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Computers in property management companies

A case study of Singapore

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Abstract *The main purpose of this study is to investigate the current usage of computers in Singapore's property management companies. The findings confirm a paradox that in Singapore's property management companies, computer applications are lagging behind the advancement of computer hardware and software. Three reasons may explain the paradox. First, property management companies are dealing with a small portion of properties in Singapore where public housing estates dominate the property stock. Second, property management involves many personal touches in which computers are not helpful. Third, software packages developed in other parts of the world may not suit the need of property management tasks in Singapore.*

Introduction

Since the personal computer was made widely available, it has become a major area for research and advancement for professionals and academics to computerize property management tasks. The Institute of Real Estate Management of the USA played a leading role in such endeavour by providing general directions and development guidelines for property management information systems (Touche Ross & Co., 1984; Institute of Real Estate Management, 1983). Individual researchers further extended the coverage and the in-depth use of computer applications (Bergsman, 1997; Bible, 1995; Kirkwood, 1994; Pitt, 1987). Today, using specially designed software, North American and European organizations computerize a large proportion of property management tasks.

In Asia, rapid economic development has resulted in prosperous property markets and has consequently generated business opportunities for property management companies. Singapore, a city-state with a population of about 3 million, had 97 firms registered under the business type of "property management" in 1998. In China, where almost 13 billion people live, with about 30 per cent of the people living in cities, property management companies increased from nothing in 1994 to 7,000 in 1998 (Lim and Han, 2000). Despite the astonishingly large number of property management companies in Asian countries, and thus a huge market for property-related computer hardware and software, little is known about how the computer is used in property

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management companies. Do they make use of the off-shelf property management packages available in North American or European markets? How are they equipped with computer hardware? What types of software are in use, and for what purposes? What types of business are automated by using computers? What is the upgrading potential in both hardware and software capacities? This study seeks to answer the above questions, using Singapore as a case study.

Data

Data were collected from face-to-face questionnaire interviews. The questionnaire includes four sections. Section one gathers information about the company. Main questions include types of business activities and staff strength. Section two asks about the computing resources in the company, including hardware and software applications. Section three assesses business automation by using the computing resources, in terms of file storage, manipulation and business conduct. Section four looks at the capacity of computing resources, and the development perspectives in terms of computer applications.

A list of property management companies was compiled from the Buying Guide, Singapore Business Yellow Pages, and the list of property companies kept by the Singapore Institute of Surveyors and Valuers (July, 1998). This list included a total of 97 companies. Based on this list, initial contacts were made by telephone for an appointment with a manager of the respective companies. Three months were planned for the interviews (i.e. December, 1997 – February, 1998). By the end of the planned interview period, a total of 24 companies were successfully interviewed, accounting for 35 per cent of the “live” companies in 1998[1].

Company profile

The core business of these companies included property management, though other business activities were also conducted. Seven of the 24 companies specialised in property management businesses only. Six of the 24 declared that property management was the main business that they were conducting. The rest of the companies, i.e. 11 out of the 24, were involved in various real estate businesses among which property management is only one aspect.

The various businesses in which property management companies were involved included property sales, leasing and management of leases, maintenance of building and facilities management, rent and service charge collections, insurance, budgeting, record keeping and reporting, landlord and tenant relations, advice on real estate investment, finance and taxation, and property renovations and remodelling consultancy. Half of the 24 companies were involved in property sales, rent and service charge collections. Seventeen of the 24 were involved in leasing and management of leases, and maintenance of building and facilities management. Ten companies were involved in landlord and tenant relations, and in advising on real estate investment, finance

and taxation. A small number of the companies were also involved in budgeting, record keeping and reporting five, property renovations and remodeling consultancy six, and insurance two.

The majority (16 out of 24) of the companies managed residential properties; eight companies had commercial properties; only four companies managed industrial properties. Among the residential properties that companies managed, apartments and condominiums were the main types under management; detached houses, semi-detached houses, and terraces accounted for a very small number; only one company managed terraces and detached houses, and only two companies managed semi-detached houses.

The majority of the property companies surveyed were small companies, with ten staff or less. Only one company had staff strength larger than 20. Three companies had a staff of between 10 and 20. As a strategy of building up a flexible staff force, six companies had part-time staff. The number of part-time staff ranged from one to 20, among which technical part-time rather than administrative part-time staff dominated in number.

Hardware

Computers have been a part of property management companies in Singapore since as early as 1980. According to the survey result, four companies acquired a computer before the mid-1980s. By 1990, half of the companies had bought their computers; the other half purchased their computers during the early 1990s. Given the fact that the Singapore government encouraged the computerization of the private sector in the period 1986-1990, it is apparent that property management companies in Singapore were not fast in incorporating the latest computing resources into their businesses[2].

When asked in which year most of the computers were acquired, 15 of the 24 indicated that they bought the majority of their computers between 1994 and 1997. The year 1994 was the time when the IBM 486 and its compatibles became popular. In the subsequent years, Pentium and Pentium II entered the market. As such, property management companies in Singapore have computer hardware dominated by IBM 486 and its compatibles. There were no IBM 286 or IBM 386 among the companies surveyed. Seven companies have IBM 486 and compatibles: one company had one unit, three companies had two units each, two companies had three units each, and one company had six units. Twenty companies had Pentium models, whilst six companies had Pentium IIs.

Most companies surveyed had laser printers, or inkjet printers, or both. Line printers were obsolete, but five companies still use dot-matrix printers. These dot matrix printers were inherited from the first batch of computers purchased, with the IBM 286 and IBM 386 that had already been replaced.

Property companies are well equipped with hardware peripherals relative to the CPUs. Seventeen of the 24 companies had laser printers; 14 had inkjet printers; seven companies had scanners, and one company had a plotter.



The median number of computers per staff was 0.66 among the companies surveyed. In other words, most of the companies have about three computers for every five staff, or, six to seven computers for every ten staff. There were two companies which had more than one computer per head. One company had ten Pentiums for seven staff members, while the other company had 14 computers for eight staff members. The eight staff member company had six IBM 486 compatibles, six Pentiums, and two Pentium IIs.

Software

Windows dominated the operating systems in Singapore's property management companies; with 19 of the 24 companies having one or more copies of Windows 95. Six of the companies had Windows 98. Two companies used Windows NT. Only one copy of DOS was running on a company's IBM 486 compatible. OS/2 and other operating systems were not used in the companies surveyed.

Microsoft Word was the main software for word processing purposes, with 22 (92 per cent) of the companies using Microsoft Word. One company indicated the use of a non-mainstream word-processing software and another used typewriters for word processing.

Microsoft Excel was the popular spreadsheet program, with 22 of the 24 companies making use of it. One company was using Lotus 123, and the other company did not use any computer-based spreadsheet program.

For database programs, Microsoft Access was used in 15 of the 24 companies (62 per cent); although four companies (17 per cent) did not use any database programs. Three companies were using dBASE, whilst one company was using Visual dBASE. Yet another company used a non-mainstream database program.

As to the presentation software, half of the 24 companies did not use computers for presentations; while 11 companies used MS PowerPoint and one company was making use of Lotus Freelance Graphics.

Only one company was using a customized interface to facilitate property management tasks. Four companies were using specialty property management software for accounting and tenant-tracking purposes. However, the majority of companies surveyed did not make use of either customized interfaces or special property management software applications.

Two companies had their computers internally networked, using a Local Area Network (LAN) infrastructure. Though 22 of the 24 companies were not networked internally, most of them had access to the Internet via modems. Sixteen of the companies had access to the Internet via modems. Among the 16, seven companies had one unit of computer with access to the Internet. Five companies had two units each capable of accessing to the Internet. One company with three units, two with four units each, and one with ten units had access to the Internet.

Three of the 24 companies had Homepages in the World Wide Web. There were personal pages only in one company, where three staff members had their personal Homepages.

Three companies had staff members with an e-mail account. In two of the companies, only one member of staff each had an e-mail account. In one of the companies, three staff members had e-mail accounts.

Company e-mails, however, were more popular. Among the 24 companies, 16 had company e-mail accounts. Seven companies suggested that they used e-mail to conduct their businesses.

Business automation

Among the various property management tasks, three were highly computer automated. These three tasks were preparation of tenant and lease agreement, preparation of notice and circulars, and preparation of invoices. Seventeen companies indicated that they automated the process for preparing tenant and lease agreements, while five companies said that they partially computerized the process.

Sixteen companies computerized their processes for preparing notices and circulars. Six companies partially computerized the above process.

Fifteen companies computerized their processes for preparing invoices. Seven companies partially computerized the process, and there was one company that prepared the invoices manually.

The writing of receipts was the task that was least computerized. Seventeen companies indicated that they prepared receipts manually. Only four companies prepared receipts in a computerized way, and one company partially computerized the process.

Other tasks dealt by the property management companies used mixed approaches of both computerized and manual processing. These tasks included storage and manipulation of property files, dealing with non-sufficient fund checks, preparation of work/purchase orders, tax reports and budget plans, and transfer of data between site and central office.

Assessment of present computer use and future upgrading

Computers have become an important tool in property management companies, as hardware and software application systems can enhance productivity. Eleven of the 24 companies interviewed suggested that without computers their business could not survive. Twelve of the companies claimed that their businesses would slow down significantly without computers. Only one company said that its business would be as usual without computers.

Twenty of the companies indicated that their computing resources were sufficient for current use, while three companies reported negative answers to the same question. Indeed, 16 companies reported that their current use of the computing resources accounted for less than 80 per cent of the hardware capacities. For the software capacities, 19 companies claimed that they used less than 80 per cent of the resources.

Even though computing resources were not fully used at the present time, half of the companies interviewed were planning to upgrade their computing resources in the coming year. Eleven companies suggested that they might



spend as much as they needed in order to keep their computer hardware and software up to date. Nine companies were willing to put in \$2,000-5,000 [3] per year to upgrade their computers. One company indicated an investment range on computers of below \$2,000 per year; three companies said that they would not spend a penny on computers in the coming year, because the current capacities were not fully utilized yet.

Summary and conclusions

There were reasons to believe that Singapore, an advanced Asian market, would use computers intensively among the property management companies. Indeed, the Government of Singapore has worked on policies targeting the development of an "Intelligent Island" in advancing IT infrastructures (Chun, 1997; NCB, 1992). The island itself is also well connected to the global market. Surprisingly, initial contacts with selected property management companies revealed a poor use of computers in their management practice, and thus there is a paradox between advanced IT infrastructure and little use of the IT infrastructure in property management.

The main purpose of this study is to investigate the current status of computer use in Singapore's property management companies. Data were collected through face-to-face questionnaire interviews of 24 property management companies and analyzed using content analysis. The 24 companies were average firms among the property management companies in computer applications. Most of the property management companies were small in size, with less than ten staff members. The property types most often dealt with included residential, commercial and industrial, with a dominance of condominiums and apartment properties.

It was confirmed that property management companies in Singapore were not using the latest computer hardware, though there were property companies that purchased computers in the early 1980s, when personal computers just began to enter offices. The majority of the companies surveyed had Pentium or Pentium II models, but a large number of IBM 486 and compatibles were also in use. On average, there were six to seven computers every ten staff members. The majority of the companies were also equipped with high quality peripherals, such as laser printers and high speed modems.

Software packages performed a wide range of functions relevant to property management, such as word processing, spreadsheet and database applications. The most popular package in use was Microsoft Office. Microsoft Word, Microsoft Excel, and Microsoft Access were used in the majority of the companies surveyed. Only four companies had specially designed property management software packages for accounting and tenant tracking functions. The use of World Wide Web and e-mails began in property management companies, but the use of these new technologies was in its infancy.

Management tasks that were highly automated included the preparation of tenant and lease agreement, notice and circulars, and invoices. However, other tasks, such as the preparation of receipts, were done manually by using either a

pen or a typewriter. Tasks for file management, tax report and budget plans used computers partially, with some companies automating larger proportions than other companies.

Though the use of computers was limited in both hardware and software, it was perceived that computers played an important role in the business conducted by a majority of the property companies. As some interviewees commented, "many of the files and documents are in computer and thus not kept by hardcopies. Without computer, the company will not be able to do business." Ironically, no company explored the full capacity of their computing resources. Hardware and software applications did not reach 80 per cent of the design capacities. As such, the budget that companies were willing to commit for hardware and software upgrading was small, given the fact that a single computer with above average configurations would cost over \$2,000.

The findings confirm the paradox that in Singapore's property management companies, the use of computers, especially the specially-designed property management software packages, is lagging behind the advancement of the hardware and the software, despite the availability of excellent IT infrastructure and well-developed packages in the market. Three reasons may explain the paradox. First, property management companies are dealing with a small portion of properties in Singapore where public housing estates dominate the property stock. Public housing management makes use of specially designed systems but this is not the business of small property management companies (Khoo, 1999). There are also specialized software packages in management of corporate real estate which again is not the business of property companies (Chee, 1990). Second, property management involves many personal touches for which computers are not helpful. Indeed, for the old generation managers, their practice emphasized more personal aspects of dealing with clients. A relatively poor information database on computer might have little adverse effect on the business and thus fail to show the usefulness of computers. Third, software packages developed in other parts of the world may not suit the need of property management tasks in Singapore because of localized needs and procedures.

This study contributes to the understanding of computer applications in property management companies in Singapore, by inventorizing hardware and software applications in 24 property management companies. However, the research scope has excluded a number of important questions. Further research should address, for example, the following topics:

- (1) the ways that IT could add value to property management companies;
- (2) the cost effectiveness criteria for justifying the acquisition of computer hardware and software;
- (3) the impact of IT on business process re-engineering; and
- (4) the potential that IT could offer to achieve greater economies of scale.



In addition, in-depth case studies need to be made available in order to compare large and small companies in the use of IT in their businesses.

Notes

1. Among the 97 companies, only 68 had valid telephone numbers and valid addresses. The other 29 could not be traced.
2. The Singapore government has a three-stage plan to promote the use of computers, and thus move towards building an "Intelligent Island." In stage I (1981-1985), the public sector was given priority. In stage II (1986-1990), the private sector was emphasized. In stage III (1991-2005), the overall use of computers in all sectors is emphasized in order to improve the quality of life of its citizens and economic development.
3. The exchange rate between Singapore dollar and the US dollar was about 1.73 to 1 in December 2000.

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