

ICT aided Work from Home and its Impact on the Environment

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ABSTRACT

The format of work-from-home aided with ICT technology and its impact on the environment is very relevant as such work-format is gaining popularity. This research explored this topic through a survey of 150 people on both the changes induced through this work-format and their views about its impact on the environment.

1. Introduction

Work-from home aided by Information and Communication Technology (ICT) has seen prominence in 2020 with health concerns due to Coronavirus Disease (COVID-19). It is also termed "telecommuting" and refers to work being done assisted by technology in place other than the usual formal work office (Narayanan and Menon, 2017)

The Work-from-home format reduces commuting requirements and so may help in reducing traffic and hence help save energy resources and reduce its contribution to air pollution. (Nilles, 1991) These were also some of the initial motivators for the adoption of the work-from-home format. (Narayanan and Menon)

The influence that the work-from-home format may have on the environment is highly relevant given that it has also been considered as a measure against environmental problems. For example, the work-from home was one measure recommended by the Central Pollution Control Board (CPCB) in India when pollution levels in the city of Delhi, India in 2020 reached high levels. (Kapil, 2020)

2. Literature Review

Kitamura et al.(1990) analysed the impact of teleworking on traffic and air pollution through an empirical study. They noted that teleworking can help in the objective of reducing both vehicular congestion and pollution. They also noted that the research findings indicated that non-work-related travel had decreased for both the teleworking employees and their family members, however further research is needed to obtain further clarity on this aspect.

Koenig, Henderson, and Mokhtarian(1996) studied the influence of telecommuting on travel and emissions. They noted telecommuting increases non-work-related travel, and research can further focus on this over time, especially as this format becomes more common. Nevertheless, their study found it to have an insignificant impact on travel and emissions that do not outweigh the benefits accrued by telecommuting.

Kim(2016) analysed if the nature of telecommuting helps in the goal of urban sustainability. They noted that while telecommuting has a scope to help in environmental goals such as by reducing vehicular traffic congestion, however its benefits are curtailed by factors including the rebound effect such as by non-telecommuting household members using non-lesser used vehicle of the telecommunicating worker, etc.

Giovanis(2017) analysed the relationship between teleworking along with the quality of air and traffic volume of air in Switzerland. They noted that teleworking has a strong potential to help in reducing traffic and this reducing its negative impact on air quality and its associated features such as teleconferencing can also help in this regard.

O'Brien and Aliabadi.(2020) analysed teleworking and noted that while it is often seen to be more beneficial for the environment as compared to the traditional work involving regular travel to the office, the issue is more complicated and needs to be examined in detail by future research. They noted that telecommuting can have both positive and negative impacts on the environment. Examples of the positive impacts are the better usage of energy as employees themselves pay for electricity use at home, lesser work-commuting requirements, reduced usage of office energy requirements, etc and examples of negative impacts include increase amount of energy usage at home, increased non-work-related commuting, use of a larger, but a lesser fuel-efficient car, etc. The net effect of the impact on the environment is complicated to state with certainty.

3. Methodology

For the study, 150 people in urban Delhi who were working in a 'work from home' format aided by ICT technology were sent a questionnaire through Google Forms. This study was conducted for the period June 2020 to October 2020 during which there was a relatively large number of people working-from home aided by ICT technology due to health concerns and risks of crowding during the COVID-19 pandemic. The judgemental sampling technique was used to identify the sample for the survey.

4. Findings

As indicated by literature the work-from-home format has the potential to positively impact the environment by reducing energy uses of offices, emissions and air pollution caused by traffic, etc. The results showed that 95% of the people said that in the work from home, there is less dependency on the use of both private and public transport. This results in decreased fossil fuel burning and lesser emissions of Greenhouse Gases and other pollutants. The streets are no longer crowded with vehicles and people. Noise pollution too from vehicles is greatly reduced. This is very positive for the city which is reeling under a number of environmental problems due to increased vehicular use.

Public transport may become less crowded and this may attract people who otherwise would have not used them due to crowd. This can further help reduce the use of private vehicles and the resultant emissions. From the people surveyed 60% said they would use public transport more frequently if it was less crowded.

On the energy front, 75% stated that there is saving as the lighting of huge office complexes and the use of air conditioning in summer and internal heating in winters is no longer a requirement.

Of the people surveyed, 90% stated that work from home promotes decreased consumerism and less expenditure on trendy office fashion. Comfort living with basic requirements becomes the dominant lifestyle.

60% of the people felt that it was good that they did not have to go on business travel and the work got done by video

conferencing. However, 40% were not happy with this as they felt traveling to places on work was good and face to face work decisions were more easily done. However, for business meetings within the city, 80% stated that meeting on an online platform is much better and saves a lot of travel time and there is no manoeuvring through heavy city traffic.

The other environmental benefit of work from home is that it involved less paper usage according to 95% of the people surveyed. They were of the opinion that this was because every work was done online and paper-based work is reduced.

Around 90% of the people stated that in a work from home environment, the use of disposable plastic of food materials like cups, spoons, plates, food packages are greatly reduced thereby further reducing the negative impact on the environment. With regard to food delivery orders, 80% said that with more time available to them, they now cooked healthy meals for themselves and their family.

90% people surveyed stated that the pandemic has made the majority of people have lifestyle changes which the people otherwise would never have thought of before and "work from home" is also one such lifestyle change.

5. Conclusion

It was observed through the survey of people that work-from has been beneficial to the environment as in the present period of Work from-home aided with ICT that was induced by COVID-19 pandemic, however further research is needed to expand on this topic based on developments relating to this after the COVID-19 pandemic.

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