Employees' Perception On Teleworking In Sri Lankan Software Industry

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INTRODUCTION

Teleworking is an alternative way to organize work that integrates two sources of competitive advantage: a company's Human Resources and the new Information and Telecommunication Technologies. There is no agreement in literature about teleworking definition and its different meanings. Sometimes, terms such as telecommuting, remote working, and home working are used to explain its different meanings.Teleworking occurs when employees perform all or a substantial part of their work physically separated from the location of their employer, using IT for operation and communication (Baruch, 2001). Davenport and Pearlson (1998) introduce teleworking as an alternative mode of work, enabled by technological improvements and increase in use of information technology (IT) on the one hand, and on the other hand, by an unconventional managerial approach, which takes it that work is what you do, not a place where you go.

Three main types of teleworking are usually found in operation: **home-based telework, satellite offices, and mobile working.** Home-based teleworking refers to employees who work at home on a regular basis, though not necessarily every day. A person can be considered as a teleworker if her telecommunications link to the office is as simple as a telephone; however, teleworkers often use other communications media such as electronic mail and personal computer links to office servers. Self- employed workers and workers who have no connection to a central workplace are not considered as teleworkers. In satellite offices, employees work both outside the home and away from the normal workplace in a location convenient to the employees and/or customers to reduce commuting time. Other category of teleworkers is the mobile workers. The mobile workers are frequently on the road, using communications technology to work from home, from a car, from a plane, or from a hotel — communicating with the office as necessary from each location. Salespersons and investment bankers are examples of mobile teleworkers.

The development of teleworking started in the 1970s. Teleworking is commonly used in many industries such as IT, telecommunication, insurance, construction and manufacturing. In Sri Lanka, teleworking is still an emerging concept compared to most of the other countries.

Software industry is an emerging industry in Sri Lanka and there are many multinational companies operating in Sri Lanka. These companies are experiencing different types of work patterns such as flexible working hours, fixed working hours, shift working hours and occasional teleworking. Sri Lankan IT industry has developed upto a considerable level to compete with many industry giants compared to other industries in Sri Lanka. It is in a good position to employ new practices in order to enhance the performance. In the Sri Lankan context, software industry may be one of the possible industries in which teleworking can be implemented due to its nature and information and communication technology capabilities of employees. But still, no major research has been conducted to investigate the adoption feasibility of teleworking in Sri Lankan software industry. The objective of this research is to examine the viability of teleworking in software industry in Sri Lanka. Many factors related to the software industry are well understood by the employees of the industry. Thus, this study attempts to investigate the perception of employees on teleworking.

LITERATURE REVIEW

Widespread interest in teleworking started in the 1970s, when the term 'teleworking' was used for remote working from the office (Nilles et al., 1976). Teleworking was expected to be the ''next workplace revolution'' in the 1980s (Kelly, 1985) and interest continued to grow in the 1990s among employees, employers, transportation planners, communities, the telecommunications industry and many others (Handy and Mokhtarian, 1996). It is also suggested that, with the effective use of teleworking, the 'virtual organization' may be the next stage in

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organizational development (Baruch, 1997). UK's Labour Force Survey (LFS) statistics identify teleworking growing rapidly in the UK and other European Union (EU) countries, but even more dramatically in the USA (Hotopp, 2002).

Interest in the topic of teleworking has generated a considerable amount of research (e.g. Olson, 1989; Chapman et al., 1995; Armstrong-Stassen, 1998; Duxbury and Neufeld, 1999). Much of the current research on teleworking focuses on employees and organizations in the western context. A few studies on teleworking can be found from the Asian context (e.g. Lim and Teo, 2000).

There are some studies in the literature which show the advantages and barriers to teleworking adoption and their organizational implications (Nilles, 1994; Kurland and Bailey, 1999; Shin et al., 2000). According to the literature, the main teleworking benefits for the company are the savings in building costs and the increase in employee productivity. Teleworking gives employees more labour time flexibility and less commuting time. The main teleworking disadvantages are the access to technology and the integration of teleworking with the company's strategy and organizational structure.

The success of existing telework programmes is primarily due to the benefits of flexibility offered to both the company and the teleworker (Pe´rez et al., 2002) The more flexible the working arrangements, the more likely that a worker will become motivated to perform in an effective, results oriented manner (Nilles, 1998). Managing results rather than an employee's presence is increasingly seen as a key factor in the success of teleworking. Advocates of teleworking state that the productivity of a teleworker is higher than that of the non-teleworkers. Pe´rez et al. (2002) argued that productivity increases may be due to several factors such as selection procedures that favour highly motivated staff as teleworkers, or the establishment of pay and reward systems closely related to employee performance. Lupton and Haynes (2000) point out that teleworking can positively impact staff recruitment opportunities as organizations have the ability to attract top candidates, including those not willing to relocate, those wishing to engage in teleworking, or those with disabilities who may be less mobile.

Not all scholarly works praise teleworking. Metzger and Von Glinow (1988) identify some problems such as difficulty in implementing control mechanisms for effective governance and direction, scarcity of non-financial incentives and lack of career progression options. Table 1 shows some advantages and disadvantages of teleworking.

Table 1: Advantages and Disadvantages of Teleworking (Adopted from Pe´rez et al., 2002)

Advantages	**Disadvantages**
For the company	**For the company**
• Office space saving • Increase In Productivity • Less absenteeism • Flexibility In Labour relations • Better customer service • Management by objectives	• Organizational structure changes • Equipment costs • Task selection mistakes • Employee motivation • Difficulty in controlling and directing • Loyalty and commitment
For the employee	**For the employee**
• Flexibility • Autonomy • Personal freedom • Self-employment • Cost savings • Less labour problems • Opportunity to disabled people	• Organizational difficulties • Difficulties to team working • Perception of status loss • Difficulties to get a promotion • Psychological problems and social isolation • Disturbances from family members

METHODOLOGY

This section discusses the research framework of the research and data collection method.

RESEARCH FRAMEWORK

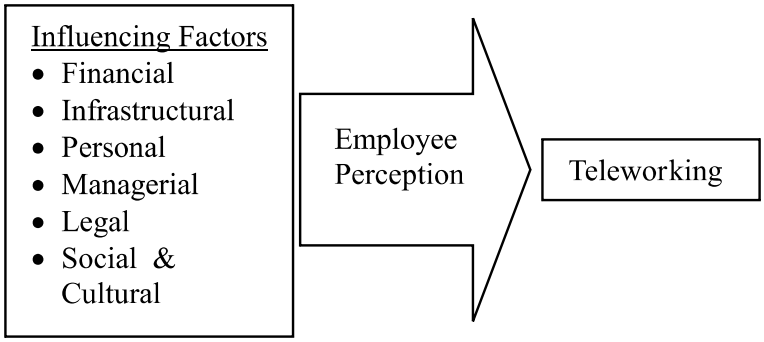
The purpose of this research was to investigate the viability of teleworking in Sri Lankan software industry. It is important to understand the perception of the different employee categories on teleworking, since the success of teleworking mainly depends on the commitment of the employees.Moreover,employees of the industry can give better information on benefits of teleworking and feasibility of teleworking in the software industry. Thus, the research framework was mainly formulated to acquire the views of software professionals like software engineers, IT managers, system analysts, software architects and other IT executives.

Perception of software professionals on teleworking was studied under the following categories: financial, infrastructural, managerial, personal, legal and social & cultural. These areas were carefully selected considering the opinion of the experts in the industry and past literature (Felstead et al., 2003; Moon and Stanworth, 1997; Baruch and Smith, 2002).

In implementing teleworking, financial viability is one of the important factors from the company's side. Teleworking needs some capital expenditure to provide the telecommunication connectivity and other computer facilities to employees while there are certain savings. Nilles (1998), known as the father of telecommuting, believed that a primary barrier to remote work arrangements is management. Ruppel and Harrington (1995) and Lupton and Haynes (2000) also expressed a similar view. Thus, the study expected to check the employee perception on managerial aspects. Issues such as employee control and monitoring, training arrangements, and motivation were checked among others. Baruch and Smith (2002) pointed out that legal issues should be given the attention in implementing teleworking. The issues such as leave, liability and certain expenses bearing were included in this category. Social aspect of teleworking was another area which has drawn the interest of the researchers (Harris, 2003; Lim and Teo, 2000). Cultural issues such as employability of female workers and mutual trust were some other areas included in the study.

Research framework was designed to acquire perception of software professionals on the above aspects. Figure 1 shows the conceptual framework of the research.

Figure 1: Conceptual Framework



DATA COLLECTION

A questionnaire survey was carried out to check the perception of software professionals on the aspects discussed in the previous section. Questions were prepared to check the various factors identified under above six categories. Sample consisted of IT professionals from 12 software companies in Colombo. Hundred and twenty questionnaires were distributed to software professionals reflecting various job categories. The companies covered number of business domains. Seventy two useful completed responses were received.Data were collected during period of September – November 2007. Table 2 shows the distribution of respondents based on job categories and business domain.

Table 2: Distribution of Respondents

Job category	No.	Businessdomain	No.
Managerial Staff		**ERP**	32
Dept. Head	3	Software solutions	20
Senior Manager	4	Product based solutions	9
Manager	8	Other	11
Tech Lead	10		
Non-managerial staff			
Software Engineer	17		
Senior Software Engineer	15		
Business Systems Analyst	8		
Software QA Engineer	3		
Technical Writer	3		
Support Consultant	1		
Total	**72**	**Total**	**72**

In addition to questionnaire survey, several IT professionals were interviewed to clarify the reasons for some of the survey results.

RESULTS AND DISCUSSION

Responses gathered in the survey are analyzed in this section. Results are discussed under six categories (financial, infrastructural, managerial, legal, personal and social & cultural).

FINANCIAL ASPECTS

In implementing teleworking, organizations expect reduction of their operational expenses. If teleworking is not favorable towards operational expenses, the companies will not be much interested in implementing teleworking. On the other hand, in implementing teleworking, organizations should spend to provide the computer and communication facilities to the teleworkers.Employees' view on financial viability in teleworking is shown in Table 3 (measured on Likert scale: from 1 - strongly disagree to 5 -strongly agree).

Table 3: Financial Viability of Teleworking

Item	Mean	Std. Dev.
Company is able to spend on teleworking infrastructure	3.24	1.13
Possible to reduce following costs of employer through teleworking		
– office space	4.17	0.48
– vehicle allowance	3.91	0.53
– fuel / traveling allowance	3.92	0.52
– food allowance	3.86	0.74

It could be noted that employee perception of teleworking on financial factors was favorable (indicate more than 3). Most of the employees were very positive about the benefits of reducing the office space cost. In the interviews, some IT professionals indicated that even though vehicle allowance could be reduced through teleworking, vehicle allowance of the IT mangers could not be avoided through teleworking. Food allowance could be reduced through teleworking because some software companies provided food allowance when the employees worked for long hours, even though the companies did not provide food allowance for normal working hours.

INFRASTRUCTURE

Teleworking is not possible unless adequate telecommunication facilities are available in the employees' residence area at a reasonable cost. Employees' opinion on telecommunication facility availability is shown in Table 4 (measured on Likert scale: from 1 - strongly disagree to 5 -strongly agree).

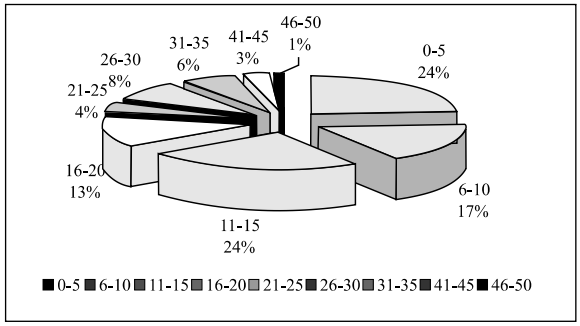
Most of the employees were positive about the availability of telecommunication facilities in their residence area. Many of them indicated that there were a number of telecommunication service providers and they could switch to another service provider if the services of current service provider would not be adequate.

Table 4: Infrastructure Availability For Teleworking

Item	Mean	Std. Dev.
Availability of Telecommunication Facilities	3.54	0.96
Availability Options For Service Providers	3.06	0.97
Adequacy of Bandwidth For Teleworking	3.44	1.05
Reasonable Telecommunication Cost	3.36	0.86

Participants living in different areas were selected for the survey. Depending on the location they lived, the facilities existing for teleworking could be different. Figure 2 shows the distribution of the participants in different distances to the main city Colombo. 24% of the survey participants were living 11-15 km away from Colombo which was the majority for the sample. Participants from Colombo city were considered as 0 km distance.
According to responses of IT professionals, there was not much difference in availability of the telecommunication facilities up to 50km distance from Colombo city. However, results indicate that bandwidth has gradually decreased with distance. This is an important issue to be considered in introducing teleworking, since bandwidth is essential for teleworking.

Figure 2: Living Distance From Colombo City



MANAGERIAL ASPECTS

How easy it is to mange the employees is questionable in implementing teleworking. In introducing teleworking, it is important to understand the types of work for which teleworking can be introduced. In order to understand the views of managerial and non-managerial staff, responses have been analyzed separately. Table 5 shows the employees view on possibility carrying out several managerial activities with implementation of teleworking (measured on Likert scale: from 1 - strongly disagree to 5 -strongly agree).
According to Table 5, it could be observed that there was a slight difference between the views of managerial staff and non-managerial staff. Non-managerial staff had a more favorable view on many managerial activities as compared to the managerial staff. Both categories agreed that controlling and motivating employees would be difficult, but employees' time could be effectively used with teleworking. Some of the managerial staff felt that setting targets and monitoring would be difficult with teleworking, but non-managerial staff had an opposite view.
Many managerial staff had the attitude that employee retention would be difficult with teleworking since the employees might loose affiliation with the organization and miss the family environment in the organization as result of teleworking. IT professionals pointed out that teleworking would not be a problem for team work; since the available communication infrastructure could provide the necessary connectivity.
It is necessary to understand for which type of work teleworking can be implemented. Table 6 shows the possibility of implementation of teleworking for different types of work. Many respondents indicated that software development, documentation and modification could be done using teleworking.

Table 5: Possibility for Managerial Activities in Teleworking

Managerial Activity	Managerial Response		Non-Managerial Response		Overall Response	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Controlling employees	2.04	0.40	2.67	0.48	2.45	0.62
Setting targets and monitoring employees	2.83	0.47	3.86	0.53	3.50	0.71
Using employees' time effectively	3.87	0.59	4.08	0.36	4.01	0.69
Using extended work hours of employees	3.96	0.62	3.71	0.28	3.80	0.68
Communicating with employees	3.09	0.34	3.73	0.43	3.51	0.55
Arranging training for employees	3.70	0.43	3.84	0.25	3.79	0.50
Employee retention	2.76	0.58	3.02	0.67	2.93	0.89
Possibility of team work	3.13	0.32	3.47	0.43	3.35	0.54
Ability to motivate employees	2.39	0.27	2.80	0.46	2.66	0.53

Table 6: Possibility of Implementing Teleworking in Different Activities

Type of work	Managerial (% agreed)	Non-managerial (% agreed)	Overall (% agreed)
System study	0.00%	6.12 %	4.17 %
System analysis	8.69 %	20.40 %	16.67 %
System design	17.39%	59.18 %	45.83 %
Software development	78.26%	97.96 %	91.67 %
Documentation	91.30%	97.96 %	95.83 %
Modification	91.30%	63.26 %	72.22 %
Customer support	47.82%	38.77 %	41.67 %

LEGAL ASPECTS

In implementing teleworking, legal issues such as leave, holidays, and expenses should be given the consideration. Table 7 shows the opinion of the employees on the legal aspects in implementing teleworking.

Many employees were with the opinion that number of leaves could be reduced with the implementation of teleworking while recommending payments on the work done basis. Majority indicated that expenses such as telecommunication cost and electricity cost should be borne by the employer. In the discussions with employees, some argued that there should be an upper limit for these expenses; otherwise, the employees would misuse the facilities. Majority of the employees preferred to have a mix of teleworking and office working. In the interviews, they said that 100% teleworking is monotonous and they want to associate with their colleagues, hence office working is also necessary.

Table 7: IT Professionals' View on Legal Aspects

Item	% agreed
Payment type for employees	
Hourly basis	11.1%
Work done basis	68.1%
Salary basis	20.8 %
Number of paid leaves	
21 days	63.5 %
24 days	15.9 %
28 days	15.9 %
Other	4.8 %
Number of sick leaves	
7 days	49.3 %
14 days	46.4 %
Other	4.3 %

Working hours	
7 hours	6.9%
8 hours	48.6%
9 hours	9.7%
10 hours	20.8%
Depends on the demand	14.1%
Number of days for teleworking	
1 day	4.2%
2 days	19.4%
3 days	27.8%
4 days	12.5%
5 days	15.3%
Depends on the demand	20.8%
Holiday entitlement	
Weekends only	3.0 %
Weekends + mercantile holidays	29.9 %
Weekends + mercantile & public holidays	62.7 %
Other	4.5 %
Ownership of computers	
Employer	80.6 %
Employee	17.9 %
Both	1.5 %
Liability insurance	
Employer	79.2 %
Employee	16.7 %
No need	4.2 %
Electricity expenses	
Employer	64.2 %
Employee	35.8 %
Telecommunication expenses	
Employer	87.5 %
Employee	12.5 %

PERSONAL ASPECTS

How teleworking personally affect employees has been studied. Employee perception on the personal aspects is shown in Table 8 (measured on Likert scale: from 1 - strongly disagree to 5 -strongly agree). IT professionals had the attitude that they would have many personal benefits through teleworking. However, the employees were not willing to remain with the current employer due to the benefits of teleworking. They felt that working out of the office would not be a barrier for their promotion.

Table 8: Impact of Teleworking on Personal Aspects

Item	Mean	Std. dev.
Increase productive work time	4.28	0.56
Reduce stress of traveling	4.31	0.69
More balance between family and work	3.69	0.94
No barriers for promotion and rewards	3.48	0.79
Reduced cost of traveling & other expenses	3.57	0.87
Possibility to work even during sickness	3.13	1.14
Willingness to remain with employer due to the benefits of teleworking	2.41	0.89

SOCIAL AND CULTURAL ASPECTS

Advocates of teleworking argue that teleworking provides numerous social benefits. On the other hand, it is required to see how far teleworking agrees with social and cultural norms. Table 9 shows the perception of the IT professionals on social and cultural aspects of teleworking (measured on Likert scale: from 1 - strongly disagree to 5 -strongly agree). Many IT professionals agreed that teleworking could provide social benefits. Teleworking reduces the employee traveling and hence reduces road traffic and foreign exchange for oil. Teleworking is much helpful for the disabled people in the countries like Sri Lanka, where there are less social welfare facilities for the disabled people. Further, teleworking enhances the employability of the females since they are able to work while attending the family matters. On the other hand, many companies in the IT industry expect extended long hours and teleworking facilitates female employees to fulfill the expectations of the employers while working at home.

Table 9: Impact of Teleworking On Social & Cultural Aspects

Item	Mean	Std. dev.
Less environmental pollution	3.87	0.79
Reduced road traffic	4.08	0.43
Reduced fuel cost	3.68	0.98
Employability of disabled workers	4.22	0.56
Employability of female workers	3.96	0.80
Balance between family and work life	3.74	0.70

CONCLUSIONS

This research investigated the IT professionals' view on teleworking implementation in software companies. It seems that IT professionals have a positive attitude on teleworking in many aspects. There are many benefits in several aspects such as financial, personal and social. Teleworking is beneficial to organizations, employees and society. Majority of the employees had the view that many job functions in the software industry are possible through teleworking except the functions such as system analysis & design and customer support. Flexible working hours and reduction of travel time cause improved employee productivity. Teleworking can enhance the employability of females of countries like Sri Lanka, where they are expected to carry out household activities. Employee perception shows that there are many drivers to implement teleworking in Sri Lankan software industry. In this study, the conclusions were mainly drawn according to the views of the employees in software industry. But it is essential to carry out technical and financial feasibilities before actual implementation of teleworking. This study analyzed the employee perception on teleworking under several categories. The future research can be directed to more detail analysis in each of the areas considered in this study.

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exporters.The efficient futures markets will help farmers to eradicate the weed of uncertainty about the future spot price of the produce from the field of uncertain price market.

CONCLUSION

India has a long history of trade in commodity derivatives. But, the commodity futures markets in India are only four years old. Trading volume and value of futures market in the past two years have increased so much that it pales the stock market. Thus, commodity futures markets have become the area of attraction for traders and researchers. But, there is dearth of research work in this field. Few quantitative studies have been conducted to evaluate the efficiency of these futures markets. This study is a step in the same direction.

This study has focused on the weak form efficiency of commodity futures market of Guar gum and Guar seed. Market efficiency, here, has been measured as the long run or equilibrium relationship between the spot and futures price series and unbiasedness of these markets. We conclude that for Guar gum and Guar seed the spot and futures price series are first difference stationary i.e. I (1). The regression analysis shows that the futures price F_{t-1} at time t-1 contains all available information for predicting today's spot price S_t. The results of different contegrations techniques used here indicate that spot price and futures price series are cointegrated. Cointegration between these price series ensures that they do not drift apart. The presence of cointegration between the spot and futures price series is a necessary (but not sufficient) condition for market efficiency. The results should be unbiased also. The Engle Granger test also shows the unbiasedness of the results. Thus, both the conditions for the efficiency of markets are satisfied. So, we can say that future markets are efficient in weak form for all selected commodities.

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