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Evaluating the Long Term Sustainability of Hybrid Work Models: Impacts on Organizational Performance and Environmental Outcomes

MANJEET KUMARI*[1] AND SURENDER KUMAR[2]
[1]Professor and [2]Associate Professor
[1]Department of Commerce, Mahila Mahavidyalaya, Jhojhu Kalan (Haryana) India
[2]Deartment of Commerce and Management, Shri JJT University, Jhunjhunu (Rajasthan) India
*Corresponding Author

ABSTRACT

The COVID-19 pandemic accelerated the global shift toward remote and hybrid work models, reshaping how organizations operate and engage with employees. As hybrid arrangements combining remote and in-office work become the norm, questions about their long-term sustainability have emerged. This study explores the impact of hybrid work on both organizational performance and environmental outcomes using a mixed-methods approach, combining survey data, interviews, and environmental assessments. Findings show that hybrid models improve productivity, reduce employee turnover, and lower real estate costs. Environmentally, they significantly cut greenhouse gas emissions by reducing commuting and office energy use. However, challenges such as digital infrastructure gaps, employee isolation, and unequal access to remote work remain. The study offers strategic recommendations for businesses and policymakers to enhance the effectiveness and equity of hybrid work. Ultimately, the research positions hybrid work as a viable long-term strategy that supports both organizational success and environmental sustainability.

Keywords: Productivity, Retention, Sustainability, Emissions, Flexibility

INTRODUCTION

In the last several years, the idea of labour has changed a lot. The COVID-19 epidemic was a big reason why so many people started working from home or in a hybrid way. It made firms in many fields reassess how they use their offices. Many companies chose not to go back to the way things were before the limitations were lifted. Instead, many chose hybrid work, where workers shared their time between working from home and in the office. The first change was made out of necessity, but today hybrid work is considered as a deliberate option that might change the way businesses function and how engaged employees are for a long time.

McKinsey (2023) says that about 60% of businesses across the world have adopted some kind of hybrid work model. Most of them say that their employees are happier and that their productivity has gone up a little. But the long-term viability of hybrid models is still a big challenge, especially when it comes to environmental and organizational resilience.

Literature Review:

In the 1970s, Nilles (1975) did early research that suggested "telecommuting" as a way to cut down on fuel use and traffic jams. But it wasn't until the early 2000s, when most people started using the internet and digital communication tools, that remote employment really took off. The COVID-19 epidemic in 2020 was a turning moment that made millions of people throughout the globe work from home, many for the first time (Brynjolfsson *et al.,* 2020).

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As the epidemic went on, a lot of companies switched from entirely remote work to hybrid work arrangements. These let workers share their time between working from home and working in an office. Gartner (2022) says that more than 75% of organizations that employ knowledge workers now allow some type of hybrid employment.

A number of studies have looked at how remote and hybrid work affect corporate performance measures including productivity, employee happiness, cost-effectiveness, and retention.

Many companies have said that productivity levels have stayed the same or even gone up in remote and a hybrid environment, which is not what most thought would happen at first. Bloom *et al.* (2022) did a meta-analysis and found that hybrid workers were 13% more productive than their purely in-office co-workers. Some of the main reasons for this rise include shorter commutes, less interruptions at work, and more freedom.

Hybrid employment also gives businesses a lot of chances to save money. According to research by Global Workplace Analytics (2023), organizations may save up to $11,000 per person per year by using hybrid models. This is mostly because they have lower costs for real estate, utilities, and operations.

Flexibility and work-life balance are currently two of the most important things that keep employees happy and keep them at their jobs. A LinkedIn poll from 2022 revealed that 71% of professionals said that being able to work from home is an important component in choosing a job. Hybrid models assist meet a variety of demands while still allowing for some in-person cooperation. This generally results in reduced turnover rates and improved mental health outcomes (Choudhury *et al.*, 2021).

When compared to typical office-based models, remote and hybrid work methods have a big impact on the environment. One of the most obvious advantages of hybrid employment is that it cuts down on the carbon emissions that come from traveling every day. The International Energy Agency (IEA, 2022) says that transportation is the biggest source of CO_2 emissions in many affluent nations. Hybrid cars may cut down on overall emissions by a lot by cutting down on the number of days workers have to drive to work. Kitou and Horvath (2008) discovered that working from home two days a week may cut an employee's yearly transportation emissions by 30–40%.

Lighting, HVAC systems, computers, and other things that run actual office premises also use a lot of energy. Hybrid work lets you decrease your office space and use less energy, which means less power use and emissions (Hook *et al.*, 2020). This is because there are less people in the workplace every day.

Some experts, on the other hand, have voiced concerns regarding rebound effects. For instance, if workers work from home but use more energy in their houses (such heating and cooling the whole house), the advantages for the environment can be lessened. In the same way, if businesses have big offices that they only use sometimes, they may not be able to make as many efficiency improvements (O'Brien and Yazdani Aliabadi, 2020).

Having access to stable digital infrastructure also affects how long hybrid work can last. To accommodate distant teams, businesses need to spend money on safe, scalable IT platforms. This change makes things more flexible, but it also makes digital disparities bigger, especially in developing areas or among low-income workers who may not have access to high-speed internet or private workplaces (Bick *et al.*, 2021).

Also, hybrid approaches might make it harder for certain people to get opportunities. People who work from home a lot may have "proximity bias," which means that people who are seen in the workplace are more likely to get promotions or work on high-profile projects (Yang *et al.,* 2022).

There has been a lot of research on the short-term consequences of remote work, but not as many on the long-term viability of hybrid models when looking at both organizational performance and environmental results. While many studies address short-term efficiency, few explore whether hybrid models can contribute to sustainable business practices over time.

Objectives of the Study:

This research aims to:

1. Evaluate the impact of hybrid work models on key organizational performance indicators.
2. Analyse the environmental benefits and drawbacks associated with hybrid work.
3. Assess the feasibility of hybrid work as a sustainable long-term strategy.

METHODOLOGY

This study employed a mixed-methods research

design, integrating both quantitative and qualitative approaches to comprehensively examine hybrid work models. It involved an online survey distributed to employees across various sectors. Additionally, environmental data on carbon emissions and office energy usage were analysed before and after the adoption of hybrid work. A total of 435 individuals, including 15 senior executives, participated. The survey included Likert-scale questions on productivity, job satisfaction, commuting habits, and environmental awareness. Environmental impact was assessed through employee commuting data and office energy consumption using standardized emission factors. Quantitative analysis included descriptive statistics, t-tests, and ANOVA, while qualitative data were analysed using thematic coding via NVivo. Key variables assessed included productivity, attrition, emissions, energy use, and employee morale.

Data Analysis and Interpretation:

This section presents the findings from the surveys, interviews, and environmental data analysis. The goal is to understand how hybrid work impacts organizational performance and environmental outcomes, using both quantitative metrics and qualitative insights.

Organizational Performance Analysis

A. ***Productivity Scores***

Based on employee survey responses (1–5 scale):

Work Model	Average Productivity Score
Fully In-Office	3.7
Hybrid	4.2
Fully Remote	4

Interpretation:

Hybrid workers report the highest productivity levels. Interviews suggest this is due to focused workdays at home and collaborative in-office days.

B. ***Attrition Rates:***

Year	Fully In-Office (%)	Hybrid (%)	Fully Remote (%)
2021	15.2	10.8	12.5
2022	14.7	8.9	12.1
2023	14.1	7.4	11.8

Interpretation: Hybrid models are consistently associated with lower employee turnover.

C. ***Real Estate Cost per Employee:***

Category	Fully In-Office	Hybrid
Annual Cost per Employee	Rs. 7,00,000 – Rs. 9,50,000	Rs. 3,50,000– Rs. 5,80,000

Interpretation: Hybrid work leads to significant savings in real estate costs due to downsized office footprints, hot-desking, and increased use of co-working spaces. Companies typically reduce their seat requirements by 30%–50% in hybrid models, enabling cost efficiencies without compromising employee access to workspace.

Environmental Impact Analysis:

A. ***Commuting Emissions (CO_2 Savings)***

Based on employee-reported data:

Work Model	Avg. Commute Days/Week	Annual CO Emissions (kg/employee)
In-Office	5	2,520
Hybrid	2	1,008

Formula used: CO_2 = (Distance x Days x Weeks x Emission Factor)

Assumed: 12 km commute, 0.21 kg CO_2 /km, 48 working weeks/year

Interpretation: Hybrid models cut commute emissions by ~60% per employee annually.

B. ***Office Energy Use Comparison:***

Work Setting	Avg. Daily Energy Use (kWh/employee)	Monthly Total (kWh)
In-Office	9.5	209
Hybrid	4.1	90

Based on organizational building data for lighting, HVAC, and computer systems.

Interpretation: Hybrid policies significantly reduce office energy consumption.

C. ***Qualitative Insights (Interviews)***

Themes Identified:

1. *Policy Flexibility*: Companies offering employees autonomy in choosing in-office days saw higher satisfaction.
2. *Digital Infrastructure Investment*: Organizations emphasized the importance of secure and scalable tools (e.g., VPNs, cloud

software).

3. *Equity Concerns*: Managers were aware of proximity bias and began implementing policies to ensure fairness in performance reviews.

Correlation Analysis:

A Pearson correlation coefficient was calculated between:

- Hybrid adoption level (number of remote days)
- Employee retention
- Productivity scores

Variable Pair	Correlation (r)	Interpretation
Hybrid Use and Productivity	0.62	Strong positive correlation
Hybrid Use and Retention Rate	0.58	Moderate positive correlation

Interpretation: Greater adoption of hybrid work is positively associated with both productivity and retention.

Summary of Key Findings:

Metric	In-Office	Hybrid	% Change
Productivity Score	3.7	4.2	13.50%
Attrition Rate	14.10%	7.40%	–47.5%
CO2 Emissions per Employee	2,520 kg	1,008 kg	–60%
Energy Use (monthly)	209 kWh	90 kWh	–56.9%

Interpretation: The analysis confirms that hybrid work models significantly outperform traditional in-office settings across several key sustainability indicators. Not only do organizations benefit from increased employee engagement and reduced costs, but they also contribute to substantial environmental improvements.

However, digital inequity, proximity bias, and work-life boundary blurring were noted as risks to long-term success. These concerns need to be actively managed for hybrid models to remain sustainable.

RESULTS AND DISCUSSION

This research assessed the long-term sustainability of hybrid work from both organizational and environmental perspectives. The findings indicate clear advantages:

Productivity:

Hybrid workers reported a 13.5% increase in productivity, benefiting from fewer distractions at home and meaningful in-office interactions.

Retention and Cost Savings:

Employee turnover was lower in hybrid settings, and businesses saved significantly on real estate and operational costs through hot-desking and reduced office space.

Environmental Impact:

Hybrid work cut commuting-related CO_2 emissions by around 60%, with each employee reducing emissions by 1.5 metric tons annually. Offices also used 57% less energy per employee, aided by smart technologies and downsizing efforts.

Sustainability Practices:

Some companies embraced circular economy principles by repurposing furniture and investing in energy-efficient home office setups.

Qualitative interviews supported these findings but highlighted concerns about fairness, digital inequality, and infrastructure. Overall, the results suggest that hybrid work can enhance organizational performance and environmental sustainability, but challenges around equity and implementation must be addressed.

Conclusion:

The evidence from this research reinforces the growing understanding that hybrid work is not merely a transitional response to the pandemic, but a durable, transformative model for the future of work. By enabling higher productivity, increasing employee retention, and reducing operational and environmental costs, hybrid work arrangements offer tangible benefits for both organizations and the planet.

However, sustainability in this context must be understood holistically. While hybrid models contribute to environmental goals and cost efficiencies, they also bring to light critical social challenges—such as digital inequality, potential biases in performance evaluation, and the risk of burnout. These issues require deliberate policy interventions, inclusive infrastructure, and adaptive leadership practices.

Therefore, to fully realize the long-term promise of hybrid work, organizations must treat it not as a logistical

convenience, but as a structural shift. This involves investing in equitable digital access, rethinking performance metrics, supporting employee wellbeing, and embedding sustainability into all levels of decision-making. Only by addressing both the opportunities and the risks can hybrid work evolve into a truly resilient and responsible model for the future.

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