Final Report of the 4th Round of Joint Investigations of the ILO/JIL -sponsored Network of National Institutes for Labour Studies: Determining the Impact of Information and Communication Technology on Decent Work in the Asia and Pacific Region: New Zealand

In previous research conducted by the Industrial Relations Centre at Victoria University of Wellington (New Zealand) for the 4th round of joint investigations of the ILO/JIL-sponsored Network of National Institutes for Labour Studies, we've reported on the labour market effects of ICT in New Zealand, noting primarily the relative growth in employment both in the ICT industry and in ICT occupations outside of that sector. We've also previously considered the importance of 'lifelong learning', the presence of a 'digital divide' in New Zealand, and the Government's policies pertaining to ICT. In this final report, we consider data from the 2001 Census of the New Zealand Population and other recent survey data to offer insight into the three objectives the ILO/JIL has set for this research: (1) the proliferation of ICT in the country, (2) the state of Decent Work in the country prior to the advent of ICT, and (3) the impact of ICT on Decent Work in the country. The last section of this report is comprised of case studies of six New Zealand organizations combining using information gleaned from a survey of ICT use and employment practices completed by individuals employed in managerial positions by these six organisations. So as to place New Zealand experience in the context of its Asia - Pacific neighbors, this survey follows the standard devised by the ILO/JIL Networking of National Institutes for Labour Studies.

Proliferation of ICT in New Zealand's Macro-economy

Data reported in Table 1 point to the relative importance of information and telecommunications technologies (ICT) to New Zealand's economy as a whole as well as to the mounting importance of its ICT exports. Between 1994 and 2000, while the economy as a whole grew by 28.7 percent or $23,391 million, the ICT sector increased in size by 71.6 percent or $4,647.7 million. ICT currently represents 10.6 percent of GDP and 2.8 percent of the country's exports. The country's ICT exports have increased threefold, from an estimated $334.1 million in 1994 to $923.2 million in 2000. This increase is significantly greater than that in exports for the general economy, which grew in value by $15,980 million, or 63.7 percent during the mid to late 1990s. ICT as a percentage of total exports increased, in this time, from 1.3 percent in 1994 to 2.8 percent in 2000. In real dollar terms, exports of IT products and services increased by 10.7 percent in 2000 alone and by 176 percent since 1994. In contrast, total exports of all goods and services—again, in constant dollar terms—increased by 9.1 percent last year and by 32 percent over the 1994-2000 period.
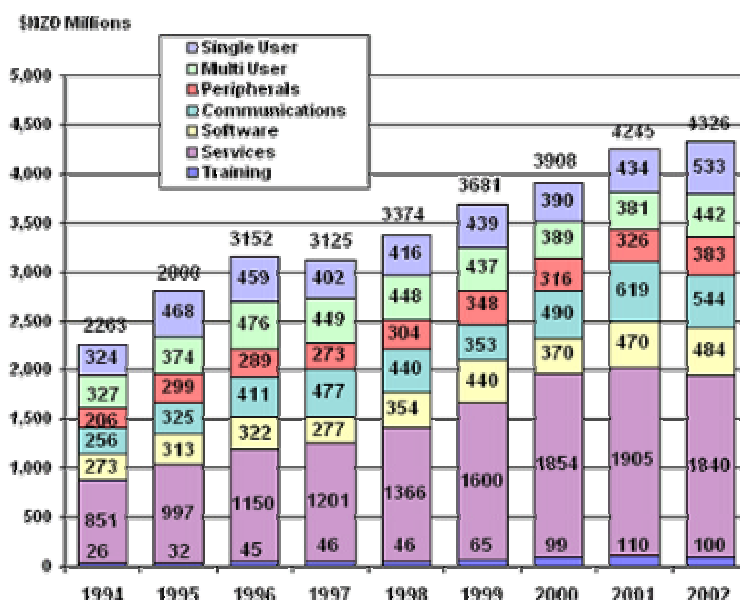
Table 1: Exports & GDP by Economy and ICT Sector

March year	ICT Exports $m	ICT Total $m	Total Exports $m	Total GDP $m	Change in Real GDP	ICT as % of GDP	ICT as % of total exports
1994*	334.1	6,485.6	25,085	81,387	6.4%	8.0%	1.3%
1995*	441.9	7,712.3	26,951	87,052	5.3%	8.9%	1.6%
1996	483.4	8,521.9	27,125	92,679	4.1%	9.2%	1.8%
1997	556.1	8,862.7	27,511	96,911	3.1%	9.1%	2.0%
1998	713.9	10,153.4	28,534	99,980	1.9%	10.2%	2.5%
1999	833.6	10,418.5	30,378	100,625	0.4%	10.4%	2.7%
2000	923.2	11,133.3	33,151	104,778	4.6%	10.6%	2.8%
2001	-	-	41,065	110,558	2.6%	-	-

*1994 and 1995 ICT data are estimated

Source: Ministry of Economic Development. *Statistics on Information Technology in New Zealand* (Wellington, New Zealand: Ministry of Economic Development, Information Technology Policy Group, June 2003).

To understand the growth of the ICT sector in New Zealand, it is necessary to know where the growth within the sector is occurring. To accommodate this need, Statistics New Zealand, the key government department charged with compiling and maintaining official statistics, since 1994, has conducted an annual "Information Technology Survey," with the objective of providing information on the total income, export income and the domestic market size of the information technology (IT) industry in New Zealand. Information derived from these surveys suggests the total value of the New Zealand IT industry, excluding communications services, was NZ$7,055 million in 2002, an increase of 1 percent over the previous year's figure. Data from these surveys, as shown in Figure 1, also indicate that services comprise a significant component of all sales to end-users. To this end, the computer services industries have more than doubled in size since 1994, a trend that is at least partly attributable to continuing outsourcing of business IT services.[1] In addition, although relatively small in comparison to the other components of ICT, training and education sales have increased by 250 percent since 1994, and are now worth around $500 million to the New Zealand economy.

Figure 1: New Zealand End-User IT Sales, Excluding Telecommunications Services

Source: Ministry of Economic Development. *Statistics on Information Technology in New Zealand* (Wellington, New Zealand: Ministry of Economic Development, Information Technology Policy Group, June 2003).
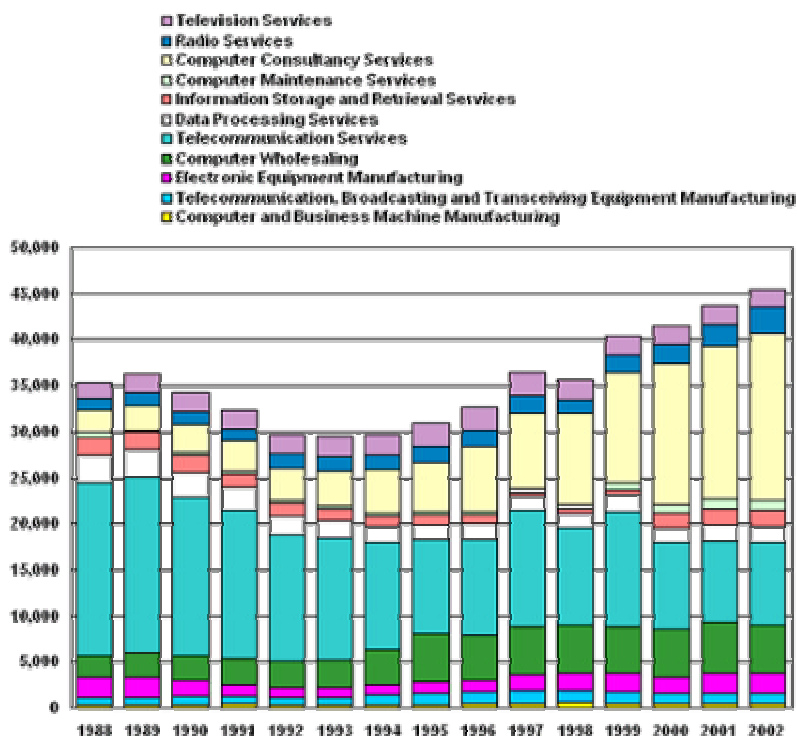
Employment in ICT in New Zealand

Figure 2 illustrates the huge expansion in the numbers of people employed in ICT industries in the period from 1988 to 2002. These data show that, following a decline in the early 1990s, the number of people employed in this sector grew steadily from nearly 30,000 in 1993 to over 45,000 in 2002. Most industries within the ICT sector have expanded steadily over the last decade, with computer consultancy services—having risen from 4,475 in 1993 to 15,635 in 2000 (251 percent)—now being the single largest employment area within the overall sector. The period since 1990, however, has seen a steady deterioration in numbers employed in telecommunication services, from 17,267 in 1990 to 9,413 in 2000, a decrease of 45.5 percent. This decline may—at least, in part—be attributable to

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[1] Ministry of Economic Development, *Statistics on Information Technology in New Zealand: Updated to 2003* (Wellington: NZ Ministry of Economic Development, Information Technology Policy Group, 2003).

deregulation of the industry in 1989 and the now far more competitive nature of the telecommunications industry in New Zealand.

Figure 2: Employment in ICT Industries 1988-2002 by ANZSIC Classification

Source: Ministry of Economic Development. *Statistics on Information Technology in New Zealand* (Wellington, New Zealand: Ministry of Economic Development, Information Technology Policy Group, June 2003).

Likewise, as described in Table 2, the number of people employed in ICT not working in the ICT sector—in many cases, employees within the traditional economy, such as in banking and finance—increased from 27,717 to 33,642, a growth of 21.4 percent between 1991 and 1996, and by another 70 percent to 57,249 by 2001. Adding employment in ICT industries to that in ICT occupations (and ensuring no double counting of those working in ICT occupations in the ICT sector), it is evident that, in the decade ending in 2001, total ICT employment in New Zealand increased from 59,091 to 81,943, or from 4.2 percent to 4.7 percent of New Zealand's aggregate labour force. Other evidence, though, suggests that, in spite of the fact that this type of technological change has led to the creation of new jobs, a larger number of jobs have become obsolete as a consequence of ICT. Those jobs created through the implementation of ICT typically require a higher level of skill and, although retraining and 'upskilling' can help some displaced workers find employment in the 'new economy', others will never acquire the requisite skills.[2]

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[2] Robertson, E. I., "Changes in Employment and Unemployment, 1961–1999" (Wellington: New Zealand Futures Trust, 1999).

Table 2: New Zealand Employment in ICT by Industry and Occupation[3]

Industry Sectors	ICT Occupations			All Occupations		
	Census Year			Census Year		
	1991	1996	2001	1991	1996	2001
ICT Only	8,826	10,695	16,277	40,200	41,823	40,941
All Industries	27,717	33,642	57,249	1,400,376	1,630,809	1,727,721
	Census Year					
	1991		1996		2001	
ICT Employed	59,091		64,770		81,943	

Source: Ministry of Economic Development. *Statistics on Information Technology in New Zealand* (Wellington, New Zealand: Ministry of Economic Development, Information Technology Policy Group, June 2003).

Indicators of Decent Work

In his keynote speech before the 87th International Labour Conference, ILO Director-General, Juan Somavia, established the goal of the ILO's decent work agenda as "the promotion of opportunities for women and men to obtain decent and productive work in conditions of freedom, equity, security and human dignity." [4] Decent work, therefore, implies the availability of sufficient employment opportunities, adequate social protection, protection of rights at work and an effective framework within which the social dialogue can take place. In defining this concept, the Director-General has identified six dimensions implicit in what individuals around the world consider decent work to embrace. These include opportunities for work, freedom of choice of employment, productive work, equity, security and dignity at work. The first and second of the key dimensions of decent work, opportunities for work and freedom of choice of employment, are concerned with the availability of work and the acceptable scope of work. The remaining four dimensions, productive work, equity, security, and dignity at work relate to the extent to which the work is decent.[5]

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[3] ICT Industry groups include: Computer and Business Machine Manufacturing, Telecommunication, Broadcasting and Transceiving Equipment Manufacturing, Electronic Equipment Manufacturing, Computer Wholesaling, Telecommunication Services, Data Processing Services, Information Storage and Retrieval Services, Computer Maintenance Services, Computer Consultancy Services, Radio Services, and Television Services. ICT Occupational categories (and skill level) include: Information Technology Manager (Managerial), Systems Analyst (Highly Skilled), Computer Application Engineer (Highly Skilled) Systems Manager (Highly Skilled), Computer Systems Technician (Skilled), Computer Programmer (Skilled), Computer Operator (Skilled), Computer Support Technician (Skilled), Technical Representative (Skilled), Desktop Publisher (Skilled), Data Entry Operator (Unskilled). Desktop Publisher, Systems Manager, and Computer Support Technician were added to this list and Computing Services Manager was changed to Information Technology Manager between 1996 and 2001.

[4] ILO, *Decent Work: Report of the Director-General*, International Labour Conference, 87th Session, 1999 (ILO: Geneva, 1999).

[5] ILO, "Statistical Activities of the International Labour Organization," Second Meeting of the Statistical Conference of the Americas of the Economic Commission for Latin America and the Caribbean (ECLAC) Santiago, Chile, 18-20 June 2003.

In terms of implementation of the ILO's decent work agenda at the national level, the question policy-makers in every nation currently face is how to achieve the ILO's objectives for decent work economy-wide. In order to evaluate the extent to which decent work exists and the impact information and communication technology has had on decent work in New Zealand, though, it is necessary to develop a measure of decent work. This begs the question, how is decent work best measured? The ILO's framework for measuring decent work, as elaborated in *Measuring Decent Work with Statistical Indicators*,[6] is intended to enable analysis of decent work and progress towards decent work as well as the reciprocal effects of decent work on poverty and economic performance. Its decent work strategy adopts a relatively broad perspective of work. This has resulted in what is essentially enlargement of the ILO's list of basic labour statistics that must be collected, compiled and published on a regular basis by those member States having ratified the Labour Statistics Convention, 1985 (No. 160).[7] Those basic labour statistics defined as being representative of the whole country and/or all branches of economic activity and included on the list specified in Convention 160 and its corresponding Recommendation (No. 170) include the economically active population, employment, unemployment and underemployment, earnings and hours of work, wage structure and distribution, working hours, labour cost, consumer price indices, household expenditure and income, occupational injuries, occupational diseases, and industrial disputes. As noted, however, this list has expanded as a result of the adoption of the ILO's decent work agenda.

As part of the major developmental work on labour statistics currently being carrie d out in the ILO, and in an effort to operationalise the six dimensions of decent work identified by the Director-General, a set of twenty-nine statistical indicators of the situation faced by workers and potential workers, especially the poorest and least well off, were initially identified. These were encompassed under ten general aspects or characteristics of decent work, later supplemented by an eleventh concerning the economic and social context. Both the list of statistical indicators of decent work and the headings under which these are organized have subsequently been expanded, although consensus has yet to be reached on all of the indictors to be officially added tot his list. The statistical indicators are organized now under what are ostensibly twelve headings, each representing an aspect or general characteristic identified by the ILO as a key elements of decent work.[8]

The twenty-nine statistical indicators of decent work identified in the first stage proposal and the eleven headings under which they were eventually organized are as follows:

Indicators of employment opportunities

- Labour force participation rate
- Employment-population ratio
- Unemployment rate
- Youth unemployment rate

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[6] Anker, Richard; Philippe Egger, Farhad Mehran and Joseph Ritter (2002): *Measuring Decent Work with Statistical Indicator*s, Policy Integration Paper No.1, Policy Integration Department, ILO, Geneva. See also, Sylvester Young, "Measuring Decent Work: Implications for a Labour Statistics System" Paper presented at the 12th Statistical Days Conference: Integration of Statistics in the Information Society, Radenci, Slovenia, 25-27 November 2002.

[7] Countries that have ratified Convention 160 include Australia, Austria, Azerbaijan, Belarus, Benin, Bolivia, Brazil, Canada, Colombia, Costa Rica, Cyprus, Czech Republic, Denmark, El Salvador, Finland, Germany, Greece, Guatemala, India, Ireland, Italy, Korea (Republic of), Kyrgyzstan, Latvia, Lithuania, Mauritius, Mexico, Netherlands, New Zealand, Norway, Panama, Poland, Portugal, Russian Federation, San Marino, Slovakia, Spain, Sri Lanka, Swaziland, Sweden, Switzerland, Tajikistan, Ukraine, United Kingdom, United States.

[8] ILO, *General Report*, Report I, 17th International Conference of Labour Statisticians, 24 November to 3 December 2003, (Geneva: ILO, 2003).

- Share of wage employment in non-agricultural employment

Indicators of unacceptable work

- Percentage of children not at school
- Percentage of children in wage or self-employment

Indicators of adequate earnings and productive work

- Percentage of employment with low pay rate
- Average earnings in selected occupations

Indicators of decent hours

- Percentage of employment with excessive hours of work
- Time-related underemployment rate.

Indicators of stability and security of work

- Percentage of employed persons with job tenure of less than one year
- Percentage of employees with temporary work

Indicators of combining work and family life

- Ratio of the employment rate for women with children under compulsory school age to the employment rate for all women aged 20-49

Indicators of equal opportunity and treatment in employment

- Occupational segregation on the basis of sex
- Ratio of the female share of employment in managerial and administrative occupations to the female share of non-agricultural employment

Indicators of safe work environment

- Fatal occupational injury rate per 100,000 employees
- Number labour inspectors per 100,000 employees or covered employees
- Occupational injury insurance coverage

Indicators of social protection

- Public social security expenditure (percent of GDP, separately for total, health services, and old-age pensions)
- Public expenditure on needs-based cash income support (percent of GDP)
- Beneficiaries of cash income support (percent of poor)
- Share of population over 65 benefiting from a pension
- Share of economically active population contributing to a pension fund
- Average monthly pension expressed as a percentage of median/minimum earnings

Indicators of social dialogue and workplace relations

- Union density rate
- Collective wage bargaining coverage rate
- Days not worked per 1,000 employees

Indicators of the economic and social context of decent work

- Informal economy employment

In December 2003, at the ILO's 17th International Conference of Labour Statisticians[9], other general indicators of the economic and social context within which decent work occurs, the supplemental eleventh heading, were proposed. These include:

- Output per worker at purchasing power parity (PPP) prices

- Output growth per worker both economy-wide and in manufacturing alone

- CPI inflation

- Adult literacy rate and secondary school graduation rate

- Composition of employment by economic sector (agriculture, industry and services)

- Income inequality as measured by the GINI coefficient of income or consumption distribution

- Share of the population living below the $1- or $2-a-day poverty level.

At its 25 November 2002 Meeting on Joint Investigative Studies for Determining the Impact of Information and Communication Technology on Decent Work in the Asia and Pacific Region in Bangkok, the ILO/JIL 4th round of joint studies for "Determining the Impact of Information and Communication Technology (ICT) on Decent Work in the Asian and Pacific Region" decided upon a twelfth heading to add to this list. This heading is to encompass statistical indicators related to employability, which encompasses the skills, knowledge and competencies that enhance a worker's ability to secure and retain a job, progress at work and cope with change, secure another job if she/he so wishes or has been laid off, and enter more easily into the labour market at different periods of the life cycle. This definition recognizes that employability necessitates a combination of skills enabling an individual to adapt to changes at work and attained, not only through a basic education and training, but also by workplace-based learning and training and work experience over the course of an individual's working life. Further to this, though, employability involves skills essential to securing and retaining jobs and, therefore, requires instruments that create jobs, enhance jobs and sustain employment. It follows that employability is sustained only where job growth in promoted and those who make investments in training and human resource development are rewarded.[10]

In a paper published for the ILO's InFocus Programme on Skills, Knowledge and Employability in 2002, Torkel Alfthan and Trevor Riordan suggest investment in human resource development at the national level should be gauged in terms of the following statistical indicators under the heading of *Future Employability*:

- Qualifications attained

- Hours devoted to training

- Public spending on training as a percentage of GDP

- Employer investments in training as a percentage of payroll

As such, these four additional general indicators of decent work have been added to the list of statistical indicators of decent work for purposes of this research conducted by the Industrial Relations

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[9] ILO, *General Report*, Report I, 17th International Conference of Labour Statisticians, 24 November to 3 December 2003, (Geneva: ILO, 2003).

[10] ILO, *Training for employment: Social inclusion, productivity and youth employment*, Report V, International Labour Conference, 88th Session, Geneva, 2000.

Centre at Victoria University of Wellington for the International Labour Organization (ILO)/Japan Institute of Labour (JIL)-sponsored Networking of National Institutes for Labour Studies' 4th round of joint investigative studies focusing the impact of information and communication technology (ICT) on "decent work" in the Asia and Pacific region. The table found in Appendix A of this report provides a brief cursory account of where New Zealand locates itself in the ILO's decent work agenda. These summary statistics are built around the measures and data collection framework described in the International Labour Oraganization's publications, *Current International Recommendations on Labour Statistics*[11], *Decent Work and the Informal Economy*[12], and *The Employment Relationship (Scope) (General Discussion)* [13]. The sections that follow in this report offer a description and a few cautions and caveats regarding the limitations of measures of some indicators of decent work in New Zealand identified in this report. In particular, problems in respect of data availability and the use of proxy variables in some cases where more appropriate measures are unavailable are discussed.

Children in Wage Employment and School Participation

In New Zealand, children may enter school at the age of 5, and education is compulsory and free for those between 6 and 16 years of age. In addition, restrictions on the employment of children are imposed under various New Zealand statutes, and compulsory education ensures that children enrolled in school may not be employed if such employment might prevent or interfere with their education. While children – even those under the age of 12 years - are employed before and after school to deliver newspapers and milk, in small family-owned retail enterprises, and in agriculture during harvest season, New Zealand law prohibits persons under the age of 15 years from working in manufacturing, mining and forestry, and those under 16 years of age also may not work between the hours of 10 p.m. and 6 a.m.[14]

The minimum school leaving age, beyond which attendance is not compulsory, was raised from 15 to 16 years in 1993. Participation for 16-year-olds, which peaked in 1991, was 70.5 percent in 1987 and 78.2 percent in 1996. Among 17 year-olds, whose participation peaked in 1993, 37.1 percent and 55.4 percent remained in school in 1987 and 1996, respectively. Many of these school leavers had completed their formal school qualifications at the time they left school. In addition, there is an inverse correlation between school participation and employment opportunities—in particular opportunities for those without higher qualifications—suggesting that one might expect school participation rates to decline when the economy is growing and labour demand—at least that in unskilled and semiskilled occupations—is high.[15]

The share of New Zealand students leaving school without gaining any qualifications increased between 1991 and 2000. Subsequent to the national school leaving age being raised to 16 years in 1993, the majority of these school leavers were at least 16 years of age. In 1991, 16 percent of all New Zealand school leavers left school with no qualifications. In 2000, that figure was 19 percent. School leavers under 16 years of age who were granted exemptions granted on the basis of a student's educational problems or conduct and left school without qualifications accounted for 3 percent of all school leavers in 1993, 21 percent in 1996, and 32 percent in 2000. Exemptions are rarely approved unless the student enters some other form of education or has guaranteed full-time

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[11] Geneva, 2000.

[12] Report of the Director-General, International Labour Conference, 90th Session, Report VI (Geneva, 2002).

[13] Report V, International Labour Conference, 91st Session (2003) (ILO, Geneva, 2003).

[14] The EI Barometer on Human and Trade Union Rights in the Education Sector (Brussels: Education International, 1998).

[15] New Zealand Ministry of Education (Various Years). *Education Statistics of New Zealand*. Wellington: Data Management and Analysis Division, Ministry of Education.

employment.[16] As such, these figures tend to overstate the number of children under 16 years of age, the age beyond which school attendance is not compulsory, who have already entered the workforce in New Zealand, yet they do suggest that very few children under the age of 16 comprise a part of New Zealand's full-time labour force.

Whereas no minimum age is stipulated for access to employment, the employment of young persons is restricted in New Zealand under education and occupational safety and health legislation. For instance, the *Education Act 1989* provides that children aged under 16 cannot be employed during school hours, and attendance at school is compulsory in New Zealand until the student reaches the age of 16 unless the child is granted an authorised exemption from attendance at school by the Ministry of Education, allowing the child to work full-time. In addition, employment of young children in a range of jobs, such as delivering newspaper rounds and picking fruit, is long established in New Zealand. Also, children under the age of 16 are not entitled to a minimum wage under the *Minimum Wage Act 1983*, and employers who pay exploitative wages to those under 16 years of age cannot be prosecuted. Although New Zealand's Government has yet to undertake research which might provide data relevant to child labour in New Zealand, recent empirical evidence suggests that the share of persons 11 to 14 years of age working at least occasionally is greater than 40%. Around one-quarter of New Zealanders of age 15 are estimated to hold regular part-time jobs. Although no data are available to confirm this, these numbers were undoubtedly higher prior to 1993, prior to the school leaving age being raised from 15 to 16 years. The types of jobs these young people work includes childcare and baby sitting, delivery work, shop assistance, office work, and farm work.[17]

Employee Turnover and Job Tenure

As is true in many other OECD countries, collection of official statistics on labour market trends has generally lagged behind observed changes in patterns of work. At this writing, for instance, no official data are collected in New Zealand on job tenure or labour force experience. Moreover, in many areas for which statistics on recent work patterns have been compiled, not enough time has passed since these data series were begun to provide a time series of significant duration for proper analysis of these trends.[18]

The most revealing—albeit limited—data available on employee turnover and job tenure in New Zealand come from labour force surveys. Nevertheless, New Zealand's quarterly *Household Labour Force Survey* (HLFS), which covers a sample of some 18,000 dwellings over a two-year period, yields potentially useful longitudinal data, has not been used to examine labour market transitions over a period of more than two consecutive quarters. The rotating nature of the sample forces a reduction in the sample size by 1/8th for each additional quarter in which an entire panel of respondents was surveyed. The Household Labour Force Survey has previously to estimate the temporal effects of occupation sought, job search method, length of time since last employment and educational attainment on transitions between states of employment, unemployment, and non-labour force. However, due to the rotating nature of these data, for a study covering eight quarters, the panel is limited to one-eighth of the selected household sample. Moreover, this implies that, the longer the period observed, the less representative the sample is of the target population.[19]

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[16] Statistics New Zealand, *School Leavers with No Qualifications*. (Wellington, NZ: Statistics New Zealand, 2001).

[17] Action for Children and Youth Aotearoa (ACYA), *Children and Youth in Aotearoa* (Wellington: ACYA, 2003).

[18] Paul Callister, *Trends in Employee Tenure, Turnover and Work Scheduling Patterns: A Review of the Empirical Research Evidence*, NZ DoL Occasional Paper Series No. 1997/1 (Wellington: New Zealand Department of Labour, February 1997)

[19] For a discussion of studies which exploit the longitudinal element of the HLFS panel data to examine labour market dynamics such as transitions between states of employment and unemployment as well as the problems associated with use of the HLFS data for these purposes, see Chapple, Simon., Maré, Dave., Carson,

Lacking any direct measure of tenure on the job, a potential proxy for the stability and security of work, is the likelihood of losing one's job and being provided with public benefit as a result. To this end, while this percentage is much higher in regions of the country in which a high proportion of seasonal short-term jobs and significantly lower in Auckland and Wellington, across New Zealand, the it is estimated that, at present, around 46 percent of beneficiaries who go off a benefit for more than 12 months never come back to receiving a benefit. Among those who return to a benefit, 13 percent do so within 6 to 12 months, 11 percent within three to six months, and 30 percent within three months.[20]

Casual, Temporary and Fixed-term (Non-Standard) Employment in NZ

There are, likewise, no official data collected on casual, temporary and fixed-term employment in New Zealand.[21] Statistics New Zealand, for instance, does not collect data on most types of non-standard employment through the *Household Labour Force Survey*, *Quarterly Employment Survey* or *Census of the Population*, although the Department of Labour plans to undertake research in this area, including in-depth employee case studies in organisations where workers may be engaged in precarious non-standard work arrangements. Moreover, the extant data from official sources do provide some insight into part-time and self-employment. Based on the trends in these data showing increases in the relative share of part-time and self-employed workers in the country's labour force since the 1980s, some have inferred that the prevalence of non-standard work—work that is not full-time and permanent—has also been on the increase in New Zealand during this period.[22]

In spite of this inference, research conducted by those outside of Government suggests there has, in fact, not been a pronounced shift to non-standard forms of employment in New Zealand over the past ten or twelve years. Phone surveys of 2000 employees conducted for New Zealand's Department of Labour in 1993 and 1997, which distinguished only between casual and permanent employment, found 11 percent of the country's workforce to be casual employees on either a full-time or part-time

Suzie., and Jason Timmins, "Child and Adult Annual Poverty Transitions in New Zealand: Work in progress," Paper presented at the New Zealand Education Authority (NZEA) Conference, Christchurch, June 2001.

[20] Gilbert, John, Haig, Robert, O'Rourke, Mike, *Departures from the Benefit into Definite Work, Summary of Key Findings* (Wellington: Work and Income, Ministry of Social Development, 2002).

[21] Extant research on non-standard work in New Zealand includes: Allen,C., P. Brosnan and P. Walsh. (1998) 'Non-standard Working Time Arrangements in Australia and New Zealand' in *Current Research in Industrial Relations*. Proceedings of the 12 th AIRAANZ Conference, eds R Harbridge, C. Gadd & A. Crawford, Wellington: 30-39; Anderson, G., Brosnan, P. & Walsh, P. (1992) "Adapting to the recession: Labour force changes and labour cost reductions," in P.S. Morrison (ed.), *Labour, Employment and Work in New Zealand: Proceedings of the fifth Conference*, Wellington, Victoria University. pp 89-97; Anderson, G., Brosnan, P. & Walsh, P. (1994) "Homeworking in New Zealand: Results From a Workplace Survey," *IJES*, 2 (2): 229-247; Brosnan, P. and Walsh, P. (1996) *Plus ca change.....: the Employment Contracts Act and non-standard employment in New Zealand, 1991-1995*, Working Paper 4/96, Industrial Relations Centre, Victoria University of Wellington; Brosnan, P. and Walsh, P. (1998), "Employment Security in Australia and New Zealand," *Labour & Industry*, 8(3), 23-41; Bururu, Richard "Self-employment in New Zealand" in Philip S. Morrison (ed.) *Labour, Employment and Work in New Zealand: Proceedings of the Eighth Conference*, 26 th & 27 th November 1998 (Institute of Geography, Victoria University of Wellington, 1998); Carroll, Nick, "Non-Standard Employment: A Note on Levels, Trends and Some Implications", *Labour Market Bulletin*, 1999, pp. 101-121; Walsh, P., Anderson, G. and Brosnan P. "Flexibility, Casualization and Externalization in the New Zealand Workforce," *Journal of Industrial Relations* 36, 4, 1994, pp. 491-518; Whatman, R, M Burrel and J Byrne, "Non-standard work – A summary", Department of Labour, unpublished paper, 1994; and Whatman, R. "Non-standard work in New Zealand—What We Know" in P S Morrison (ed) Labour, Employment and Work in New Zealand, proceedings of the 6 th Conference, November 1994 (Wellington: Victoria University 1995).

[22] Deborah Tucker, *Precarious" Non-Standard Employment - A Review of the Literature* (Wellington, New Zealand: NZ Department of Labour, December 2002).

basis in both 1993 and 1997.[23] Confirming these finds, data derived from two phone surveys of New Zealand workplaces, one conducted in 1991 and the other in 1995 – albeit with respective sample sizes of 2000 and 5200 and relatively low response rates of around 35 percent – found that, in both years, such work arrangements accounted for approximately 11 percent of the country's labour force - - both full- and part-time – in the early to mid-1990s.[24] Results from the two employer surveys also suggest that fixed-term employment rose from 1.1 percent in 1991 to 3 percent of the workforce by 1995. Likewise, temporary employment increased from 1.7 percent of the workforce in 1991 to 2.6 percent in 1995, much of that increase coming in the form of part-time, rather than full-time, temporary work. Casual work, though, was found to have declined from 8 percent to 5 percent in the intervening period between the two surveys.

In a later analysis of these data, applying the assumption that full- and part-time employees are equally likely – based on Brosnan and Walsh's data from their 1995 survey - to work in such jobs, it was estimated that 6.4 percent of full-time employees in New Zealand were employed on a casual, fixed-term or temporary basis and that approximately 3 percent of the country's workforce was employed full-time for less than 50 hours per week and held only one job on a fixed-term contract or casual basis in 1998. Moreover, although part-time workers generally have shorter job tenure than their full-time counterparts, as manifest in the fact that approximately 40 percent of part-time workers in New Zealand have been with their current employer for at least two years, the former are distinguishable from workers in limited-term positions. It was estimated in this study that only 43 percent of New Zealand's workforce in 1998 was employed by others in paid permanent jobs that were full-time but typically required less than 50 hours per week of work.[25]

In its 2002 Ministerial Briefing, the Department of Labour[26] suggested that, in order to meet the Government's objective of developing an innovative economy while protecting the most vulnerable in society, it would be necessary for the Department to gather better information about trends in non-standard employment as well as the quality and sustainability of work. In its report, the Department of Labour also noted that, regardless of the generally good overall performance of the labour market, evidence persists that not all in New Zealand society have access to high-quality or sustainable jobs. The report also emphasized the role of development of skills sought after in the job market or easily transferable from one job to the next as a means of ensuring sustaining employment. It was also noted that there is some evidence that some non-standard jobs, in particular temporary and/or casual type work arrangements for low-waged or low-skilled workers, may be of relatively lower quality and less sustainable. Such jobs are more likely to be part of the informal economy and, as such, non-compliant with employment legislation. Workers in these jobs are likely to have limited access to training, face greater health and safety risks, experience greater frequency and longer periods of unemployment, and are less likely to move off social assistance into work.

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[23] Heylen Research Centre (for the Industrial Relations Service, New Zealand Department of Labour), *A Survey of Labour Market Adjustment Under the Employment Contracts Act 1991* (Wellington: New Zealand Department of Labour, 1992), and Colmar Brunton Research (for the Industrial Relations Service, New Zealand Department of Labour), *Survey of Labour Market Adjustment Under the Employment Contracts Act* (Wellington: New Zealand Department of Labour, 1997).

[24] Brosnan, Peter, and Walsh, Pat (1996) 'Plus ca change: The Employment Contracts Act and Non Standard Employment in New Zealand, 1991-5', *Labour, Employment and Work in New Zealand*, Proceedings of the Seventh Conference, Victoria University of Wellington, pp. 157-166.

[25] Carroll, Nick, "Non-Standard Employment: A Note on Levels, Trends and Some Implications," *Labour Market Bulletin* (1999):101-121.

[26] New Zealand Department of Labour, *Briefing to Incoming Ministers* (Wellington: NZ Department of Labour, 28 August 2002)

Finally, it should also be noted that many forms of non-standard work are viewed neither by workers nor employers as undesirable. To this end, many non-standard workers in New Zealand enjoy good incomes, job stability, adequate protections from health and safety risks, and opportunities for training and development. There is also some evidence to suggest attitudes toward work are changing and that job mobility is becoming more commonplace and acceptable.[27] There are, nevertheless, some non-standard workers, particularly casual and/or temporary workers, who hold "precarious" jobs, which are characterised by relatively low wages, little job security, greater exposure to health and safety risks, little or no control over hours and working conditions, and limited access to training and skill development.[28]

Combining Work and Family Life

In a study of working women in 12 industrialized countries, including Sweden, Norway, the Netherlands, Germany, Austria, Italy, Israel, Britain, Australia, New Zealand, Canada, and the United States, variations in the employment patterns of women with preschool children were explored.[29] It was reported that only 6 percent of New Zealand women with preschool children were engaged in full-time employment, placing New Zealand second to last among the 12 countries studied, with only the Netherlands, at 4.5 percent being lower on this list. New Zealand was also amongst those countries reported as having the highest level (over 60%) of non-employment when mothers have preschool children and the lowest level of continuous full-time employment, although New Zealand ranked amongst the highest in this group for continuous part-time employment and early return from non-employment to part-time work. Nonetheless, the level of support for mothers' employment in New Zealand was classified as low compared to most other countries in the study (exceptions being the United States, United Kingdom, and Australia).

The Informal Economy

The ILO defines the informal economy as "those small-scale income-generating activities which take place outside the official regulatory framework and typically utilize a low level of capital, technology and skills, while providing low incomes and unstable employment."[30] This definition flows from the international statistical definition of the informal sector adopted by the Fifteenth International Conference of Labour Statisticians in 1993, where informal sector production units were defined as encompassing household enterprises and unincorporated enterprises owned by households.[31] The

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[27] Firkin, Patrick; McLaren, Eva; Spoonley, Paul; de Bruin, Anne; Dupuis, Ann; Perera, Hector; Cremer, Rolf; and, Overton, John (2002) *Non-Standard Work: Alternative Working Arrangements Amongst Knowledge Workers*, Research Report Series 2002/1, Labour Market Dynamics Research Programme (Albany and Palmerston North, New Zealand: Massey University.

[28] Tucker, Deborah (2002) *'Precarious' Non-Standard Employment - A Review of the Literature* (Wellington: New Zealand Department of Labour, December)

[29] Haya Stier, Noah Lewin-Epstein, and Michael Braun, "Welfare Regimes, Family-Supportive Policies, and Women's Employment along the Life-Course" *AJS* Volume 106 Number 6 (May 2001): 1731–60.

[30] International Labour Organization, *Your Voice at Work*: Global Report Under the Follow-up to the *ILO* Declaration on Fundamental Principles and Rights at Work (Geneva: International Labour Conference, 88th Session, 2000), fn 6, p. 10.

[31] The informal sector was defined more specifically as encompassing (a) informal own-account enterprises which may engage employees on an occasional basis, but not on a continuous basis, and which are not registered under specific forms of national legislation, and (b) enterprises of informal employers which employ one or more employees on a continuous basis, but the size of the unit is below a specified level of employment or either the enterprise or its employees are not registered under specific forms of national registration. See International Labour Organisation, *Report of the 15th International Conference of Labor Statisticians* (Geneva: ILO, 1998).

informal economy, therefore, is comprised of small-scale, often home-based, enterprises. This definition includes the self-employed, unpaid permanent workers and employers of informal enterprises, but it excludes potentially profitable 'underground' activities that deliberately evade taxes and regulations.[32]

The size and scope of the informal economy is not adequately captured in official statistics from the New Zealand Government. Statistics New Zealand defines informal unpaid work as activities carried out for the benefit of persons living outside the worker's own household and which is not done for or through an organisation or group, such as helping a neighbour or friend. As such, informal unpaid work includes, for instance, care services to children, the sick, the elderly and pets. Applying a median housekeeper wage derived from national income surveys in each period, time-use surveys results reported by New Zealand's Department of Statistics in 1991 and 1999, the first from a pilot survey conducted in August of 1990 and the second from an more extensive survey conducted over the 12 months from July 1998 to June 1999, indicate that the estimated value of unpaid work was $30,499 million or 42 percent of GDP in 1991 and $39,637 million or the equivalent of 39 percent of GDP in 1999. In the latter study, it was revealed that 87 percent of the value of unpaid work percent benefits the individual or members of the same household, with the remaining value being split evenly between informal work for other households and more formal work for the community.[33]

Table 3: Part-Time and Self-Employed Workers in New Zealand, 1991-2000

Average For Year Ended March	Total Persons Employed	Part-Time (< 30 hours/week)	Percent of Total Employed	Self-Employed with & without employees	Percent of Total Employed	Employers as Percent of Self-Employed	Own-Account Self-Employed as Percent of Self-Employed
1991	1,479,300	301,100	20.4	275,600	18.6	42.4	57.6
1992	1,461,200	314,200	21.5	284,300	19.6	41.3	58.7
1993	1,480,900	316,200	21.4	298,000	20.1	40.7	59.3
1994	1,529,400	324,900	21.2	310,700	20.3	41.3	58.7
1995	1,606,100	346,700	21.6	317,400	19.8	41.7	58.3
1996	1,685,600	362,900	21.5	336,100	19.9	41.2	58.8
1997	1,734,000	388,200	22.4	340,400	19.6	37.2	62.8
1998	1,735,900	394,100	22.7	331,000	19.1	39.0	61.0
1999	1,727,400	405,000	23.4	342,400	19.8	38.7	61.3
2000	1,756,500	404,300	23.0	353,000	20.1	36.5	63.5

Note: Excludes unpaid family workers and unspecified.

Source: Patrick Firkin, Eva McLaren, Paul Spoonley, Anne de Bruin, Ann Dupuis, Hector Perera, Rolf Cremer, and John Overton (2001). *Non-Standard Work: Alternative Working Arrangements Amongst Knowledge Workers*, Labour Market Dynamics Research Programme Research Report Series 2002/1 (Albany and Palmerston North, New Zealand: Massey University, 2002). Data adapted from Labour Market Statistics 2000 (Wellington: Statistics New Zealand, 2001).

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[32] The size of New Zealand's 'hidden' or 'black' economy—i.e., businesses and economic activities, both legal and illegal, that evade tax—was estimated to be 11.3 per cent of GDP in 1994 and 8.8 per cent of GDP, equating to around NZ$10 billon, over the period extending from 1968 to 1994. See David Giles, "The Underground Economy: Minimizing the Size of Government", in H. Grubel (ed.), *How to Spend the Fiscal Dividend: Minimizing the Size of Government* (Vancouver: Fraser Institute, 1998), pp. 93-110.

[33] Statistics New Zealand, *Measuring Unpaid Work in New Zealand 1999*, (Wellington: Statistics New Zealand, May 2001), and Statistics New Zealand and Ministry of Women's Affairs *Around the Clock: Findings from the New Zealand Time Use Survey 1998-99* (Wellington: Statistics New Zealand and Ministry of Women's Affairs, May 2001).

The self-employed who do not work for someone else and/or are not attached to any employer's premises[34] as a share of total employment has been gradually increasing over the past decade and a half from around 9.4% in 1986 to around 12.3% of New Zealand's labour force in 2002. In addition, data from the 2002 Global Entrepreneurship Monitor (GEM) program study show that domestic informal investments account for around 2.5 percent of New Zealand's GDP, and slightly more than half of informal investments in New Zealand are family-business investments. Moreover, relatives are critical source of seed, early, start-up and expansion-stage funding for capital ventures in New Zealand.[35]

Adult Literacy

Until 1996, when New Zealand was included in the second phase of the International Adult Literacy Survey (IALS), although no aggregate research had ever been undertaken to confirm this figure, but since almost all New Zealand adults had completed primary school and most had at least two years of secondary schooling, New Zealand's adult literacy rate was reported to be 99 percent.[36] The perception that very few adults living in New Zealand were illiterate, however, changed with publication of the IALS results in November 1997. The IALS assessed three types of literacy performance: prose literacy – the ability to understand and use information from sources such as newspapers and written narration; document literacy – the ability to find and comprehend information from timetables, charts and graphs; and quantitative literacy – the ability to use numbers in context, such as balancing a chequebook, determining the amount of interest on a loan, and calculating a tip. These three measures of literacy were used to divide the population into five levels.

Results from this study, which was conducted by the Organization for Economic Co-operation and Development (OECD) in cooperation with Statistics Canada and Human Resources Development Canada (HRDC), found that 46 percent of New Zealand adults performed below level three for prose literacy, and less than 20 percent of the country's adult population performed at the top two levels.[37] Results for document and quantitative literacy were even worse, revealing that around 50 percent of all adult New Zealanders performed at the lowest two levels on these types of literacy. The report concluded that nearly half of New Zealand adults are operating at a level considered inadequate for everyday work and life in a developed society.[38] In spite of this evidence to the contrary, though, adult literacy — the ability to read and write and to use language proficiently — for New Zealand's adult population is still officially reported by the United Nations Development Programme, as it has been for many decades, as 99 percent.[39] This, no doubt, reflects an attempt by those who report these statistics to maintain consistency with definitions and measures of literacy employed in the past.

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[34] This definition includes employers in paid work and those who work on their own account without any employees. Because, under New Zealand's tax legislation, they are employees of their own company, owner managers are excluded from the self-employed.

[35] Frederick, Howard H., & Carswell, Peter J. (2001). *Global Entrepreneurship Monitor: New Zealand 2001* (Auckland: New Zealand Centre for Innovation and Entrepreneurship).

[36] Alice Johnson, *Changing Skills for a Changing World: Recommendations for Adult Literacy Policy in Aotearoa/New Zealand*, Occasional Paper 2000/2 (Wellington, New Zealand: New Zealand Department of Labour, 2000)

[37] Noteworthy, though, is that New Zealand scored nearly the same as Canada, Germany, and the United States, and only marginally behind the top three countries included in the study, Finland Norway and Sweden.

[38] Organisation for Economic Cooperation and Development, *Literacy Skills for the Knowledge Society* (Paris: OECD, 1997).

[39] United Nations Development Programme, *Human Development Report 1999* (New York: Oxford University Press, 1999).

Employability

Employability has elsewhere been interpreted as highlighting the need for governments to invest more in education and vocational training, in particular programmes and initiatives targeted at young people. [40]   To this end, the comprehensive employment framework embodied in the *World Employment Report 2001* highlights the need to integrate training with employment, macroeconomic and poverty alleviation policies.   In this respect, the ILO promotes implementation of employment strategies that give high priority to those who are excluded from the labour market, particularly the young, due to a lack of vocational training and experience.   The ILO suggests improving the effectiveness of employment services and vocational training institutions depends, not only on government initiatives, but also, in large measure, on the role of both employer and employee organizations.

Heretofore, the efficacy of national training systems has been assessed on the basis of whether these systems had produced requisite skills, without regard for issues of social justice and inclusion as reported in the ILO's *World Competitiveness Report*. In its March 2001 report to the Governing Body of the International Labour Office, though, the ILO's Committee on Employment and Social Policy proclaimed that an alternative indicator of human resource development be developed.   Such an indicator, the Committee stipulated, should include a measure of employability reflecting the extent to which national systems lead to individuals being employed.   The Committee also recommended development of a database on national qualification frameworks.[41]   Creation of such an indicator has yet to take place, however.

Notwithstanding its lack of any official consensus on indicators of employability, the ILO is presently exploring the link between training policy and design of training programmes, employability, and access to decent work. As part of this work, and in response to the request of the 2000 International Labour Conference, the ILO is currently undertaking an effort to identify indicators of employability and plans to prepare a manual on how the concept of employability and these indicators can be used for targeting training and development policy, investment and programme initiatives.   To this end, in 2002, the ILO began an inquiry into the availability of statistics on expenditures and participation in training and life long learning activities.   As part of this undertaking, selected non-OECD countries were asked to complete a survey, responses to which revealed that, while statistics in this area are rather limited, data relevant to participation are superior to those on expenditures.[42]

In a paper published for the ILO's InFocus Programme on Skills, Knowledge and Employability in 2002, Torkel Alfthan and Trevor Riordan suggest investment in human resource development at the national level should be gauged in terms of qualifications attained, hours devoted to training, public spending on training as a percentage of GDP, and employer investments in training as a percentage of payroll. Alfthan and Riordan further argue that incidental costs incurred as a result of training and development should also be taken into consideration when creating any index of employability. These would include costs associated with professional and course fees, infrastructure, wages paid to workers who replace those undergoing training, income foregone as a consequence of participation in training, as well as energy and material costs. Finally, these measures should encompass structured

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[40] Richard Curtain, "Promoting youth employment through information and communication technologies (ICT): Best practices examples in Asia and the Pacific," ILP/Japan Tripartite Regional Meeting on Youth Employment in Asia and the Pacific, Bangkok, 27 February-1 March 2002.

[41] ILO, Report of the Committee on Employment and Social Policy, International Labour Office, Governing Body, 280th Session, Geneva, March 2001.

[42] See Galhardi, R., *Statistics on Investment in Training: an assessment of their availability*, InFocus Programme on Skills, Knowledge, and Employability (ILO, Geneva, October 2002) (mimeo), and Galhardi, R. and Mangozho, N., *Follow-up study on the first inquiry on statistics on investments in training*, SKILLS Working Paper (ILO, Geneva, 2003).

training, assessed training, on-the-job training and training to upgrade skills in compliance with national or industry standards.[43] Following these recommendations, the Appendix to this report includes measures relevant to New Zealand of qualifications attained, public and private investments in education and training, hours devoted to training and the relative share of the labour force engaged in training and development.

Problems Inherent in the Use of Composite Indeces

Using our experience in conducting this research, the following sections of this report consider some of the outstanding methodological issues which have a significant bearing on the measurement and analysis of both decent work and movement to a knowledge economy. Relevant to this discussion is the observation that such problems are compounded when composite measures of these phenomena are used to make comparisons across jurisdictions, as is the goal of the 4th round of joint investigations of the ILO/JIL-sponsored Network of National Institutes for Labour Studies.

To begin this discussion, it should be noted that, while the primary objective of this assessment is not to offer an assessment of extant methods, models, measures, and indicators of either decent work or knowledge economies, a brief consideration of these matters is provided herein in order to familiarize the reader with some of the more problematic issues involved in gauging these phenomena. Primary amongst these is the fact that monitoring progress towards achievement of decent work (DW) in the context of development of information and communications technologies (ICT) obviously depends upon the availability of reliable data on key indicators of both phenomena.

In addition, any attempt to reduce the concept of decent work to a single measure or composite index for making cross-national comparisons is fraught with problems, both methodological and conceptual. One conclusion to be drawn from empirical assessments of indicators of political and social phenomena and their development point to the conclusion that "there are few uncontroversial tools of measurement".[44] A primary factor contributing to the problems associated with this in the context of developing a composite decent work index is the fact that, in many countries, labour market and economic development data are inadequate. Notwithstanding their flaws and despite problems with the data, composite indicators are, nonetheless, useful tools.

The primary advantage to creating a composite index over assessing the individual dimensions or components of an index is that, by combining various dimensions into a single variable, one is able to assess globally the relationship between decent work, as measured by the composite index, and transition to a knowledge economy. That is, composite indices have the potential to simplify a complex reality on the basis of something more meaningful than a single indicator. In conjunction with league tables of knowledge development, for instance, they can help to compare the performance of countries at very different levels of knowledge development, highlighting important policy issues. Hence, a key issue in assessing decent work based on a series of indicators – i.e., without somehow aggregating or combining these measures – is that even the most reliable of these measures does not, by itself, fully capture the concept decent work nor suggest future direction for policies aimed at enhancing decent work. This is why, despite their pitfalls, most researchers have

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[44] United Nations Development Program, *Human Development Report* . Geneva: 2002, p. 36.

concluded that the best means of measuring a broad concept like decent work is by creating a composite index that can be consistently applied across a wide spectrum of political economies.[45]

Amongst the methods used to collect data useful in the construction of composite indeces of various aspects of economic and social well-being—as decent work might be construed—are population census, household surveys, public opinion polls, surveys of expert opinion, official statistics derived by government and intergovernmental agencies, information derived through monitoring conducted by NGOs. These methods give rise to different categories of information: survey-based, standards-based, and events-based.

When attempting to use composite indeces to make comparisons and judgments across jurisdictions (countries), comparability and consistency in the construction of composite indeces often prove problematic. For instance, population surveys – in particular, household surveys - are frequent designed to be conducted and their results used only within a confined political and geographical region. Yet, when employed in the construction of an index intended for use in making comparisons – or, worse yet, rankings – across jurisdictions, these results must frequently be adjusted to account for the fact that the original surveys were conducted across different populations and at different points in time.[46]

Criteria for judging research methodologies include the following[47]:

(1) *validity* (i.e. does the indicator measure what it purports to measure?),

(2) *reliability* (i.e. can the indicator be produced by different people using the same coding rules and source material?),

(3) *measurement bias* (i.e. are there problems with systematic measurement error?),

(4) *lack of transparency* in the production of the indicator,

(5) *representativeness* (i.e. for survey data, what is the nature of the sample of individuals?),

(6) *variance truncation* (i.e. the degree to which scales force observations into indistinguishable groupings),

(7) *information bias* (i.e. what kinds of sources of information are being used?), and

(8) *aggregation problems* (i.e. for combined scores, to what degree are aggregation rules logically inconsistent or overcomplicated).

Methodological problems inherent in these various means of data collection are typically related to one of more of these issues.

To address these potential problems, the International Society for Quality of Life Studies (ISQOLS) has developed criteria for the evaluation of quality-of-life (QOL) indeces. Accordingly, a composite index should have a clear and practical public policy purpose and allow policy makers the ability to evaluate programs at all relevant levels, should be grounded in well-established theory, should be

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[45] See, for example, Lance Compa, "Assessing Assessments: A Survey of Efforts to Measure Countries' Compliance with Freedom of Association Standards," Paper prepared for the National Academy of Sciences Committee on International Labor Standards, September 30, 2002.

[46] Massoud Karshenas, *Global Poverty: National Accounts-based Versus Survey-based Estimates*. Geneva: International Labour Office, 2003.

[47] These methodological issues are taken from Todd Landman and Julia Häusermann, *Map-Making and Analysis of the Main International Initiatives on Developing Indicators on Democracy and Good Governance*, University of Essex, Human Rights Centre, 2003.

reported as a single number but capable of being broken down into its various components, should be based on a time series to perm it monitoring and control, and should be reliable, valid and consistent. In addition, the domains covered must encompass the totality of life experience, must encompass a substantial but discrete portion of the QOL construct, must be measurable in both objective and subjective dimensions, must have broad relevance for all people, and must contribute unique variance to the QOL construct.[48]

Measuring the Advancement Toward a Knowledge Economy

Indicators of knowledge acquisition employed in contemporary research are primarily measures of knowledge inputs and flows of codified knowledge (knowledge that is written down, such as scientific blueprints, formulae and software programmes). These, however, are not adequate for describing knowledge development and distribution, the dynamic components of a knowledge economy or national systems of innovation. Moreover, these indicators cannot trace flows of tacit or unwritten knowledge, which is accumulated through education, training and experience. To capture the innovation process and the distribution of knowledge within the broader economy, new indicators that gauge, amongst other factors, how knowledge is created and distributed within particular national contexts.[49]

Efforts to gauge movement towards a knowledge economy have been undertaken by other development organizations. The OECD, for instance, has mapped national innovation systems through the analysis of the distribution of knowledge among educational and research institutions and industry and the distribution of knowledge between suppliers and clients and customers within markets.[50] In this research, innovation data similar to those derived from innovation surveys conducted at the enterprise or business unit level to ascertain the types of innovation taking place and the impact of those innovations on the output and productivity have been gathered on a national basis, hence allowing for the mapping knowledge flows between various actors and institutions within a national system.[51] More recently, in an effort develop a means of comparing trends across countries, the OECD has devised a composite index of investment in knowledge which aggregates spending at the national level on research and development, computer software and education.

Notwithstanding these efforts, several obstacles to measuring and comparing the performance of knowledge economies still exist. For one, knowledge itself is difficult to quantify. At present, only indirect and partial indicators of growth in the knowledge base itself are available. This is due, in large measure, to the fact that knowledge is not a traditional economic input, nor does it typically yield the same measurable qualities as economic outputs. To this end, the OECD has identified four principal reasons why knowledge indicators have, thus far, lack the systematic comprehensiveness of traditional economic indicators[52]:

- there are no stable formulae or "recipes" for translating inputs into knowledge creation into outputs of knowledge;

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[48] For a discussion of this, see Andrew Sharpe. *A Survey of Indicators of Economic and Social Well-being* Ottawa: Canadian Policy Research Network, 2000.

[49] Organization for Economic Cooperation and Development (OECD). *The Knowledge-based Economy*: Paris: OECD, 1996.

[50] Similar endeavours include the World Bank's Knowledge Assessment Methodology (KAM) and Scorecards, the *United Nations Economic Commission for Europe (ECE) Models, eEurope National Knowledge Assets Measurement Models, European KM Forum Assessment Model, and e-Readiness Index.*

[51] Keith Smith, "Interactions in Knowledge Systems: Foundations, Policy Implications and Empirical Methods", *STI Review*, No. 16. Paris: OECD, 1995.

[52] These are taken from Organization for Economic Cooperation and Development (OECD). *The Knowledge-based Economy*: Paris: OECD, 1996.

- inputs into knowledge creation are hard to map because there are no knowledge accounts analogous to the traditional national accounts;

- knowledge lacks a systematic price system that would serve as a basis for aggregating pieces of knowledge that are essentially unique; and

- new knowledge creation is not necessarily a net addition to the stock of knowledge, and obsolescence of units of the knowledge stock is not documented.

Decent Work and Transition to a Knowledge Economy: Concluding Remarks

The study of the relationship between decent work and information and communication technology (ICT) begs the question whether ICT enhances the availability of decent work. One issue in this regard is that attempts to introduce multi-dimensionality to the measurement of both decent work and the development of ICT across a large number of countries generally suffer from conceptual and methodological weaknesses, as demonstrated herein using examples from research conducted by the Industrial Relations Centre at Victoria University of Wellington (New Zealand) for the 4th round of joint investigations of the ILO/JIL-sponsored Network of National Institutes for Labour Studies.   A related problem manifest in this endeavour is that data on decent work for any period prior to the introduction of ICT are often not available, and even if they are it is difficult to assess the counterfactual: What would have happened in the absence of ICT? Finally, these problems are compounded when such measures are used to make comparisons across jurisdictions.

Phase 2: ICT/Decent Work Case Studies

The remaining portion of this report is based, in part, on information derived from a survey of ICT use and employment practices of two large, two medium and two small New Zealand organizations. Ideally, for purposes of the 2nd phase of this round of Joint Investigations of the ILO/JIL-sponsored Network of National Institutes for Labour Studies, half of the organisations selected for this phases of this research—i.e., one organization in each size category—would have been selected from amongst those organizations that make little or no use of ICT, and the other half of these organisation would make extensive use of ICT. Instead, as virtually all New Zealand organisations are relatively high-end users of ICT, the six organizations selected for the purpose of conducting these case studies are all organization that make relatively significant use of at least some forms of information and communication technology (ICT), including telephones, fax machines and, at least to some extent, even the Internet. As such, the questionnaire presented to representatives of the six New Zealand organizations on which these case studies are based include items intended to gauge the impact of any increased use of ICT by these organisations over the past several years.

THE TOTALISATOR AGENCY BOARD (T.A.B.)

HISTORY

The Totalisator Agency Board (TAB) is New Zealand's government and racing industry backed betting agency. It operates as the retail arm of the racing industry in New Zealand, with two distinct types of outlets:

- agencies managed by contracted agents; and

- sub-agencies operated as part of another retail outlet for example, as part of a hotel bar or club. (10)

The TAB offers pari-mutuel race betting on all New Zealand and many Australian horse races and fixed-odds betting on more than 20 international sports, including rugby union, rugby league, Premier League soccer, golf, tennis, National Football League (NFL), National Basketball Association (NBA) and motor sport, such as including Formula 1 auto racing. (3) With over 500 retail outlets, the TAB operates one of the largest retail networks in New Zealand. Its 140 agencies contribute 41 per cent of total off-course turnover, sub agencies provide around 25 per cent of total off-course turnover. (10) The TAB's national office is in Lower Hutt, near New Zealand's capital city of Wellington, and it has regional offices in Auckland, Palmerston North and Christchurch. (13)

The TAB was established in 1950, following the recommendations of the Finlay Commission on gaming and horse racing, to provide racing betting to the New Zealand public. From its first days of operation in 1951, the TAB has had two fundamental objectives: to provide a safe, corruption-free mechanism for betting on gallops, harness and greyhound racing; and, to support New Zealand racing by returning the profit it makes from racing to the racing industry. Customers of TAB are offered a wide range of betting products on racing, including Win, Place, Eachway, Quinella, Trifecta and Pick6 betting. In 2003, the TAB sold around 170 million bets. Just over 83 percent of the betting dollar is returned to the customer, with a tax of five percent being paid to the New Zealand Government. In addition, the New Zealand Racing Industry Board receives 3.3 percent, and 10 percent is paid to the TAB in commission. Since its inception, New Zealand's TAB has gone on to become a model for other betting agencies around the world, most notably in Australia and South Africa. (10)

Horse racing is one of New Zealand's oldest and most popular sports, as well as one of New Zealand's largest earners and employers. Generating around $70 million in export revenue, the industry employs, either full- or part-time, over 28,000 New Zealanders. In July 1996, the TAB introduced sports betting to New Zealand, its first event being the Bledisloe Cup rugby match between New Zealand's All Blacks and the Wallabies from Australia. A record $1.15 million was bet on the game, making it Australasia's single biggest ever sports betting event. Each year, the TAB offers betting on more than 2,000 race meetings and sports events both in New Zealand and overseas. The TAB also provides an oncourse betting system for the country's 159 harness, galloping and greyhound racing clubs. (10)

The TAB offers its customers two betting options on sports events and selected galloping, trotting and greyhound races:

- Totalisator betting, in which the TAB computer divides the total prize pool by the number of winning tickets; and

- Fixed odds betting, where the TAB determines the odds for each horse or competitor of winning. The odds are set at the beginning of each event, and depending on betting patterns may change over time. No matter how much the odds fluctuate, up or down the odds returned are at the price printed on the customer's betting ticket. (10)

In August 2003, the New Zealand Racing Board took over the functions of both the TAB, which generates the money to fund the industry, and the Racing Industry Board, which is responsible for policy development. (2) This move, which followed the passing of The Racing Act in March 2003, has taken a number of years. (9) The purpose of the change was to allow New Zealand Thoroughbred Racing, Harness Racing New Zealand and the Greyhound Racing Association a greater say in how the industry is run. The New Zealand Racing Board has seven board members; it incorporates a representative from each code, plus an independent chairman appointed by the Racing Minister. (5) The TAB is accountable to the New Zealand Racing Industry Board, which distributes all profits generated by the TAB to the Racing Industry. (10) The TAB brand continues as the public face of both racing and sports betting. (9)

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

According to New Zealand Racing Board human resources consultant, Connie Nicholson, the TAB is always looking for new opportunities to use ICT to a greater extent. The TAB currently has about 600 retail outlets and 135,000 telephone account customers. (12) An emerging trend is the growing use and power of electronic and automated media. A result of this is the TAB now has greater capacity for selling bets more economically. To this end, newspaper advertising, phone betting, the Touch Tone service, live television racing coverage of overseas races, Skybet, and Internet betting and information downloads have all led to increased turnover for the TAB. The sale of its online sports betting technology to overseas betting agencies adds further profit. (12)

In its 2003 Annual Plan, TAB Transition General Manager, Jim Leach, is quoted as saying, "This season we have successfully introduced a number of new betting products and upgraded others. The thirst of our customers for more and faster access to critical decision making information is a challenge that we are consistently addressing with technology." (11) In this regard, the TAB currently uses the Internet to market itself, to market, sell, and supply its products and services, and to conduct research on competitors. E-mail allows TAB staff to communicate with its customers, suppliers, distributors and competitors. The TAB's webpage is used for information sharing within the organisation and with its suppliers and customers. The organisation also sources materials through an external ecommerce/eMarket site. (13)

Aside from telephones and photocopiers, which were already in use at that time, the TAB began using information communication technology (ICT) in 1975 when it introduced mainframe computers; among other things, these were used as selling terminals. Fax machines were adopted by the organisation in 1985. Personal or desktop computer use began a year later. Mobile radios and cell phones have been in use by TAB employees since 1995. Internet use began around 1998. (13) TAB's online national sports betting system was a world first, and the system currently offers betting on 23 different sporting codes, including American Football, Athletics, Basketball, Bowls, Cricket, Golf, Motorsport, Rugby League, Rugby Union, Snooker and Billiards, Soccer, Softball, Tennis, Triathlons and Yachting. (10) As of June 2000, bets can be made from 9am every morning of the week, until 9pm on Sunday through to Wednesday evenings, until 10pm on Thursday evenings and around midnight on Saturday, depending on the event. (4)

In addition to its retail network, the TAB offers a free telephone betting service (Freephone 0800 10 20 30 for racing, and 0800 10 20 31 for other sports) covering all of New Zealand. Over 30 million short duration calls averaging 35 seconds in length, with 85 percent occurring within five minutes of each race, are made each year to one of its five Phonebet centres.   Together, these centres contribute over one third of the TAB's annual sales turnover. (10) Telecom New Zealand's Advanced Solutions specifically built the TAB's communications infrastructure to cope with this high volume. Touch Tone Betting, the newest version of the Interactive Voice Response (IVR) system for telephone betting, was introduced in October 2000 to improve service levels by helping calls centres handle peak betting calls, which more than doubled in volume from 2001 to 2002. (17)

The TAB has been steadily expanding the low cost IVR channel to increase the number of calls it can take. (17) Whereas the old system's peak capacity was around 20,000 calls per month, on New Year's Day 2002, a record 41,000 calls were processed. (12) In December 2003, Touch Tone processes were sped up to further shorten call duration. The impact was immediate, with Touch Tone betting turnover increasing by 35 percent to $61 million the following year. (11) Most recently, taking advantage of the cell phone texting craze, the TAB branched into sports betting via this mode of telecommunication. (14)

In October/November 2001, the TAB secured regular mainstream media coverage in Auckland's *New Zealand Herald*, Wellington's *Dominion Post*, and Christchurch's *The Press*. This, too, resulted in an increase in TAB turnover. (12) In addition, race commentaries, scratchings, results and dividend

results are carried twice an hour on race days on Radio Pacific's network of 27 stations throughout the country. (10) Trackside Radio, 91.6FM, a new radio station dedicated to racing, began a trial in Southland from October 2002 and was initially said to reach 100,000 people. (12) Following favourable results form the 6 to 11 month trial, the broadcast is to be extended to other areas of the country. (8)

Action TV, a television station covering major New Zealand and overseas racing, and sport seven days a week, started broadcasting in November 1992. The channel, now called TAB Trackside, is found on Channel 14 using a Sky Digital satellite remote. It is viewed by more than 350,000 viewers a week and broadcasts more live television, including all New Zealand racing as well as selected international events, than any other New Zealand channel. (6) The increase in live television coverage, particularly the frequency of live racing from Australia, Japan and Hong Kong, has had a major impact on TAB's turnover (10) including the sale of television coverage of New Zealand racing to Australia. (13) TAB Trackside also features programmes that background the world of racing. The station won the Qantas Media Award for Best Sports Television Programme in 2001 (6), and Trackside broadcaster Andre Neill won the Mercedes Racing Broadcasting Award for the second year running in 2003. (11)

Skybet, a new channel for betting on racing and sport via remote control, the first of its kind in Australasia, was introduced for Sky digital television viewers in April 2003. The leading technology, which was developed jointly with Sky television, utilizes the custom built software within the Sky set top box to enable account-holding viewers to bet on the next available race or a selected menu of sports betting options. (11) Information is transferred from the Sky decoder via a telephone line to the TAB's central Jetbet computer system. (15) Early on, Skybet enjoyed a turnover of around $100,000 per week, with predictions suggesting a bright future. (11) Real-time race and sports betting and odds information are also displayed on the TAB's Teletext system. (10)

The TAB's Jetbet computerised wagering technology, introduced in January 1982, changed betting with the TAB forever. It provided excellent service for 20 years. However, during the 1990s, it was recognised that both the hardware and the operating environment were nearing the end of their era. Hence, a new system was installed in 600 retail outlets, five Phonebet Centres, the Internet betting system, the Touch Tone betting system, on 135,000 Phonebet accounts, 72 racetracks providing services to 137 racing clubs, sports betting systems and information systems. From December 2001, all bets, both on and off course, were sold on the new upgraded system, which is highly reliable and able to be quickly restarted on the rare occasions when problems occur. Jetbet uses commonly available computer hardware and software, so replacing or upgrading components became straightforward. The quality of the Jetbet implementation resulted in the TAB winning the 2002 Computerworld Excellence Awards' 'Most successful Project' category. (12)

The TAB began using the Internet around 1998 (13) and, as confirmed in the New Zealand Government's September 2002 Gaming Review, it remains the only gaming provider in the country allowed to operate with this technology. (12) Development of the TAB's online national sports betting system by eBet, which also maintains the TAB's interactive Internet-based gaming and wagering system, was a world first. The eBet Group incorporates two primary business units, eBet Gaming Systems and the Online Division. The latter develops, markets and operates online gaming technologies and works only with government-sanctioned and licensed gaming operators located in regulated jurisdictions. In providing its online betting system to a number of similar agencies overseas, the TAB is currently fulfilling its vision of becoming internationally recognised as the leading provider of gaming entertainment. (10) To this end, eBet Limited is listed on the Australian and New Zealand Stock Exchanges with operations and commercial arrangements in Australia, New Zealand, Singapore, Canada and the USA. (3)

In 2002, the TAB website, www.tab.co.nz, won a Computerworld Excellence Award. During the June 2002 Soccer World Cup, the website recorded its biggest ever weekly turnover of $2.3 million, with

nearly 90,000 unique users taking advantage of the site's wealth of information. During the 2002 Super 12 Rugby season, the TAB launched a virtual betting competition (v-bet) site, www.v-bet.co.nz, which enabled fans to bet on the Telecom Super 12 using live odds and betting options with virtual money. There were up to 100,000 bets placed every week on the website in that single year, with the average bet of around $20 significantly higher than that placed through other TAB channels and around 30,000 active account holders, double the total at the end of 2001. (11,12)

The growth in sport betting continued in 2003, with sports betters showing a preference for the TAB website once they became aware of it. That same year, improvements to the website resulted in increased speed and efficiency, new ways of betting online, more sophisticated information search options, expanded PDF racing formats and live audio feed for all races. As a result, the TAB's Internet channel grew by 40 percent in that year, with sports betting continuing to lead the way. In November 2003, unique visitors downloaded 300,000 PDF information documents up from 200,000 per month the previous year. As in the previous year, the Melbourne Cup was the single busiest day on the TAB website, with over 40,000 visitors, up from 27,000 in 2002. (11,12)

TAB's philosophy is that, the more odds and information customers get, the more bets they place. In order to find out what customers like and don't like, a groundbreaking Internet-based tool enables the TAB to send e-mails to every account customer who provides an e-mail address when they register. About 50,000, half the TAB's account customers, receive weekly e-mails previewing the coming weekend in racing and sport and linking to odds and form on the website. The tool is also used to survey customers likes, dislikes, and desired changes to the service. Instead of this taking over a month, as a traditional survey method would, the e-mail survey was completed and graphed by the software in 24 hours. The information led to the VIP Phonebet lines and Phone Funds, a method for VIP customers to top up their betting accounts via credit card. (11)

There is a downside, though, to the use of ICT in the gaming industry and, in particular, by the TAB. New Zealand Thoroughbred Racing Chief Executive, Allan Fenwick, said in February 2003 that the rapid growth of Internet gambling and the emergence of exchange betting, where people bet directly online against each other through a betting exchange, had effectively changed traditional betting organisations like the TAB. This has occurred as a result of a combination of modern communications and technologies that enable betting operators to reach beyond their borders; the convergence of entertainment and gambling, rendering competing gambling products more attractive; the greater accessibility of gaming products through multiple distribution channels; odds-making software; tax-free options available through Internet gambling websites, and unauthorised off-shore bookmakers. According to Mr Fenwick, "Modern technologies have ushered in a new environment of unlimited, unregulated and uncontrolled ("3U") gambling... The social and political consequences of 3U gambling are numerous. Erosion of tax revenue, loss of regulatory control over gambling issues, and increased social costs, such as underage and pathological gambling, are but a few." (16)

While, in December 2003, TAB President and former TAB Chairman and Racing Industry Board Chair, (18) Rick Bettle, predicted recent changes to New Zealand's gambling legislation could pave the way for the TAB to enter the gaming machine market and other forms of gambling, these changes were also seen as likely to mean the organisation would face increased community concern over problem gambling. On the other hand, the *Gambling Act 2003* will likely offer some protection for the domestic gaming industry from overseas competition, which threatens its long-term viability. (7) ICT use has expanded the market for overseas betting operators, who pay nothing to the industry and, therefore, can offer better odds to customers. (12) According to Mr Bettle, "This is a very worrying trend for the future as, quite simply, our industry cannot fund itself from gate takings and television rights. We have at risk $59.4 million dollars of funding and the Government has at risk $58.7 million dollars of tax. Failing to uphold these laws will mean that the racing industry will have an increased need to fund itself, like any other sport." (11)

ICT AND "DECENT WORK"

The TAB is a billion dollar business. (10) In the year to July 2003, the TAB had a total revenue of $162.86 million, up from $158.09 million in the previous year. After deductions for expenses, club payments, Racing Industry Board costs and an asset write down, the annual profit was $1.3 million, compared to a $1.4 million loss in 2002. (7) The TAB currently employs 921 people; of these, 65 are limited-term employees and 62 are independent contractors. (13)

As part of a drive to attract new talent, TAB human resources developed and implemented a new recruitment and selection policy, including a new performance development system, in 2002. (12) In this regard, though, New Zealand Racing Board human resources consultant Connie Nicholson notes that, although it has necessitated the hiring of persons with skills not previously required by the organisation, overall, ICT use has led to a reduction in the number of people employed by the TAB. Commensurate with this, however, because most TAB employees and job applicants are now required to be competent in using common software products, such as Microsoft Word and e-mail, the average qualification level of TAB employees has increased. (13)

The TAB has also increased employee training in basic, technical and job specific computer skills. Early in 2004, for instance, after TAB social outlets were judged to be of a standard that required a set number of television and teletext screens, employees of TAB's retail outlets were obliged to take part in a training programme aimed at lifting the organisation's overall standards in ICT use. In general, though, training of TAB employees is conducted both by employees of the TAB and by outside contractors and takes place both in the workplace and at outside locations. Moreover, so long as it is related to employees' current roles or is of benefit to the organisation, the TAB pays for training of its employees, regardless of whether that training is conducted during an employee's regular work hours or outside of that time. Some of this training is formally assessed and leads to New Zealand Qualification Authority qualifications. (11)

While the organisation's use of ICT has reduced the TAB's need for office space and associated costs, including communication costs, it has increased the organisation's efficiency, productivity, and profitability. Ms Nicholson attributes this growth, as well as increased employee job satisfaction and greater employee retention at the organisation, to training and development of TAB's employees in the area of ICT. Furthermore, ICT use has also resulted in an increase in some employees' pay, despite the fact that, for the typical TAB employee, work hours have remained within the standard 40 hours per week. When and where work is done, though, has become more flexible, with some employees moving to other company offices or even working from home. (13)

The average age of employees and male/female balance at the TAB have remained at relatively the same levels following the growth of ICT use by the organisation as that prior to these changes. Also, while such incidents have not affected the overall amount of sick leave taken by TAB staff, health and safety accidents and injuries have increased in this time. Whether or not this can be directly associated with the introduction and expansion of ICT by the organisation is unclear. Nevertheless, ICT use has also not changed the number of employment disputes or personal grievances taken, nor has it affected the relative number of union members amongst TAB employees. (13)

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NEW ZEALAND POST

HISTORY

New Zealand Post Limited (NZ Post) was established in 1840. (1) On 1 April 1987, the New Zealand Post Office was corporatised and its core businesses split into three separate companies: Telecom NZ, Post Bank and New Zealand Post. Each company was set up as a State-Owned Enterprise (SOE) and was expected to operate as a commercial entity. (2) NZ Post is now the 26th largest company in the country as measured by annual turnover, and the fifth largest employer. (4) It is a profitable business that pays taxes and dividends to its sole shareholder, the New Zealand Government. (2) The company's net profit has risen from NZ$21 million in 2001 to NZ$27 million in 2003, and it has paid the Government NZ$872 million in taxes and dividends since it became an SOE in 1987. The dividend paid for the December 2003 half-year was NZ$13 million. New Zealand Post's main measure of financial performance, 'economic value added' (EVA), which shows how much value is created or lost for shareholders, was positive NZ$2.7 million in 2003, compared to a negative NZ$3.4 million in 2002. (12) The company has an annual turnover approaching $NZ1 billion (4) and employs 9587 people directly and an additional 6413 people who are hired on a limited-term basis or as independent contractors. (1)

NZ Post is internationally recognised as providing one of the most efficient and inexpensive postal services in the world. (3) It controls about 97% of the domestic postal market, but it prefers to refer to itself "entrenched" rather than a monopoly. Taking the sheen off its recent solid half-year result and an international business mail upturn, which was driven by a 14 percent increase in trans-Tasman parcels, was a steep drop in domestic letters, which fell 3.7 percent in the six months to December 2003 against a recent trend of a one percent annual decrease. NZ Post Chief Executive, John Allen, claims business mail is strong because of the electronic information flood. "People are getting so much communication. It's coming at them all the time, so they like a letter which is targeted, crafted and personalised. It cuts through all that noise." (12)

Today, NZ Post provides communications solutions for a wide range of people and businesses, using its people and technology to achieve long-term growth. The company's core business activities are message communication in letters, distributing courier and parcel items, and financial transactions. (3) Its CEO predicts the letter business, no doubt aided by the recent 5 cent increase in the standard 40 cent stamp, will maintain its financial contribution to NZ Post in the next 5 years, but times are clearly

changing. According to Mr Allen, "The postal business has operated on the efficiency of envelope collection, processing and delivery. That is not going to sustain us in the future. We have to have a better understanding of our customers and their needs, and our latent capabilities... that is quite different from the history of the business." (12) Hence, while it continues its tradition of carrying and delivering letters and parcels, NZ Post has responded to its customers' growing communications needs through innovation in the residential, business and international markets.

The organisation's headquarters is in Wellington, New Zealand. Nationwide, there are 315 Postshops, (1) and 34 Books and More stores, which are wholly owned by NZ Post but operate as franchises. This network of stores enables customers to buy new release books, videos, greeting cards, and home and office stationery at the same time they post their mail, register their car and pay their bills. (3) NZ Post also owns and operates 22 mail centres throughout New Zealand. (1) It has 19 subsidiaries, including data management, retail, an electronic commerce network, Kiwibank and international management consultancy, Transend Worldwide, and the organisation has equity interests in eight other businesses. (12) Its courier services include CourierPost, Pace and Skyroad Express. CourierPost has a fleet of more than 600 owner-driver couriers and delivers to more than 180 cities and towns. (13) Together, NZ Post and its major competitor, Freightways Express Limited, control about 50 percent of the cutthroat courier market in New Zealand. (12) NZ Post also has number of business interests in Australia, including Outsource Solutions Australia, a business process outsourcing organisation based in Sydney, and Couriers Please, a wholly owned courier company that operates in Melbourne, Sydney, Adelaide, Brisbane, and the Gold Coast. (1)

NZ Post's wholly owned subsidiary, Transend Worldwide Group, formerly New Zealand Post International Limited, is the world's largest postal-owned consulting company. Its headquarters is based in Wellington, and the company has a London-based wholly owned subsidiary, Transend Worldwide UK Limited, as well as various branch offices in Madrid and South Africa. In addition to its consulting business, Transend also manages the international mail operations for NZ Post in addition to domestic and international mail for other countries through its management contracts. Transend is the New Zealand Government's designated representative in international postal forums and represents New Zealand's interests in two international treaty organisations, the Universal Postal Union (UPU) and the Asian-Pacific Postal Union (APPU). (12)

Notwithstanding a handful of setbacks in 2001, including cancellation of its South African postal service contract, NZ Post and its international subsidiary, Transend, did not rule out taking on large-scale projects in the future. But, the company did implement a process for qualifying an opportunity through an internal risk-reward assessment which examines how difficult a project is and how serious the client is about making changes. (21) Following such an assessment, in September 2002, the same month it became profitable as a standalone business, Transend signed contracts for management and consultancy work in postal services in Vanuatu, Tonga, Samoa and Fiji (23). Other Transend management contracts in force at that time included the management of postal services in Trinidad and Tobago, Malta, (21) and South Africa. (22) More recently, in July 2003, Transend Worldwide signed a three-year contract with the Guyana Post Office to do a business-wide review of its postal practices (18)

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

NZ Post has generally kept pace with the growth and development of new technologies in information and communication. The organisation began using mobile radios in the 1940s and 50s and mainframe computers in the early 1960s; it moved to personal or desktop computers in the mid- to late 1970s; fax machines were introduced to the workplace in the 1980s; and cell-phone use at the organisation began in the early 1990s. All of these forms of information and communication technology (ICT) have been used by NZ Post and its employees to communicate with other company

staff, its customers, suppliers and distributors, shareholders, the media and other organisations, as well as to advertise the company's products and services.

Intra-organisational communication at NZ Post is conducted through an intranet system, which is used by staff both on company premises and at remote locations. Staff can access company information and also communicate with each other via email. The Internet is used for communication between NZ Post staff and the organisation's customers, suppliers and distributors and is also used to deliver and support a range of electronic product and services used particularly in retail. NZ Post's webpage was established in the mid 1990's and is currently used to share information within the organisation and with its customers. It is also used to advertise the organisation itself and to advertise NZ Post's products and services. Although it was not specifically intended for sharing information with suppliers, distributors and competitors, and this is not presently the case, the organisation's website is easily accessible to the public and could, therefore, be used in such a manner. (1)

The introduction of the innovative personal computer-based point-of-sale system in late 1996 caused a blossoming in the range of products and services available at each NZ Post store. As well as postal services, customers could purchase gifts and magazines, do their banking, and pay bills for more than 45 agencies in one electronic funds transfer at point-of-sale (EFTPOS) or cheque transaction. Nevertheless, although it had converted the organisation to an electronic business, in order to extend its capabilities and, in particular, accommodate the need to deal with new channels such as the Internet, in 2000, NZ Post decided to upgrade its point-of-sale system, PostLink (17), which had become very costly to maintain. (2) Launched as PostLink II, the new system was initially run on IBM's OS/2 and connects over an IBM SNA network, though a new version was recently developed for Microsoft's Windows NT.

NZ Post's software was developed jointly with computer services company Datacom using Oracle's database software and runs on computer hardware from IBM and Computerland New Zealand. In 1998, when the organisation was seeking a technology partner such as an international software or systems company to help it market its software internationally, it sold a customised version of its PostLink II point-of-sale software system to the Fijian Postal Service (17), and it's Oracle-based point-of-sale system for post offices went live in Trinidad and Tobago in August 2000. (25) In May 2003, NZ Post began implementing Oracle Database, Oracle Application Server and Oracle Warehouse Builder to build a data warehouse that will enable a consolidated view of NZ Post's customer activity across its entire enterprise including its courier and retail businesses. (4)

According to New Zealand's Post's retail arm business solutions leader, James Grassick, at the time PostLink II was launched in 1992, there were very few point-of-sale systems for postal services. The project, therefore, involved several world firsts, including development of the first EFTPOS system encapsulated entirely in PC software. With this new system, each PC terminal at NZ Post was enabled to gather and compile fine data, such as the revenue per customer, the timing of transactions, customers per hour and how long tellers are busy. This allowed tellers to receive feedback about their performance and managers to know how well their shop is performing. (17) In addition, a key strength of NZ Post's system has proven to be the back-end Corporate Product Database, which connects with PostLink II and contains attributes of products and services. Non-programmers can arrange these attributes to describe a new parcel, a packet, a bill payment or a retail item. The system then generates business rules and connections to PostLink II's general ledger and customer management system. This means NZ Post can add a new service or product in 48 hours. Moreover, as a consequence of implementing this system, NZ Post can now give product managers direct responsibility for the introduction of new products. According to Grassick, "You're only limited by the time it takes to get the product to the store. For example, today we launched a new product – we found out about it two days ago." (17)

ICT has been found to be beneficial to NZ Post in that it has reduced communication costs, hence increasing the organisation's efficiency and productivity and, in doing so, making the organisation more profitable. ICT use has also contributed to the provision of quicker service to NZ Post customers and has reduced the costs associated with providing those services.   Nevertheless, senior management at NZ Post believe that, so long as this would allow it to remain competitive in an ever-changing technological environment, the company would employ ICT to an even greater extent in future.

NZ Post National Marketing Manager, Graham Smith, in March 2003, expressed the view that a company needs to fully understand customer behaviour if it plans to expand into emerging markets and offer new products.   In this regard, NZ Post is currently considering how it might use ICT for document management, and the company continues to investigate how it might employ e-commerce to its customers' advantage. (1)   Also, in April 2000, in the hope that they may ultimately come up with solutions for its own business and generate new e-commerce revenue streams, NZ Post earmarked $20 million in development capital to be invested in e-business start-ups and technology companies. (10)   In the near future, valuable intelligence gained by consolidating marketing, sales and billing information will be used at NZ Post to generate highly targeted marketing campaigns that reflect the customer's true value to the entire company and not simply to a particular business unit of the company. Moreover, the system will make extracting information from across the company far more efficient and cost-effective. (4)

NZ Post CIO, Nigel Prince, believes an organisation needs to be smart when making decisions regarding technology.   "It needs to make business sense–and it needs to be both sound in today's market environment and in that of the future... Growing our business and using technology to capitalise on new opportunities is our highest priority.   We don't want our technology to sit at subsistence level; we want it to offer our business strategic options." (2) To this end, NZ Post makes use of and markets ICT through several of its other affiliated and subsidiary companies.   For example, one of NZ Post's newest offshoots, Kiwibank, which targets the competitive personal banking market with its promise of low fees, attractive home loan rates, high interest rates on savings accounts and a pledge to keep profits in New Zealand, has invested in customer relationship management technology from Sydney's Prosper CRM Solutions to manage inquiries from prospective customers.   Once the branch rollout is complete, Kiwibank's IT team will develop a data warehouse, improve disaster recovery facilities and develop imaging applications so all customer correspondence can be conducted via e-mail. In addition, Kiwibank's website, www.kiwibank.co.nz, is a comprehensive online portal for Internet banking services and provides access to information about accounts, loan rates, phone banking, automatic payments, direct debits, and bill payments. (8)

Other examples of where NZ Post has used or marketed ICT include the Electronic Commerce Network (ECN) and Silent One. The former, another wholly owned subsidiary of New Zealand Post, is New Zealand's leading electronic business-to-business service provider. (1)   Established in 1997, ECN enables NZ Post clients to exchange literally thousands of messages a day for the exchange of goods and services, including invoicing and purchasing, import and export, supply chain and distribution, inventory management and compliance transactions with government agencies. (10) The latter, Wellington's SilentOne, which is 57%-owned by NZ Post, is an electronic document storage system based on Internet protocols.   Silent One's software was chosen in December 2003 by Britain's Financial Times media company to manage its international information feeds, the company's second sale in Britain that year. (16)

One strategic option employed by the organisation's wholly owned subsidiary, Transend Worldwide, is to market PostLink II for sale around the world. In 2000, Transend started marketing its electronic bill presentation and payment system, eBill, and hybrid mail system, eSend, internationally. (25) Following trials, however, the latter was discontinued, in part, because it would have required NZ Post to store stocks of customers' stationary and sample signatures. In spite of this, the organisation is

still considering implementing overseas hybrid-mail systems, although experience suggests these systems are very weak performers and not economically viable. (26) Another setback for Transend was the mid-term cancellation, in June 2001, of its $54 million three-year contract to run South Africa's postal service project amidst claims that NZ Post was not able to fulfil the contract. (24) Transend managed to recover from these setbacks by the end of the following year, however, when it sold an efficient New Zealand-made post sorting system, widely used in NZ Post's 164 delivery branches and previously sold in Australia, Iceland, Malaysia, Malta, Portugal, Sweden, Trinidad and Tobago. (19)

In addition to its success with marketing PostLink II, NZ Post has offered other ICT-related services to its clients and customers, as well as to the general public. For instance, its BillPay system includes over 60 merchants, electronic bill payment service eBill, telegram bill payments, and Western Union money transfer. (12) The company's free eBill service lets consumers view and store electronic copies of bills from about 21 utilities and other billers online and then pay bills via direct debit from NZ Post's own eBill website. Billers who use the service include Contact Energy, Genesis Energy, Trustpower, GlobalPlus, TelstraClear and Vodafone. NZ Post would like to see more consumers and billers adopt eBill and broker a deal that would allow consumers access to the bill presentation features of eBill from all Internet banking websites. (5)

"DECENT WORK"

The use of ICT at NZ Post has very much affected the number of people employed by the organisation. While there has been a decrease in the total number of people employed at NZ Post, there have also been increases in the number of personnel hired in certain skill areas, in particular, where and when the need has arisen. In many of these cases, the skills required, depending on the project, are those related to NZ Post's use of ICT. For instance, the organisation has recently implemented a major undertaking involving its customer service call centres, and specific human resources have been brought in for this project. Shifts in the human resource requirements of NZ Post and the number of people it employs are also partially a response to changes in the structure of the organisation itself. In particular, NZ Post has recently been restructured from a hierarchical organisational structure to one in which there are distinct and semi-autonomous business units. These changes are largely based on a strategic shift within the company, rather than their being specifically attributable to the impact of ICT, though. (1)

In conjunction with its recent restructuring effort, NZ Post did complete the transfer of its 56 IT operations staff to New Zealand's largest home-grown IT firm, Datacom, in which NZ Post is a minority shareholder. This project was undertaken in July 2003 as part of an effort to replace a variety of NZ Post best-of-breed and home-grown software tools. Following this effort, Datacom now monitors and manages NZ Post's computer systems using Computer Associates' Unicentre systems management software suite, an outsourcing expected to result in cost savings and improved productivity for NZ Post. The new structure leaves NZ Post with about 80 staff in its Information Technology Group, which handles functions such as project management, business analysis, vendor management and planning. (6) NZ Post's technology-oriented investment wing, New Zealand Post Enterprises Group, which owns a portfolio of software and communications companies that sell to NZ Post and to third party clients, was affected by the reorganisation. (9)

The state-owned enterprise has also replaced its aging inventory software from Canadian firm Geac and other systems with PeopleSoft software, which is now used to handle its finances and procurement, upgrade of inventory, accounts receivable, billing, order entry and human resources needs. (7) The move is predicted to allow NZ Post to make savings of $13.7 million in the five years to 2007. The software will allow a move to e-procurement, which will permit NZ Post employees to buy consumables, such as pens and paper, from suppliers over the Internet. Electronic catalogues from suppliers, including one with 2000 line items from office equipment company Boise, are being

hosted on the system in-house. (14)   General manager of financial services Anne Smith says e-procurement represents a big change for NZ Post. With regard to its impact on the availability and quality of jobs at NZ Post, there is the potential that the PeopleSoft project will result in some job cuts "over time," but Ms. Smith contends the project will also create new opportunities, such as roles for business analysts "to help take the product forward". "I think there are going to be a lot more efficiencies and it will be better for customers as well." Changes customers will likely see include better billing and NZ Post having improved information about them, she says. (14)

In at least one instance, redundancies have already become necessary as a direct result of NZ Post's use—or, more specifically, it's marketing and sale—of ICT. That is, following a series of setbacks, claims of big-spending from high-flying executives and a damning Auditor-General's report during the previous year, Transend's Wellington staff were reduced from 26 (20) to 13 in March 2003 (21). About 12 Transend staff were still operating overseas. (20)   Primary amongst those setbacks, and issues precipitating the unflattering assessment of the firm by the Auditor-General, was the cancellation of NZ Post subsidiary's South African postal service project contract. Hence, NZ Post's ICT marketing and sales strategy was a key factor leading to the redundancy of these positions at Transend.

Overall, the introduction of ICT and its subsequent use by NZ Post have resulted in an increase in average staff qualification levels while the average age of its staff has decreased. The company generally prefers to employ people who have already gained the skills the company requires, rather than train people with no former knowledge. In the dynamic environment of ICT, this suggests it is often necessary to hire those who've recently acquired the most up-to-date skills, which often means hiring recent graduates with technical skills, who are themselves typically younger than more senior employees in the organisation. However, NZ Post does provide training and up-skilling for its existing employees, in particular in basic and technical computer skills and in job-specific training, where there is need. In addition, the company has found the introduction of ICT has resulted in the training it provides becoming more focused. While retail-related ICT training will, for those staff involved, lead to New Zealand Qualifications Authority (NZQA) qualifications, it is not company policy to assist employees in gaining formal ICT qualifications. NZ Post measures the value of training in terms of productivity, employee job satisfaction and employee retention, all of which it says have increased as a consequence of the company's training efforts. (1)

ICT use at NZ Post has also allowed for greater workforce flexibility and, in general, employees of the organisation have experienced a reduction in working hours subsequent to the introduction of more ICT. In this regard, some staff at NZ Post have seen their work hours decrease from full- to part-time, while others have found they do not typically work as much overtime as in the past. There have also been shifts from wage payment to salarisation, and visa versa, subsequent to the increased use of ICT. Moreover, ICT use at NZ Post has resulted in increased physical flexibility, whereby some staff have been required to move to remote locations away from where the company office is located, and others now work from home. Finally, ICT use at NZ Post has not resulted in a measurable increase in sick leave, employment disputes or personal grievances. Neither does the company report any consequent change in the proportion of employees who are union members. (1)

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MACPAC WILDERNESS EQUIPMENT

HISTORY

Macpac Wilderness Equipment Ltd, a privately-owned Christchurch, New Zealand, company that designs and manufactures backpacks, tents, sleeping bags and clothing (1), was established in 1983. It was formed through the merger of Christchurch's Macpac Products Ltd, owned by Bruce McIntyre, and Dunedin's Wilderness Products Ltd, founded and co-owned by Shelley and Geoff Gabites. The former company was started in 1973 by then 19-year-old McIntyre when he bought 'Mac Sac', a pack-making company established by Charlie McCormick in the 1950s. In 1979 the first Macpacs were exported to Australia. (3) McIntyre and Shelley Gabites are now, respectively, Managing Director and Manufacturing Manager of Macpac Wilderness Equipment (1) and, along with McIntyre's parents, are owners of the company. (3)

Following the merger of Macpac Products Ltd and Wilderness Products Ltd in 1983, the United States was targeted as the company's next export market. It was soon discovered, though, that US customers were more interested in low prices than in the high-specification products the company produced. Hence, the strategy of exporting to the US market was put on the backburner and, from

1987, Macpac Wilderness Equipment shifted its export strategy to targeting the European market. Nearly a decade later, in 1996, Macpac turned down offers of distribution in the huge United States market, Korea and Taiwan. "We're happy to see growth when it comes, but that doesn't drive us," said Mr McIntyre, "What we've always striven for are high quality products, and not just profits." (16)

That same year, 1996, the company moved to a new purpose-built factory and headquarters in Addington, Christchurch. (3) The following year, it considered moving its manufacturing operations overseas when the New Zealand dollar was near US70 cents. However, the firm decided to stay and tough it out. (12) "I made a commitment in the mid-1980s to manufacture in New Zealand as long as possible. It's so easy to go offshore, but it's bloody hard work to stay here. Our quality and flexibility are the weapons we have against cheap labour," Mr McIntyre said in 1999. (13)

By 2000, the tables had turned and, with the low exchange rate fuelling overseas demand for the company's products, Macpac was battling a shortage of skilled machinists. To combat this, early in 2000 (11), Macpac set up an in-house programme to train new staff. Under this programme, new staff were trained to sew over a two- or three-month period (10), after which they were provided with on-the-job support. In the 12 months to February 2001, Macpac trained nearly 100 school leavers, new migrants and mothers returning to the workforce, yet the company was still looking to expand its sewing staff at the end of this period. (11)

In March 2001, Macpac was concerned with keeping its manufacturing in New Zealand. As company Managing Director, Mr McIntyre, has noted, there remained sound business reasons for manufacturing in New Zealand. "New Zealand-made is crucial. We're employing New Zealanders. I can't say that our workmanship's any better than what's done in China, but I can say that we're making our own product, not working on job-lots for someone else, and I think it shows."

The comparatively high labour and overhead costs of doing business from New Zealand were offset in part by keeping stock levels relatively low. Macpac works in small runs—20 or 30 at a time—and moves them quickly. It is another indication of the firm's people-centric organisation. Small lots mean more variety in the factory work. "If you're in China and want a pile of backpacks made," Mr. McIntyre said, "you won't find anyone who'll do less than 1000. So, you have to bring them all back here (to New Zealand) and warehouse them and trickle them out bit by bit as they sell." He went on to add, "Another side of that is we keep production flattish and let stock levels go up and down with demand. That's human, too. It's easier to muck around with money and stock than with people's lives." (14)

In 2002, (3) fighting to maintain its position as the last international outdoor brand in the world to manufacture at home, (4) to preserve production jobs, Macpac made eleven management staff positions redundant. The company also tried to offset the cost of keeping manufacturing in New Zealand through productivity and quality gains. The company spent $NZ200,000 trying to achieve this, but it had reached the stage where it could no longer make any additional gains. (3) Hence, in July 2003, after it had lost $1 million over the previous seventeen months and faced continuing revenue loss if manufacturing remained in New Zealand, the $20 million turnover company, (3) which had previously exported 70 percent of its product, (7) decided to move its manufacturing offshore. (7) Other influences on the decision to shift production outside of New Zealand included the fact that all of Macpac's competition existed in Asia, that September 11 had contributed to a 30 percent drop in the company's sales, and that the exchange value of the New Zealand dollar relative to the US dollar had risen 40 percent from the beginning of 2002 to July 2003. (3)

Due to Macpac's decision to close its New Zealand manufacturing plant, in late July 2003, 150 of 170 manufacturing staff—principally sewing machinists—were told their positions were to be made redundant at Christmas that year (3), a decision the company's Managing Director later said was the most difficult the company had had to make in thirty years of business. (18) Only twenty specialist positions were to remain (3) and, from the beginning of 2004, Macpac's production was moved to

Chinese, Vietnamese, and Filipino factories (4), where labour rates are typically one-eighth of those in New Zealand. (3) The company declared, however, that the decision to move most production offshore did not mean it had let go of its human values.

> "Macpac has actively sought out factories at the healthy end of the spectrum. We have personally visited the factory floors of our selected manufacturing partners. They are factories we are proud to be associated with, and they are businesses who share similar values to us... Whilst their pay packets would be unsustainable in our country, context needs to be considered. For example, machinists in our Chinese clothing producer are able to build a house after three year's pay. In Vietnam, machinists working at our tent manufacturer earn three times more than police officers. At our Filipino pack partner, staff are unionised and have a social security system that is far superior to our own. Quality is the other thing we care about most at Macpac. Don't expect to find our products priced cheaply; we didn't look for the cheapest labour. The reason our products are made in different factories is because that's where we found the quality we were seeking." (18)

The company is currently a product leader in New Zealand and Australia and also exports to Germany, Holland, the United Kingdom, Sweden, Switzerland, Japan and Norway. (2) All production is supplied directly to specialist outdoor shops, which order products in comparatively small volumes. (1)

In May 2003, Macpac employed about seventy-five staff, only one of whom was a limited-term employee. (2) Following the move from Christchurch to Asian-based manufacturing, as it was now using only half the building, the company was also looking to lease or sell at least part of its Addington factory and headquarters. (5) In response to this decision, Canterbury Manufacturers' Association chief executive John Walley bemoaned the loss of Macpac's Canturbury-based manufacturing, saying efficiencies could not make up for a rapid forty percent appreciation in the nation's currency and balance sheets could not support indefinite forward cover. "Macpac was a company with shareholders supporting a local development path, committed management and staff, a company that adopted with a vengeance the best management, product development, production and marketing practices in the world and yet here is a company that could not sustain production jobs in the environment created by New Zealand's policy framework." Mr Walley blamed New Zealand's Reserve Bank policies and said that, for the previous nine months, Canterbury Manufacturers' Association, one of the largest producer groups in the country, had called for reductions in New Zealand interest rates to match those in Australia, the main market for manufactured goods. (6)

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

Macpac currently uses information communication technology (ICT) for a number of purposes including communicating: within the company; with New Zealand and overseas-based customers, with suppliers and distributors; and with many external entities, such as Media, Banks and Non-profit organisations. Email is used for communication between staff, suppliers, and distributors. Macpac Wilderness Equipment Ltd began using ICT in 1986, three years after the merger of Macpac Products Ltd and Wilderness Products Ltd. Initially, use of ICT by the company involved only the use of mainframe computers and facsimile machines. Personal or desktop computers were introduced two years later, though, and cell phone use began in 1990. (2)

The company initiated use of the Internet in 1996, when Macpac created its website, the development of which was initially rather static and, hence, it didn't become dynamic until three years later. At present, this website is used for sharing information within the organisation and with customers and distributors. It is also used to provide information to the public and to advertise and market Macpac's products, research competitors and organise product delivery. In the next five years, the company aims to use ICT to create even greater market and customer responsiveness.

Since 1999, the company has also used an external e-commerce site to sell its products. (2) Macpac's Internet-based B2B (business-to-business) e-commerce site was set up in 2002. It was developed for Macpac Wilderness Equipment by e2-media and allows the company to serve customers outside New Zealand, either through retailers or direct to the customer, 24 hours a day. The B2B e-commerce site reduces the issue of different time zones and gives Macpac access to customers in countries where it does not have retail outlets. Retailers around the world can order products, access detailed product information, inquire about product availability status, order products, and track order status. The application has a sophisticated administration browser interface that allows Macpac staff anywhere around the world to change product status and availability and select which products different retailers around the world can see. Each retailer can only see the relevant products that they sell in their own currencies. As well as fulfilling current orders, retailers can review backorders and do forward orders. (8)

Macpac currently deals directly from its headquarters in Christchurch with retailers in New Zealand, Australia, Japan and Hong Kong, as well as those in the United Kingdom, the Netherlands, Germany, Switzerland, Sweden, Denmark, Austria, Belgium and Luxembourg, in spite of the fact that the company has no European office. (17) This is an unusual tactic for a company that sells seventy percent of its product outside of the domestic market. That is, the traditional route is to set up sales offices in export destinations and/or appoint a distributor in those locations. However, Macpac has found that retailers prefer the novelty and simplicity of dealing with a manufacturer who delivers directly to the shop door, albeit from the other side of the world. (9) To this end, the 12-hour time difference between New Zealand and the heart of the European continent, Macpac's largest export market, means that most of the company's business and communication is conducted outside of normal office hours, primarily through use of its Internet-based B2B e-commerce site. (8)

Despite its distance from its exports markets, its use of the Internet, its highly efficient Christchurch-based manufacturing and its efficient global distribution system have allowed Macpac to remain a top supplier in the global outdoor recreation products industry. In March 1999, one of the company's biggest customers was the famous Cotswold Outdoor store in west London. Cotswold's orders, sent to Christchurch by free phone, fax or email, were rapidly dispatched by airfreight, with the goods clearing UK customs while still airborne. Despite competition from UK-based companies, Macpac Managing Director Bruce McIntyre noted at the time, "Cotswold say we're one of their top suppliers." (13)

In 2002, to complement its existing mail order catalogue and extend its market, Macpac decided to sell products directly to the consumer in countries where the company did not have retailers. Using the same infrastructure developed for the B2B applications, an online ordering system was created as part of Macpac's e-commerce site. Hence, any visitor to the site can now browse Macpac's product catalogues. The application automatically checks whether there are retailers available in the visitor's home country and allows direct orders from countries where there are no retailers. Freight costs are automatically calculated and added to the value of orders, which are stored in a database and sent by email to the order fulfilment team at Macpac. (8)

MySQL and PHP were used in development of the e-commerce site. To ensure product availability information is up to date, the website application has an Open DataBase Connectivity (ODBC) connection, an Application Programming Interface (API) that allows a programmer to abstract a program from a database to Macpac's legacy system. Product information, product selection guides and links to other information were set up on SmartWeb, a standards-based open source content management system that allows Macpac staff to add, amend or delete information using a web browser. This system is based on Apache web server and uses SQL databases. Import/export and replication of data are in XML. (8)

Benefits attributed to ICT use by the Macpac's management include increased efficiency, productivity and profitability; reduced communication costs, and, reduced office space and associated costs. (2) To support its team processes, Macpac computerised a number of its business operating systems, thus enhancing the firm's market and customer responsiveness and enabling it to deal with the increasing scale and complexity of its operations. (1) A fully functional Enterprise Resource Planning (ERP) package was installed in 1990. Company financials are initiated on this system but, to make them more user-friendly, are finalised on Excel spreadsheets or other databases. This system avoids double handing of data and the ODBC links ensure the data extracted are current and match the ERP server, which is ERP is used, among other things, to record production/manufacturing costs and run efficiencies.

Although ICT use by Macpac has resulted a higher level of analysis and awareness, company IT Manager, Tanya Gabites, notes that it cannot be directly credited with any production improvements. (2) Nevertheless, ICT is essential in judging the fine line between creating too much or too little finished product, as too much stock can be money sitting idle. Macpac's reliable ICT back-up and recovery procedures, and the stability of the ERP system mean losing data is not an issue. In addition, though, once quicker turnaround times had became the norm, ICT use also led to increased service expectations on the part of retailers and customers. As these efficiencies require additional documentation and tighter deadlines, this puts greater pressure on staff. ICT is used to minimise this pressure, though, through increased automation and the consequent elimination of manual transfers, as in the case of recreating the export documentation paperwork down to the legal logo so that all necessary areas are filled in when the form is printed. (2)

Although Ms Gabites, believes Macpac is currently using ICT to a great extent, she contends that, in the future, this technology could be used to facilitate greater global roaming and personal computer connectivity. The latter are needed as, now that it is manufacturing offshore, Macpac has more staff travelling globally. Moreover, since early 2004, when Macpac began utilising offshore manufacturers, the company has used remote warehousing and distribution centres in Holland and Australia to service the European and Australian markets, respectively. These are 'pack & despatch' only. Nonetheless, all communication with retailers is still conducted from NZ, as has been the case since the company began. (2) Designers and quality control staff visit offshore partner companies to inspect products before they are shipped to each market. Global roaming technology allows all the company's increasing number of marketing/sales staff to be in contact with Macpac's headquarters in Christchurch. Within countries to which Macpac staff travel, it is generally the case that infrastructures are capable of supporting such technology, and Macpac is always adopting methods to make travelling as easy as possible for staff. (2)

"DECENT WORK"

Macpac is renowned for its enlightened workplace practices. In the early 1980s, Macpac founder Bruce McIntyre thought about quitting. Everything at the company was getting too "big business" and he felt was not fitting in. Mr McIntyre perceived his aim, "to be as complete a human being as I can be and I want that for everyone else who works here," was going awry. "It was a really, really hard time, working out how to turn what had really been a family-type business into a real big business," he said. "I looked around and all the models were traditional hierarchy businesses where people, to me, seemed to become inhuman – the old story about `leave your brains at the door and come on in'. It wasn't really questioned. "I thought that I either had to change it or get out, because it just wasn't going to suit me," he said. "It was a choice between being a manager and a leader. I just couldn't bring myself to be a manager in the traditional sense. I was hopeless at it." (14)

Mr McIntyre contends that traditional business organisation – a variation of the military command structure – may be good in a crisis, but suspects it may also create a crisis if no organisation or structure exists. "You've heard that saying, 'People are our most important resource'? What a load of

codswallop. It's old-fashioned and it's wrong," he said. "People are the source; the source of ideas, the customers. Resources are something you exploit. It's about serving people, not using them." So, after taking advice from a communication psychologist, everyone working at Macpac was encouraged to express what they thought should be done to improve the organisation, and how this might be accomplished. "It seemed to be a matter of getting our visions in line, using the wisdom of the organisation. It was interesting. Even the most traditional managers had ideas they wanted to try, dreams that they'd been harbouring. It was a huge amount of fun and really set us on a different path." (14)

In the mid 1980s, following the removal of export incentives, Macpac discovered it needed to raise production efficiency in order to be profitable. To achieve this, a production consultant was hired and recommended that, rather than jobs being focused on producing a whole unit, jobs should be broken down into a large number of small operations hand-in-hand with increased levels of automation and greater monitoring of work performance, reminiscent of traditional division-of-labour. (1) As a consequence, a communications audit, conducted in 1987, revealed that, while employees of the firm felt "well cared for," they were hesitant to be critical of the company and felt unable to deal with interpersonal conflicts at work. They also expressed the feeling that they did not know enough about Macpac and its future.

The company responded to this discontent by introducing training in team-building, conflict management and leadership styles for managers. Macpac also clarified job descriptions and communication channels and a revised its performance appraisal system. It later extended training in communication and conflict resolution to all staff. A staff-wide course called 'Communicating with Confidence', which was conducted by an internal communications consultant and emphasized problem-solving, team decision-making and taking individual responsibility, was set up in 1990. By mid-1993, all of the firm's 140 employees and manageres had attended the 10-hour course in mixed groups of 12. About the same time, a TQM-type programme was introduced, along with Just-In-Time (JIT) production methods. (1)

In the early 1990s, with the aim of developing greater integration between marketing and production functions, Macpac began adopting a multi-skilled teams approach to the organisation. (1) "There were two basic ideas...," Mr McIntyre said. "The idea of working together responsibly and that, if it was any good, it should improve our performance." He went on to add, "Performance has also to do with designing great products and providing good customer service. Internally, it also means that it should be a great place to work. It's not just about making more money. A business is not different from any other organisation in human society. Just wanting to make money is missing the point of why it exists. It's there to serve society, not to make money; it's there to fulfil a need." (14)

The teams approach has changed over time. An early experimentation with team leaders, "like rugby teams have captains", changed to one of shared leadership, with people contributing whatever they did best. This approach was based, in part, on the idea of allowing people to be who they are, Mr McIntyre said. (14) "The aim of the team structure was to create people of equal status, so that someone in a leader role acted as a 'co-ordinator and facilitator rather than as a more top down manager'." (1) This less-rigid team approach helps ensure that all staff feel important and develop their full potential and, in turn, has positive spin-offs in terms of productivity. "What we have developed is a very clever, intelligent and highly productive work environment that shows what can be achieved when businesses create a supportive environment for staff where people are encouraged to be themselves." (15) According to Mr. McIntyre, "Everyone has a lot to contribute, and they're allowed to." (16) "If someone's into being told what to do or ordering people around, they're not likely to survive in this environment. We are aware that we've got a great culture and we want to preserve it, so we want skills and personality that will fit." (14)

As well as setting and monitoring their own performance, teams are involved in the recruiting of new members. Financial incentives to perform, with all staff sharing 20 percent of the company's annual profits, are likewise part of the McIntyre approach. Exactly how well the company is doing is not hard to ascertain either. Throughout the factory, there are whiteboards covered with screeds of figures displaying daily and weekly output and targets, as well as updated information on the company's performance. McIntyre says displaying such information reflects his very open approach to management. "I like all my staff to be constantly kept informed of the company's financial position and how well things are going. We have nothing to hide from our staff." (15)

McIntyre's focus on ensuring Macpac's staff are happy in their work, as well as healthy in mind and body, can be seen the minute any visitor walks into the workplace. Staff work a short day on Fridays, are given a company-wide long weekend in the middle of winter, have a bottomless lolly jar in each department, get a free morning tea once a month, have a loyalty package which starts with a bunch of flowers after five years and goes up to all-expenses paid weekends in Hamner after 20 years. (4) The physical environment is relaxed and quiet, with the factory incorporating a central enclosed courtyard with a glazed roof through which natural light can penetrate the heart of the building. The courtyard is filled with trees, other smaller plants and seats for staff to enjoy the space during breaks. McIntyre says incorporating a "green heart" into the factory provides staff with an attractive alternative outlook to the otherwise sterile factory environment and, as a result, is a positive psychological boost for staff. (15)

ICT AND "DECENT WORK"

Macpac's internal ICT systems are adapted and refined predominately in-house with some external assistance. Macpac currently employees 2.5 FTE ICT staff, whose responsibilities include IT management and development, ERP & Mac Support, and running the part-time Helpdesk. In addition, enhanced use of ICT by Macpac has led to an expansion of many other employees' job tasks, although this type of job enlargement has typically occurred where the worker has both the aptitude and a willingness to learn and perform the additional tasks required. Where necessary, employment contracts and pay levels have been adjusted to take account of these changes.

The company's use of ICT has not resulted in any change in the number nor in the average age of people employed by Macpac, and neither has it affected where employees physically do their work. In addition, while it has not changed the amount of time worked by staff, increased use of ICT has allowed for greater flexibility in terms of when work is done. (2) Furthermore, to meet the demands of ICT use, Macpac now selects new employees who have the necessary skills to work with this technology and has increased training of existing employees in areas such as basic and technical computer skills and job-specific skills. Such training takes place on the company's premises and during regular work hours and is either conducted by employees of the firm or outsourced. The cost of this training is covered by the employer.

As a result of Macpac's approach to training, more of the company's employees enjoy a wider range of employment opportunities as well as opportunities for advancement to a wider range of employees than is typically the case in a factory setting. The firm provides its employees will access to computer equipment, which they are allowed to take home with them. One employee, who had previously worked as the 'tea lady', received computer training on spreadsheets and was subsequently employed part-time doing computer work in the production office. (1) The company has also paid for non-machinists to gain sewing skills, for machinists to gain computer skills, and for English tuition for Asian staff. (4)

There is no evidence that ICT use at Macpac has not affected either workplace health and safety or labour relations at the company, either positively or negatively. In particular, no evidence exists that use of ICT has resulted in changes in the amount of sick leave taken by company employees. Likewise,

there is no evidence that greater use of ICT by the firm and its employees has led to an increase in downtime or higher stress levels. One factor likely influencing the latter—or lack thereof— is that routine exercise breaks are scheduled into each worker's day. Repetitive Strain Injury (RSI) to the hands and arms resulting from, for instance, increased the use of computers has also not shown to be an issue at Macpac. This is likely due, in large measure, to the fact that jobs at the firm typically lack the repetitive tasks generally associated with such injuries. Finally, neither the extent of union membership nor the number of employment disputes have been affected by the introduction of ICT use at Macpac. (2)

In the context of Macpac's manufacturing having moved to Asia, ICT has been used to capture and analyse production statistics. It has also been applied in the development and assessment of various projects. Hence, the shift of such a key component of the company's business to Asia has, for the most part, not resulted in any net loss of jobs at the firm's domestic New Zealand facilities. To this end, since the move, Macpac's ICT staff have catered to the change to offshore despatch and the needs of all the company's global customers and have met the ICT needs of Macpac's remote distribution centres.   IT Manager for the company, Tanya Gabites, notes that there has been an increase in database development to aid certain functions, but this has been offset by the fact that, in specific areas, production database development is either no longer required or has significantly lessened. "Support is still support, [it's] just to people doing different things." (2)

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AVOCADO OIL NZ

HISTORY

Seven New Zealand avocado growers formed Avocado Oil New Zealand Ltd. ("Avocado Oil NZ") in early 1999 with the aim of making use of avocados rejected for export (8). Later that same year, the Tauranga-based company's product 'The Grove' was unveiled at Auckland's Ellerslie Flower Show (2).

Since then, Jocelyn Walls and Doug Batchelor have fronted the company (5), which was registered in 2000 (13). In September 2000, Avocado Oil NZ became the first company in the world to commercially produce cold pressed extra virgin avocado oil for major markets (7). Although others have entered the avocado oil game, Avocado Oil NZ still claims to be the largest producer of oil made by cold pressing the fruit instead of refining it (1). Company general manager and olive grower Andrew Logan discovered the technique of cold pressing after deciding olive-pressing equipment was too expensive to be sitting idle most of the year. He adapted the equipment for avocados, which were being grown in rapidly increasing amounts in the Bay of Plenty; two-and-a-half hours drive south of Auckland. Reflecting on this experience, Mr Logan noted that adapting the olive-pressing equipment for avocados proved easy. "It was bizarre no one had done it."

Not only was cold-pressing avocados unique at the time, but so was producing food oil. In 1999, when Avocado Oil NZ was formed, avocado oil was relatively unknown around the world and had little market impact. In other countries, avocado oil was produced by chemical rendering of rotten fruit. Existing food oil products were not of the same quality as that which resulted from cold pressing. (2) "Cold pressing helps maintain all the vitamins and nutrients (of avocados) as well as its flavour and colour," Avocado Oil NZ chief executive Brian Richardson said in July 2003. (1) Given its high vitamin E content the oil is used as a base product for cosmetics. (2) The fruit is also low in saturated fats and totally cholesterol free. (4) It contains a compound that lowers human blood cholesterol (10) and has won the approval of the Australian and New Zealand Heart Foundations (4).

Avocado oil smokes or burns at 271 degrees Celsius, compared with 176.6 degrees for olive oil, which makes avocado oil popular with chefs. (2) In 2002, Jamie Oliver ("The Naked Chef") described avocado oil as the next 'it' food ingredient. (7) According to Elizabeth Carter, Marketing Manager for Avocado Oil NZ, there has been a worldwide movement toward avocado oil and, hence, strong demand for the product. "Avocado oil is what olive oil was to canola oil 10 years ago. It's just starting out but it's exciting because consumers are more and more looking for healthy foods." (9) The oil is used as salad dressing, as a dip for bread, and to drizzle over pasta, vegetables and grilled foods. (8)

The avocado oil manufacturing process involves an innovative combination of existing and proven food technologies through use of a stainless steel production line. The Grove operates a Government-approved food safety programme, which meets the most stringent quality requirements of both domestic and international food retailers. Absolutely nothing is added to the fruit or resulting oil at any stage of the process. The product is completely free of synthetics, chemicals, preservatives or colourings, contains no cholesterol, carbohydrate, flavours, sodium, yeast, dairy, egg, gluten, corn, wheat, sugar, starch or salt. It has no animal ingredients, radiated ingredients or genetically modified ingredients, nor is it subjected to industrial processes that alter the original oil (3). Avocado fruit are inspected, washed with high-pressure water, and processed to remove seed, skin, and any potential environmental residues. The resulting fruit pulp is malaxed and centrifuged using modern production machinery to produce high quality, cold-pressed, extra virgin, gourmet avocado oil. The single pressing of the avocado flesh is carried out at temperatures of approximately 45°C, which ensures no damage to nutrients occurs and the goodness of the avocado is preserved (3).

About 70 percent of New Zealand's avocado crop is grown in the Bay of Plenty, with most of the rest produced in Northland, north of Auckland. (2)   The harvest starts in September of each year and continues for more than seven months. (3) In 1991, according to the New Zealand Avocado Industry Council, 1200ha of avocados, with an average output of just under 10 tonnes per hectare, were being produced in New Zealand orchards. More than 1500ha have been planted since 1996, but in December 2002 these crops had not begun producing commercial yields (9).   Government statistics show the planted area of avocados grew nearly 200 per cent between 1994 and 2000 to about 4000ha. (16) Additional plantings started around Gisborne, on the East Cape of New Zealand's North Island, in 2000. In that year, the avocado harvest of about 8,500 tonnes was forecast to increase to 44,000 tonnes by 2010 (2).   According to Marketing Manager for exporter Integrow Marketing Ltd, John Graham, himself a grower and co-founder of an avocado oil extraction company, Gisborne's avocado industry had about 50 growers in May 2000. Half of these were export registered by New Zealand's Ministry of Agriculture and Forestry (MAF), a process of quality control in the export food products market.   This represented more than a three-fold increase compared to the number of registered orchards operating in the area three-and-a-half years earlier. Growers were, by May 2000, receiving something for all classes of fruit, with previously dumped oil-grade avocados earning up to 50cents/kg (14).

'The Grove' started production in September 1999 (6).   Initially its products were sold mainly through upmarket New Zealand delicatessens (2).   The company made its first overseas sale in December 1999 to Harrods, London's upmarket department store (6).   The initial selling didn't require a hard-sale programme because customers were receptive to buying avocado oil due to the good reputation olive oil had previously gained. (2).   In 2002, only its second full year of production, Avocado Oil NZ bottled around 50,000 litres of oil under 'The Grove' brand name. (1)   In the two years to December 2002, Avocado Oil NZ grew into a $1 million business. (8)

By June 2002, only five percent of The Grove's bottled stock supplied the local New Zealand market, including delis, restaurants and supermarkets. The bulk of the oil was exported to the United States and Japan, with stock also going to the United Kingdom, Canada, Korea and Australia (5).   Yet, in November that year, the brand achieved mass distribution in Australia, securing shelf space with Coles nationally, and with Woolworth's in three states. These two chains account for more than 75 percent of the supermarket business in Australia. In December of 2002, Avocado Oil NZ secured its first order to supply Britain's largest supermarket chain, Tesco. The initial shipment, worth around NZ$200,000, was headed for 200 of Tesco's 700 supermarkets across Britain. At that time, Avocado Oil NZ was also waiting to hear from two other medium-sized British supermarket chains (8).   In addition, in New Zealand supermarkets, the company outsold its nearest competitor almost two-to-one that year (7). At the end of 2002, though, Mr Richardson predicted British sales would soon take up around 40 percent of the business, with 30 percent in Australia and only 10 percent in New Zealand (10).   Four months later, Avocado Oil NZ signed supermarket giant Safeway as its second major distributor in the UK (11).   Within three months, about 60 percent of the company's sales were to export markets, including the U.S. and Canada, as well as Asia, where avocado oil is also sold as a dietary supplement (1).

In December 2002, Avocado Oil NZ announced it was setting up production operations in Australia to free up more New Zealand-grown oil for other export markets (9). The decision to expand operations into Australia, which followed an order from Britain's biggest supermarket chain, Tesco, would help the company ensure future avocado supplies were available to meet expansion demands. Australia has a different growing season to the Bay of Plenty; hence, the expansion into Australia would allow the company's production to continue nearly year-round (1). To this end, the company planned to work in partnership with its fully owned subsidiary, Avocado Oil Australia Pty, and an unnamed

Australian company. The oil produced from Australian avocados would supply only Australian stores, but would still be marketed under 'The Grove' brand name (9). According to Ms Carter, Australians are patriotic and wanted homegrown fruit for their oil, but the UK seemed to want New Zealand avocado oil. "We want to be able to maximise both Australian and our own production and make sure we get every strip of oil out of both countries..."New Zealand is coming on with more and more avocados each year; so it's getting better, but right now we don't have enough" (9).

This perception of the future market for avocado oil was echoed by the company's CEO, who proclaimed after Avocado Oil NZ won Export New Zealand's Emerging Exporter of the Year Award for the Bay of Plenty region in July 2003, "Supply can hardly keep up with demand." At that time, Mr Richardson identified the only limit to the company's growth as the availability of the fruit. He noted that the company's marketing strategy supported smart growth rather than fast growth. "We don't want to make any major move into the U.S. and Asia until we know we have the capacity to supply them, but, it's only a matter of time" (1). In addition, while by-products were thought to be interesting, and an opportunity for the company, it wanted to concentrate on its core business – oil – first. To this end, by July 2003, the original pure gourmet avocado oil led the company's sales. (15) Moreover, Avocado Oil NZ was not aiming its product solely at supermarkets. It was also looking to cash in on the food service market through selling to restaurants. (9) At that time, the company was also making a certified organic version of the oil, and one containing New Zealand's indigenous horopito pepper. Another possible processing option being considered was extracting oil from avocado stones. This oil has surgical benefits; such as helping skin knit together, and moisturising properties (5).

By mid-2004, two new products, Mediterranean Garlic and Caribbean Lime, had been added to the Avocado Oil NZ's range (3), and the company exported its product to Australia, the United Kingdom, the United States, Korea, Taiwan, Hong Kong, Sweden, and the Netherlands (13). 'The Grove' was sold in New Zealand's New World, Foodtown, Woolworths, Super Value, Fresh Choice, Pak 'n Save, Countdown and Write Price supermarkets; in the United Kingdom's Tesco, Safeway, and Booths chains; and in Australia's Woolworths and Coles supermarkets. The product, branded as Elysian Isle Gourmet Avocado Oil, was distributed in the United States by New Zealand Imports Incorporated. (3) Avocado Oil NZ's projected turnover for 2004 was $2.5 million. (8) By September 2004, according to Mr Richardson, due to a poor season, his company had been unable to expand into new markets. In addition to sourcing the fruit from Australia it was investigating international markets as a way to ensure a stable supply. Demand for avocado oil was almost insatiable, but the company was doing all it could to supply existing customers first, he said. (16) To cope with the extra demand for avocado oil, the winter of 2001 was spent upgrading and renewing the pressing plant (4). As a consequence, the company's oil production was expected to increase from 50,000 to 100,000 litres by 2004. Production of the increased volumes would take up less than half the plant capacity leaving plenty of potential for further growth. (8)

ICT AND "DECENT WORK"

By September 2000, in addition to making use of telephones and photocopiers, Avocado Oil NZ was using mainframe computers to support its businesss operations. The company purchased a fax machine and connected to the Internet in October of that year. Cell phones were in use by the business from September 2002. By April 2004, the company was using personal computers. Information and communication technology (ICT), in particular email, is used by the company for communication between staff and with national and international customers, suppliers, distributors, competitors, and other organisations. The company uses the Internet for marketing products and services, product delivery and research on competitors. The company website, http://www.avocado-oil.co.nz, is used for information sharing with staff, distributors, competitors, and the public. It is also

used to advertise the company and its products. In addition, an external eMarket site, http://earthy.com, is used to sell the company's products (13).

In June 2003, Avocado Oil NZ had a permanent, full time staff of seven (12), and the company occasionally used the services of an independent contractor. The introduction of ICT at the company and its subsequent use has not affected the number of workers it hires, the average age of those employees or their typical hours of work. However, it has resulted in increases to some employees' pay. To this end, according to company CEO, Mr Richardson, ICT use by Avocado Oil NZ has increased the overall efficiency, productivity and profitability of the company and has reduced the need for office space and communication costs. Mr Richardson sees ICT being used by the company in the future to provide better linkages between people and faster customer service. (13)

ICT use at Avocado Oil NZ has not affected work health and safety outcomes, the amount of sick leave taken by employees of the firm, or the number of employment disputes or personal grievances. It also has not had an apparent impact on the share of employees of the company who are union members. Nevertheless, ICT use by Avocado Oil NZ has resulted in an increase in employee qualifications. This was achieved through recruiting new employees who were already skilled in the target areas, and through increased ICT training. Areas covered during training included basic and technical computer skills. Conducted by an external organisation, training occurred within work hours in the work place, and was paid for by the company. Further ICT-related employee training will occur over the next calendar year. In this regard, Mr Richardson views such training as being essential to increased employee retention, productivity and profitability. (13).

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ROSE & HEATHER LIMITED

HISTORY

Furniture designer and manufacturer, Rose & Heather Ltd, was established in 1979 when Tim Heather and Lucille Rose opened the Warkworth Craft Room north of Auckland. Although the business was set up to sell crafts and coffee, the most popular items it offered for sale were the round, colonial-style tables Mr Heather produced by hand as a sideline business. The company's first big success as a furniture maker came in 1988, when it was chosen to make tables and chairs for the Brisbane Expo's New Zealand restaurant. The company's owners decided then to focus on making high-quality, hand-made furniture constructed out of a unique ancient swamp kauri, the age of which far exceeds that of any kauri found elsewhere in the world. (1) The wood is extracted from beneath the ground in northern New Zealand, and can be more than 40,000 years old. (2) This is a source of competitive advantage for the company.

In the early 1990s, Rose & Heather made another key strategic decision. While other New Zealand furniture makers were attempting to cope with the threat of cheap imports by reducing their prices, Rose & Heather chose to go 'up market'. "Manufacturers were falling over themselves to produce low quality, MDF [medium density fibreboard] furniture to meet market demand; it left a hole for us to fill," says company Managing Director, Martin Bell. (1) "We upped the ante and went the other way, focusing on a high-end product." (3) As a result, in 1992, the company won a Dupont National Design Supreme Award. (4)

Rose & Heather now makes furniture in four main styles: Trenail, Eden, Tumblehome and Parquet. A trenail is a wedge driven into an exposed dowel to secure the timber instead of using nails and has been used by boat builders since the 16th century. Rose & Heather's Trenail range derives its strength from a time-honoured boat construction method not normally associated with furniture-making. In this range, structural elements provide the design features, producing well-balanced, classic furniture. Among Rose & Heather's other ranges of product, the Eden, a neat, light furniture reminiscent of the Shaker style, is particularly suited to homes and apartments where space is at a premium and appeals to those who prefer simplicity. The newest range in Rose & Heather's line of furniture, Tumblehome, named after the curved shape of a boat's hull, is enormously popular with apartment and townhouse dwellers and exudes warmth and character with its soft, sensuous shapes exhibiting fine attention to detail. (2)

To strengthen its position in the market, the company has expanded its range of output to include complementary products, such as bed linen and lamps, which are sourced from a range of New Zealand manufacturers and artists who, on their own, are not export capable. Rose & Heather's Managing Director contends, "Sourcing locally and exporting collectively under the Rose & Heather brand gives the company exclusivity of product in offshore markets." (2)

MARKET AND SALES

In 1992, Rose & Heather Ltd decided to start exporting to Australia. In order to enter that market without incurring excessive cost and to position itself as a premium brand, the company offered its product through the David Jones department store chain. By 1994, it was selling in eighteen David Jones stores throughout Australia. (5) This export strategy proved so successful that, in 1997, Rose & Heather closed its Christchurch, New Zealand, store. The following year, the company committed to the Australian market, estimated to be worth more than $1 million in 1998, (1) by opening its first overseas retail outlet in Willoughby on Sydney's North Shore. (9) According to Mr Bell, "It's cheaper to get product to Sydney than Christchurch". (10) Within a year of opening that store, turnover at Rose & Heather's first Australian retail outlet exceeded the firm's combined revenue from sales of its product at the David Jones stores through which it did business. (5) Moreover, Australia acted as a

springboard for Rose & Heather. Exports to that country rose 35 percent in 1999 and constituted 34 percent of the company's annual $8 million-plus turnover. (6)

To cope with its expanding market, in 1998, Rose & Heather divided into two branches: Rose & Heather Ltd now handles the New Zealand operations and is run by the first generation co-owners, Tim Heather and Lucille Rose; while Rose & Heather Offshore and the Auckland store are run by the second generation, Maryjane Heather and her husband, Martin Bell. (5) In addition, in that same year, an American agent, Howard Phillips, was enlisted to promote the company's furniture through department stores in the US. In 1999, a specialist Rose & Heather store was opened in El Segundo, California. In early 2001, the company opened its second Australian retail store in the upmarket Sydney eastern suburb of Wollahra (12) with the aim of ensuring more of its business came from its own outlets rather than through department stores. (1)

Later that year, following the events of September 11, new American security rules made it impractical to transport furniture from New Zealand to the US, and the decision was made to close the California store. Nevertheless, this setback did not halt expansion of Rose & Heather. In 2004, Rose & Heather commenced exporting its furniture line to Hong Kong and Singapore and the company entered into a joint venture with a British agent to market its products through department stores and interior design magazines in the United Kingdom. (9)

In 1999, 40 per cent of Rose & Heather's customers were repeat buyers, with many having remained loyal to the company for more than 10 years. Company Managing Director, Martin Bell, believes his primary entrepreneurial contribution to the business has been his having seized numerous opportunities to take the business forward, moving it from a cottage industry to being a niche player in both the domestic and international markets. (6) This has been achieved, not only through overseas expansion of sales, but also through the company's extensive use of information and communication technology (ICT). (9)

At present, Rose & Heather has two stores in Auckland, New Zealand, as well as outlets in Wellington and Christchurch and two stores in Sydney, Australia . (9) In 2003, Rose & Heather won a Trade New Zealand Export Award for growing its exports by more than $1 million in the previous two years. In fact, the company's export sales increased from $620,000 in 2000 to more than two million dollars in 2002 and, in May 2003, accounted for 62 per cent of the company's total sales. (3) At present, the company generates annual sales of over $10 million, including over $3 million in export receipts in 2003. Furthermore, export sales are expected to reach in excess of $6 million by 2008, after the opening of a new store in Melbourne, Australia, in 2004 and another in London in 2006. (9)

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

According to Bell, use of ICT has increased the company's efficiency, productivity and profitability, and has reduced cost, in particular in the area of communications. Also, from its inception in 1998, Rose & Heather Offshore Ltd has adopted all the technologies of the original company. Rose & Heather Ltd began using facsimile machines in 1989, cell phones in 1994, and computers in 1995. The company first connected to the Internet, which it uses to market its products, organise product delivery and research competitors, in 1996. Rose & Heather currently has a website and uses an eMarket site to sell its products. E-mail is used by the company for communication between the company's staff and its customers, as well as between staff and suppliers, distributors and competitors. (9) In addition, the firm's customers, particularly those who do not have access to nearby stores, can order products via the website using e-mail. (5)

The Internet has allowed Rose & Heather to reveal its New Zealand roots only where this aspect of the company is likely to prove to be an advantage. When the company was sorting out its Internet presence, it had to resolve the issue of what Internet address to use. For the US, Asia and British markets, it opted for an Internet address ending in "co.nz," thus highlighting its New Zealand origins.

For Australia, though, it chose to use the "com.au" suffix. To this end, Bell decided there was no mileage in pushing the New Zealand image in Australia. "It's not something the Australians react to well," Bell says. That is, on the opposite side of the Tasman Sea, Rose & Heather is just as happy to be taken for an Australian company. (10)

The Rose & Heather website, launched in 1998, is used by the company for information sharing within the organisation and, outside of the organisation, to advertise the company and to market and sell its products. (9) The website also allows the company to maintain contact with its previous customers. Bell likens the website to a detailed business card. Businesses serious about exporting, especially in markets like the US, can't do without one, he says. "It gives us credibility. When you approach a retailer in the US, they always ask 'what's your website address'? It's a very necessary part of business". (12) Moreover, owners of Rose & Heather furniture can join the online Original Owner Register, which offers bulletins advising past customers about new products before they are released to showrooms, invites them to special furniture previews throughout the year, and provides updates on ancient Kauri and information on the care and maintenance of Rose & Heather furniture. This information is sent via e-mail bulletins in either HTML or plain text, depending on customer's preference. (9)

Most of the company's international sales come through tourists who've passed through New Zealand and expatriate New Zealanders who are introduced to the product when they are here and then seek it when living abroad, and the website makes such purchases possible. At present, approximately seven percent of Rose & Heather's product goes to the UK and eight percent to the US following website inquiries primarily coming from expatriate customers. According to the company's Managing Director, Rose & Heather's website is the conduit of five percent of all inquiries to the company, most of which come from those first introduced to the company's product line through traditional magazine advertising or a visit to one of the company's retail outlets. (3) One anecdote related to the company's Internet sales is that of a British couple who visited the company's Sydney store and, upon returning to Britain, made an inquiry via Rose & Heather's website. Two weeks later Rose & Heather Offshore had a $9,500 order from London. (9)

Other organisation's websites have also had a positive impact on Rose & Heather's sales. An article on the Xtra website, www.xtra.co.nz, for instance, spurred overseas interest. Within half an hour of the story going live on the New Zealand news site, Rose & Heather's Martin Bell received an e-mail from a reader in Hong Kong wanting to know where she could buy the company's range of New Zealand-made accessories. "Any publicity's good, but I didn't expect the Xtra story would generate the sales interest it did. It blew me away," says Bell. "I guess you can't underestimate the power of a good website to draw in visitors from all over the world. The response I got to the Xtra article just confirms for me how important the Internet is in any company's marketing strategy, especially if you're looking to increase export opportunities." (9) Nonetheless, while the Internet has been crucial to the company's development, Bell says it isn't the be-all-and-end-all. "You have got to use it as part of your whole marketing mix. It doesn't replace your traditional marketing, but it's an incredibly important ingredient". (12)

Another example of where Rose & Heather has invested in new technology is in simplifying display of its products. With over 200 pieces in its range, having samples of all products in-store has proven impossible. Instead, the company provides some physical stock for customers to see and touch, with in-store computers projecting digital images of the rest of its product range. Digital images of each of the company's products are also available in CD ROM catalogues and can be e-mailed to interested customers, who can also link into the website using this technology and then order product through e-mail. (6) Flip Album software, purchased by the company off the Internet, allows marketing staff to store the images, which deliver far better resolution than the Internet, in a format that enables customers to view Rose & Heather products in much the same way one would flip through a standard photo album. (5) Under the Flip Album licence and at a cost of $1.10 each, Rose & Heather can

create up to 10,000 CDs a year, 2000 of which were provided to its customers in 2001. The following year, the company distributed around 40 CD ROMs a week through its stores in Australia and 15 a week in New Zealand. (12)

The company's Newmarket premises in Auckland are home to much of Rose & Heather's computer technology, including its sales and administration systems, which enable Rose & Heather Offshore to administer its Australian ordering system. "Technology contributes significantly to what the company is able to do," says Bell. "It means savings in stock and showroom space, and has sped up the order process from weeks to days." While orders are still hand-written in front of the customers, the data are entered into a Microsoft Access database. (5) The database, designed by ACE Development, is used to order and track individual furniture items and accessories and to invoice products to customers. The database has built-in functions to import orders from Excel and process output from a barcode scanner for stocktaking. (8)

Martin Bell, Rose & Heather's Managing Director, believes the organisation could use ICT to a greater extent than is does at this time, but this need will be addressed in the near future when the company further develops its use of ICT to increase the speed and efficiency of its operations. To this end, the company is currently developing an intranet system to link its stores with its workshop and allow staff access to information identifying precisely where orders are located at any given time. Integration between the firm's bar-coding hardware and Access database is also being developed. (9)

ICT AND "DECENT WORK"

Increased demand for Rose & Heather's furniture has meant more product runs. Through its use of ICT, the company has been able to meet that demand with fewer delays between the time the customer makes a selection and when he or she sees the furniture in their home. (1) By 2003, Rose & Heather Offshore Ltd employed 42 cabinetmakers who produced about 200 furniture products across all of the company's four ranges to appeal to customers at different stages of life. (7) Nevertheless, because its growth was constrained by its reliance on skilled craftspeople, increased demand for the company's product also posed new challenges. For instance, in 1988, following the New Zealand Government's removal of its support for the long-standing apprenticeship scheme, Rose & Heather set up its own small training school to produce skilled craftspeople capable of creating furniture using the 16th century boat-building technique, trenail. (1) In 2001, the company planned to increase its skilled workforce 15 percent by expanding its own apprenticeship scheme and doubled its production space by moving to a new workshop in Glen Innes, an inner-city suburb of Auckland. (12)

In addition, ICT use, in particular, has resulted in a number of changes within the company. Combined, Rose & Heather Ltd and Rose & Heather Offshore currently employ a total of 45 cabinetmakers and 10 retail and management staff. The introduction of ICT has resulted in an increase in the number of people employed by the organisation as well as increases in pay for some of its employees. Two Rose & Heather Ltd employees, though, have seen their work hours reduced and are now employed on only a part-time basis as a consequence of use of this new technology. While the introduction and expanded use of ICT did not result in the organisation's employees having the option of working more flexible hours, it did allow some to work in company offices at a different location. (9)

The average age of Rose & Heather Ltd employees, from its founding in 1979 to the present, decreased as a result of the introduction and subsequent use of ICT. The founding company had a high average employee age and low IT acceptance. This changed, however, in 1998, when Rose & Heather Offshore was established and took over the organization's overseas operations and its Auckland store and elected to employ young IT-savvy people. Rose & Heather Managing Director, Martin Bell, contends that, in order for it to keep pace with its new division, Rose & Heather Offshore, the parent company soon also found it necessary to hire younger workers who were, in particular,

adept at using information technology. Nevertheless, the introduction of ICT and its subsequent use by Rose & Heather did not affect workplace health and safety, sick leave, the number of employment disputes or personal grievances nor the proportion of the organisation's employees who are union members. (9)

While the introduction of ICT has not resulted in a change in the average qualification level required of Rose & Heather employees or prospective employees, workplace ICT training has increased. Over the next calendar year, the company intends to invest in employee job-skills training as well as basic and technical computer skills. Training will be carried out during work time by both company employees and contractors either in the workplace or at an external location, depending on the specific training involved. Rose & Heather Ltd will pay for any ICT-related training undertaken by employees during or outside of work time. The training provided by the organisation will not result in a recognised qualification, but Rose & Heather Ltd employees will be formally assessed. The organisation will ultimately assess the value of this training in terms of increased productivity, profitability, employee job satisfaction, and both employee and customer retention. (9)

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SLOW BOAT RECORDS

HISTORY

Wellington, New Zealand, music store Slow Boat Records (Slow Boat) was established in 1985 by Dennis O'Brien. The business began as a small second-hand record store with only one part-time employee. Over the years, it has expanded and is now a large comprehensive music store, specialising in new and used compact discs, records, tapes, DVDs and videos. In addition to importing inventory from the United States, the company sources new goods from local independent and major record companies and distributors. Second-hand, rare and interesting stock is sourced locally from the public, primarily from people who come in off the street to sell unwanted goods. Although Slow Boat representatives also purchase estate lots and, if they see a bargain, may buy from other second hand shops.

Slow Boat currently employs three full-time and four part-time staff. Growing the business has not been easy. Parallel importing and increasing competition from mainstream music stores has meant Slow Boat has had to differentiate itself from its competitors. Co-owner Steven Hinderwell says, "Heavily discounted CDs sold at The Warehouse (a leading retailer in New Zealand and Australia) have affected business. The store survives by supplying back catalogues for collectors and other music lovers."(1) The store also stocks a large collection of unique products, including many signed and promotional items and New Zealand only releases.

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

The New Zealand collectors' market is very small due to the size of the country's population. In 1998, to tap into the larger overseas market for rare and valuable music stock, Slow Boat decided to invest in a computer, and establish a website and e-mail address. Store-owner Dennis O'Brien, who initially had little understanding of the new technology, saw this as a high-risk venture. As such, the establishment of a website by Slow Boat Records proved to be problematic. In particular, because it was unknown whether the strategy would be profitable, there was pressure to have the system established and showing returns as quickly and with as little cost to the business as possible.

Without an understanding of the technology, staff were reliant on the expertise of others. With a generally technophobic workforce, the newest and youngest member of its staff, Anthony Stretch, was delegated the task of managing the website and e-mail system. Although his knowledge was limited, Stretch had more experience using computers than any of the other Slow Boat employees. No investment was made in training staff. Instead the website was created with the help of friends and the Internet provider. Recommended equipment was purchased, but much of it was found to be unnecessary. In addition, maintaining the company's website was costly, and it did not show the desired returns. This was, in large measure, a consequence of the fact that none of its staff knew how to increase Slow Boat's exposure. The computer experienced technical difficulties, and after-sales service was found to be inadequate. As a consequence, after only two years, the cost and lack of returns saw the website discontinued.

In spite of its initial failure to integrate this technology with its business operations, with help from a few technically skilled friends of the owner, Slow Boat eventually came to discover that the Internet offered other ways of selling than through a website. Hence, beginning in 2000, the company has used external eMarket websites to market its music products. Since the music seller takes a 5 percent share of the sale price of each item sold, Slow Boat can list thousands of items on a host site without incurring ongoing fees. These sites are specifically dedicated to music, which means they are more likely to attract customers who are interested in purchasing the very products Slow Boat sells. In addition, selling through these sites, which are user friendly, efficiently run and provide a 'secure server', has proven to be easier than Slow Boat initially anticipated.

As part of its newfound eMarket strategy, Slow Boat Records first used only Netsounds.com and Gemm.com for the purpose of selling its music over the Internet. In 2004, though, the company expanded its use of such sites to include Musicstack.com and Alibris.com. Slow Boat has also utilised online auction sites, such as eBay.com, to sell its products, however this has proved to be a more costly strategy for the company than does selling its CDs and records through eMarket music seller websites. That is, in addition to a percentage of the sale price, auction sites also require sellers such as Slow Boat to pay a listing fee.

As a consequence of having hired a new employee with previous Internet sales experience and the decreased cost of establishing and maintaining a website, Slow Boat decided, in 2003, it would again attempt to establish its own website. Anthony Stretch, who was responsible for establishing Slow Boat's first website, left New Zealand in 2001 to travel overseas. He was replaced by Jeremy Taylor, who had experience selling music online at his previous employer, Echo Records. Taylor was hired by

Slow Boat, in part, because it was thought he might be able to maintain Internet listings and increase Internet sales. After some deliberation, it was decided a website that acted as an extension of the physical store, rather than list the business's entire inventory and items it could acquire, was the better option for the company. This decision was based, in part, on the fact that Jeremy Taylor, the only company staff member projected to handle Internet sales, would also be required to work in the store and, therefore, would have limited time to update and maintain a more extensive website.

As it currently stands, Slow Boat Records' website presents an informal overview of the company's single store and a database of its rare and interesting items for sale. The website is used to provide company and product information to customers and the public as well as for Internet sales. Slow Boat felt it was important to have a web presence because the collectors' market often requires a very personal level of service. In this regard, many of its customers prefer to form a relationship with the seller and, as it has developed, Slow Boat's website has allowed for regular interpersonal communication between the company and its customers. It also permits overseas customers to see photos of Slow Boat's store and to access direct contact information.

As well as selling through its website, Slow Boat continues to utilise eMarket sellers' sites, which provide secure online servers, hence implying that the company does not have to go to the trouble and expense of doing so through its own website. In fact, most contact via Slow Boat's website comes from people who have viewed the company's online listings at eMarket sellers' sites. When an order is shipped overseas, Slow Boat's Jeremy Taylor includes a business card displaying the company's website address. This gives the customer a choice to continue buying through the secure seller" sites or to buy directly from the company with a money-back guarantee. In addition, most eMarket host sites have a rating system that assists potential customers in assessing the credibility of any company marketing its products on the site before making a purchase. In this regard, Slow Boat soon gained a reputation with its online customers as being reliable and responsive, and the business currently boasts a five-star rating as a seller by both GEMM and Netsounds. (1)

All things considered, Taylor believes the business has benefited far more from its website than did his previous employer, Echo Records, from selling online exclusively via Internet auction sites, such as eBay.com. "Selling through GEMM, Netsounds, etc is more reliable than eBay and other auction sites. There is no listing charge and we only pay a commission of 5 percent if the goods are sold". Moreover, with regard to customer's' access and use of Slow Boat's website, to be effective, says Taylor, customers need to know that it exists and be able to find it. This requires increasing the exposure of the site by linking it with complimentary sites. "As your website gets more visits, your rating on search engines, such as Google.com increases," says Taylor. Slow Boat has now progressed to the stage where, if a customer enters 'Slow Boat Records' into a search engine, the company's website is amongst the top three sites listed.

Prior to 1998, when Slow Boat Records first invested in a personal computer, overseas transactions were made via fax, telephone or regular post. This was often time-consuming and expensive. The company's use of the Internet now means it can reply cheaply and promptly to customers' inquiries. This increases productivity and makes overseas sales more profitable. However, many of Slow Boat's customers are still wary of purchasing items online. "A lot of people in America have no idea where New Zealand is and the concept of buying something from New Zealand is like getting something from Lithuania," says Taylor. To assist its potential customers in this regard, Slow Boat also e-mails scanned images of items to prospective buyers so that they can better assess the condition of any item they're considering for purchase. Taylor believes this allows customers to purchase Slow Boat's products with more confidence in the quality and value of what they're buying. The downside to maintaining the company's website and listings, packaging and posting products sold on the Internet, and continuing ongoing correspondence with customers is that these tasks are time-consuming.

Hence, Internet sales have to be lucrative to make the company's use of ICT worthwhile. To this end, Taylor's contends, "Rather than being something that you entirely rely on, I think you have to look upon it as the cream."

Slow Boat buys stock from a variety of sources including the Internet. Information and communication technology (ICT), though, also allows Slow Boat's customers to send 'want' lists via e-mail or fax. The business can then purchase stock with the knowledge there is a prearranged buyer for these items. This reduces the risk of purchasing stock and strengthens the personal service the company can provide to its customers. Just-in-time inventory also reduces the need for space in which to warehouse inventory. Due to the large variety and high turnover of these items, and the company's belief that it would be impractical to list this inventory on the Internet, new and second hand stock in the physical shop is still organized manually. Nevertheless, since purchasing a computer, Slow Boat has compiled a database containing over 2,500 items listed on the Internet. This allows the business to be more efficient when responding to Internet queries. In addition to importing stock from the United States, the company also uses the Internet to source new goods from local independent and major record companies and distributors. Record company release sheets are usually received via e-mail, and orders are then placed by e-mail, fax or telephone.

For Slow Boat, the benefit of selling overseas is dealing with collectors who are aware of the market value of the product they intend to purchase and are prepared to pay top dollar in order to do so. In May 2004, Slow Boat was making about twelve Internet sales per week, which equates to approximately 5 percent of its annual turnover. These sales frequently involve items which would not typically sell in the New Zealand market but can be sold at a considerable profit overseas. Jeremy Taylor, Slow Boat's web manager, says a record that may not sell for $45 in New Zealand will sell for £45 in the United Kingdom. The profit margin of goods sold online has far exceeded the company's original expectations.

Slow Boat Records currently uses the Internet to market its products, to check availability and approximate value of stock, and to monitor its competitors. E-mail is used to maintain contact with customers, suppliers, distributors and competitors. Also, while Dennis O'Brien is not proficient at using e-mail, this technology does allow him to stay in contact with the store when he travels overseas. Nonetheless, O'Brien generally views the Internet as both a friend and foe. That is, while it has provided an efficient means for Slow Boat to access a wider market, the company's founder believes its use of the Internet has replaced a relatively small proportion of that which it has lost by electing to use contemporary technology to market its wares, of which a significant proportion are effectively—and perhaps ironically—relics of a bygone era. In addition, O'Brien contends the Internet has increased Slow Boat's competition by allowing consumers to purchase the same products from anywhere in the world. Hence, the company is not only competing with other Wellington music stores but also internationally. In this regard, recent improvements in the relative value of the New Zealand dollar in terms of foreign exchange, coupled with the fact that most of the company's Internet transactions are made in US dollars, imply Slow Boat's profit on most of these sales is less than what was the case two or three years ago. Finally, the Internet gives people the ability to download music for free or at a significantly reduced price. All in all, therefore, O'Brien feels his business has suffered as a result of the new technology.

ICT AND "DECENT WORK"

The Internet has not affected the demographics of the company's employees or the company's employment relations. The individual staff generally work the same hours and are paid the same as they would be were ICT not part of the work environment. Show Boat Record's use of the Internet, nevertheless, has increased employee workloads and, consequently, has resulted in more staff being taken on to work for the company. In this regard, Slow Boat co-owner Steven Hinderwell notes that Jeremy Taylor, the one current employee hired by the firm to work with the company's ICT, was

brought on board as much for his music knowledge as for his knowledge of computers. As such, use of ICT was never intended to encompass all of Taylor's job, let alone all of the time he spends working at Slow Boat. Nonetheless, Internet-related tasks do take up much of Taylor's time on the job. The store's computer is located in the office, which means Taylor is often away from the sales counter. This requires other staff to take up his workload away from the computer and has compelled the company to hire extra part-time staff to relieve the increased pressure other employees.

Although its use has put extra strain on the employees, all agree the Internet has made their work more interesting and varied. When Taylor left Echo Records and started working at Slow Boat Records, though, he was somewhat apprehensive about making the transition from online auctions to host sale sites, although he was also enthusiastic about the opportunity. Taylor now contends, in retrospect, that he ultimately faced no significant challenges in making this transition. "I have pretty much been left to my own devices as to how the Internet and overseas sales are run." Currently, Taylor updates the company's website once a week. He says he would like to increase the amount of time he devotes to Internet tasks, in particular he would like to make daily updates, but this is a matter of finding uninterrupted time. To this end, even if Internet sales became very profitable, it is unlikely the company would have a full-time Internet sales employee. According to Taylor, "I think a certain balance between computer work and working in the store is necessary to prevent insanity from too much time in front of the computer screen, and also to keep in touch with the music side of things."

The use of ICT has not changed the average formal qualification levels of employees at Slow Boat, either. In this regard, the only recognised computer training Taylor received was at secondary school, and those skills are now essentially redundant. "Computer studies at school were completely different, as it was before the Internet," he says. As such, Taylor's computer and Internet knowledge has, out of necessity, been self-taught. He also utilises the skills of friends to pick up new information and help develop the company's Internet presence. "The knowledge that I have is very functional, I know how to do what I need to be able to do". Nevertheless, Taylor has passed on his computer knowledge to co-workers, explaining how to search for information and which sites to use for the most efficient and accurate results. Other staff members, who were at first reluctant to deal with the new technology, have increased their use of the computer, regularly making searches and using e-mail.

Taylor believes increasing his computer knowledge would improve the exposure of Slow Boat Record's website and possibly increase direct sales, rather than sales through a seller's site which requires Slow Boat to pay a fee. In the past, though, Slow Boat has relied on friends for computer training and, as they see the cost as being prohibitive, has not considered using a consultant or formal training for its employees. Furthermore, the company does not have a strategy for developing the ICT skills of its employees. Store founder and co-owner, Dennis O'Brien, feels his staff have an adequate understanding of the technology for its current uses by Slow Boat. At this stage, therefore, it is unlikely Slow Boat will invest additional time and resources into the website or into ICT training. In spite of this, in the future, the company would like to use ICT to a greater extent, but they are unsure how to achieve this. As Slow Boat employee Jeremy Taylor notes, "Selling more, and being more profitable online is still dependent on having things that people want to buy. Good quality, desirable records are still fairly few and far between in New Zealand."

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APPENDIX A

MEASURES OF DECENT WORK IN NEW ZEALAND[i]

Indicator	Year (unless otherwise specified)			
	1985-87	1991	1996	2001
Employment Opportunities				
Labour force participation rate (%)	66.2%	63.9%	65.1%	65.5%
Employment population ratio (%)	63.6%	58.5%	61.1%	61.7%
Unemployment rate (%)	4.0%	8.4%	6.2%	5.7%
Youth (age 15-24) unemployment rate (%)	7.8%	15.3%	11.9%	12.8%
Wage employment in non-agricultural employment (%)	89.4%	89.5%	90.3%	91.2%
Unacceptable work				
Children (age 6-14) not at school (%)[ii]	N/A	0.9%	0.3%	1.2%
Children in wage employment (%, by age: <14 years)[iii]	N/A	N/A	N/A	N/A
Adequate earnings and productive work				
Employment with low (<50% of the mean) pay rate (%)[iv]	6%	7%	7%	N/A
Average earnings in selected occupations[v]				
Professionals	--	--	--	NZ $45,800
Service & sales	--	--	--	NZ $23,000
Trade workers	--	--	--	NZ $30,700
Elementary occupations	--	--	--	NZ $23,100
Median	--	--	--	NZ $32,400
Real annual incomes for employees by qualification[vi]				
Unqualified (school certificate, no qualification)	NZ$25,057	NZ $25,250	NZ $26,910	NZ $27,143
Skilled labour (bursary, vocational or trade certificate)	NZ $31,450	NZ $32,478	NZ $34,359	NZ $36,201
Bachelors Degree	NZ $40,787	NZ $44,918	NZ $47,059	NZ $49,348
Higher (post-graduate diploma, honours, Masters, PhD)	NZ $45,741	NZ $50,225	NZ $53,621	NZ $55,519
Decent hours				
Excessive hours (50+ per week) of work (%)	N/A	17.8%	21.3%	21.7%
Time related underemployment rate (%)[vii]	2.3%	6.1%	7.1%	7.2%
Stability and security of work				
Tenure less than one year[viii]	N/A	N/A	N/A	N/A
Casual, fixed-term or temporary work (%)[ix]	N/A	11%	11%	N/A
Combining work and family life				
Ratio of working women with children (aged 1-4 years) relative to total female (age 15+) labour force participation[x]	72.0%	80.0%	84.8%	86.7%
Fair treatment in employment and at work				
Occupational segregation on the basis of gender (% female)				
Administrative & managerial	17.8%	33.0%	34.5%	37.8%
Professional & technical	47.3%	34.5%	49.6%	53.7%
Clerical	73.7%	77.5%	78.0%	77.3%
Sales & service	57.8%	66.5%	66.1%	64.5%
Trades, labourers, etc.	18.0%	21.4%	20.9%	19.8%
Total non-agricultural employment (i.e., Share of women in non-agriculture wage employment)	41.6%	44.0%	44.4%	45.3%
Women in managerial and administrative occupations as a percentage of total female non-agricultural employment (%)	2.3%	8.8%	10.1%	11.5%
Safe work environment				
Fatal injury rate (per 1000 employees)[xi]	5.7	4.2	4.0	2.8
Labour inspectors per 1,00,000 employees[xii]	N/A	N/A	63.4	100.6
Employees covered by occupational injury insurance (%)	100%	100%	100%	100%
Social Protection				
Public expenditure (% of GDP)				
Health	5.8%	5.2%	5.3%	5.9%
Social welfare	N/A	14.9%	12.5%	12.0%
Needs-based cash income support:				
Unemployment benefits	2.2%	2.2%	1.4%	1.6%
Superannuation (New Zealand's public pension plan)	5.4%	7.2%	5.5%	4.7%

MEASURES OF DECENT WORK IN NEW ZEALAND (continued)[i]

	Year (unless otherwise specified)			
Indicator	1985-87	1991	1996	2001
Social Protection (continued)				
Needs-based cash income support (continued):				
Total cash expenditure on needs-based support	13.6%	14.3%	11.7%	10.9%
Total public expenditure (% of GDP)	41.8%	41.3%	32.8%	31.6%
Beneficiaries of cash income support (% of population)	N/A	23.8%	21.9%	21.7% (1999)
Share of population benefiting from NZ Superannuation (%)[xiii]	14.3%	15.0%	12.7%	11.2%
Share of population over 65 benefiting from a pension[xiv]	N/A	N/A	N/A	93%
Share of economically active population contributing to a pension fund[xv]	100%	100%	100%	100%
Average monthly pension (% of mean earnings)[xvi]	76%	73%	68%	N/A
Social Dialogue and Workplace Relations				
Union density rate[xvii]	53.1%	44.6%	24.4%	22.0%
Collective bargaining coverage rate (wage & salary earners) [xviii]	N/A	61.9% (1989)	29.0%	26.0%
Workdays not worked per 1000 employees as a result of strikes & lockouts	291.4	83.9	52.5	38.4
Economic and Social Context of Decent Work				
Informal economy employment (own-account self-employed as a percentage of the labour force)	9.4%	10.7%	11.7%	12.3%
Output per worker at purchasing power parity (PPP) prices[xix]	N/A	N/A	US$16,962	US$21,218
Labour productivity[xx]	1.3% (1981-84)	1.6% (1985-90)	0.5% (1991-97)	1.3% (1998-2000)
Average annual change in GDP per capita[xxi]	1.0% (1970-83)	0.7% (1983-91)	1.7% (1991-98)	1.1% (2001)
CPI Inflation (year to June; % change from previous year)	10.4%	2.8%	2.0%	2.0%
Adult literacy rate[xxii]	99%	99%	99%	99%
School leavers with no qualifications (%)[xxiii]	N/A	16%	19.1%	17%
Composition of employment (% of total employment)				
Agriculture	10.6%	10.5%	9.7%	8.8%
Industry	38.4%	24.5%	25.2%	23.2%
Services	61.0%	65.0%	65.1%	68.0%
Income inequality as measure by the GINI coefficient[xxiv] Wage & salary workers, ages 15-64	0.421	0.466	0.479 (1996)	N/A
Wage & salary workers, age 15+	0.430	0.472	0.479 (1996)	N/A
All age 15-64	0.554	0.609	0.485 (1996)	N/A
All age 15+	0.608	0.662	0.611 (1996)	N/A
Population living below the $1- or $2-a-day poverty level	N/A	N/A	N/A	N/A
Employability				
Highest qualifications attained (aged 15+)[xxv]				
Secondary (% of resident population)	N/A	N/A	26.5%	24.5%
Basic vocational (% of resident population)	N/A	N/A	3.7%	4.3%
Skilled – Advanced vocational (% of resident population)	N/A	N/A	14.6%	8.0%
Bachelor of higher (% of resident population)	N/A	N/A	13.9%	10.1%
Public expenditure on education and training (% of GDP)	4.1%	5.5%	4.8%	5.4%
Hours per year devoted to training[xxvi]				
1 day or less (% of those receiving training)	N/A	N/A	36.3%	N/A
2-5 days (% of those receiving training)	N/A	N/A	40.2%	N/A
6-10 days (% of those receiving training)	N/A	N/A	9.9%	N/A
11-30 days (% of those receiving training)	N/A	N/A	5.9%	N/A
31 or more days (% of those receiving training)	N/A	N/A	6.8%	N/A
Employer investments in training (percentage of payroll)	N/A	3.5% (1994)[xxvii]	N/A	3.7% (2002)[xxviii]
Employed persons participating in training (%)	N/A	N/A	17.2%[xxix]	16.0%[xxx]

i The source of this information, unless otherwise stated, is Statistics New Zealand's website http://www.stats.govt.nz/, *Household Labour Force Survey* (HLFS), conducted quarterly, and/or *New Zealand Census of the Population* for 1986, 1991, 1996 and 2001.

ii Calculated as the inverse of the ratio of the number of children age 6-14 in school to the number of persons age 6-14 in the New Zealand population. Sources: New Zealand Ministry of Education, School Statistics (Wellington: Ministry of Education, Data Management and Analysis Division, July 2002); Statistics New Zealand, New Zealand Census of Population and Dwellings, 1991, 1996 and 2001.

iii There are no official data relevant to child labour in New Zealand. Action for Children and Youth Aotearoa (ACYA), a New Zealand-based NGO, estimates that >40% of children age 11 to 14 work at least occasionally is greater than 40%. See *Children and Youth in Aotearoa* (Wellington: ACYA, 2003).

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vii Figures refer to those working fewer than 30 hours per week who would prefer to work more hours and/or are looking for full-time employment. Source. Statistic NZ, Household Labour Force Surveys (HLFS).

viii There are no data available in New Zealand on tenure. See Paul Callister, *Trends in Employee Tenure, Turnover and Work Scheduling Patterns: A Review of the Empirical Research Evidence*, NZ DoL Occasional Paper Series No. 1997/1 (Wellington: New Zealand Department of Labour, February 1997). A rough estimate may be derived from data on beneficiaries who (re)enter the workforce and later return to a benefit. For further details, see the text of this report.

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x Women in the labour force with preschool-age children are most likely to work a part-time basis.

xi Source: Occupational Safety and Health Service of the New Zealand Department of Labour.

xii Source: Occupational Safety and Health Service of the New Zealand Department of Labour.

xiii Excludes transitional arrangements (for 55-65 year olds) and Veterans benefit (predominantly for World War 2 veterans).

xiv Note: The age for government funded pension was progressively raised from 60 to 65 between 1992 and 2001.

xv Pensions were financed from general taxation throughout this time period.

xvi Source Mowbray, Mary, *Distributions and Disparity: New Zealand Household Incomes* (Wellington: NZ Ministry of Social Policy, 2001). Note: Pension rates can vary depending on marital status, accommodation status (i.e. living alone or with others) and whether spouse is also eligible.

xvii May, Robyn, Walsh, Pat, Harbridge, Raymond and Thickett, Glen, "Unions and Union Membership in New Zealand: Annual Review for 2001," *New Zealand Journal of Industrial Relations*, 27:3 (2002):307 – 323.

xviii May, Robyn, Walsh, Pat, Harbridge, Raymond and Thickett, Glen, "Unions and Union Membership in New Zealand: Annual Review for 2001," *New Zealand Journal of Industrial Relations*, 27:3 (2002):307 – 323, and Thickett, Glen, Harbridge, Raymond, Walsh, Pat and Kiely, Peter (eds) *Employment Agreements: Bargaining Trends and Employment Law Update 2002/2003* (Wellington, Industrial Relations Centre, Victoria University of Wellington, 2003) .

xix Source: OECD (2002) *Economic Surveys – New Zealand*

xx Source: OECD (2002) *Economic Surveys – New Zealand*

xxi Source: OECD (2002) *Economic Surveys – New Zealand*

xxii See text of this report for further information on this measure.

xxiii Source: New Zealand Ministry of Education.

xxiv Statistics New Zealand, *New Zealand Now - Incomes (Census 96) - Reference Reports* (Wellington: Statistics New Zealand, 1999).

xxv See also statistics on 'school leavers with no qualifications'.

xxvi Statistics New Zealand, *Education and Training Survey* (Wellington: Statistics New Zealand, 1996).

xxvii New Zealand Employers' Federation, *Training Survey Report*. (Wellington: New Zealand Employers' Federation, June 1994).

xxviii *Report of the Business NZ Skills and Training Survey*, 2003 (Wellington: New Zealand Department of Labour, June 2003).

xxix Statistics New Zealand, *Education and Training Survey* (Wellington: Statistics New Zealand, 1996).

xxx Skill NZ submission (No. 70) on the TEAC Report, *Shaping the System (2001).*

APPENDIX B

LETTER SENT TO COMPANIES USED IN COMPILING CASE STUDIES

Industrial Relations Centre
Victoria University of Wellington
PO Box 600
Wellington
New Zealand

16 April 2004

Dear Sir/Madame,

As a user of information communication technology, would you like your organisation to be profiled as part of an international study to be published by the International Labour Organisation? If yes, keep reading.

Victoria University's Industrial Relations Centre has been contracted by the International Labour Organisation (ILO) to write a series of case studies on the human resource management implications of information and communications technology (ICT) in New Zealand organizations. The broad goals of this research are twofold:

(1) To determine the actual nature of the impact of ICT on what the ILO calls 'decent work' (see definition below) and, thereby, the economy of New Zealand; and

(2) To identify factors considered critical to successful skill formation in development of an ICT-based 'knowledge economy' in New Zealand.

In previous research, the Industrial Relations Centre (IRC) has reported findings on the labour market effects of ICT, noting primarily the relative growth in employment both in the ICT industry and in ICT occupations outside of that sector, we've considered the importance of 'lifelong learning', the presence of a 'digital divide' in New Zealand, and the Government's policies pertaining to ICT. In furthering this research, in particular as it relates to the aforementioned goals set by the ILO, the IRC has agreed to survey a sample of small, medium and large New Zealand organisations that either are extensively using ICT, that might benefit from greater use of ICT, or that has recently evolved from being a low-end to a high-end user of ICT.

The basis of this research is a questionnaire, a copy of which is attached herein. So as to place New Zealand experience in the context of its Asia-Pacific neighbors, this questionnaire follows the standard devised by the ILO's Asia-Pacific Networking of National Institutes for Labour Studies, the specific entity with which the IRC has contracted to conduct this research. The questionnaire, which should take approximately thirty minutes to complete, can be returned by email, fax or post, or completed by means of a telephone interview, whichever means is most suitable to you.

Information derived from this questionnaire will form the basis of a case study of your organization, which will also incorporate additional background information on your organization derived from media coverage and the Internet. Those who elect to be involved in this study will be afforded the opportunity to edit the case study of their organisation.

To indicate your desire to take part in this research, please contact either **Jude Barlow** (04 463 6925), Research Associate, or **Dr. Stephen Blumenfeld** (04 463 5706), Senior Lecturer in Human Resource Management and Industrial Relations, at your earliest convenience. This can either be done by return email (as above) or by phone.

Thank your for your time and attention.

Jude Barlow
Research Assistant
Victoria Management School

DECENT WORK: Decent work implies the availability of sufficient employment opportunities; adequate earnings and productive work; decent hours; stability and security of work; combining work and family life; fair treatment in employment and at work; safe work environment; social protection; social dialogue and workplace relations; economic and social context of decent work; and, employability.

APPENDIX C

QUESTIONNAIRE USED IN COMPILING CASE STUDIES

Research Question: How has adoption and use of information and communication technology (ICT) impacted 'decent work' within your organisation?

Definitions

➢ "Information and communication technology (ICT)" relates mainly to becoming familiar with, and learning to use, technological devices, which assist in 'the collection, structuring, manipulation, retrieval, and communication [transmitting and receiving] of information in various forms. ICT does not relate solely to computer use.

➢ "Decent work" implies the availability of sufficient employment opportunities; adequate earnings and productive work; decent hours; stability and security of work; combining work and family life; fair treatment in employment and at work; safe work environment; social protection; social dialogue and workplace relations; economic and social context of decent work; and, employability.

Questionnaire instructions

Please answer questions with a brief, approximate, answer or tick the appropriate boxes.

General questions

What is your position or title within the organisation?

When was the organisation established?

Where is the organisation's headquarters or main office?

In what other parts of New Zealand does the organisation have: subsidiaries, franchises, offices, retail outlets or manufacturing facilities? *(Please specify.)*

In what other countries does the organisation have: subsidiaries, franchises, offices, retail outlets or manufacturing facilities? *(Please specify.)*

To what other countries or regions does the organisation export its products and/or services? *(Please specify.)*

Current payroll

How many people does the organisation currently employ?

How many limited-term employees does the organisation currently employ?

How many independent contractors does the organisation currently have engaged?

Use of information communication technology

Does the organisation use ICT other than telephones and photocopiers?   YES   NO

(If 'no', please skip to the last two questions in this section)

When (approximately) did the organisation begin using any of the following?

For example: cellphones _____ *(Specify date/year.)*

mobile radio _____ *(Specify date/year.)*

facsimile (Fax) machines _____ *(Specify date/year.)*

mainframe computers _____ *(Specify date/year.)*

personal or desktop computers _____ *(Specify date/year.)*

other *(Please specify.)*_____ *(Specify date/year.)*

For what purposes does the organisation utilize ICT? *(Please tick all appropriate responses below.)*

to communicate with staff

to communicate with New Zealand customers/suppliers/distributors *(Please ring all appropriate categories.)*

to communicate with overseas customers/suppliers/distributors *(Please ring all appropriate categories.)*

to communicate with organisations other than customers, suppliers and/or distributors *(Please specify.)*

to advertise the organisation's products or services

other *(Please specify.)*

In what ways is ICT beneficial to the organisation? *(Please tick all appropriate responses below.)*

increased efficiency

increased productivity

increased profitability

reduced office space and associated costs

reduced communication costs

other *(Please specify.)*

When (approximately) did the organisation first connect to the Internet? _____ *(Please specify date/year.)*

For what purpose(s) does the organisation use the Internet? *(Please tick all appropriate responses below.)*

marketing products and/or services

product delivery

research on competitors

other *(Please specify.)*

Does the organisation use e-mail?   YES   NO

Between whom is email exchanged? *(Please tick all appropriate responses below.)*

      only amongst the organisation's staff

      the organisation's staff and its customers or clientele

      the staff and suppliers/distributors/competitors *(Please ring all appropriate categories.)*

      other *(Please specify.)*

Does the organisation use an external ecommerce/eMarket site to sell products?   YES   NO

Does the organisation use an external ecommerce/eMarket site to source materials? YES   NO

Does the organisation have a web page?   YES   NO

(If 'no', please jump to next question category.)

    Is this web page used for information sharing within the organisation?   YES   NO

    Is this web page used for information sharing with customers?   YES   NO

    Is this web page used for information sharing with suppliers? YES   NO

    Is this web page used for information sharing with distributors?   YES   NO

    Is this web page used for information sharing with competitors?   YES   NO

    Is this web page used to advertise the organisation's products or services? YES   NO

    Is this web page used to advertise the organisation itself? YES   NO

    Is this web page used to sell the organisation's products or services? YES   NO

    Is this web page used to provide other information to the public? YES   NO

    Other uses? *(Please specify.)*

Does your organisation use ICT for other purposes not already identified? YES   NO

(If 'no', please skip the next question.)

    If 'yes', please specify the type/s of ICT and for what purpose/s it is used.

Do you think your organisation could use ICT to a greater extent? YES   NO

    If 'yes', please specify.

Do you think your organisation will use ICT to a greater extent in the future? YES   NO

    If 'yes', what benefits do you anticipate it will have?

ICT in relation to "decent work"

Has the use of ICT resulted in a change in the number of people employed by the organisation?

YES   NO *(If 'no', please skip the next question.)*

  If yes, has the use of ICT resulted in an:

   increase in the number of people employed?

   decrease in the number of people employed?

Has the introduction of ICT and its subsequent use resulted in a change in the qualification level required of the organisation's employees?   YES   NO *(If 'no', please skip the next question.)*

  If yes, has the use of ICT resulted in an:

    increase in qualification level?

    decrease in qualification level?

Does the organisation generally recruit new employees who have previously attained certain skills and/or skill levels?   YES   NO

Does the organisation have a strategy for developing current employees' skills?   YES   NO

Has introduction of ICT and its subsequent use resulted in a change in the amount of employee training provided by the organisation? YES   NO

  If yes, has the amount of training provided by the organisation increased/decreased? *(Please ring the appropriate response.)*

Is it intended that the organisation will invest in ICT-related training of its employees over the next calendar year? YES   NO

  If yes, what areas will this ICT-related training cover? *(Please tick all appropriate responses below.)*

    basic computer skills

    technical computer skills

    job-specific skills

    other *(Please specify.)*

Will any ICT-related training planned by the organisation at any time in the future lead to NZQA qualifications? YES   NO

Will any of this ICT-related training be formally assessed?   YES   NO

Will the any of the organisation's employees conduct any of this training?   YES   NO

Will any of this ICT-related training be contracted out?   YES   NO

Will any of this ICT-related training be done on work premises?   YES   NO

Will any this ICT-related training be done at an external location?   YES   NO

Will any of this training be done during any employee's actual work time?   YES   NO

Will the organisation pay for any ICT-related training undertaken during actual work time?
YES   NO

Will any ICT-related training be done outside of employees' work time?   YES   NO

Will any employees be paid for the ICT-related training they undertake outside of work time?
YES   NO

How does your organisation measure the value of training? *(Please tick all appropriate responses below.)*

      increased productivity

      increased profitability

      increased employee retention

      increased employee job satisfaction

      other *(Please specify.)*

Did the introduction of ICT and its subsequent use result in a change in the number of employees of the organisation?   YES   NO

    If yes, did the organisation's overall number of employees increase *or* decrease? *(Please tick the appropriate response.)*

Did the introduction of ICT and its subsequent use result in a change in pay for any of the organisation's employees?   YES   NO

    If 'yes', has introduction of ICT and its subsequent use resulted an increase in any employee's pay?   YES   NO

    If 'yes', has introduction of ICT and its subsequent use resulted a decrease in any employee's pay?   YES   NO

Did the introduction of ICT and its subsequent use affect the number of hours worked by any employees? YES   NO

    If 'yes', did it change any employees' status *(Please tick all appropriate responses below.)*

      from full to part time?

      from part time to casual?

      to a tenure of less than one year?

Did any shift from wage payment to salarisation of any of the organisation's employees occur as a consequence of the introduction of ICT?   YES   NO

Did any shift from salarisation to wage payment of any of the organisation's employees occur as a consequence of the introduction of ICT?   YES   NO

Did the introduction of ICT and its subsequent use result in a change in where any of the organisation's employees worked? YES   NO

    If 'yes', was the change to *(Please tick all appropriate responses.)*

    one of the organisation's offices in a different location?

    a different organisation's offices?

    the employee/s' home/s?

    other? *(Please specify.)*

Did the introduction of ICT and its subsequent use result in any of the organisation's employee's working hours rising above 50 hours per week?   YES   NO

    If 'yes,' how many employees were affect by this? *(Please specify.)*

Did the introduction of ICT and its subsequent use result in any of the organisation's employee's working hours dropping below 35 hours per week? YES NO

   If 'yes,' how many employees were affect by this? *(Please specify.)*

Did the introduction of ICT and its subsequent use result in any of the organisation's employees having more flexible working hours? YES NO

Did the introduction of ICT and its subsequent use result in a change in the ratio of male to female employees? YES NO

   If 'yes', did this take place in any of the following areas? *(Please tick all appropriate responses below.)*

   administration

   management

   technical

   production

   sales

   other *(Please specify.)*

Did the introduction of ICT and its subsequent use result in a change in the average age of employees? YES NO

   If yes, did the average age increase *or* decrease? *(Please tick the appropriate response.)*

Did the introduction of ICT and its subsequent use affect workplace health and safety outcomes (e.g., the number of workplace accidents, injuries or work-related illnesses)? YES NO

   If 'yes', in general, did health and safety problems increase *or* decrease? *(Please tick the appropriate response.)*

Did the introduction of ICT and its subsequent use result in a change in the amount of employee sick leave taken? YES NO

   If 'yes', did the amount of sick leave increase *or* decrease? *(Please tick the appropriate response.)*

Did the introduction of ICT and its subsequent use result in a change in the number of people involved in employment disputes and personal grievances? YES NO

   If 'yes', did the number of people involved in employment disputes and personal grievances increase *or* decrease? *(Please tick the appropriate response.)*

Did the introduction of ICT and its subsequent use result in a change in the proportion of your organisation's employees who are union members? YES NO

   If 'yes', did the proportion of union members increase *or* decrease? *(Please tick the appropriate response.)*

Any other comments?