

Key Findings of 1999 Infocomm Manpower and Skills Survey

1 SURVEY BACKGROUND

1.1 Survey Objectives

Before the formation of IDA, the NCB conducted the IT Manpower & Skills Inventory Survey biennially. This 1999 Infocomm Manpower & Skills Survey is the first joint Infocomm manpower survey launched by IDA, and the scope has been expanded to include Information and Communication Technology (ICT or Infocomm) manpower.

The objectives of the 1999 Infocomm Manpower & Skills Survey are to:

- determine the skills profile of Infocomm manpower in Singapore;
- determine the manpower requirements for the next 2 years;
- identify areas of skills shortages, training and retraining needs; and
- assess the career satisfaction of Infocomm manpower.

1.2 Survey Coverage

The survey covered government organisations, Infocomm industry and Infocomm end-user organisations in different industries. The survey was carried out in the 2nd half of 1999.

The survey consisted of 2 questionnaires – an Organisation Survey, completed by the Chief Information Officers (CIOs) or equivalent, and an Infocomm Manpower Web-based Survey, completed by individual Infocomm Manpower. 580 organisations participated in the Organisation Survey while 1,021 Infocomm manpower participated in the Web-based Infocomm Manpower survey.

International Data Corporation (IDC) was commissioned to conduct the surveys and carry out the analysis. The survey was supported by the Singapore IT Federation, The Association of Telecommunications Industry of Singapore and the Singapore Computer Society.

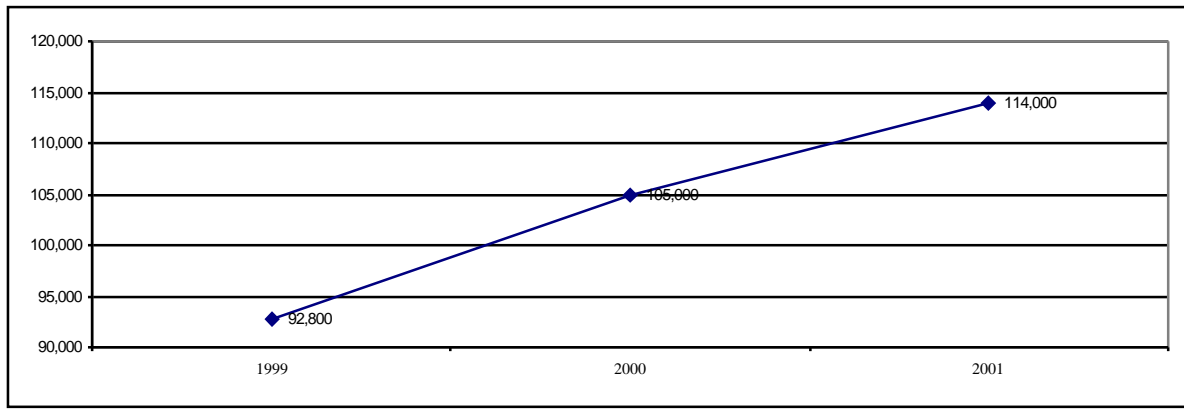
2 KEY FINDINGS

2.1 Manpower Growth

As at end of 1999, the number of Infocomm manpower in Singapore was estimated to be 92,800. The Infocomm manpower demand is projected to grow 10%-12% per year for the next two years. This implies that the total number of Infocomm manpower in Singapore will reach 114,000 by the year 2001.

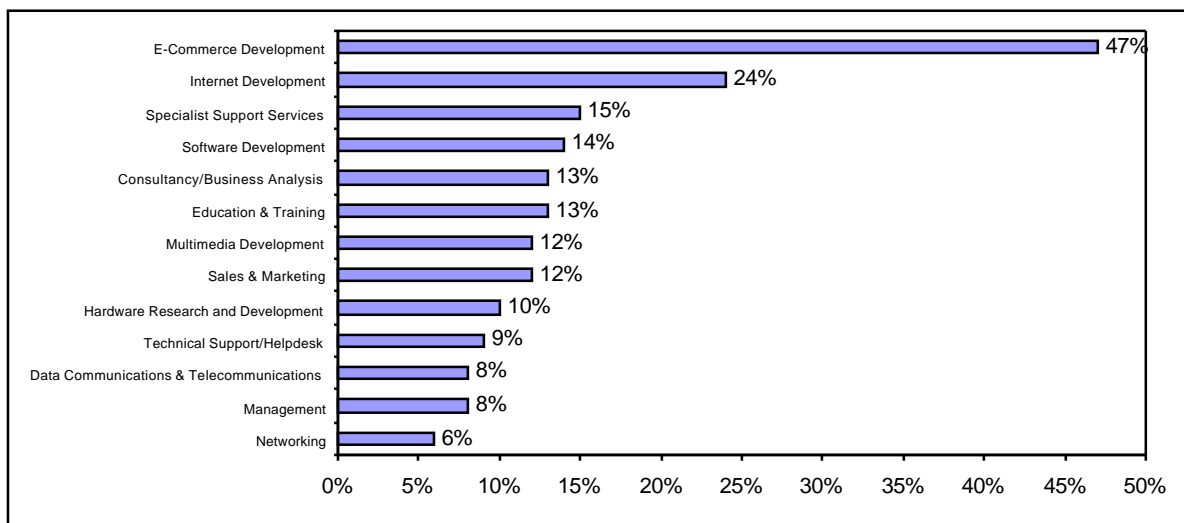
Figure 2.1a – Growth in Infocomm Manpower from 1999 to 2001

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In terms of manpower growth by occupational categories, the following categories are expected to reap the highest growth rate: E-Commerce Development (47%), Internet Development (24%), and Specialist Support Services (15%).

Figure 2.1b – Infocomm Manpower Growth Rate by Occupational Category from 1999 to 2001

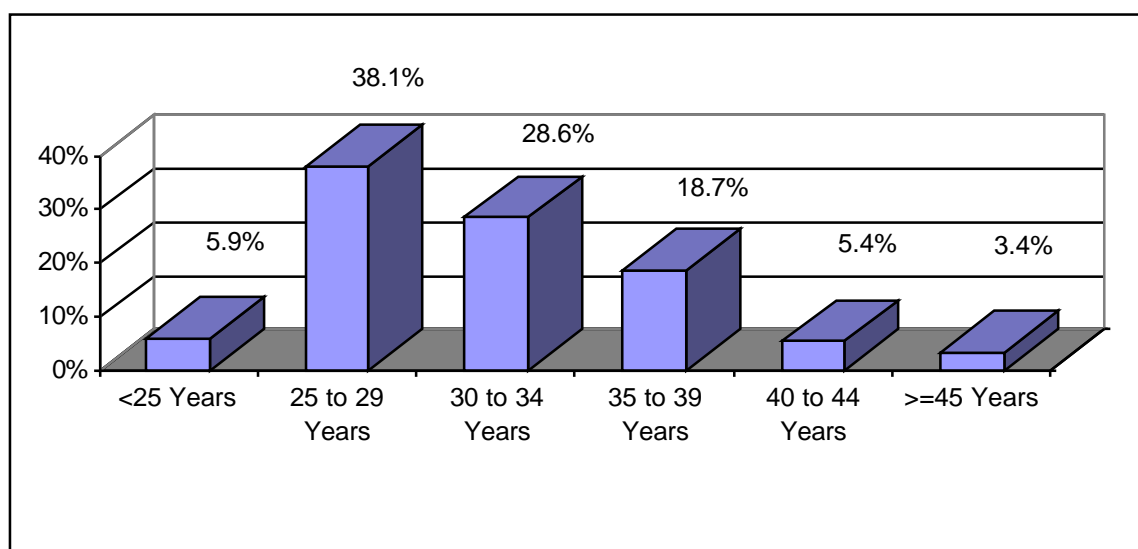


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2.2 Demographics

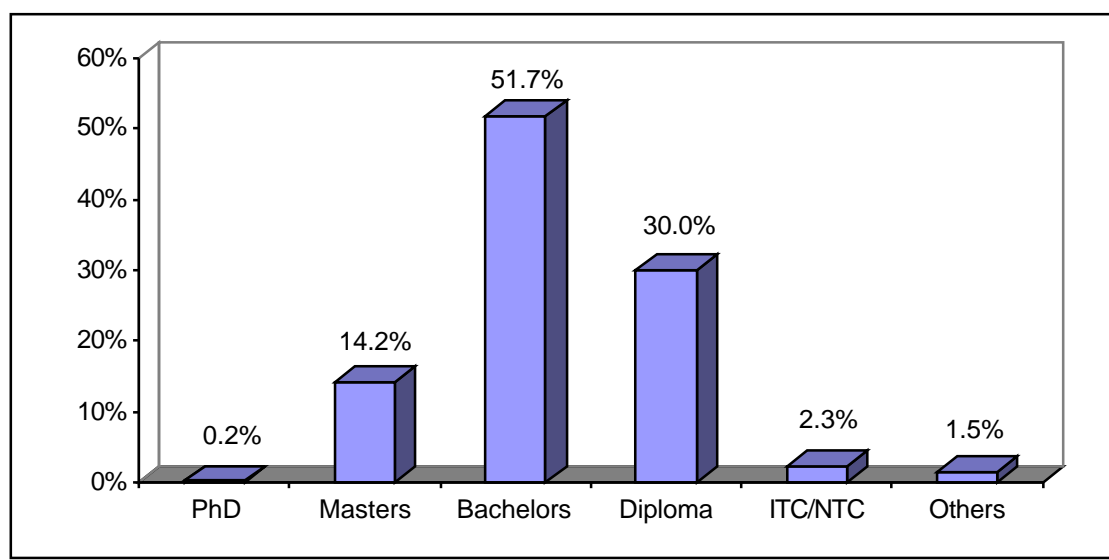
In terms of age, the majority (73%) of Infocomm manpower in Singapore are less than 35 years old, followed by the next largest age group between 35 and 39 years old (19%).

Figure 2.2a – Age Profile of Infocomm Manpower



The majority (66%) of Infocomm manpower have at least a Bachelor's degree as their highest educational qualification, whilst 14% possess a Master's degree or a PhD. About 30% are polytechnic diploma holders.

Figure 2.2b – Educational Profile of Infocomm Manpower

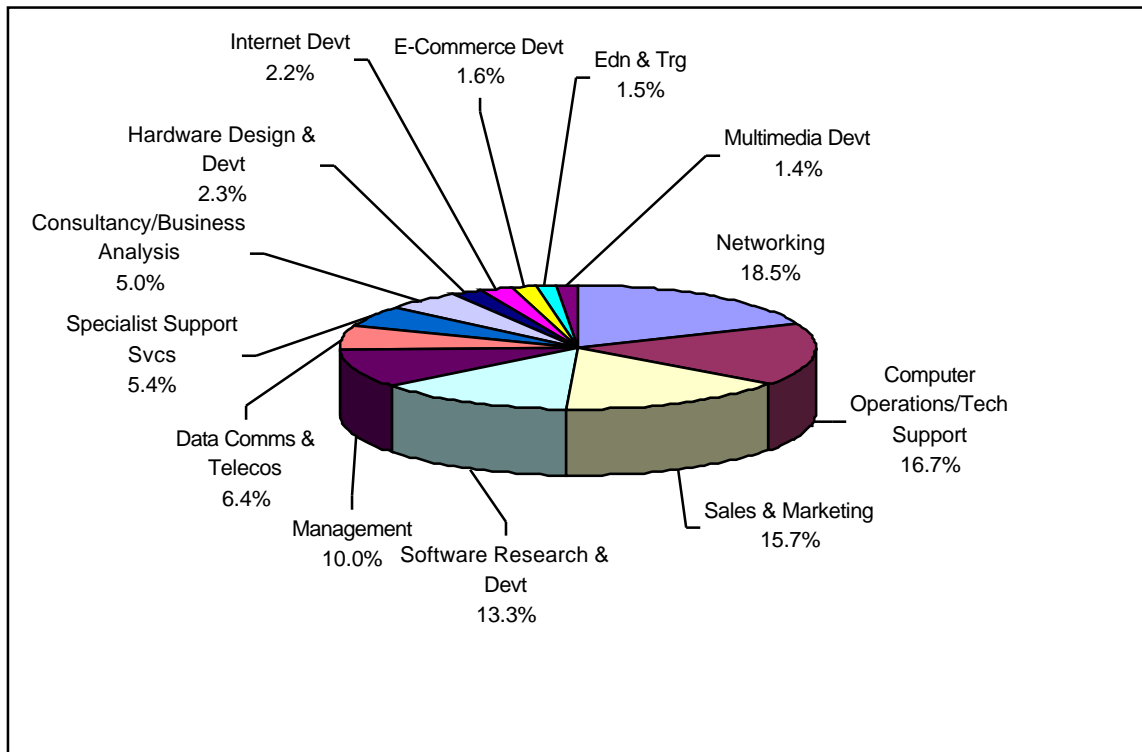


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2.3 Infocomm Manpower Profile

In terms of occupational categories, most of the Infocomm manpower are involved in Networking (19%). Other areas of work which the Infocomm manpower are most involved in are: Computer Operations/Technical Support (17%), Sales and Marketing (16%), Software Research and Development (13%) and Management (10%).

Figure 2.3 – Profile of Infocomm Manpower by Occupational Category



The overall turnover rate in 1998 for Infocomm manpower employed in both the Infocomm and non-Infocomm industry sectors was 18%. The Infocomm industry experienced a higher turnover rate of 25% when compared to the 11% turnover experienced by the Infocomm end-user organisations.

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2.4 Technical and Non-Technical Skills

The Organisation Survey respondents were asked to identify the top five technical and non-technical skills possessed by their Infocomm employees that were most essential for their core business.

In terms of technical skills, the survey identified the top five critical skills most sought after by organisations as: Internet Development, E-Commerce Development, Network Protocols/Topologies, Mobile/Wireless Communications and Multimedia/Video Development.

For non-technical skills, the top five non-technical critical skills identified by CIOs surveyed were: Marketing/Sales, Customer Services, Interpersonal, Strategic Planning and Presentation.

2.5 Training & Certification Issues

Amongst the companies surveyed, the mean training expenditure for 1999 was estimated at \$2,566 per Infocomm manpower in all organisations. The average training expenditure for Infocomm manpower as a percentage of payroll was 1.8% in 1998 and was projected to increase to 2.2% in 1999.

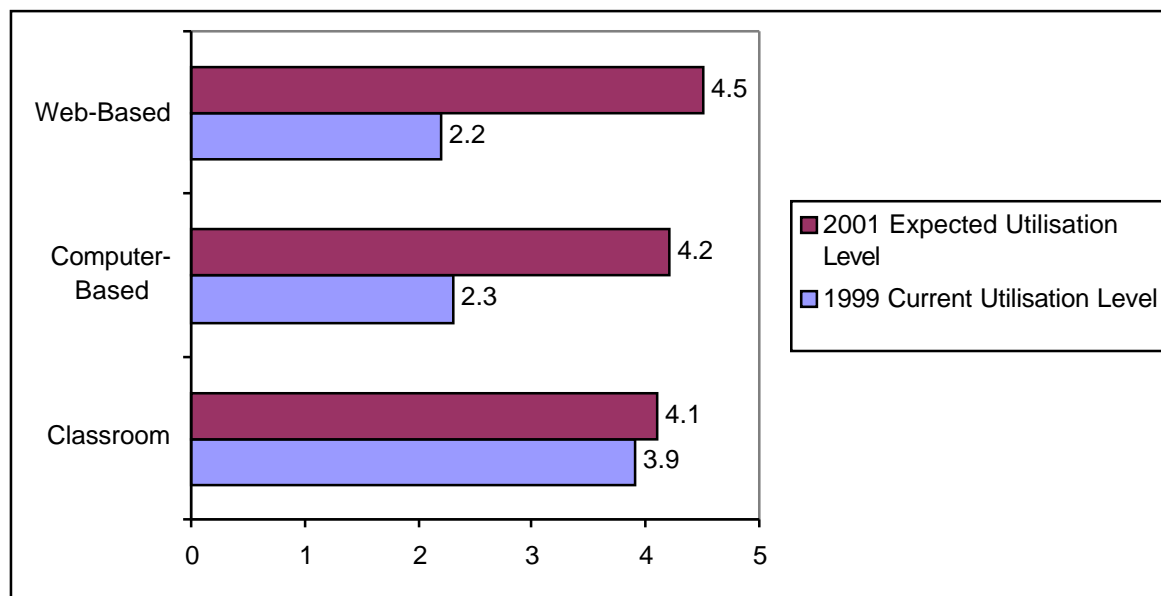
About 56% of the CIOs indicated in the survey that they intended to increase the Infocomm training budget for the year 2000.

Classroom training was the most commonly used training method compared to computer-based training and web-based training in 1999. An interesting finding is that by 2001, the utilisation of web-based training and computer-based training is expected to overtake classroom training.

About half of the Infocomm industry is willing to pay a premium for hiring certified professionals under the National IT Certification Programme in Singapore,

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Figure 2.5 - Utilisation Levels of Training Methods*



*Scale of 1 to 10: where "1"="no utilization" and "10"="very high utilization"

2.6 Infocomm Manpower Career Issues

Respondents of the Web-based Infocomm Survey were polled for their views on a range of job-related factors such as career advancement and job responsibility. The respondents were asked to rate the level of importance of each job-related factor and their current level of satisfaction with each factor.

In terms of importance on job-related factors, the factors that had the highest mean ratings were: Career Advancement (8.4), Salary (8.4), and Recognition from Management (8.3). In terms of satisfaction on job-related factors, the factors that had the highest mean ratings were: Co-worker Relationships (7.2), Relationship with Supervisor (7.0), and Job Security (6.8).

The mismatch between importance and satisfaction was most severe on the following factors: Career Advancement (3.1), Salary (2.6), Recognition from Management (2.6), and Training Provided by Organisation (2.1).

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Figure 2.6 – Importance and Satisfaction on Job-Related Factors

Job-related Factors	Importance Rating	Satisfaction Rating	Difference
Career Advancement	8.4	5.3	3.1
Salary	8.4	5.8	2.6
Recognition from Management	8.3	5.7	2.6
Achievement of Goals/Targets	8.2	6.3	1.9
Job Content	8.2	6.5	1.7
Relationship with Supervisor	8.2	7.0	1.2
Job Responsibility	8.0	6.5	1.5
Challenging Job	7.7	6.3	1.4
Co-Worker Relationships	7.7	7.2	0.5
Job Security	7.7	6.8	0.9
Employee Benefits	7.3	5.7	1.6
Training Provided by the Organisation	7.2	5.1	2.1
Image of Your Company	7.1	6.6	0.5
Flexible Work Hours	6.4	6.1	0.3
Image of IT Profession	6.4	5.9	0.5
Social Networking Exposure	6.4	5.5	0.9
Work Load	6.4	6.1	0.3
Job Titles	5.6	5.8	(0.2)
Overseas Travel	5.4	4.7	0.7
Stock Options	5.2	4.0	1.2

*For Scale of Importance: “1”=“not important at all” and “10”=“very important”

*For Scale of Satisfaction: “1”=“not satisfied at all” and “10”=“very satisfied”

CONCLUSION

The survey findings showed a high demand for Infocomm manpower in Singapore. Averaging about 10,000 per year, jobs in the area of E-Commerce Development will experience the highest growth rate and is also one of the top 5 skills that organisations sought after.

The survey also highlights the shift in the training delivery methods, where computer-based and web-based training will play a more important role in upgrading the skills of our Infocomm manpower. In particular, the perceived gap in Infocomm staff training needs to be noted because technology changes are so rapid today that technical knowledge can be made obsolete within 18 months. The key challenge faced by organisations is therefore how to keep training costs down and yet ensure their Infocomm professionals are up-to-speed on emerging technologies.

The results of the survey would serve as inputs to the IDA in formulating policies that would build a qualified pool of Infocomm manpower in Singapore.