acceleration in technology comes ever increasing degrees of complexity. Traditionally the retailer was the repository of technical information regarding product. As the degree of complexity has increased and the number of models and models changes has increased the retailer has been unable to keep up with the pace. The number of permutations and combinations of phones – carriers – plans is overwhelming.
Consequently handset makers have had to provide resources to both the end user and the retailer to assist with product knowledge and technical expertise.
Handset maker's websites include:

- Technology Education Sections
  These are designed to educate both the end user and the retailer about the different types of technology that are being used in today's mobile phone market. This will help a retailer or end user choose an appropriate technology for their need.
  http://www.nokia-asia.com/nokia/0,,27049,00.html
- Mobile Phone Selection Tools
  Configurators or decision tree tools that are designed to select the appropriate handset for your lifestyle.
- Partner Portals
  Portals designed for handset partners. These would include, carriers, retailers,

content providers and distributors. Information and resources is tailored for the specific partner type.

- Support Sections
  These sections provide detailed instruction manuals, utilization tips, troubleshooting procedures and frequently asked questions about specific current and legacy handsets.
- Investor Relations
  Detailed information about the company and press releases are contained within these sections.
- User Groups or Clubs.
  A number of handset makers have established user groups or clubs. These groups are offered specific value added services to strengthen the link between the user and the brand.

Distributors

Distributors are under considerable pressure because of structural changes to the industry. As mobile phone outlets have consolidated and handset and ARPU rates have deflated the available funds to remunerate distributors has diminished. There has consequently been a reduction in the number of distributors over time and to survive a distributor needs to provide an efficient service to the carrier, handset maker and retailer. As the distributor layer is invisible to the general public distributor presence on the Internet is limited to web enabled VPN's.

As the life cycle of handsets has reduced and the number of model changes increased, the efficient implementation of supply chain practices has become critical. In a deflationary market no part of the supply chain can afford to be holding significant amounts of stock.

All of the major handset makers and a number of distributors are members of Rosettanet http://www.rosettanet.org

Rosettanet is an independent, non-profit, global business consortium aimed at creating a standard for the electronic commerce framework to align the processes in the IT supply chain. Using the Rosettanet framework and XML standards distributors are able to achieve:

- Closer strategic B2B ties with handset makers.
- Closer B2B ties with retailers.
- Reduce the time from manufacture to delivery to less than 10 days.
- Reduce inventory levels throughout the supply chain.
- Reduce forecast periods from three months to one.
- Reduce the clearance period of superceded models.
- Increase responsiveness to both retailers and handset makers.

Utilizing EDI practices, significant costs can be extracted from the supply chain process. Almost real time data from retailers and carriers can be used to determine the amount of inventory in the supply chain, with this information handset makers are in a better position to ascertain the introduction timing of new models and therefore limit the amount of clearance action required to purge the supply chain. In addition the electronic production of invoices, delivery advice and payments will result in the reduction of operational costs of all members of the supply chain.

Future Trends

Trends within the mobile phone industry revolve around the implementation of new technology. From a network point of view most of the development is centred on:

- Providing broadband access to mobile handsets.
- Introducing new services to increase usage.

Making the mobile phone networks broadband capable is a strategic imperative of all of the major networks in Australia. At present there is a "format war" being waged as to the platform that is to be used to provide broadband capability. The selection of an appropriate platform has significant economic and hardware availability ramifications. A discussion on platform applicability is outside the scope of this report. It can however be assumed that wireless broadband of some description will be available to the Australian public within the next three years.

At this point wireless broadband has only been commissioned in a small number of countries. These are principally within the Asian region. (Korea & Japan) While the services have been moderately successful, no "killer application" has yet emerged that is likely to underwrite the costs of rolling out a network here in Australia. It is difficult at this time to accurately predict the impact that the provision of mobile broadband services will have on the industry.

The technology will allow services that are currently technically impossible to provide. (eg mobile video on demand) There is however no assurances that these services will get significant uptake or be economically attractive.

A close "watching brief" needs to be adopted by all stakeholders in the mobile industry on the global adoption of mobile broadband services.

Consequently the next two years will see further refinements of supply chain management happening to further reduce costs. These refinements are likely to embrace e-commerce. Carriers and handset makers will favourably treat partners who are e-commerce enabled in an effort to reduce the cost of doing business (CODB) in line with price deflation and ARPU reductions.

Conclusion

The structure of the mobile phone industry in Australia is complex with a supply chain consisting of manufacturers, carriers, dealers and retailers. The market itself is both mature and dynamic.

Manufacturers are predominantly large international companies driven by innovation and new technologies to produce mobile handsets with an increasing array of features and gadgetry. Carriers provide the network infrastructure that has required years of development and large investments.

The local market is dominated by 3 carriers dominate; Telstra, Optus and Vodafone. The mature and saturated market has meant a carrier focus on customer retention through improved service, luring opposition carrier users across and finally the promotion of service extensions such as SMS and WAP data exchange functions. As the market is consolidating as it reaches saturation levels, the importance of one-to-one relationship building and supply chain optimization cannot be underestimated.

Handset makers who are being forced by the market to release models in shorter cycle times with enhanced features have to increase the interaction with the end user. This interaction typically revolves around technical and usage issues. This increased level of interaction has presented an opportunity increase customer retention strategies which are seen as gaining importance in a highly penetrated market.

An outsourced distribution model for getting handsets to the retailers was originally chosen by mobile phone manufacturers on a fee for service basis. This remains today with a number of companies providing nationwide coverage. However, the decline in mobile phone sale and ARPU value together with a rationalisation of retailers is threatening the medium to longer-term viability of the model. These stakeholders are forming strategic e-business alliances with manufacturers to ensure that they can add value for their part in the supply chain.

The market supports a wide variety of retailers from specialist, chain and discount stores through to supermarkets that have more recently entered the sales channel. The specialist store retailers have been threatened by low service, low margin operators due to the saturation of the mobile phone market, falling unit revenues and a simplification of the sales process such as pre-paid options. E-commerce has the potential to assist in this trend. However further developments in transacting contract based sales on line need to be more widely available to facilitate this trend.

Online activities vary accordingly. Manufacturers servicing the consumers thirst for new product and feature information. Carriers also service informational needs, however also heavily promote service extensions such as SMS and other data exchange services. Distributors are invisible to the end consumer and therefore consumer focused web based activity is virtually non-existent. And finally, the current state of retailer web activity varies widely, from little or no activity through to full e-commerce.

The future remains bright for mobile phone manufacturers, carriers and retailers as new technology drives mobile phone functionality beyond that of voice. Data transmission and mobile commerce (m-commerce) will link the mobile phone to the Internet as the ideal tool of choice. The "wallet of the future" will ensure the mobile phone maintains its dominance in the modern digital world.

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