A Study on the Revitalization of Remote Development in Software Industry

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Abstract

Background/Objectives:As public agencies are moving to local relocation, manpower management issues such as dispatching personnel or teleworking are being generated. This point is pointed out by the difficulties of IT service companies such as labor dispatch and burden of system cost. Although it has been specified in the RFP to apply remote development, it is not actually implemented, and it is necessary to supplement the policy for settlement of SW remote development

Methods/Statistical analysis: I would like to approach a reasonable improvement plan which can derive productivity improvement through remote development by comparative analysis and qualitative case study of representative domestic and overseas cases of remote development.

Findings: Firstly, based on the Remote Development Guideline (14.06) published by the Korea Information Society Agency, it is necessary to establish a guideline on the existing guidelines and a notice to utilize them. Second, you should insert a phrase that allows you to refer to the remote development guidelines, such as the subcontracting guidelines. Third, institutional equipment are needed to make the remote development system effective to improve the practices and the SW industry environment.

Improvements/Applications: Remote development of the public SW industry is a positive impact.

Keywords: remote development, remote development, remote legacy, software industry, Telework

1. Introduction

With the development of information technology in the fourth industrial revolution era, the knowledge industry occupies an increasing proportion in the industrial structure. In the existing industry, the knowledge industry is becoming increasingly important and this phenomenon is accelerating. Especially, in the software industry, due to the advancement and complexity of the information system construction project, various technology holders need to organically cooperate, and the importance of remote development is gradually getting more and more red.

In this case, the definition of remote development is selected under the responsibility of the operator in the optimum place including the performance, quality and cost from the communication point of view corresponding to each process in the information system building process, . Among the words that we often see easily, remote development and working are telecommuting.

In general, many freelancers are working at home telecommuters, and further discuss the activation of remote development in the software industry.

Currently, the general information system is carried out in the client office or near office, and system integration tasks such as system requirements analysis, system basic design, SW detailed design, coding and unit testing, integrated testing and installation delivery are carried out. In particular, the actual place of business execution is a majority in the ordering organization.

Table 1 is the work that occupies a lot of space while doing actual work is largely within the order period.

Among them, System construction accounted for 55.2% and System Operation / Maintenance accounted for 67.7%.

Table 1:. Place of actual business (Ratio by type, unit:%)

division	Within the order period	Ordering organization Nearby offices	Contract partner	Etc
System construction	55.2	5.8	31.8	7.1
System Operation / Maintenance	67.7	3.7	16.4	12.2

Source: Korea IT Services Industry Association, 4th Industrial Revolution era, Advancement of SW Development Project and Seeking Effectiveness Seminar Data Book, 2018.02.02 pp 44

In this environment, ways to improve the working conditions and treatment of workers through the activation of remote development are also emerging as various issues.

At the same time, it is necessary to compare the advantages and disadvantages of remote development and to present the working conditions of workers in various directions.[1]

Figure 1: Remote development work environment

Source: Chosun Ilbo, 1 out of 5 global workers work at home, January 25, 2012, http://chosunilbousa.com/ninfo.cfm?id=21106

2. Materials and Methods

In remote development in the software industry, there are labor management issues such as dispatch of personnel or teleworking due to the proliferation of public institutions, and companies are worsening the return rate due to costs exceeding budget such as stay costs and travel expenses.

In the past, the development of the domestic handicrafts industry, however, as the IT technology and the domain navigation become more sophisticated, the IT service should also deepen the division of labor. In terms of institutional terms, there are provisions related to remote development in general conditions of service contracts and guidelines for construction and operation of administrative agencies and public institution information systems,   but only a few cases allow remote development.

Some examples of public institutions that have introduced remote development methods by some private companies, including the financial sector, have been investigated, and it is time for institutional and policy complementary measures to settle SW remote development.[2][3]

2.1. *Remote Development Case Analysis*

There are a lot of limitations in promoting remote development, and it is not actively expanding, and the ordering agency for remote development requires a lot of preparations.

In addition, it can be considered as a cause of the misunderstanding of the supervisory system of the well-developed audit organization, the level of the unmanaged management personnel, This study aims to elucidate the ways to activate remote development in software industry by comparing and analyzing domestic and foreign cases.

In particular, we do not claim a specific methodology in the collection or analysis of data, but rather expect the results of insights and interpretations of reality through qualitative case studies.[4]

2.1.1. *Domestic Case*

Table 2:. Sample case

Shinhyo to promote 'next generation' remote development[5]
Completion of the next-generation ISP consulting of the National Federation of Insurance Cooperatives
Considering the fact that a number of next generation projects of 2 financial institutions are going on at the same time
As of now (2011), there is a negative internal public opinion on remote development and it is difficult
Establishment of Seoul and discussing introduction of PMO, not Daejeon headquarters
Since there are no articles after the remote development promotion, it is judged to have been disappeared

Table 3:. Sample case

The first case of introduction of remote development of public information ... Kangwon Land, acting as a spreading primer[6]
Kangwon Land is attempting remote development for 4 billion KRW resort management system construction project, and system development process that starts after analysis and design is remote development target
Remote development will be carried out during the development phase of 5 months during the entire project period of 22 months, and the development will be carried out at the headquarters in Seoul (Nongshim NDS, KCC information communication)
Remote development inevitable tests are excluded.
Through this, the executives anticipate savings on development costs such as travel expenses, stay expenses, office rent, etc., and it is expected that the dispatch of development personnel will be minimized
It is expected that the input of related personnel such as R & D manpower coordination will be flexible.

Table 4:. Sample case

Indicate the burden of the lease expense on the RFP[7]
0000 Business Proposal Request (RFP)
The beneficiary must secure his / her own items (equipment, software, hardware, development tools, etc.) and consumables necessary for carrying out the work.
The place of performance of the work will be designated by consultation, but related expenses such as lease rent and rent will be borne by the recipient

2.1.2. *Overseas Case*

If we look at overseas cases, teleworking and telecommuting are relatively more active than Korea. According to the US Bureau of Statistics, between 2005 and 2015, teleworking rates have increased more than two-fold by more than 115 percent.

Soft Choice, a Canadian IT services company, recently released a study that looked at trends in the labor environment. According to the study, North American workers' expectation and interest in teleworking continues to increase and they want more than we think.

About 74 percent of workers surveyed said they would quit their current job if they worked remotely, and 85 percent wanted workers to work remotely from the company.[8]

In addition, it is possible to improve work productivity of workers by remote work through overseas case, and can save office space and cost. It also saves time and equipment costs for IT management.

For example, teleworkers work remotely at home, so they are not only working on personal PCs, but they are also holding and managing the first half of the software management tools and apps. So the cost of managing software or tools in the company can be reduced.[9]

Table 5:. The introduction of remote work system by overseas major companies

country	company	Main Content
Japan	Toyota	Go to work for 2 hours once a week Other times are telecommuting
USA	IBM	Guaranteed telecommuting for all employees since 1995 Introduce programs for performance and competency management of telecommuters and evaluate them based on final performance instead of working hours
Netherlands	ING	Introduced a Compressed Work Scheme that works for up to 9 hours a week Workers can design average working time, commute time, etc.

Source: Dong-A Ilbo, Japan is suffering from a shortage of low fertility and aging population, the rapid spread of home work, 2016,   08,   20, http://news.donga.com/List/Series_70030000000712/3/7003000

0000712/20160820/79869922/1

Table 6:. Overseas IT company with teleworking

NetApp
We have a substantial number of telecommuting staff and 30% of our staff work at least partially
According to Jobs Ads, you can work from home in a variety of positions including NetApp storage engineers and system administrators.
Ultimate Software
Ultimate Software's workforce management solutions are used by technology companies such as Google and Cisco.
Approximately 50% of full-time employees are known for handling more than 20% of their work hours at remote locations
Intuit
Well-known for its QuickBooks and TurboTax software, this accounting and financial services software provider provides employees with a flexible work plan
The company also has separate job posting pages for remote employees only.
Cisco Systems
Thanks to Cisco's Virtual Office software and extensive telecommuting policies, 85% of Cisco employees in 2011 were regularly working remotely
The resulting cost savings is estimated at approximately $ 277 million
Rackspace
Cloud and hosting provider in Texas, USA Rackspace has offices all over the world
Rackspace provides a home-friendly environment for employees of various positions, from responsible Web developers to senior software developers.

Source: CIO, 10th place to work at home is 'Intel' · · · 1st place ?, 2014.0.20, http://www.ciokorea.com/slideshow/19641

3. Results and Discussion

We have seen domestic and foreign cases of remote development in the software industry. The advantages and disadvantages of domestic and overseas cases will be improved by enhancing workers' motivation, improving work productivity, reducing turnover rate, and reducing company costs through teleworking. The disadvantages of teleworking are the disconnection between workers and the alienation, which leads to a decrease in communication and cooperation opportunities, which can lower the productivity of enterprises.[10]

The positive effects of remote development in the software industry can be summarized as follows: First, it increases the possibility of employing flexible workforce. Second, the application of solutions and methodologies will motivate companies to improve their productivity. Third, a comfortable work environment can improve worker performance. In addition, the process-oriented systematic management can strengthen the expertise of the workforce.[11]

Table 7:. Pros and cons of Eyefax Remote Development Center

division	Contents
Advantages	- 40 ~ 60% cost reduction compared to existing development - 30% cost savings over other project execution models - Monthly fixed costs - Intellectual property protection - Integrated management of development process - low risk, high profit - Consistent procedures to manage the development team
Disadvantages	- Continuous operation 365 days a year - Requires at least 2 team members

Source: Software Engineering Portal, <Webzine 155: Engineering Trend> Improving Software Productivity - Remote

Development Center, May 15, 2015, http://www.sweng.kr/member/customer/Webzine/BoardView.do?boardId = 00000000000000033787

4. Conclusion

As a whole, measures for revitalizing remote development are constantly being discussed, but they do not reflect the positive aspects of the software industry.

First, based on the Remote Development Guideline (14.06) published by the Korea Information Society Agency, the guideline should be revised and a notice should be prepared to utilize it. Second, you should insert a phrase that allows you to refer to the remote development guidelines, such as the subcontracting guidelines. Third, institutional equipments are needed to make the remote development system effective to improve the practices and the SW industry environment.

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