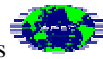


**TECHNOLOGY INNOVATIONS IN THE 21ST CENTURY:
IMPLICATIONS FOR HUMAN RESOURCE MANAGEMENT IN SMEs**

**Eleanor Cheung
Division of Commerce
City University of Hong Kong (Hong Kong)**



TECHNOLOGY INNOVATIONS IN THE 21ST CENTURY: IMPLICATIONS FOR HUMAN RESOURCE MANAGEMENT IN SMEs

ABSTRACT

The SMEs in the APEC region have been experiencing radical changes in the past decade such as the economic ambience in the mid-90s as well as the economic turmoil in the late 90s. Besides economic changes, the advent of new technology has also created profound impact on SMEs in terms of products, services, delivery methods, and other business transactions. A recent survey has revealed that the owners of SMEs has regarded human resource management as the second most important function in their enterprises. Although there may not be a separate human resource department established in most SMEs, there still exist the strong demand for effective human resource management practices to effect organizational success of SMEs.

There is a need for the human resource function in organization of all sizes, with the small and medium size enterprise in particular, to keep up with the growing demands for services as the businesses they support expand to meet the competitive global market place. Application of information technology in human resource practice is one means of enhancing the organizational competitiveness within the global arena.

Under the impact of the technological advance, the traditional HR functional model of the SMEs may not be sufficient in the global setting in the 21st century. In this study, the author would examine to what extent that the SME has made use of information technology in their HR practices and how they perceive the importance of such application in the future. Both quantitative and qualitative approaches have been used in this study. The contribution of this study provides valuable insights to executives of SMEs and researchers who are interested in developing effective human resource management for SMEs in the future.



INTRODUCTION

A survey conducted by Hess (1987) showed that small business owners ranked human resource management as the second most important management activity next to general management and organizational work. Moreover, most studies conducted on human resource practices have been targeted at large size enterprises, few attempts have been made to examine how human resource practices contribute to the effective functioning of SMEs. Even rare is the study on impact of information technology on human resource practices of SMEs. This survey is an exploratory study in examining the impact of information technology on the human resource practices adopted by SMEs in the Asian region.

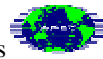
The 21st century is the age of information technology. Information technology will permeate almost every business practice and drive enormous strategic and practical progress. Information technology has brought about tremendous changes in the management process. Although lesser use has been reported in the human resource area when comparing with other management function like accounting and finance, more human resource managers have begun to make full use of information technology in their work.

In 1989, the survey by National Computer Board (NCB) of Singapore has investigated the usage of information technology in Singapore. Results indicated that among all organizations with computers, 49% were using them for human resource applications while 85% used computers for accounting and finance functions. Although the usage for human resource applications was lower than for financial functions, there has been an increase since 1987 when only 30% of the organizations used them for human resource applications. As indicated in the report, the use of computers for human resource applications is more extensive in the larger organizations. The usage was 39% among those with 10-24 employees, compared with 69% among those with more than 100 employees (Torrington & Tan, 1994).

Application of Information Technology in Human Resource Practices

Application of information technology has lagged behind its applications in other management functions such as accounting, manufacturing, and financial planning. It was payroll that gave birth to the first application of information technology in human resource practices in the form of human resource information system (HRIS).

HRIS is defined as a computer-based method for collecting, storing, maintaining, retrieving, and validating HR data. More than just a system for preparing standard reports, an HRIS is typically designed and structured to permit the retrieval of user-defined ad hoc reports, comparative analyses, and employee data items (Carrell et al, 1995). A well-developed human resource information system (HRIS) can provide many benefits to the company. By integrating the available information from various sources, the system can generate output data which are useful for decision-making and planning activities related to human resource activities.



In addition to employee and applicant information, the HRIS data base contains organizational and job-related data. The creation of the data base may be the most important step in implementing the system.

In 1992 Towers Perrin conducted a study which is used as a global benchmark on a number of HR items, identified the top three major current and future benefits of HRIS. First one is the faster information processing and greater information accuracy; second is the improved planning and program development; and third is the enhanced employee communication.

In fact, HRIS has provided the hub of data base which enhance a wide range of human resource administration ranging from manpower planning, job analysis, recruitment and selection, job evaluation, compensation, training, performance appraisal to succession and career planning.

Besides the usage of HRIS, information technology has also different variety of services to be offered by the human resource practitioners. With the advent of electronic commerce, web recruiting has proved to be cost effective and becoming popular in the Asian region. Information technology has also influenced the selection criteria. Future work will require a high level of computer literacy. It will demand not only people who know how to use the Internet, a word processing program and a spreadsheet, but also individuals who understand the radically different conceptual framework in which tasks, projects and alliances will be handled. Company training materials or programmes could be disseminated via web with boundless coverage.

METHODOLOGY

In this survey, questionnaires have been sent to small and medium size enterprise. Small and medium size enterprise refers to company registered in Hong Kong with employee size of two to five hundred. Questions have been asked on their use of information technology in human resource practices; degree of effectiveness in such IT application; and perceived importance of IT application in the future. In addition to the quantitative approach, qualitative approach in the form of interview was used. Human resource managers or person in-charge of human resource function of twenty SMEs were interviewed to express their views on IT application on human resource practices in their organization.

RESULTS AND DISCUSSION

The total number of returned questionnaire is 236. Out of these 236 respondents, only 201 (85%) enterprises having Asian ownership have been included in this study. The ownership distribution is that 54% is Hong Kong; 20% is Chinese; 16% is Chinese Taipei; 4% is Japanese; 3% is Singaporean; 1% for both Malaysian, Indonesian and Thai respectively.

Among these small and medium size enterprises, trading is their major business which amounts to 62%. Technology business is ranked as second (13%) and followed by marketing and advertising ranks (11%). Communication business amounts to 6%



while manufacturing amounts to 5% to be followed by financial services (2%) and construction (1%).

When asked about the application of IT in human resource practices, 35% reported as frequent; 41% reported as sometimes; 14% as occasional and 10% as seldom. 32% of them regarded such application very effective; 49% as effective while 19% reported as quite effective. When asked about the perceived importance of IT application in human resource practices, 42% reported as very important and 53% reported as important.

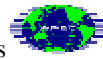
As far as recruitment and selection is concerned, 16% reported frequent use of IT in their recruitment and selection process; 71% reported as sometimes user; 5% as occasional and 2% reported as seldom. Only 6% reported they have not use any IT in their recruitment and selection process. 3% reported the IT application in recruitment and selection is very effective while the majority of 32% reported effective. 19% reported quite effective in the application. When asked about the perceived importance of IT application in recruitment and selection, 41% reported as very important; 27% as important while 32% reported as quite important.

57% of the respondents reported the frequent application of IT in the training and development activities. 24% and 9% reported sometimes and occasional use respectively. Among all respondents, 53% reported the application of IT in their training and development function to be very effective; while 29% reported as effective and 8% reported quite effective. 69% considered IT application in training and development as very important; while 12% and 19% regard it as important and quite important respectively.

96% reported frequent use of IT in compensation administration and 4% reported as sometimes users. 74% of the user rated the application as very effective; while 20% rated as effective and 6% as quite effective. 65% of the respondents perceived IT application in compensation administration as very important; while 19% of them rated important while 16% reported quite important.

2% reported as frequent users of IT application in performance appraisal; while 24% reported as sometimes users; 29% reported as occasional users. 28% reported that they seldom have IT application in performance appraisal function while 17% reported 'not at all' IT application in performance appraisal. Among those SMEs who have use IT applications in performance appraisal, only 1% gave 'very effective' rating, while 28% rated the IT application as 'effective' and 54% rated it as 'quite effective'. The perceived importance of IT application in performance appraisal is 39% rated very important while 40% rated as important. The rest of 21% rated as quite important.

Among the four major human resource practices, compensation administration is the one using the IT application most frequently, to be followed by training and development; performance appraisal. Recruitment and selection is having the least frequent IT application.



As far as effectiveness in use is concerned, compensation administration is having the highest percentage of 'very effective', to be followed by training and development and performance appraisal. Recruitment and selection is having the lowest degree of effectiveness.

Training and development is having the highest degree of 'perceived importance' among the four human resource practices, to be followed by compensation administration and performance appraisal. Recruitment and selection is having the lowest degree of perceived importance among the four human resource practices.

Implications

From the results of this survey, 100% of SMEs have somehow make use of IT application in their HR practices. It implies that IT application has been widely used in the HR practices among SMEs, although the frequent use is found in the compensation administration work. Not only that IT application has been found as most frequent in compensation administration (96%) but also it has been rated as most effective by the users (74%). One reason for such high usage and high effectiveness is due to the early development of related software for the compensation administration package. Also, the job nature of compensation administration justified the frequent application of information technology to reduce the job tediousness. The implication is that the more frequent the usage, the more people get familiarized with its usage and the high effectiveness can be within reach.

On the other hand, there is not much related IT application for the recruitment and selection activities available to be used by the human resource practitioners. This may be due to the unavailability of appropriate technology to be used in the recruitment and selection process. Moreover, it is anticipated that recent use of web or online recruiting may create tremendous change in the traditional recruitment and selection process. The availability of user-friendly web-based preparation techniques enhances the human resource practitioners to make better use of information technology.

IT application in training and development is perceived as the most important among the four human resource practices. This may imply that information technology will not merely satisfy with data provision for training related activity but would diffuse its application in other forms of application like web-based training which has recently gained its popularity. It also may imply the importance of aligning training and development needs, which has grown into a more important human resource function, with latest information technology development in order to achieve the organizational competitiveness in the dynamic arena that all organizations whether large or small are facing.

Interview results indicated that there are reasons for the application of IT in human resource practices. The most obvious reason is the efficiency involved. IT helps to reduce tedious job that was previously done by hands. The efficiency in turn benefits in the time saved and a better job design as a result of IT application. IT can also help to maintain the quality standard of human resource services and activities involved.



Assessment and auditing of HR activities is made flexible and feasible. IT can provide accurate and current data to enable the linkage of HR data and business needs.

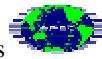
On the other hand, there are many barriers that hinder the application of IT in the human resource application. The first barrier is the costs involved. This is especially true to really small company with less than ten employees. Second barrier is the lack of IT orientation of the person in charge. This lack of IT orientation and knowledge limits the feasibility of selecting appropriate IT application.

RECOMMENDATIONS

There has been the misconception that only large multinational organizations justify the application of information technology in human resource practices. With the availability of latest and economical technological resources, it is also justify for small and medium size enterprises to make better use of IT in the human resource management. Although the initial set up cost may imply financial burden, it can be cost effective in the long run with adoption of appropriate selection criteria. It also enhances empowerment and better job design of the human resource practitioners concerned. The orientation of user and selection of resources can be crucial factors for the application.

CONCLUSION

21st century is the time for information exchange and such exchange should not be restricted to just a few management functions like operations, finance or marketing. It should extend its coverage to other important management function like human resource function. Such coverage has definitely benefited the large size organizations, and is now extending its influence to the small and medium size enterprises. The application of information technology has started to impact the human resource practices in tremendous ways and will continue to do so in the coming millennium .



Appendix

Table 1: Nature of business

Nature of business	%
Trading	62
Manufacturing	5
Financial services	2
Construction	1
Communications	6
Technology	13
Marketing and advertising	11

Table 2: No. of employees

No. of employees	%
1-20	9
21-50	10
51-100	21
100-150	5
151-200	14
201-300	12
301-400	17
401-500	12

Table 3: Ownership

Ownership	%
Hong Kong	54
China	20
Chinese Taipei	16
Japan	4
Singapore	3
Malaysia	1
Indonesia	1
Thailand	1



Table 4: HR department/person in charge of HR matters

HR department/person in charge of HR matters	%
Yes	98
No	2

Table 5: Use of IT application in human resource management practices

Use of IT application in human resource management practices	%
Frequent	35
Sometimes	41
Occasional	14
Seldom	10
not at all	0

Table 6: Degree of effectiveness in IT application in human resource practices

Degree of effectiveness in IT application in human resource practices	%
very effective	32
effective	49
quite effective	19
ineffective	0
very ineffective	0

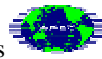


Table 7: Perceived importance of IT application in human resource practices

Perceived importance of IT application in human resource practices	%
very important	42
important	53
quite important	5
not important	0
very unimportant	0

Table 8: Use of IT application in recruitment and selection

Use of IT application in recruitment and selection	%
Frequent	16
Sometimes	71
Occasional	5
Seldom	2
not at all	6

Table 9: Degree of effectiveness in IT application in recruitment and selection

Degree of effectiveness in IT application in recruitment and selection	%
very effective	3
effective	32
quite effective	19
ineffective	0
very ineffective	0



Table 10: Perceived importance of IT application in recruitment and selection

Perceived importance of IT application in recruitment and selection	%
Very important	41
important	27
quite important	32
not important	0
very unimportant	0

Table 11: Use of IT application in training and development

Use of IT application in training and development	%
Frequent	57
Sometimes	24
Occasional	9
Seldom	0
not at all	0

Table 12: Degree of effectiveness in IT application in training and development

Degree of effectiveness in IT application in training and development	%
very effective	53
effective	29
quite effective	8
ineffective	0
very ineffective	0

Table 13: Perceived importance of IT application in training and development

Perceived importance of IT application in training and development	%
very important	69
important	12
quite important	19
not important	0
very unimportant	0

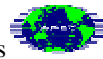


Table 14: Use of IT application in compensation administration

Use of IT application in compensation administration	%
Frequent	96
Sometimes	4
Occasional	0
Seldom	0
not at all	0

Table 15: Degree of effectiveness in IT application in compensation administration

Degree of effectiveness in IT application in compensation administration	%
Very effective	74
Effective	20
Quite effective	6
Ineffective	0
Very ineffective	0

Table 16: Perceived importance of IT application in compensation administration

Perceived importance of IT application in compensation administration	%
very important	65
important	19
quite important	16
not important	0
very unimportant	0

Table 17: Use of IT application in performance appraisal

Use of IT application in performance appraisal	%
Frequent	2
Sometimes	24
Occasional	29
Seldom	28
not at all	17

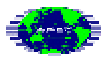


Table 18: Degree of effectiveness in IT application in performance appraisal

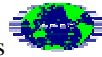
Degree of effectiveness in IT application in performance appraisal	%
Very effective	1
Effective	28
Quite effective	54
Ineffective	0
Very ineffective	0

Table 19: Perceived importance of IT application in performance appraisal

Perceived importance of IT application in performance appraisal	%
very important	39
important	40
quite important	21
not important	0
very unimportant	0

Table 20: IT application on different HR practices

IT Application in different HR practices	Frequent use of IT application	Very effective application of IT	Perceived importance of IT application
Recruitment and selection	16	3	41
Training and development	57	53	69
Compensation administration	96	74	65
Performance appraisal	30	24	39
Overall HR practices	35	32	42



REFERENCES

- Carrell M., Elbert, N., and Hatfield, R. (1995) *Human Resource Management: Global Strategies for Managing a Diverse Workforce*. Prentice Hall, New Jersey.
- Hess, D. W. (1987) 'Relevance of Small Business Courses to Management Needs', *Journal of Small Business Management*, January, 26-34.
- National Computer Board (1989, 1991) IT Survey, Singapore in 'Torrington D. & Huat, T. C. (1994), *Human Resource Management for Southeast Asia*. Prentice Hall, Singapore.'