

**"Internet Trends: A digital snapshot of
Singapore's Communications and Information
Technology climate and Straits Times
Interactive"**

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Internet Trends: A digital snapshot of Singapore's Communications and Information Technology climate and Straits Times Interactive

- Abstract -

Though the Internet and its associated applications, such as the World Wide Web (WWW) is very much in its infancy, having only come to mainstream availability in the early 1990s, it has grown tremendously as a communication medium. Today, there are 4,322 newspapers on the WWW, serving an estimated daily audience of 100 million readers.

News organisations are approaching this new medium in awe, unsure of what the future holds. Using Singapore as a case study, this paper presents a digital snapshot of Singapore's Communications and Information Technology (CIT) climate. This paper then focuses on The *Straits Times Interactive*, its national daily which was launched in 1995 making it a pioneer in this new medium at a stage when the commercial use of the Internet was in its infancy. Various aspects of its integrated newsroom are examined from the publisher's business activities, changing journalistic work practices, management policy and its online consumer's expectations.

Current online news journalism trends identified include: a growing importance placed on multi-skilled journalists, younger web content managers, an emphasis on better content management software and the need to gratify technology-savvy online audiences. Industry trends to note are: the shift from 'news publisher' to 'information content provider' mentality, the quest for profit-making on the WWW, and an increasing interest in investing in new media businesses.

Introduction

Sirs, I have tested your machine. It adds a new terror to life and makes death a long felt want. (To a gramophone company who asked for a testimonial)

- Sir Herbert Tree,
famous Victorian music conductor (1853 - 1917)

Perhaps a similar fear strikes the hearts of non-users of the World Wide Web (WWW). Though the number of users hooking onto the WWW is growing exponentially by the hour, some are reluctant to venture into this media form, whilst others are simply overwhelmed by the possibilities the WWW holds in store. John Katz, First Amendment Centre scholar and *Wired* media critic, aptly said "When the World Wide Web began this idea of linking ... from one Web site to another, it really went nuclear. It became an information fusion." (Kees 1999).

The WWW considerably a new medium, has grown tremendously since its mainstream availability in the early 1990s. It has revolutionised the world of computers and communications. The WWW has grown at a faster rate than any prior communications technology. Radio hit the 50 million mark in listenership 38 years after its introduction and television took 13 years to achieve a similar figure, however the WWW surpassed that in just four years (Aikat 1998, p.95).

At the time of writing, there were more than 4, 430 (*Editor & Publisher Interactive*) newspapers on the WWW, serving an estimated daily audience of 100 million readers (NetRatings Inc. Online). Media analyst Steve Outing, estimates there were fewer than 100 in 1994, growing to 750 in 1995, to 1,587 in 1996 (*Editor & Publisher Interactive*).

The steady growth of newspapers in the online environment may lead some to think that the WWW is a mass medium capable of reaching a mass audience. However Evan Schwartz (1997, p.27) argues otherwise, asserting that the WWW “is a niche medium, a personal medium, and an interactive medium”. There may be tens of millions of people using the WWW but unlike network television at prime-time, there may not be a significant number at a particular website. With such an expansive “digital landscape” on the WWW, no particular web site can dominate the audience (*ibid* p.27 - 30). All forms of news act as a major magnet attracting users to the WWW on a daily basis. Presently, nearly every newspaper of considerable size and reputation has adapted itself to the WWW.

As a means of contextualising the evolving digital landscape, this paper observes Singapore as a case study. It centres on its Communication and Information Technology climate, the importance it places on maintaining a CIT edge where the examined online news product is published. It presents a macro country-level look at innovation, new technology adoption rate and business environment, demonstrating that both the private and government sectors act as crucial catalysts in stimulating a successful information-based economy. It then presents the findings of a two-week ethnographic study by the author at *The Straits Times Interactive*, before identifying trends in the online newsroom and its evolving environment.

An overview of the Singapore CIT Climate

Technology is advancing not just in the media field. The IT revolution is changing the way people live and work, in other words, altering the way societies are structured. The world including East Asia, is in an interesting and challenging period of change as news and information penetrate national frontiers.

Senior Minister Lee Kuan Yew,
Asian Media Conference, Los Angeles,
29 October, 1998
(*The Straits Times* 2 November 1998)

Singapore’s drive in adopting new technologies can be traced to its geography and political history. Just like the three other East Asian Tigers - South Korea, Taiwan and Hong Kong, Singapore’s economy was devastated by “war and geopolitics, with no domestic market, or natural or energy resources without industrial tradition or technological basis” after World War Two (Castells 1998, p.244). Their post-war success could be attributed to

their ability to “assimilate, use and enhance new information technologies ... focusing on the technological overhaul of the countries’ industries, management and labour” (*ibid*). Over the past 35 years Singapore has transformed itself into a technological leader with a strategic infrastructure plan (Kuo & Ang 1998, p.3).

In the 1970s, the Singapore government’s priority was to internationalise and industrialise by inviting foreign investment and building key infrastructure. Singapore’s infrastructure and industrialisation developed its foundation as a sound business centre and gateway for economic entry into Asia, which has been crucial to its survival and in attracting foreign investment. This has resulted in the World Economic Forum Global ranking Singapore’s infrastructure best in the world in its 1998 competitiveness report. (Ng 1999 p.42)

A look at Singapore’s economic history reveals that a critical factor contributing to Singapore’s growth from 1965 - 1984 was the input of capital from direct foreign investment forming 10 - 20 per cent of GDP and the exceptional growth of national savings which reached 42 per cent of the GDP in the mid-1980s. Much of these savings were generated by the public sector through the Central Provident Fund, a compulsory social security scheme imposed on its population (Castells 1998, p.247). Set up in 1955, the scheme provides financial security for workers and has evolved into a comprehensive social-security savings system, taking care of a member's retirement, home ownership and healthcare needs and insurance (Central Provident Fund Board Online 1999).

In the 1990s Singapore restructured its economic base towards high-value manufacturing. Furthermore, Singapore has embarked on a policy of “economic liberalization and internationalization, gradually transforming Singapore into the technological, financial and business services centre of South-East Asia” (Castells 1998, p.248).

Currently, Singapore has a density of 5,965 people per square km and a population of 3.8 million. English is the primary language, and its citizens are 77 per cent Chinese, 15 per cent Malays, 7 per cent Indians and 1 per cent Eurasians and other races with a literacy rate of 93 per cent (Singapore InfoMap Online 1998).

Technological Development

Academics at the National University of Singapore were the first to access the Internet in 1990. By 1993, the National Computer Board, the National University of

Singapore and the Ministry of Education introduced the Internet to schools (Tan, Teo & Goh 1997, p.1 - 2).

With the launch of Singnet in 1994 as its first commercial Internet service provider (ISP), Singapore became the second country in South-East Asia, after Malaysia to offer public Internet access. In March 1995, Singapore became the first country in the world to host a national Internet homepage with the launch of Singapore Infomap - <http://www.sg> (Kuo & Ang 1998, p.16). But as quickly as it received accolades for its speedy embrace of technology, Singapore also elicited strong criticisms when the Singapore Broadcasting Authority (SBA) announced a new regulatory framework in 1996 for the policing of Internet content.

This raised concerns in the international Web community that Singapore intended to censor and control the Internet. Under this scheme, affected web operators need a licence to operate. SBA's self-regulation policy since 1998, requires local ISPs to offer a Family Access Network (FAN). FAN can block about 200,000 pornographic sites (Tan, Teo & Goh 1997; & Kuo and Ang, 1998).

In December 1999, Cyberway was renamed Starhub Internet (SI) and shook the Internet access market by announcing Singapore's first unlimited free-surfing plan (without e-mail access). Within the first two days of its launch, SI signed up 38,000 new subscribers (Wee 1999, *IT@AsiaOne*) and in response established player SingNet offered its 250,000 subscribers free Internet access with e-mail (Eng 1999, *IT@AsiaOne*). At this early stage, the full impact of the ISP war is difficult to fathom.

Singapore's Internet penetration rate is one of the highest in the world with close to 600,000 Internet users as of February 1999. It is important to note the actual number of local users should be much higher as this figure does not include those who access the Internet from schools, offices and other public places making one out of every five Singaporeans an active Net user (Lee and Birch 2000, p.7). An indication of Singapore's WWW culture within its business environment is the fact that there are almost 13,000 websites whose domain name ends with .sg, and of these, close to 8,000 are operational (Maria 1999, *Straits Times Interactive*)

A recent Information Society Index (ISI) study by International Data Corp (IDC) and World Times Inc, specialists in analysing critical global issues through *The World Paper* publication, predicted Singapore will be the world's second most dominant information

economy by the year 2002. It is predicted to surpass Sweden and Finland, currently ahead of Singapore while the United States remains at the forefront. In this survey Singapore was ranked first in 1998 and predicted first in 2002 for Internet usage and infrastructure (Chellam R. 1999 p.2).

Singapore government's IT drive

The drive towards technological innovation in Singapore has a long history. The government has played a major role in the push and promotion of Internet use and IT development since the early 80s. To boost the use of IT in the economy, the government set up the National Information Technology Plan in 1986 and the IT2000 blueprint in 1991. Since 1992, policies have been set up to encourage the use of the Internet locally. Government departments and institutions were encouraged to create a web presence and ministerial public speeches frequently endorsed and stimulated Internet usage (Tan, Teo & Goh 1997, p.5 - 7).

Part of the IT vision to prepare Singapore for the Information Age was to wire all 75,000 households by cable and to integrate cable television and Internet access 2000, however this task was accomplished earlier than projected. Singapore ONE (One Network for Everyone) is a high-speed, high-capacity broadband network that can transmit 622 megabits of data per second, making it the first country with the potential to wire every home, school and business. Its high bandwidth infrastructure has the capacity for a heightened level of interactive, multimedia business applications and services. The network has registered 55,000 users since March 1999, and a projected 100,000 consumers are expected within the next 12 - 18 months. This sets the foundation for the next generation of applications to be plugged in immediately (Ng 1999, p.42; Kuo & Ang 1998, p.24 - 25).

The government's focus on IT is further reinforced by the formation of two key agencies in 1999. One of which is the Ministry of Communications and Information Technology - essentially an expansion of the portfolio of the previous Communications Ministry to now oversee both telecommunications and information technology (Lee and Birch 2000, p.10). Around the same time, the Telecommunication Authority of Singapore and the National Computer Board merged into the Infocomm Development Authority (IDA) of Singapore. The organisation has an integrated perspective to develop, promote, and regulate info-communications. "IDA will be the catalyst for change and growth in Singapore's evolution into a vibrant global info-communications technology (ICT) centre" (IDA Online 1999).

Plans

At the World Conference on Model Cities in April 1999, Prime Minister Goh Chok Tong revealed Singapore's goal to be a cosmopolis saying that knowledge is key, and cities which exploit information technology to reach further will prosper in the global market. Singapore's Economic Development Board has drawn a blueprint called "Industry 21", or "I21" aiming to position Singapore as a knowledge-based economy through target industries, which looks destined to change the country's character and fundamentals. Singapore plans to invite top international companies to congregate in Singapore, "to turn it into a hub thriving on cutting-edge technological activities" (Ng 1999, p.41 - 44).

Corresponding with Singapore's belief in training its citizens from a young age, a masterplan, "Thinking Schools, Learning Nation" was launched. IT will be used widely to develop communication skills and habits of independent learning, with more time spent on projects and less on formal lessons (*ibid*). The government's education initiative aims to have 30 per cent of the national curriculum delivered online within three years, with one computer for every two students in every school (Velloor 1999).

The government's initiative and push has moulded Singapore into a think-tank IT environment and a hotbed of innovation. A number of industry leaders have emerged in the local digital domain and significant developments are highlighted here to develop a sense of the industry's vibrancy.

Kent Ridge Digital Labs

The Kent Ridge Digital Labs (KRDL) housed in the National University of Singapore is a breeding ground of innovation. The Institute of Systems Science and the Information Technology Institute merged on 1 April 1998 into KRDL. Unlike other publicly-funded research labs, KRDL is market-driven and has a clear commercial objective. Its mission is to transfer market ready technologies to the industry by licensing its products or co-investing in start-ups with entrepreneurs and early adopters. Successful products are introduced into the market by partnerships with private companies, through technology transfers/licensing or spin-offs (Digital Eye 1998, p.1).

Third Voice

Since 1996, KRDL has set up eight companies, three of which are based in Silicon Valley (Chin 1999, p.11). One of its success stories is *Third Voice*, a software which allows

users to leave notes on sites they visit. A step towards interactive web site communication, *Third Voice* allows users the freedom and ability to openly express ideas at any location within a website. A user simply needs to download the free browser companion service (<http://www.thirdvoice.com>). Sites with *Third Voice* capability carry tiny markers indicating notes from other users. It can be used in three broad levels: to optimise management of useful web material, to facilitate collaboration and dialogue with other users, and to share consumer information (Tickle & Keshvani 1999, pg.6).

V2ML

V2ML is a prototype technology being developed by KRDL designed to benefit the teaching and broadcasting professions. It will be able to format across all digital equipment from mobile phones to palm tops to personal computers even though currently these equipment use varying mark-up languages to store their content. With V2ML, duplication of audio, video and text data from one markup language to another will be simpler. This system is able to automatically transform a single source of content into different markup language presentations in a user-defined manner greatly reducing the need to create duplicate sets of content catering to different devices of different bandwidth requirement and audio, visual/text display capabilities (*ibid*, p.9 - 11).

Buzz City

KRDL's first spin-off into the commercial market, *Buzz City* is a service which can keep track of all websites a user visits, alerting them when changes are made to the site content obviating the need to sift through hundreds of sites. Marketed as the "Internet's Postman of Choice", this free service e-mails alerts with links taking the user directly to the site to view fresh updates. *Buzz City* expects to earn revenue from advertising and value-added services by generating user profiles to help advertisers target potential clients. The Overseas Chinese Banking Corporation, Wearnes & Walden Management used funds by PGGM, the second largest pension fund in the Netherlands, to invest in Buzz City. The third investor is SPH Multimedia, part of the Singapore Press Holdings Group, a major player in the multimedia business with MobileOne (Singapore's second cellular mobile telephone network and paging service) and Singapore CableVision (Singapore-wide cable network) (<http://www.buzzcity.com>). Venture capitalists pumped S\$3 million into Buzz City last year (Chin 1999, p.11).

For a society to develop into and succeed as a knowledge-based community it requires a driving force in 4 distinct areas - political, technical, economic and social (Tan,

Teo and Goh 1997 p.3). In Singapore's case, government policy has shaped the push for information technology through various schemes and enterprises. In addition the National Computer Board, Ministry of Education and the Ministry of Communication & Information Technology have vigorously driven a positive social climate for change into the next generation. These factors have created a fertile incubator for CIT innovation in Singapore.

Case Study: The Straits Times Interactive

With the CIT climate outlined for Singapore, this section takes a closer look at *The Straits Times Interactive* (Singapore), a pioneering online news product published by the Singapore Press Holdings. *The Straits Times Interactive* was one of the first papers in Southeast Asia to go online.

Publisher - Singapore Press Holdings

The Straits Times Interactive (STI) is the WWW version of Singapore Press Holdings (SPH) broadsheet flagship publication, *The Straits Times*. It was first published on July 15, 1845, and is the most widely read newspaper in Singapore. Weekday circulation is around 391,649 with a readership of 1.7 million (SPH Online 1999). *The Straits Times* strives to be an authoritative provider of news and views, with a special focus on Singapore and the Asian region. It has 8 bureaus in Asia, a bureau in Washington, and a worldwide network of other contributors (<http://straitstimes.asia1.com.sg/about/staboutus.html>). It also runs a fully operational sub-editing and layout team from its Sydney office (*SPH Annual Report* 1996).

In 1999, SPH reported a group profit (before tax) of S\$421.7 million, 7.2 per cent higher than 1998. SPH captured 49 per cent of Singapore's S\$1.27 billion advertising share market from 1997 - 1998. AsiaOne, SPH's online news portal, secured approximately S\$1 million in advertising revenue (*SPH Annual Report* 1998, p.4 - 21), but the cost of going online was not reported. The company has a diverse range of business interests ranging from property to film and video post-production, telecommunications, multimedia, as well as providing Internet and cable television services. SPH's strategy since 1995 has been to establish itself on the information superhighway. It began by developing an Internet presence for its core newspapers through AsiaOne, launching Singapore's third ISP, CyberWay and operating MobileOne, a local mobile and paging network. SPH then acquired a 20 per cent stake in Singapore CableVision, the only local cable service (*SPH Annual Report* 1995, p.3).

In 1999, SPH sold its share of Cyberway and successfully acquired the licence to operate the Republic's fourth ISP - DataOne (Asia). SPH and Keppel Telecommunications & Transportation jointly own DataOne and their long-term plan includes acquiring ISP licences in Malaysia, Philippines and Thailand. The two groups are shareholders in MobileOne, therefore project customers will be able to get on to the Web via handphones soon (*The Business Times*, 8 June 1999).

SPH's most aggressive move yet, is the incorporation of a wholly owned subsidiary, AsiaOne Internet Pty Ltd to handle all its Internet ventures. AsiaOne took over SPH's Multimedia division. Its authorised and paid-up capital have increased from S\$100,000 and S\$2 to S\$100 million and S\$10 million respectively, establishing AsiaOne as an independently run company.

It is evident that SPH is a well established media player, and invested heavily in new technology and recognises the need to gain a stake in the lucrative new media pie. It has relied on a cost-effective entry point into the technology market by developing and 'owning' rather than relying on third-party firms for technological support. Through its investments it can provide consumers with additional services, work out bandwidth uncertainties, and experiment with interactive means of new presentations.

AsiaOne - the website

AsiaOne (<http://www.asia1.com.sg>), SPH's website was launched in 1995 with a web portal strategy, long before the term was commonly used. It acts as a gateway for SPH's products and services. Additional services include web hosting, development and consultation services targeted to private enterprises hoping to maximise their online presence. At time of writing, AsiaOne revamped its site and repositioned itself as a "comprehensive portal for news and e-commerce". Besides content from the SPH stable of newspapers and magazines, it launched a range of other services and features including classified advertising, auctions, job opportunities, financial services, data services, e-shopping, free e-mail and various lifestyle sites (Velloor 1999). This move is in line with current industry practice which dictates that offering such services goes a long way towards attracting 'eyeballs' (online readership), thus creating a loyal consumer base and profits. This also indicates SPH's strategy to develop quality content and switch from a 'news publisher' to 'information content provider' mentality.

The birth and growth of Straits Times Interactive

SPH Executive Chairman Lim Kim San launched the online paper on 30 November 1995, the same day disgraced Barings trader Nick Leeson was brought to trial in Singapore. Leeson single-handedly bankrupted the London merchant bank overnight.

SPH led with its core newspapers onto AsiaOne with *The Business Times* (June 1995) followed successively by *Lianhe Zaobao* (August 1995), *Computer Times* (September 1995), *The Straits Times* (November 1995), *The New Paper* (December 1995), *Berita Harian* (March 1996). STI's pioneer editor Paul Jansen recalls its genesis,

It was in late 1994 that the Internet came to our part of the world. I kept hearing about its potential but I was busy preparing for the 1995 National Day Supplement. The moment I was done, I put together a proposal on how we should create an Internet version of our paper in a fashion that I thought would put us on the world map. The idea was to add value to the information we already gathered.

(Jansen pers comm, 27 July 1999)

Work on developing the paper began in September and Jansen's aim was to launch the paper later in the year. The team slowly expanded to include staff with specific skills - a backbencher (sub-editor), two IT personnel and a layout artist joined the team. Jansen recalls the days when the team had to learn HTML from scratch. 'We invested in S\$1,000 worth of books and spent time to learn the basic tags to manually code the stories. We didn't have WYSIWYG (what you see, is what you get) HTML editors then' (*ibid*).

During Jansen's editorship from 1995 - 1998 (he is currently *Straits Times*' Money Editor), STI experimented with a number of web techniques. On June 7 1996, STI for the first time webcast Senior Minister Lee Kuan Yew's 'Will there be a Singapore after Lee Kuan Yew?' speech at a Singapore Press Club/Foreign Correspondents Association Lunch at Raffles Hotel.

Other milestones include the first live 'combi' webcast of Prime Minister Goh Chok Tong's National Day Rally speech. Cleverly avoiding the high bandwidth required for a video webcast, STI transmitted PM Goh's speech live via RealAudio (an audio streaming software), showed pictures as he spoke, and displayed text of his speech as he completed it. There were special sections to landmark important news events such as the Hong Kong handover in 1997, the South-east Asia Games, the launch of Lee Kuan Yew's book, 'Lee Kuan Yew: The Man and his ideas', and the SilkAir plane crash in Indonesia.

The SilkAir plane crash tested our journalistic prowess. We provided 24-hour up to the minute news, on the latest in the rescue mission and recorded hits from around the world. Distressed readers emailed and rang the STI office to find out the well being of loved ones. We ran passengers lists, help hotline numbers and worked like crazy till the wee hours of the morning.

(Raoul Le Blond, Former STI Online Journalist,
pers comm, 21 February 1999)

It is crucial to mention here that STI together with its other online newspapers were amalgamated under the New Media Unit in early 1998. It decided to re-structure and move away from producing original content and re-focus on transferring its core print paper online well. (This is explained in detail in a later section called Management Policy).

Since 1998, STI has experienced a switch in editorial policy. It reverted to the basic transfer of print content online rather than novel content with regular updates. In early 1999, 'vertical sections' in the form of *IT@AsiaOne* and *Food@AsiaOne* were developed. The latter focuses on food, restaurant and wine reviews repackaged into a column from content originally used in the various print editions. Besides being an IT portal, *IT@AsiaOne* carries a fortnightly column written by the various New Media Unit journalists, discussing trends and events in the IT scene. More such columns are expected to emerge.

Automating the production process

Till 1999, Straits Times Interactive devoted resources to transferring the print content online. The transfer process takes between 6 – 8 hours and requires manual intervention. In most instances, staff need to physically locate news stories, and photographs for the WWW. They are working to automate this process through sophisticated content management software. The implication of this is not yet known. It possibly frees the journalist to concentrate on developing quality content but could result in job losses. On the other hand, the rigidity of a 'template approach' and minimal freeplay during the designing and page production may prove frustrating for journalists.

Physical Setting & Human Resources

At the time of the study (July 1999), there were two full-time journalists maintaining STI. There were three student interns who were attached to the online newsroom. The interns assisted with locating photographs from Pictoria for the *Life!* Section and the production process.

The traditional print newsroom is divided into various sections - Life!, MoneyDesk, ForeignDesk, SportsDesk, and Local News. Like most newsrooms, the different sections of the paper operate from a huge work space with only low-level office partitions separating them, if at all. The STI server runs mainly on Sun Solaris UNIX OS platforms with journalists using the Macintosh system. Besides the in-house web-transfer program, all kinds of Internet software are used (some are bought off the shelf, developed in-house or by vendors). There are few audio/video options on the current site but the Technical Development team, which handles STI's IT support, recognises its potential and plans to enhance STI (See pers comm, 28 July 1999).

During the early days of STI, Jansen (pers comm, 27 July 1999) said journalists were required to have three main qualities - "They had to be good journalists, who were interested in this revolutionising new technology, and work efficiently as independent operators". New Media Editor Thomas (pers comm 28 July 1999) who headed SPH's online newspapers, describes the profile of today's online journalists as "web content managers or web masters who have basic HTML skills with a passion for the Web. They need to have the ability to re-package or re-purpose news and create and source information."

When asked if there is a trend to hire IT professionals and train them into becoming journalists. Jansen (pers comm, 27 July 1999) said, 'I don't think it will work. What is happening is you are confusing the box with the content. Giving pretty boxes doesn't result in good content. From the beginning the idea was always to present good content.'

Online Journalist's Professional Practice

The professional practice of the online journalist at STI is changing just as rapidly as new media. Jansen (pers comm, 27 July 1999) describes the seven levels any print news story undergoes at the *Straits Times* and how this practice has changed in the online news environment. The seven levels, in this case begins after the journalist returns from the field and is shown here:

- Level 1 - Supervisor assists the journalist in shaping the story based on the outcome of the interview/coverage
- Level 2 - Supervisor looks at the first draft and decides if it is satisfactory
- Level 3 - Copy editor subs the story
- Level 4 - Backbencher (Sub-Editor) decides story placement (eg lead story)

- Level 5 - Team leader checks information, house style guidelines and lays it on the pages
- Level 6 - It is sent back to teeline for approval.
- Level 7 - Night editor does a final check before the pages go to print.

Jansen explains that before any news story is seen by a reader it progresses through these layers primarily due to the nature of the print medium. In this instance, the journalist is protected by seven sets of eyes. However, on the WWW the layers are drastically removed and a story can be published online with or without a sub-editor or editor's approval and a round of sub-editing. Goh (pers comm, 22 July 1999) explains further:

The gatekeeper role has changed and you [online journalist] feel more powerful on the Net. Online news can be uploaded in an instant, it is immediate and can be accessed by anyone. Initially I was paranoid about uploading stories as it is such a powerful medium and all it requires is a drag and drop. Journalists need to understand this and should work with caution.

Besides this sense of power, Goh and Koh Su Haw (pers comm, 23 July 1999), Head of Business Times Online feel that there are new pressures facing journalists in this new medium. Goh said that today's online journalists need to be multi-skilled. Besides writing, they keep abreast of technological innovations, and are comfortable with HTML/photo manipulation software.

Koh (*ibid*) reinforced multi-skilling when he said:

I see myself as an Internet evangelist, try to spot technological trends and debunk urban myths and the fear most have of new technology. I never feel secure in my job for more than six months at a time. This medium is changing very quickly and it is difficult to define my work. I do different things at different times of the day, being able to flip flop and flip again is an important characteristic of my job.

The role of the online journalist is slowly being understood and *Straits Times* journalists are gaining awareness of the medium and the possibilities it holds. Jansen, however, says that this wasn't always the case:

There was a fear that stories would be stolen and put online before they were printed. We assured section editors exclusive stories wouldn't be stolen until they were printed. We focussed on updates which everyone had access to anyway. Print journalists did initially wonder how we could upload new stories immediately. Our aim was actually to provide the basics, the major difference is that reporters analyse and interpret information for the print edition, whereas online, we could simply upload new information and announcements in tune with the nature of the WWW.

As the role of the online journalist is slowly gains importance and acceptance, there seems to be an emerging trend towards hiring younger journalists who possess IT expertise and writing skills. It is common knowledge that the number of entry-level mainstream journalism jobs is decreasing. Once employed neo-journalists still require substantial 'on the job' training and experience to become editorial decision-makers. However, the online media has created a new job market, open to younger, less experienced journalists since most professionals in this field lack such skills.

Online Consumer Expectations

Feedback is an important aspect of STI. There are direct e-mail addresses pointing to the various section editors to allow readers to communicate directly with journalists explained Jansen (pers comm, 27 July 1999). In his view, today's audiences are much more sophisticated. The number of users has grown tremendously.

Technology has moved so quickly that readers simply come to expect audio and video clips. Expectations are so much higher that if you don't deliver it is immediately apparent that you are a sub-standard content provider. As long as the reader is exposed to available technology, he comes to expect it.

In terms of technology and site design, STI has made a conscious effort to maintain equitable access. 'We try to keep content general and simple in language. We are mostly one step behind technology, and its not because we are unaware of what is available. Readers come to our site for news and our content, so we do try to reach a maximum target audience,' said Goh (*ibid*). Jansen (pers comm, 27 July 1999) reiterated the importance of the online audience when he said:

It essential to know your target audience. As we become more global [through the Internet], 'the more local we need to be. It's important to have the ability to refocus on the global market and write copy catered to the needs of the new online audience.

Management Policy

There has been a switch in management and content policy since STI was launched in 1995. The first three years saw Paul Jansen and his team experimenting with various methods of delivering original content. As mentioned earlier, various senior journalists from the individual newspapers led their online editions. However in 1998, due to various reasons such as refocus in online strategy, SPH decided to form a New Media Unit headed by a single editor, Margaret Thomas (pers comm, 28 July 1999) who manages the four online newspapers. She explained:

We didn't see any point in duplicating resources and felt that we could better manage our new media department if we consolidated resources and worked in a single direction. We would enhance and develop our core product taking advantage of its already strong positions.

At that time, the costs of investing in emerging online technology did not justify the returns gained through advertising revenue and a decision was made to re-strategise and conservatively thread into this medium. It should be noted that during the period of study, more journalists were being hired and the New Media Unit was expanding in preparation for a market relaunch. The researcher was not privy to details but was informed of the move. At the time of writing, the *AsiaOne* website was relaunched and STI was hiring new staff and online journalists specifically to produce novel content for the WWW. By January 2000, a full-time editor, Mathew Pereira and two other full-time journalists were hired for STI.

Conclusion

STI's ambitious bid to be a pioneer and quality online newspaper was generally successful but cost overruns and doubling up of resources necessitated a redesign of production and management processes. Its initial efforts to provide original content gave way to straight content transfer but it has reverted to providing novel content once again with the relaunch of its new portal. It will be exciting to observe its development as its portal continues to evolve.

SPH, and other news publishers will continue experimenting with online news delivery, move away from simple re-purposing of print content to developing extensive "portals", and personalised mobile news through Personal Digital Assistants such as the Palm Pilot, Psion and HP Jornada. They may be capable of delivering news (not just bites of news) by the hour to individuals customised to their needs. Publishers will trial different information retrieval systems and search capabilities to capitalise on the archival nature of the WWW, with a view to developing the ideal mix to boost income and profitability.

The future of online journalism very much depends on the entire WWW revolution and will be shaped by the way audiences adopt technology as part of their lifestyle. New media will not replace print, radio or television and the market will be redefined. Before TV came about, radio used to air soap operas, thereafter it became a news and music source. Such boundaries and markers will be redefined in the same way that corporations have moved from brochure-ware type of sites to interactive multimedia sites and implemented transactional e-commerce models. There will be a continued focus on personalisation be it in

the form of news or any other area and “information content providers” will continue to implement and finetune total e-business. The only certainty lies in the fact that the WWW revolution will continue to evolve.

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