

AUSTRALIAN ISP INDUSTRY: A BUSINESS PERFORMANCE REVIEW

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ABSTRACT:

The need to understand and analyse service quality data is an essential and a continuous requirement for efficient business performance. In this paper a detailed review of the Australian ISP's (Internet Service Providers) business performance is carried out. A data mining approach is applied to analyse and understand ISP industry statistics up to date. This is the first Australian study that we know of that examines the customer satisfaction, service quality, customer loyalty and retention in establishing ISP business performance framework and makes a serious effort to understand and manage functional service quality data in the ISP sector.

KeyWords: Small ISP, Functional quality, ISP peering, ISP Statistics, ISP competitive advantage.

1. INTRODUCTION TO TELECOMMUNICATIONS SERVICE INDUSTRY IN AUSTRALIA

With the deregulation of the Australian telecommunications industry, new players have emerged in the marketplace. The major impediment for the new service providers is the significant set up cost in establishing a network. (AC Nielsen study 2003) highlighted that not only that technological choices drive future customer services, but also customers look out for customized solutions to their telecommunication needs. Gaining a competitive advantage is achieved through efficient advertising strategy, strengthened relationship with customers, telecommunication product success, reduced operating costs and provision of competitive offers in relation to current markets (July Mountain Hays 2000). The ISP serves varied customer groups who differ in terms of attitudes, lifestyle, demographics and motivations which are typical of customer characteristics. ISP's in the recent years have proliferated and saturated the internet market (July Mountain Hays 2000). The stiff competition in the current market place is suggestive of reason why some ISP's struggle to gain customers and revenue. Some of the reasons why small ISP's have failed directly point to issues such as faulty technical service and poor telephone support and anti competitive behaviour from large ISP's (Nagarajan, 2005). Small ISPs have found that value adding is the key factor to attract new customers, despite the fact that they have to increase the charges more than large ISP's (Xing feng guo 2003). Small ISP's are seen to provide user friendly services such as assistance to clients to get online, to set up their network according to their own

needs and requirements. However the trend suggests that upon gaining sufficient skills customers tend to consider (or) move on to larger providers who may offer cheaper prices (or) standardized services (ABS BUIT 2004). Poor customer retention for smaller ISP's is attributed to lack of resources, inadequate training and poor investment in customer service department (Nerbert and Zita 2004). For these reasons the ISP market will continue to become segmented as the more successful ISPs will find a way to provide additional value over and above what is already being provided in the telecommunication circle (Vincent 2003).

2. CURRENT TRENDS IN THE ISP INDUSTRY

In this section an analysis of statistical study of current trends in Australian ISP industry is presented. Our data source is based on the reports published by Australian Bureau of Statistics (ABS 2005) . Two main questions that are addressed are: *Why has the small ISP industry changed so much in the last few years? What are the key drivers that led to this change?* To answer these questions we look at the existing statistics in relation to the ISP's and establishing a link to the business performance indicators.

Drawing conclusion from the existing statistics: By the end of March 2002 the total number of ISP's fell from 665 to 571. Of the 94 ISP's that went out of business 81 were smaller ISP's. In 2001-2002 a tremendous increase is noted in: (i) download by subscribers, (ii) number of broadband subscribers (27,000 to 60,000), (iii) total number of ISP's providing broadband service (52 to 131), (iv) decrease in number of ISP's in capital cities (496-427). Figures 1-6 illustrate the trends in several ISP categories. More information on how categorization of ISP's are understood is presented in Table 1.

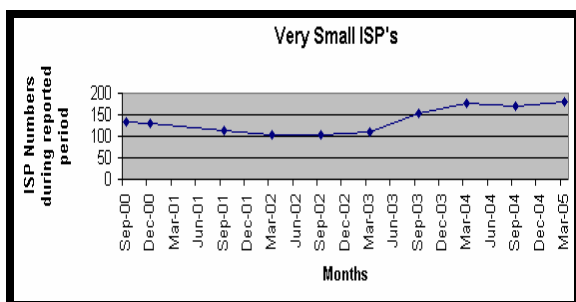


FIGURE 1: A Graph showing the trend in Very small ISP numbers in Australia : Sep'00-Mar'05
Source: (ABS 2005)

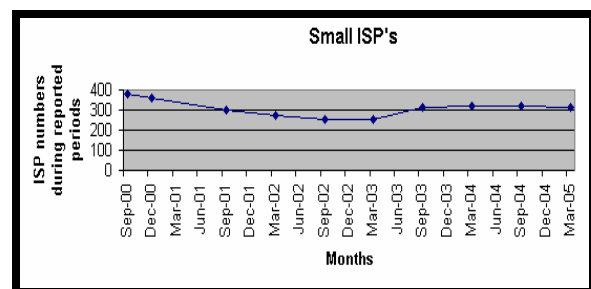


FIGURE 2: A graph showing the trend in Small ISP numbers in Australia from Sep'00--Mar'05
Source: (ABS 2005)

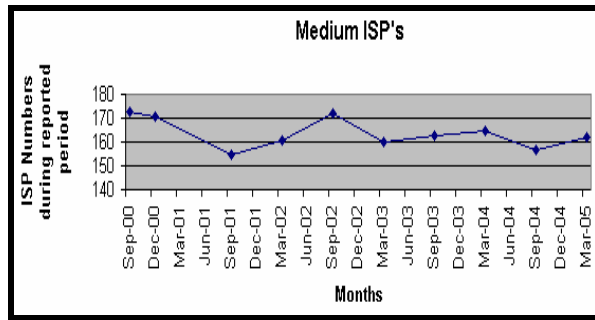


FIGURE 3: A graph showing the trend in medium ISP numbers in Australia from Sep'00--Mar'05 Source: (ABS 2005)

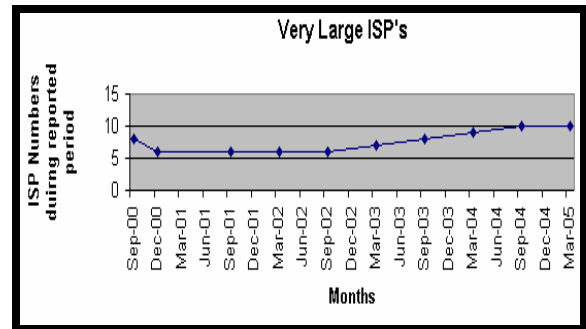


FIGURE 5: A graph showing the trend in Very Large ISP numbers in Australia from Sep'00--Mar'05 Source: (ABS 2005)

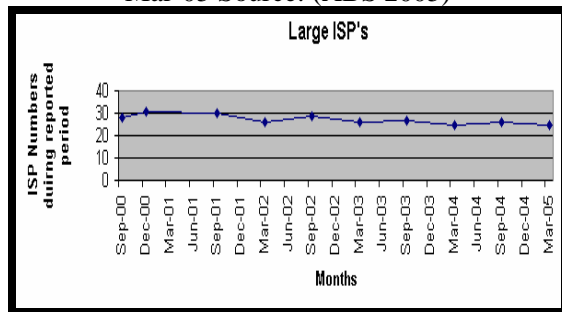


FIGURE 4: A graph showing the trend in Large ISP numbers in Australia from Sep'00--Mar'05 Source: (ABS 2005)

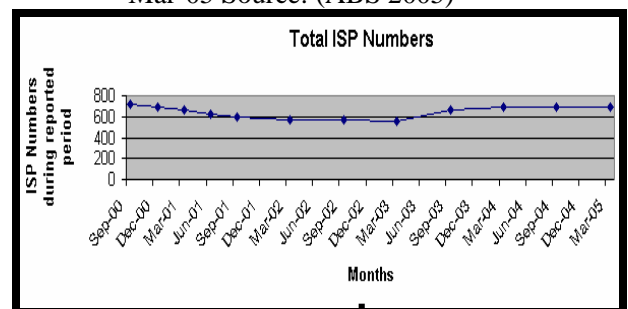


FIGURE 6: A graph showing the trend in Total ISP numbers in Australia from Sep'00--Mar'05 Source: (ABS 2005)

TABLE 1: Subscriber base for various ISP sizes in Australia (ABS 2005)

ISP Category	Subscribers
Very large ISP's	More than 100,000
Large ISP's	10,001-100,000
Medium ISP's	1,001-10,000
Small ISP's	101-1,000
Very small ISP's	100

Following are the observations made from the graph during the period sep 2000-mar 2005 in the following category: (a) **Very Small ISP (vsISP)**: A Steady decrease in the number of vsISP between sep 2002-marc 2002 and no noticeable changes between mar 2002-mar 2003, a sharp increase since march 2003. (b) **Small ISP(sISP)**: Sharp decrease between sep 2000-mar 2003 and a steady increase between sep 2003 to date. (c) **Medium ISP (mISP)**: Alternating decrease and increase in number of ISP's between sep 2000-sep 2001, sep 2001-sep 2002, sep 2002-mar 2003, mar 2003-mar 2004, mar 2004-sep 2004 and sep 2004 –mar 2005. (d) **Very Large ISP(vlISP)**: Uniform numbers between sep 2000-sep 2002

and steady increase from sep 2002 to date (e) *ISP*: In general the number of ISP's in Australia has been decreasing between sep 2000 to sep 2001 and remained steady between sep 2001 to mar 2003, and a noticeable increase since mar 2003 (ABS 2005).

2.1 Increase in DSL Subscriber rate between March 2003 and March 2005

The total number of ISP's providing DSL (Digital Subscriber Line) services in 2001 were 52 out of 665 in 2001, 131 out of 571 in 2002 and 310 out of 554 in 2003. The number of subscribers grew from 209,000 in March 2003 to 372,000 in September quarter 2003 showing an increase of 163,000. The total number of ISP's was 667, an increase of 113 ISP's providing Internet access to 5.2 million active subscribers at the end of September 2003. Statistics shows that half of the new ISPs belong to the small and medium size category. The total number of access lines available to broadband subscribers was in excess of 681,000 lines and in excess of 626,00 for dial-up users. At the end of march 2005 DSL was the predominant access technology connecting 70% of non dial up subscribers (550 out of 689 ISP's provide DSL access accounting for 80% of the total number of ISP). DSL connected users accounted for 21% (1.3 million) in march 2005 as compared to 14% (822,000) in sep 2004 in relation to total number of subscribers (ABS 2005). One of the predominant reasons for the decrease in ISP numbers in particular in very small ISP, small ISP and medium size ISP is attributed to the large scale occurrences of mergers and takeovers (specifically medium, large and very large ISP's acquire small ISP's). Table 2 and Table 3 presents a snapshot of ISP decrease/increase in an Australian context (ABS 2005).

TABLE 2: ISP Decrease rate in March quarter 2001 (ABS 2005)

State	Decreased by	State	Decreased by
New South Wales	16	Western Australia	7
Victoria	4	Tasmania	Constant
Queensland	14	Northern Territory	2
Australian Capital Territory	3	South Australia	3

TABLE 3: ISP Decrease rate in March quarter 2002 (ABS 2005)

State	Decreased by	State	Increased by
New South Wales	14	Western Australia	5
Victoria	10	Tasmania	2
Queensland	2	Northern Territory	4
Australian Capital Territory	3	South Australia	6

Eventhough the number of ISP's have decreased (ABS 2005) the competition remains high in the area of broadband technology. Thus specialized services can attract new customers and lure them away from

competitors. Small ISP's have started to provide new anti-spam software, outsourcing the internet connection and purchasing additional links. ISP's provide only customer service and they rely on companies they purchase links from to provide connection and hardware. Small ISP's future may be out of their reach unless they secure portals to get connected to high speed internet lines. Total internet subscribers were 5.98 million at the end of march 2005. Non-dial up subscribers represented only 30% of total subscribers at the end of mar 2005 as compared to 23% at the end of sep 2004. More volatility based on ISP size category was noticed in mar 2005. Largest growth was noticed in very small ISP category who have less than 100(or) more subscribers. There was a 5% increase in number of vsISP between September 2004-march 2005 (171 to 180) (ABS BUIT 2004).

3. ISSUES IN RELATION TO ISP SERVICES PROVIDED TO SMALL BUSINESS

As of June 2004 (ABS BUIT 2004) majority of small businesses were using non-broadband connection types (58%) compared to broadband connection types (41%) for internet access. Popularity in the internet technology uptake (in %) among various business category is: *Broadband*: employing more than 100 people (78%), 20-99 people (54%), *Dial Up*: 0-4 people (54%), 5-19 people (49%). DSL was the most popular connection in relation to broadband for small businesses (67%). The main reasons why many businesses were reluctant to use broadband services were because of unavailability of broadband, lack of benefits which were a problem for businesses employing 100 (or) more people. Businesses employing 0-4 persons found ongoing cost were too high, start up connection costs being too high as major problems. Other reasons include hardware incompatibility (ABS BUIT 2004).

In Australia the main organisations providing telecommunications functional service guidelines are TIO(Telecommunications Industry Ombudsman), ACMA (Australian Communications and Media Authority), ABS (Australian Bureau of Statistics) providing ISP services characteristics and business use of Information Technology, SPAN (Service Provider Action Network), IIA (Internet Industry Association of Australia, CTN (Consumer Telecommunications Network) and ATUG(Australian Telecommunications User Group). Figure 7 below shows internet access levels based on employment size (small business).

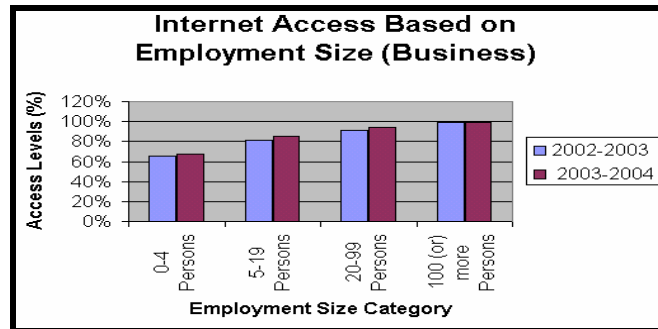


FIGURE 7: A graph showing internet access levels in 2002/03 and 2003/04 based on employment size of small business Source: (ABS BUIT 2004)

4. FACTORS THAT AFFECT BUSINESS PERFORMANCE FRAMEWORK

An effective business performance framework is defined as one that establishes good link between customer satisfaction, service quality, customer loyalty and retention, service guarantee/strength and learning through service failures and efficiently managing these main factors (July Mountain Hays 2000). Service quality evaluations help to understand the relationship between service quality dimensions, overall service quality, customer satisfaction and loyalty. A recent popular strategy used by ISP's involve setting up virtual communities who take part in e-communication and share similar interests. ISP's use this as a strategy to gather members who have the same interests and demand. ISP's thus have to build enhanced information systems by improving the service quality and fulfill the demand of internet subscribers (Xing Feng Kuo 2003). Technical service quality and functional service quality are the two main categories of service quality dimensions. Functional quality is evaluated while service is being performed giving particular attention to the service execution process (July Mountain Hays 2000). In telecommunications sector technical quality is seen to dominate over functional quality. (July Mountain Hays 2000) states that temporary outcome problems in Telecommunications can actually be overcome by high level of functional quality provisions by service providers. To understand the difference between what type of service dimension the customers are utilizing the providers need to understand the service encounter initiation process (consumers initiate the service encounter to obtain specific technical service (or) functional service outcome). It is very important for all ISPs to realize that both technical and functional service quality contribute to the overall judgement on satisfaction with telecommunication

services. In the lifetime of a customer belonging to the service provider the service itself will not be permanently tied to technical (or) functional, instead both services might be demanded by the customer based on the circumstances that surround the customer needs. Thus by attaching equal importance to both technical and functional service quality providers can eventually service individual customer needs (Flexible service provisioning based on specific customer service needs). In a situation where a customer complains about a technical dimension of a network the service provider is required to be more responsive to address the customer concern, and this requires access to sufficient resources (human resources, information systems for complaints handling). Some of the main barriers in ISP service management are regulation related barriers, organizational barriers, management related barriers, service strategy related barriers due to poorly defined service concepts and planning, ISP decision making barriers due to lack of new service vision and determination. Thus successful service quality management should aim to improve one hundred things by one percent and not one thing by one hundred percent (Christian Gronroos 1994).

Individual opinion surveys can be conducted and customer perception of ISP service can be analyzed [rating of importance of service and attributes]. From such survey data correlation and dependence between the various service items of importance and customer satisfaction can be identified. Customers might rate the ISP services by taking in to account all service items (or) one particular good (or) bad item. (Naoshi sato and Hiraoki katoka 1995) used two main methods to assess customer satisfaction (CS) for telecommunication services. . Firstly, Analytical Hierarchy process (AHP) is used to determine overall index of customer dissatisfaction by placing weights and integrating the CS data (Importance weight*number of dissatisfied responses). The number of dissatisfied response are assessed. The level of dissatisfaction for one service item to an other item varies. Secondly, by categorizing the service in to positive and negative comments from the market research, CS survey data can be used more effectively (service reputation assessment through customer comments, complaints and word of mouth). Probability model takes in to account the customer rating of telecommunication services and service provider solutions to complaints. We recommend that such customer service assessments be applied to Australian

ISP scenario to better understand the relation of customer satisfaction to the services provided by the ISP's on its business performance (Naoshi sato and Hiraoki katoka 1995) .

4.1 Reasons for ISP customers switching providers: satisfaction and loyalty relationship

Customer satisfaction leads to long term business profitability. ISP's capable of retaining their customers have greater profitability and are capable of running their business efficiently. Attracting new customers involves a lot of time, effort and marketing. Cost of attracting a new customer is five times more than cost of retaining an existing customer. (Banwari and Walfred 1998) states that the longer a service provider keeps their customer the greater the lifetime revenue obtained from them. Customer loyalty programs help service providers to realize the value of retaining their customers by exceeding their expectations (customer satisfaction). Because of the intangible nature of various service delivery, it becomes very difficult to understand customer disloyalty for service businesses. While customer satisfaction is important,, it cannot explain the variance of customer loyalty and its dependence on customer satisfaction. (Jyn shen, 2003). Service satisfaction refers to customers cognitive satisfaction towards various services provided by ISP's and associated individual attributes (sales, products, internet access, email accounts, technical support). These form the cognitive construct (Jyn shen 2003) (Xing Feng Kuo 2003). Overall satisfaction involves customer perception of ISP transaction experience as a whole (affective construct-influenced and resulting from the emotions). Perceived value is customer overall assessment of utility of service based on perception of what is received. Positive effect of service quality on perceived value, attribute service satisfaction enhances customer perception. Customers receiving better ISP services have positive perception which in turn improves perceived value towards their ISP . (Jyn shen 2003). Perceived trust refers to ISP system integrity against security breaches, hardware and software failure (e-commerce services). For small businesses using ISP service, trust is an important factor in their ISP service evaluation. Perceived trust thus has a strong influence on satisfaction. Small ISP customers who have been with the ISP for a very long time experience a confident, social and special attention benefits. Reduction of customer perception of risk, increase faith/trust in the ISP and being clear enough about what to expect from the ISP are seen as helpful factors for ISP business survival. Customers look for

maximized value from their ISP's and perceived trust creates a value by providing benefits derived through service interactions with ISP's. Thus high perceived trust creates high perceived value (See Table 4) (Jyn shen 2003) (Xing Feng Kuo 2003).

TABLE 4: ISP variables involving satisfaction and loyalty . (Jyn shen, 2003)

Satisfaction/loyalty variables	Comments
Service satisfaction	Connection speed, emails, online services and technical support
Perceived value	ISP service good value for money
Perceived trust	ISP is honest, ISP is responsible, ISP understands customers, ISP is very professional, ISP cares about its customers
ISP expectancy	More valuable ISP is coming to be established, New ISP provides better services in the near future
Satisfaction	Happy about decision in choosing ISP, customers feel they made a right choice by choosing this ISP, overall satisfaction with ISP
Loyalty	Intentions on staying with the current ISP for a long time, best choice for customers

Customers have expectations on future technologies and it is important for small ISP's to be aware of such expectations and how that is likely to impact customer evaluation of their current services. Thus when modeling satisfaction and customer loyalty future technology expectations should be considered. Small ISP customers will consider current and past service experience with their provider and also future considerations of what the services might be. The small ISP's in Australia face structural, technical, commercial and functional challenges (See Figure 8). Successful ISP business and operations depend upon meeting these challenges and coming up with an optimal business model. Existing services offered by small ISP's should be compatible with future technologies. Thus service innovation is important and this will increase loyalty towards small ISP services. Small ISP's that went out of business failed to realize and acknowledge customer beliefs about a new ISP that provided better future service and technology. As a result their customers showed no loyalty and moved on to a new provider. (Jyn shen 2003) (Xing Feng Kuo 2003).

8. CONCLUSION:

With an increasing usage of telecommunication services it is important to raise awareness of the various telecommunication issues. High speed Internet access is increasing and constitutes a growing component of the Internet market. The telecommunications industry has changed considerably over the last few years. Some new providers have entered the market; some have merged while others ceased to operate.

Thus Internet Service Providers should be prepared to support new technology based network services that influence the transformation of telecommunications industry. (christian gronroos 1994) states that the technical quality of the outcome of the service process is not critical one, but the functional quality dimension of the service process. ISP customers may feel that they get the same technical quality as before, but the manner in which functional service is provided has deteriorated. Too low service quality costs too much for ISP's than too much quality. Service guarantee can convey to customers the service level and benefits they can expect from using a service, and from an employees view convey the results they are expected to produce for their customers. It also helps providers to recognize and re-design service process for service failures. For marketing service quality and achieving it, service guarantee acts as an powerful tool (keith 2001).

Telco incumbent and New carriers
<ul style="list-style-type: none"> • Supplying email, web hosting and content for residential customers • Providing intranet on their own network for business customers • Telco incumbent will be successful in attracting business customers as they have a competitive advantage (nation wide support, telephony service)
<ul style="list-style-type: none"> • New carrier has the competitive advantage if they have following features: high quality of international network infrastructure that dominates in reliability and service quality over telco incumbent • New carrier has the newest type of lines and technology available that can benefit them a lot (introduction of new technologies) (Erik Werstra, Gabrielle kulen kampff and Hans schaffers, 2001).
Telco incumbent-small regional ISP
<ul style="list-style-type: none"> • Telco incumbent has competitive advantage due to supply of telephony, supply of content, nation wide supply of POP's (Points of Presence) • Provide intranet support for business customers • Because of additional supply of telephony and already established customer relation, transaction cost for a customer is reduced • In providing content where same level of content attractiveness is assumed the Telco incumbent can offer information to many customers than small ISP's and gains a competitive advantage.
Incumbent ISP
Strength: control over large part of network, nation wide POP's and IP transport cost is low (economies of scale), Weak: mature technology, Opportunities and threats: provision of QOS, Increase competition (backbone capacity)
New Carrier
Strength: advanced technology and provide QOS, Weak: Market entry new, Opportunities and threats: exploit new technologies for QOS provisioning
Small ISP
Strength: flexibility, customised services, Weak: high cost for IP transport, no economies of scale is gained, Opportunities and Threats: dependant on incumbent Telco for network services. Customised services can be provided. Competition with Incumbent Telco.

FIGURE 8: Competitive advantages for various ISP Sizes and Market segment and their strength, weakness, opportunities and threats (Erik Werstra, Gabrielle kulen kampff and Hans schaffers 2001).

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