



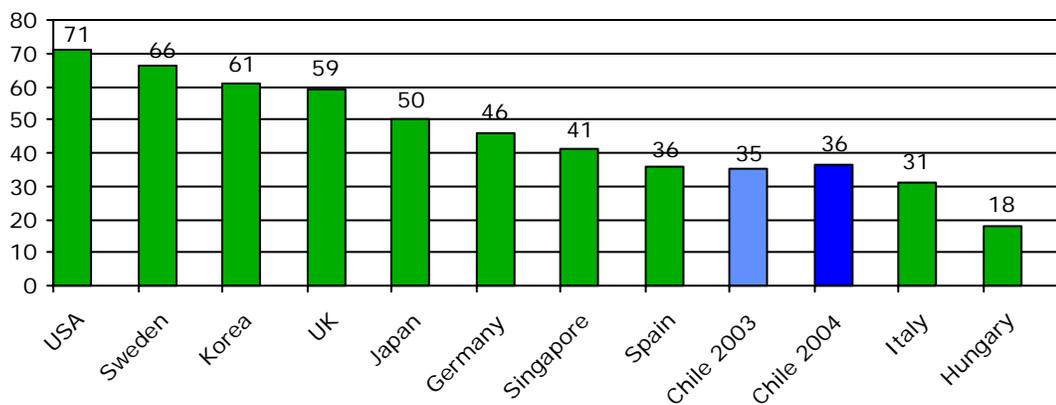
Results of WIP-Chile 2003-2004: Chile, a Mediterranean country in terms of Internet?

By Sergio Godoy, MBA PhD¹

In terms of Internet use and access, Chile is in a level close to Italy and Spain with its almost stable level of some 35% of web users between 2003 and 2004. Discarding the always relevant socio-economic causes, this stagnation may be explained by the ceiling of available computer skills –as it is the case in other countries. Additionally, for the first time WIP-Chile revealed the percentage of proxy users (thanks to whom access rises to 78% of the population) as well as the level of Internet churn. Although this technology produces tangible effects in the everyday life of Chileans, not all of them are caused by information technologies (IT). Therefore, since 2005 the team will study the impact of IT in businesses and the economy.

Introduction

Graph 1. Web users in selected WIP countries, 2003-04



This article summarizes the main findings of the project "WIP-Chile, monitoring the digital future", whose aim was to explore, describe, analyse and compare everyday usage of the Internet in Chile and the rest of the world during 2003 and 2004². WIP is the acronym of World Internet Project, an international research effort led by the USC Center for the Digital

¹ Co-ordinator in Chile of WIP (World Internet Project) and BIT projects (Business and Information Technology). Professor of Universidad Católica de Chile's School of Communications (sgodoye@puc.cl).

² Fondecyt project N°1030946, 2003-2004. National Fund of Science and Technology. Head of research Dr Sergio Godoy. Universidad Católica de Chile's researchers: Dr Francisco Fernández, Dr Soledad Herrera. Associated researchers: Sergio Goldenberg (UC), George Lever (Santiago Chamber of Commerce); Ellen Helsper (London School of Economics doctoral programme); Cristóbal García (M.I.T. master's programme)

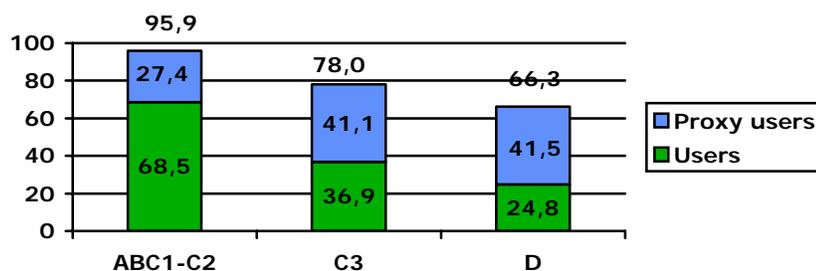
²<http://www.digitalcenter.org/>

Future in which some twenty countries participate. This article has six parts. First, it quantifies and characterizes Internet users. Next, it focuses on churn, i.e., people who cease to be users along time. Thirdly, it sees the impact in sociability and daily life of Chileans. Then it analyzes how the web affects the use of other mass media, as well as commerce and the attitudes towards the state. In fifth place, it discusses the development of a predictive model applicable to different countries by WIP members. Finally, it exposes how this line of work will continue in next the four years by means of a new project about the impact of information technologies (IT) in businesses and the economy (Godoy & Herrera 2004).

Users and non users: who, where and how.

User or internaut is a person who has used Internet at least once and in any place in the last 90 days. Under that definition, 35% of Chileans in 2003 turned out to be one. Thus, Chile is placed slightly over Hungary and Italy, and below Spain. The number increased to 36% the following year (to see figure 1). As in other countries, Internet growth seems to stagnate. Yet unlike the United States and other advanced nations, where users already surpass 70% of the population (UCLA 2003, USC 2004), this stagnation is taking place even before a majority of

Figure 2. Real web users in Chile 2003, according to income level (users + proxy users)

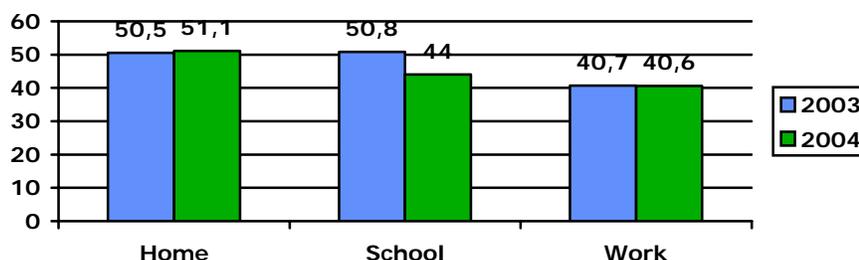


internauts is reached.

A comparable European project, E-living, also detected stagnation at very dissimilar levels of penetration –despite this project was more limited than WIP both in terms of the number of countries involved and the time span of the analysis. E-Living concluded that the percentage of users was near the "ceiling" of PC skills available. The most advanced country, Norway, had a 76% of PC-literacy and a corresponding 67% of web users. In Bulgaria, the least developed country, the percentage was 18% and 12% respectively. In other words, the growth of Internet was not inevitable: Bulgaria was not going to reach the Norwegian rate of web penetration unless PC skills were expanded beforehand (Raban, 2004). In other words, it is neither automatic nor obvious that all the countries of the world will have a 100% penetration in the next years (Godoy & Herrera, 2004).

Assuming that people know that PCs exist and that they are useful for their everyday purposes (PC awareness), usage is determined by the time of connection (at 13.7 hours per week, Chile ranks third after South Korea and Singapore), the places of use (home, 20%; work and school, 32%; other places, 26%), age, sex, socio-economic level, and the quality of connections (broadband home connections reached 58% in 2004, most of them in high-income households).

Figure 3. Percentage of users who access the web in different places, 2003-2004



Concerning non users, a new finding of WIP was the important percentage of proxy users with respect to the total of population (see figure 2). The British team of WIP developed this concept and it refers to people who rely on somebody else (normally a close relative or a friend) to check their e-mails and/or download information. In England, 70% of non users are proxies, most of them of advanced age and not attracted by technology (Oxford Internet Institute, 2003).

When we added the proxies to the regular users in 2003, we found that around 78% of the population had either direct or indirect access to the web. This figure excludes the poorest 13.5% of the population, the E income bracket, which we did not study.

Despite its shortcomings, this fact reflects something worth noting in developing nations –non users relying on users considerably reduces the digital divide. Unlike the British, it is very probable that Chilean proxies will become users in a near future, provided they still find the technology useful, if their economic situation improves (as it is the case in Chile, fortunately), and/or the price of technology continues to fall.

The deserters: churn

When the second WIP survey was done in 2004³, another unprecedented figure rose: the percentage of churn, a term from cable TV referred to those who unsubscribe from one year to the next. We found that 3.7% of users abandoned the web in 2004 for very diverse reasons, such as termination of their condition as students, change of address, and others. Conversely, 4.7% became new users in the same period. That means a net growth of 1.3 percentage points above the 35% of users detected in 2003. So web growth seems to be stagnating in Chile as well as in more advanced nations, a typical symptom of technological maturity.

Nevertheless, these figures must be taken with caution since they are within the margin of statistical error. In the other indicators already commented there were no great variations from a year to another one, except for the growth of broadband connections at homes from 49% to 58%, the fast penetration of mobile phones (from 47% 57% among non users) and, as

³WIP-Chile surveyed a panel of 1200 users and non-users from 12 to 60 years of age in 2003 and 2004. The sample was extracted from Santiago (the capital), Valparaiso/Viña del Mar and Concepcion, thus allowing national representativeness. It was probabilistic, stratified, non-proportional, with random sampling in each one of its phases. The statistical margin of error was 3%. 83% of the panel surveyed in 2003 responded the next year. Data were extracted by means of a common questionnaire shared by all WIP members, plus additional questions designed by the local team.

in richer countries, the rise of the household as the main place of web use –albeit still close to the school, as shown in figure 3.

Web impact in sociability and everyday life.

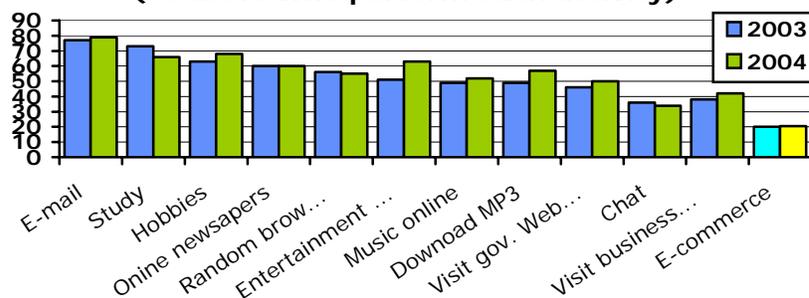
A fundamental question WIP tries to respond is how the Internet modifies social life of people. In general, no radical changes were observed except for a few important exceptions. As in the rest of the world, email is the more prevalent online activity. The other online activity related to reciprocal sociability, chat, is less common (see figure 4). But unlike the stereotype of the nerd, users are neither socially isolated, nor physically inactive. For example, in 2003 they dedicated 3.2 hours per week to physical exercise against 1.5 by non users, and 10,9 hours to interact with friends vis-à-vis the 5,5 hours of those not connected. In addition, 33% of users increased their contact with work colleagues. Nor web usage seems to alter already existing social bonds with other groups of affinity -religious, political or entertainment/hobbies. Figures for 2004 are not very different from those from 2003.

Concerning online sociability, and as in other WIP countries, there are some interesting differences according to age. Take “virtual” friends in the first place, i.e. friends exclusively met through the web. 50% of youngsters below 18 years of age declare having them, against 27% of adults. The average is 3.6 and 1.8 online friends respectively. Adolescents even declare to have met an average of 1.3 virtual friends. The figure for those above 18 years is a mere 0.5.

A second difference is that 85% of minors use text messaging through their cellular phones against 45% of adults. Indeed, mobiles are even more prevalent than PC-based Internet (66% in 2004), and mostly among people from 12 to 17 years, even when they are not web users. In fact, 80% of users and 84% of non users of that age have mobile phones.

The Japanese team of WIP investigated in greater depth these two aspects of electronic sociability and found that, among high school students, new online friends were made through

**Figure 4. More frequent uses 2003-2004
(% users who perform each activity)**



the Internet whereas cellular phones were used to contact pre-existing, “real life” networks of acquaintances. Gender differences were also observed: schoolboys preferred Internet (mostly for interactive games), while the girls favoured the use of mobile phones for text messaging (Ishii, 2004).

Nevertheless, it is probable that these patterns of uses and sociability –both online and offline- have more to do with psychological development, employment, and the person’s condition as student rather than technology per se. A younger person, mainly during

adolescence and early adulthood, is more physically active than somebody older. In addition, it is more likely to share his time with friends rather than relatives, unless he has formed a family of his own –as concluded by the E-living project. In other words, IT reinforces certain conducts and attitudes corresponding to the person's stage of psychological development as well as his employment condition. But technology may not be as determinant as certain authors suppose.

In other words, the changes caused by Internet observed in household life so not seem too dramatic. Nor it is evident this technology is harmful for family ties: between 2003 and 2004, the percentage of users who thought so stayed below 20%, whereas those who believed the opposite were almost 60%. Non users were more pessimistic: in the same period, those who thought the web was damaging raised from 33% to 38% against a reduction of those who though the opposite from 44% to 40%. But given the margin of statistical error, these changes are not very significant.

In any case, interviewees acknowledge this technology helped them increase their contact with friends and work colleagues as well as, to a lesser extent, relatives⁴. Thus, our data deny the myth that Internet deteriorates family life. It does not seem more harmful nor particularly positive than other communication technologies, from books to cellular phones.

Confirming other studies, WIP countries found that age is less relevant than income as a predictor for Internet access⁵. Usage among youngsters is neither more intense nor very different from adults'. For example, those aged below 18 use the web for 11.8 hours per week, whereas adults do so within a range of 13.9 to 15.5 hours per week. Differences arise in the types of use given to the technology: teenagers meet more friends online and use more nicknames when chatting online. Confirming the findings of the German WIP team, we observed that younger users resort most frequently to multitasking –i.e., performing multiple activities online and offline simultaneously (Koenen, Koner & Groebel, 2003).

Finally, the most optimistic principles of the so-called Information Society and its spin-off New Economy assumed IT would increase labour productivity. We found that the self-perception of higher productivity yields in the workplace was, at best, ambivalent: in 2004, 54% of users who worked thought their performance would worsen if their web access was cut off, while a very high 44% thought it would stay the same. And more than 70% acknowledged their web usage at the office was for personal rather than professional purposes, such as e-mail and visiting websites. These figures were similar to those of the previous year. Yet we will be able to explore this matter in greater depth since 2005, because WIP-Chile is now integrating a complementary project, the Business and Information Technology Project (BIT).

Web impact in the relationship with the media, e-commerce and the State

In the field of the mass media, our results are consistent with those of the other WIP countries: Internet takes time away from television viewing, but not to print media. In 2003, users dedicated 11.8 hours per week to watch TV whereas non users dedicated 17.1 hours to it. In 2004 the figures were 13.0 and 16.5 respectively. Figure 5 illustrates that age differences are not significant in this topic, while being or not an user was the main predictor of this conduct.

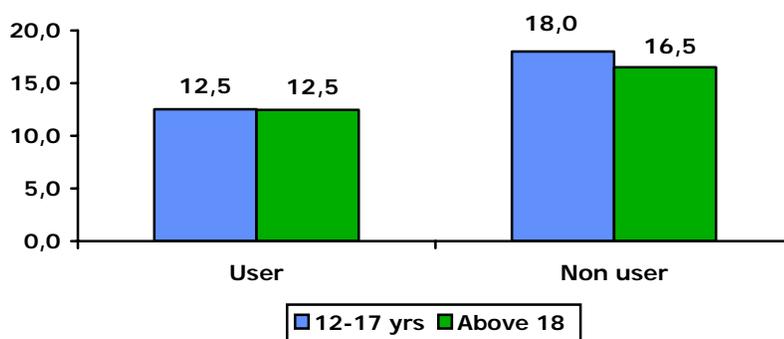
⁴Albeit users share less time with their families than non-users (27.0 against 32.6 hours in 2004), the difference is not very significant.

⁵ In 2003, the three main reasons for not using the Internet in Chile were lacking a computer (53%), ignorance of how to use it (46%) and its "expensiveness" (35%). All these reasons are related to socio-economic factors. Yet in 2004 lack of interest ranked as the third most common cause for not using the web, slightly above expensiveness.

This does not mean that this medium is condemned irreversibly to oblivion. It is rather that TV should adjust to new user demands to survive, emphasising on its own advantages (not less than price, reliability, and simplicity of use). Indeed, radio, cinema, newspapers, books, and theatre did the same in the past.

However, TV in Chile is by far the most preferred source of information for all age groups -around 50% in both years. The press and the Internet come next, with some 20% of the preferences each. However, in other aspects of media use there are important generational differences: Internet is the main source of entertainment for 33% of those aged between 12 to 17 -although TV comes very close at 30%. For 49% of adult users, television is the first priority for entertainment. Internet comes in the second place at a low 18%.

**Figure 5. Weekly hours dedicated to watch TV, 2004
(users vs. non users)**



Concerning radio consumption, Chilean users are rather unique among WIP partners because they dedicate considerable less time to this medium than non users –just as in television. In 2003 they listened 7.7 hours per week of radio against 12.4 hours among non users. In 2004 the difference was smaller but nevertheless significant: 8.8 and 10.8 hours respectively. The cause may be the high amount of recorded, foreign music in English offered by Chilean broadcasters, a material easily found online or elsewhere –either in recordings or by downloading MP3 files from the web (which is one of the ten more popular web uses in Chile).

Concerning e-commerce, the percentage of Chileans who bought online stayed constant at 20% of users aged 18 and older both in 2003 and 2004. This percentage was higher than Italy's, Singapore's, Spain's, and Hungary's. Nevertheless, great ignorance about its potentialities was detected among web users (high numbers of "I don't know" answers were collected). Additionally, there is a growing concern about the security of online transactions and data privacy -49.1% and 47.2% of e-buyers were respectively "very worried" about these two subjects in 2003, a figure that raised to 51.3% and 54.5% in 2004. Yet only a stable, tiny minority declared to have suffered online credit card fraud (see figure 6).

In electronic government, Chileans demonstrate an attitude we may call pragmatic: a majority believes Internet will help them understand politics better, but few are convinced this technology will empower them in front of the state. These attitudes and opinions coexist with rather frequent visits to public websites, some of them of remarkable usefulness for the common citizen: notably, that of the severe Revenue Service (*Servicio de Impuestos Internos*, at www.sii.cl) and the Civil and Identification Registry (*Servicio de Registro Civil e Identificación*, at

www.registrocivil.cl). Visiting this sort of state websites is the ninth most common usage of the web in Chile -46% of users did so in 2003 and 50% in 2004. Should these services not care to provide a simple, fast, safe, and reliable online alternative to face-to-face bureaucratic paperwork, this type of use would surely have been much less generalised among Chileans.

Internet also influences education. Studying is the third most frequent online activity among Chilean internet users, an unusual feature among WIP countries. This can mostly be explained by the fact that school is a very important, if not the main place of access at early stages of Internet adoption. In 2003 and 2004, more than 80% of Chilean users who studied got connected to the web at their places of study. As technology matures and prices fall, home connections generalise, as in richer countries. In 2004, we observed that school was slightly surpassed by home as the main place of web access; in the previous year it was the other way round.

Nevertheless, probably Internet is not a panacea for the problems faced by the Chilean educational system. Although user-students who believed their academic performance would deteriorate if their web access was cut off rose from 34% to 39% from one year to the next, those who thought it would stay the same raised from 56% to 58% in the same period. A case-study made in the context of this project supported this conclusion: in two schools favoured by a generous government technological endowment called Plan Montegrande, students said they learnt more about IT at their homes than at their schools. They also admitted their web usage was mostly unrelated to schoolwork, and that technology was not very important for their academic performance. Least but not last, the headmasters themselves reported rather weak PC skills, as well as very limited impact of IT in both the education process and their schools' everyday management, despite the significant investments in networks, hardware, and software (Pérez 2005).

Towards an international predictive model

We already commented that, in access to Internet, Chile is at a level equivalent to the Mediterranean and Eastern European members of WIP. Yet this is far from the most advanced countries such as the U.S.A. (71%), Sweden (66%), South Korea (61%), and Britain (59%).

When comparing variables like place of access, types of use, quality of the connections, and experience of users, Chile shows many similarities with the earlier stages already experienced by the more developed nations. First, the repertoire of uses is biased towards entertainment (such as browsing with no clear purpose, seeking information for hobbies and pastimes) rather than to more instrumental-pragmatic purposes (such as electronic commerce, or reviewing bank accounts). Second, home as the main place of access is only recently surpassing the school. Third, users have less years of web experience.

Nevertheless, there are some other unique characteristics: the strong growth of broadband home connections -they reached 57% in 2004, although the definition of "broadband" is less strict in Chile than in developed countries-; the relative stagnation of the number of users; the elevated average times of web usage; the high percentage of proxy users; studying as the second most frequent online activity, and the high penetration of mobile phones (in 2004, 75% of web users and 57% of non users had one).

But WIP wants to go beyond merely juxtaposing percentages like those commented here. It wants to elaborate an original framework for international analysis and comparison able to explain the observed changes in very different settings. There are few precedents apart

from listings of country statistics. If that is not the case, most existing international comparisons include little numbers of countries (or at least not as wide as WIP's), or consider very limited time spans.

Developing an explanatory model able to reflect all the shades of this constant and accelerated dynamic phenomenon, which is the adoption of Internet and other IT, is particularly complex. It must start from the time-consuming, tedious work of matching databases, checking that samples and questionnaires can be comparable in spite of each country linguistic and logistic peculiarities. But already WIP is working on the matter, and a first proposal will be presented at the annual WIP conference in Santiago de Chile in July 2005⁶.

A preliminary testing of ten WIP countries -including Chile- done in 2004 sought to predict Internet access and use according to different indexes of socio-economic and technological development. Two were found to be particularly determining: education and income per capita. A good proxy of these two was, in fact, the UNDP's Human Development Index (HDI).

Other factors often considered relevant, such as age and sex, did not have a uniform influence. For example, in Chile these were more influential than in richer countries. Indeed, Chile has a lower Gender Empowerment Measure (GEM) than North America or Scandinavia⁷. This UNDP indicator measures the participation of women in education, the labour force and politics in a scale from 0 to 1, in which 0 represents minimum female participation and 1 represents the opposite. In countries where women have a higher degree of participation -as in most high-income nations except Asia-, no important gender differences were observed in terms of web use.

In synthesis, as the predictors of Internet use vary from country to country according to their level of development, it is risky to depend on a simplistic, fixed interpretative model of analysis. Furthermore, the predictive power of the most relevant variables change along time. This implies that it is not possible to compare predictive equations of countries with wide differences in their levels of technological adoption. Although this may not seem a big advance, it is nevertheless an important finding of WIP as an international academic effort.

Future paths of development

Until 2004, WIP-Chile determined how and how much did the use of Internet and other IT change in contrast to other WIP members. But this effort continues. A new proposal prepared by the same research team, including experts from the School of Engineering⁸, received a new research grant from the National Fund of Science and Technology for the period 2005-2009 (Godoy 2005). The new project, now entitled WIP-BIT Chile, will continue measuring the everyday use of Internet and other digital technologies, but will include the use and impact of IT in businesses and the economy. Like Germany, Italy and Sweden, the

⁶ The proposal currently being prepared by WIP relies on more sophisticated statistical techniques, such as multi-variable analysis and cluster analysis. More details about the annual 2005 WIP meeting in Santiago de Chile in [http:// www.wipchile.cl](http://www.wipchile.cl).

⁷ In 2004, Chile ranked 58th with a Gender Empowerment Measure of 0.460. The USA was 14th with 0.769 (UNDP, 2004).

⁸ These experts designed the pioneering National Survey of Information Technology, ENTI, from a sample taken from the 300 biggest companies in Chile (Sepúlveda & Csaszar, 2003).

Business and Information Technology Project (BIT), originated at the UCLA Anderson School of Management will complement the same team responsible for WIP⁹.

BIT rose from the gradual confirmation of both Machlup’s and Porat’s classical studies about the increasing importance of what they respectively called "knowledge industry" and "information economy" in the United States’ GNP (Machlup 1962; Porat & Rubin 1977; OECD 1981). By 1992, services were already more than half of the North American economy (56%), whereas the once dominant sectors of manufacturing and agriculture were comparatively shrinking (Apte & Nath 2000). In Chile, according to the Central Bank, the participation of services raised from 49.3% of GNP in 1970 to 62.2% in 1999, while the labour force in services rose from 55.8% of the total in 1992 to 65.9% in 2002¹⁰. Lever et al. calculated that 11% of Chile’s economic growth could be attributed to IT. Furthermore, those industries that made greater investments in IT had the greater growth rates of the period (Lever et al., 2003).

Yet we are not merely interested on checking if services are growing in the economy, but how IT is affecting economic life. Services are losing their craft-like character -they are industrialising. In other words, they are becoming standardised –as manufactures did in the 1970s. This process is caused by technological change and implies automatisaton, virtualisation and outsourcing of complete business processes, both nationally and internationally ("offshore sourcing"). It also means incorporating the client to the final phases of the value adding process -such as IKEA, the Swedish firm, which sells furniture for buyers to assemble at their homes, or the online systems for booking and purchasing airline tickets (Karmarkar 2000, 2004; The Economist 2004).

Therefore, the BIT project analyses the GNP along two dimensions: according to the tangibility of the final product received by customers (material or information) and according to the form in which this economic good is received by the client (product or service), as shown in figure 6. At least in the U.S.A., Apte and Karmarkar observed a growing trend of services over products and of information goods over material ones, both in terms of jobs and economic value (Apte & Nath 2000; Karmarkar 2000, 2004).

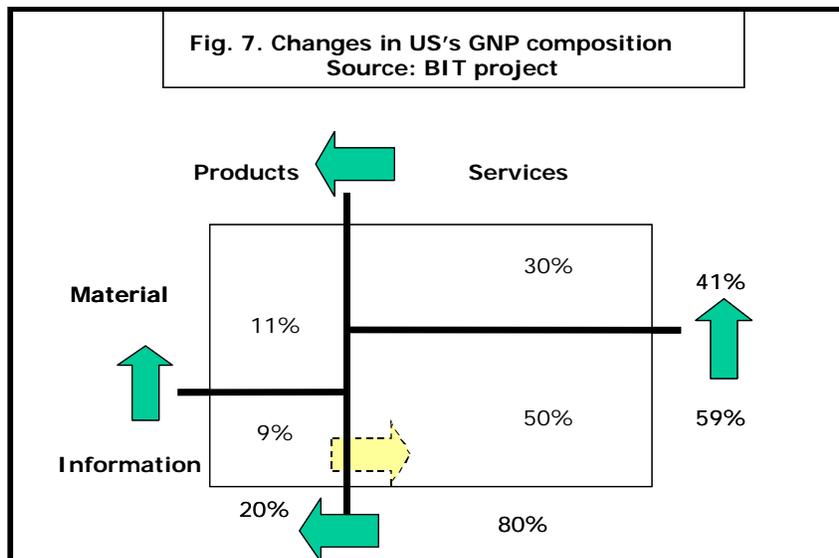
Figure 6. BIT Project– components of GNP, according to Karmarkar

		Delivery form	
		Products	Services
End product	Material	Machinery, chemicals, cars, fashion, consumer products	Tourism, retail, transport, construction, health
	Information	Books, magazines, PCs, PDAs, cinema, recorded music	Finance, broadcasting, telecommunications

Figure 7 shows how North American GNP has been modified by technological impact. Note that agriculture and mining (marginal, anyway) as well as the public/government sector (which is nevertheless mostly services) are excluded. Horizontally, as indicated just below the figure, the share of products over services is 20% against 80% respectively. Vertically, and as indicated to the right of the diagram, the proportion of material over information goods is almost 40% to 60%. Material products represent a shrinking 11% of GNP, whereas information services exceed half of the economy -and expanding.

⁹ More details in <http://www.anderson.ucla.edu/bit.xml>

¹⁰ Data calculated by the WIP/BIT team from random samples taken from the national census of 1992 and 2002, handed by the National Statistical Office (Instituto Nacional de Estadísticas, INE).



Conclusion

The WIP-Chile study analysed how Internet and other IT have affected everyday life of Chileans in contrast to other countries in 2003 and 2004. Although there are some interesting changes (although their importance is different according to variables such as gender, age, or income, without considering the development level of the country), not all of them can be explained by these technologies. So in the following four years research will expand to three scenarios being affected by technological change: everyday life of Chileans (WIP project) as well as business and the economy (BIT project). Because, at the end of the day, it is real people who incorporate technology to their social and economic activities.

The multi-disciplinary character of the new WIP/BIT-Chile project is very advantageous, since normally social scientists do not mix with engineers and economists to analyse the impact of IT among human activities. Adding the international comparability of the data, a hardly replicable wide vision results.

REFERENCES

- Apte, Uday & Nath, Hiriyana (2000): **Size, Structure and Growth in the US Information Economy**, Edwin Cox School of Business, Southern Methodist University, Dallas, November.
- Godoy & Herrera (2004): **Qué ocurre cuando se usa (y no se usa) internet: resultados del World Internet Project-Chile**, Cuadernos de Información N°16-17, 2004, pp. 71-84.
- Godoy Sergio (Ed.) (2005): **WIP-BIT Chile: uso y aprovechamiento de internet y tecnologías de información (TICs) en personas, empresas y la economía chilena respecto al mundo**, Fondecyt N°1050769. Investigador responsable: Sergio Godoy (Comunicaciones UC). Coinvestigadores: Dr Soledad Herrera (Sociología UC), Dr Marcos Sepúlveda (Ingeniería UC). Investigadores asociados: George Lever (Cámara de Comercio de Santiago), Dr Francisco Fernández y Sergio Goldenberg (Comunicaciones UC).
- Ishii, Keinichi (2004): **Mobile Communications in Japan**, University of Tsukuba, presentation for WIP Tokyo Meeting, Tokyo.
- Karmarkar, Uday (2004): **Will you survive the services revolution?**, Harvard Business Review, June 2004
- (2000) **Information technology and Global Value Chains: Growth, Structure and Evolution**, UCLA Center for International Business Education and Research, Working Paper Series, Anderson School of Management at UCLA.
- Koenen, Andrea; Koner, Bertram & Groebel, Jo (2003): **Germany and the Digital World**, A report by the European Institute for the Media on the First Survey 2002, EIM, Dusseldorf.
- Lever, George et al. (2003): **La economía digital en Chile 2003**, Centro de Estudios de la Economía Digital, Cámara de Comercio de Santiago, Santiago.
- Machlup, F. (1962): **The Production and Distribution of Knowledge in the United States**, Princeton University Press, Princeton, NJ.
- OECD (1981): **Information Activities, Electronics, and Telecommunications Technologies: Impact in Employment, Growth, and Trade**, Vol. I & II, Organisation of Economic Co-operation and Development, Paris.
- Oxford Internet Institute (2003): **OxIS. Oxford Internet Survey**, University of Oxford. Synthesis at **Results. How much is Enough for the Internet?**, press release, <http://users.ox.ac.uk/~oxis/enough.htm>.
- Pérez, Oscar (2005): **Usos, apropiaciones y generación de valor por medio de TICs en la enseñanza secundaria chilena: un estudio de caso. Tesis adscrita al proyecto World Internet Project- Business and Information Technology-Chile**, tesis para optar al grado de magister en Comunicaciones con Mención en Comunicación y Educación. Supervisor: Dr Sergio Godoy E. Facultad de Comunicaciones, Universidad Católica de Chile, Santiago (under completion).
- Porat, Marc & Rubin, Michael (1977): **The Information Economy** (9 volumes), Office of Telecommunications Special Publication 77-12, US Department of Commerce, Washington DC.
- Raban, Yoel (2004): **e-Living D11.1 – ICT Uptake and Usage: Panel Data Analysis**, The e-Living Consortium, IST, <http://www.eurescom.de/e-living>.
- Sepúlveda, Marcos & Csaszar, Felipe (2003): **Estudio Nacional de Tecnologías de la Información (ENTI 2003)**, Centro de Estudios de Tecnologías de la Información, Pontificia Universidad Católica de Chile, Santiago, Chile.

- The Economist (2004): **Survey: E-Commerce. A Perfect Market**, 13/5/2004.
- UCLA (2003): **The UCLA Internet Report. Surveying the Digital Future, Year Three**,
UCLA Center for Communications Policy, Los Angeles, California.
- UNDP (2004): **Human Development Report 2004. Cultural Liberty in Today's Diverse World**, UNDP, New York, 2004. (Online: <http://hdr.undp.org/>).
- USC (2004): **The Digital Future Report. Surveying the Digital Future, Year Four. Ten years, ten trends**. USC Annenberg School Center for the Digital Future, Los Angeles, California (online: <http://www.digitalcenter.org/downloads/DigitalFutureReport-Year4-2004.pdf>).