

A study on office workplace modification during the COVID-19 pandemic in The Netherlands

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Abstract

Purpose – Triggered by public concerns over office workplace safety during the COVID-19 pandemic, this study sheds light on the office workplace environment and aims to investigate how organisations respond to forces from the external environment (impacted by the COVID-19 pandemic) and how they modify their office workplace management strategically and operationally to suit the stakeholders' needs and future development in the post COVID-19 period.

Design/methodology/approach – A desktop study was conducted to provide the framework for the in-depth interviews with five corporate real estate (CRE) managers and three workplace consultants. Thematic analysis including coding technique was adopted to analyse the qualitative data.

Findings – The findings show that during the COVID-19 pandemic, most of the intended and implemented office workplace modifications are mainly related to two types of risk control: administrative control and personal protection. At a strategic level, organisations react to the external forces by re-modelling their businesses and working towards re-orienting their CRE strategies, such as portfolio transformation, agile portfolio strategies and redesign of the office workplace, etc.

Originality/value – This is a topical and timely study that presents the general practice of office workplace modification during the COVID-19 pandemic, as well as the related CRE management (CREM) strategies developed for the new normal. The findings obtained through in-depth interviews have well supported the CREM strategic alignment theory. It is foreseen that office workplace management will encounter other challenges due to uncertainties of the COVID-19 pandemic. The findings of this study provide a practical lens to look at the future changes of office workplace environment.

Keywords COVID-19 pandemic, Office workplace modification, Risk control, Corporate business strategy, Strategic alignment, The Netherlands

Paper type Research paper

1. Introduction

The COVID-19 pandemic has exerted unpredictable impacts on the global society by causing damage to the international economy and drastic changes to all human activities. Hit by the COVID-19 pandemic, a significant percentage of business activities has been



forced to stop to reduce personal interactions in public area. A direct consequence is the decrease in work productivity. Also, collaboration in the workplace and community interactions are significantly undermined. Workplace management during and after the COVID-19 pandemic has become a global challenge. Organisations, which have owned or leased office area to implement their core or supporting business activities, have either taken initiatives to extend the workplace in the virtual dimension with the support of technology, or engaged in preparing for workplace re-entry. These organisations have been committed to modifying their office workplace in various ways to comply with the COVID-19 measures and suit the working practice in the new normal.

Since the outbreak of the COVID-19 pandemic, a number of official documents have been published by international organisations and local government authorities to explain the disease, introduce the COVID-19 measures and provide guidelines for organisations to engage in a wide scope of risk management activities in the workplace area. The literature review conducted for this research on public and industrial guidelines, as well as workplace management, suggests that research on office workplace pandemic control is lacking. Recognising the research gap, this study focusses on office workplace modification during the COVID-19 pandemic and aims to investigate the impact of the COVID-19 pandemic on organisations' businesses and their office workplace modification at both strategic and operational levels. An office workplace modification framework was developed based on a literature review of corporate real estate management (CREM) theory on strategic alignment and hierarchy of control in risk management in the workplace. In-depth interviews with office workplace professionals were conducted to collect empirical data. Interview questions were designed based on the office workplace modification framework, and the interview data were analysed with thematic analysis and coding method.

The interview analyses reveal that organisations with different nature of business have been affected by the COVID-19 pandemic to various degrees and that they have taken a proactive attitude to complying with community measures, mainly related to social distancing and personal protection. During the COVID-19 pandemic, the workplace modifications have been related to two types of risk control: administrative control and personal protection. Although most of the workplace modification activities have remained at the operational level, organisations have engaged in developing long-term CRE strategies and office modification plans to suit the development in the new normal.

The remainder of this paper proceeds as follows. Section 2 provides a literature review on public and industrial guidelines by international organisations and professional associations, as well as safety and health control in workplace and CREM theory on strategic alignment; the development of the office modification framework is also included in this section. The literature review is presented in a top-to-bottom manner, from pandemic control on a community level to the workplace level, from general workplace management to specific workplace modification plan development. Section 3 outlines the research methodology of this study. Section 4 reports the interview findings, and Section 5 further discusses the findings with reference to the CREM theory. Section 6 concludes the study by highlighting the value of this study and the future trend of workplace management studies in the new normal.

2. Literature review

2.1 *Public guidance to control the COVID-19 pandemic*

The COVID-19 pandemic has spread globally at an unprecedented speed after its outbreak in January 2020 (WHO, 2020a). It has been quickly proved that its risk of community transmission is very high (Wong *et al.*, 2020a). Many jurisdictions have implemented policy

interventions and public health and social measures to control the spread of COVID-19 (Wong *et al.*, 2020b). The WHO has provided workplace guidance, which includes information on the coronavirus, management of workplace activities and office workers' behaviour (WHO, 2020b). The European Centre for Disease Prevention and Control (ECDC) has urged the European countries to implement public measures to mitigate the impact of the pandemic (ECDC, 2020a). The European Commission (EC) (2020) launched "EU recommendations for community measures" in response to threats posed by COVID-19, indicating that early time community measures are possible effective means to curb the spread of the virus. The recommended measures are *social distancing*, *infection prevention and control* (e.g. rigorous hand hygiene, cough etiquette, face masks, etc.) and *lockdown*. A document by the ECDC (2020b) entitled "How to minimise the spread of COVID-19" suggests three measures in preventing the infection, including *environmental measures*, *personal protective measures* and *social distance measures*. Another document by the ECDC (2020a) entitled "*Rapid risk assessment: Novel coronavirus disease 2019 (COVID-19) pandemic: increased transmission in the EU/EEA and the UK – sixth update*" elaborates detailed information on the disease and suggests that measures to be applied in the community should include: *infection prevention and control*, *social distancing*, and *travel-related screenings of travellers*. The document also provides examples for social distancing measures at the workplace, such as *flexible working schedules/shifts for employees*, *the opportunity of distance working/teleworking*, *encouraging physical distancing measures within the workplace*, etc.

The European Agency for Safety and Health at Work (EASHW) (2020) has published a guide for workplace which indicates that risk identification and assessment in both physical and psychosocial working environment should be conducted for managing occupational safety and health under the COVID-19 measures. It suggests that the risk assessment should consider long-term resilience at the workplace and workers should be involved in the process of risk assessment on an ongoing basis. The assessment process should comply with the updated information shared by the local public authorities. The guide provides instructions and examples regarding four workplace management operations: *minimising exposure to COVID-19*, *resuming work after a period of closure*, *coping with a high rate of absence and managing workers working from home*. Furthermore, the International Labour Organisation (ILO) (2020) provides detailed recommendation for employers to follow with the purpose of mitigating the negative consequences at the workplace due to the COVID-19 pandemic.

2.2 Industry-driven office workplace guidelines

During the pandemic lockdown, real estate consulting firms and relevant professional associations leverage their expertise and resources to develop guidelines for workplace professionals to cope with the community measures.

International Facility Management Association (IFMA) published a pandemic manual in May 2020 which provides a new pandemic survival guide for organisations with plans to open their facilities and resume operations (IFMA, 2020). The pandemic manual has considered all kinds of workplace management activities in office areas and developed detailed guidelines for professional facilities management professionals to follow.

Jones Lang LaSalle (JLL) has identified eight phases the workplace management has undergone since the outbreak of the COVID-19 pandemic, namely, "shock", "realisation", "respond", "workplace continuity", "re-entry", "re-imagination", "implementation" and "flourish" (JLL, 2020a). A few months into the pandemic outbreak, many organisations officially entered the fourth stage "re-entry" after reviewing their business needs and

developed a continuity plan for the new normal. However, workplace management for the “re-imagination” stage is still beyond people’s imagination as there are many uncertainties in the post COVID-19 pandemic period. In other words, it is foreseeable that organisations will be involved in different levels of workplace modification in the new normal.

JLL also developed a re-entry guidebook for organisations to strategically prepare buildings, space and people (JLL, 2020b). The guidelines identify four major challenges for workplaces in the post COVID-19 pandemic period and provide advice regarding specific activities to be implemented. The guidelines focus on four dimensions: health and wellness of employees and visitors; engineering support to ensure that buildings and offices are safe, resilient and ready; guidelines and adjustments development for space management; and process management for re-entry. The guidelines point out and elaborate specific management activities that need to be adapted to the workplace re-entry.

2.3 Workplace safety and health control

Infection disease outbreaks and epidemics have tremendous impacts on public health and health care systems as well as business (Smith *et al.*, 2007). Outbreaks of influenza pandemic have alerted to many businesses on a worldwide basis and many businesses have worked on influenza preparedness and business continuity planning for their workplace, as it is proved that the workplace is an important location for infectious disease propagation (Zivich *et al.*, 2018). The reason is that airborne transmission of pathogens in indoor environments increases the risk of human infection (Luongo *et al.*, 2016). The scale of the impact of the COVID-19 pandemic has tremendously exceeded the swine flu pandemic which broke out in 2009. Its high infection rate due to pre-symptomatic transmission has created large scale social panic. Many businesses do not have a preparedness plan for this pandemic.

Based on our knowledge, this is the first study focusing on office-based workplace modification during the COVID-19 pandemic. Literature related to pandemic control in the workplace, especially in the office-based workplace, is scarce. Thus, literature related to the workplace safety and health control is reviewed to support the understanding of workplace management during the pandemic. The “hierarchy of control” developed by the National Institute for Occupational Safety and Health (NIOSH, 2015) has been commonly used to address the workplace hazards. It provides practical guidance for organisations to prepare for and to control workplace hazards. The NIOSH framework includes five levels of control measures (from most effective to least effective): elimination, substitution, engineering controls, administrative controls and personal protective equipment. This framework is a safety management system used in many industries to eliminate workplace safety hazards. It has been widely adopted among occupational health nurses, occupational health physicians, industrial hygienists and safety engineers as standard practice to avoid and control hazards (de Castro, 2003). Morris and Cannady (2019) discuss the importance of this framework and the proper use of it. They argue that a workplace that faces a higher level of safety hazard should refer to the framework for identifying creative ways to reduce the hazard or eliminate it instead of only using personal protective equipment to reduce the hazard. Among the five levels of measures, engineering control, administrative control and personal protective equipment are frequently adopted for workplace management.

This framework has been adopted in many types of workplaces, especially in workplaces in the clinical sector. Right after the outbreak of the COVID-19 pandemic, Wong *et al.* (2020b) describe the outbreak response measures of an acute care hospital in Singapore, which include three hierarchies of measures: engineering controls (isolate people from the hazard), administration controls (change the way people work) and personal protective equipment

(protect workers with personal protective equipment). This study refers to the structure of the NIOSH framework to investigate the workplace modification practice during the COVID-19 pandemic.

2.4 Corporate strategic alignments and office workplace management

Previous studies on workplace safety and health control and current public guidelines outline the major requirements for office workplace modification during the pandemic. Aside from investigating office workplace modification practice, this study also investigates organisations' responses from a CREM perspective. Based on CREM theory, office workplace management plans shall be in line with organisations' core business plans and their CRE strategies (Haynes, 2012). Office workplace modification amid the COVID-19 pandemic requires not only the involvement of an organisation's operational sectors but also top management's engagement in strategically aligning and integrating corporate resources.

In the past decade, CREM has been given unprecedented academic emphasis, as CREM theories have been strengthened and integrated with support of valuable cases, and thus have been applied for explaining organisational behaviour in the field of real estate management. The mission of CREM is to maximise the value of corporates' physical properties and to increase the efficiency of the corporate activities (Heywood and Kenley, 2008). The value of CREM is created through strategic alignments among different sectors within an organisation (Krumm *et al.*, 1998). The business environment has influenced the corporate mission and business strategies, and thus affected the CRE strategies (Haynes, 2012). In the CREM practice, the revolutionary realisation is that CREM shall react to the external forces while at the same time take a proactive role in strategic alignments: aligning external and internal needs, aligning corporate mission with environmental, economic and social sustainability, aligning CRE resources with the business requirements, aligning CREM functions with business strategies, aligning operational decisions with strategic directions (Appel-Meulenbroek *et al.*, 2010; Appel-Meulenbroek and Haynes, 2014; Heywood, 2011; Kathuria *et al.*, 2007; Manning and Roulac, 2001; Scheffer *et al.*, 2006; Then, 1999, 2000). A number of studies shed light on interpreting the CREM practice and investigating management principles to develop CREM strategic alignment models (Appel-Meulenbroek and Haynes, 2014). Haynes and Nunnington (2010) adapted the political, economic, social and legal (PESTEL) analysis approach in CREM and suggested it to be used for CRE managers to evaluate the external factors to identify specific drivers that would impact on CRE. Their approach proposes six external factors for CRE managers to evaluate their portfolios: political, economic, social, technological, environmental and legislative factors. Heywood (2011) compared 10 models developed by other researchers and identified 15 key strategic alignment components from the models while he found that none of the models include all 15 components. He proposed that all components should be included to form a comprehensive strategic alignment model. This reflects that the dynamics among the strategic alignment components may vary in different scenarios, such as market force, industry nature, etc. and the scenarios affect how the components are recognised and analysed by the researchers.

As one of the important aspects of a CRE portfolio, the office workplace has as well received increasing research attention (Harris, 2016; Haynes *et al.*, 2017). In the past decade, office workplace management has adapted to the changes of various business challenges, including globalisation, consolidation, downsizing, restructuring, streamlining, and technological changes (Gibler *et al.*, 2002). From a CREM strategic alignment perspective, a sound office environment supports the office occupiers in their work processes. Haynes *et al.* (2017) suggest that "the alignment of the office environment (place) with the work processes provides increased workplace connectivity and productivity" and an efficient alignment to increase workplace

productivity and employees' satisfaction is achieved by finding the best match between the physical environment and the behavioural environment. The physical environment shall embrace a high level of flexibility to suit the changes of business environment, human preference and environmental requirements on sustainability, safety and health.

Workplace redesign is one of the important strategies in CREM to adjust the physical environment to provide for the needs of business, work processes and employees. Before the emergence of co-working space, physical space was the only element under one of the Haynes' Ps (place) (Haynes, 2012), and the workplace efficiency was suggested to be achieved through "reducing space per employee through redesign, consolidating workspace, intensifying space use through non-territorial offices and making capital improvements that reduce the time and cost of churn when new product teams are put in place" (Lambert *et al.*, 1995). As the agile working style emerged with the advance of technology innovation, companies that provide co-working space were established to suit the trends (Kojo and Nenonen, 2016). Virtual space has become another element under "place" in CREM. Aside from redesign, policies development and management service delivery are two important CREM approaches in workplace management. They focus on adjusting the behavioural environment at the workplace (Haynes *et al.*, 2017).

The COVID-19 outbreak has raised unprecedented public attention to the workplace as it concerns the safety of every individual who needs to attend a physical place for work. Though there are government policies and guidelines on the workplace operation adaptation and employee working arrangements, organisations need to review and develop relevant workplace policies, modify the work space and provide management services to adapt to the new normal.

2.5 Office workplace modification framework

Guided by the literature review presented in the previous sections, an investigation framework (illustrated in Figure 1) entitled office workplace modification framework was developed to outline the structure of the research enquiries.

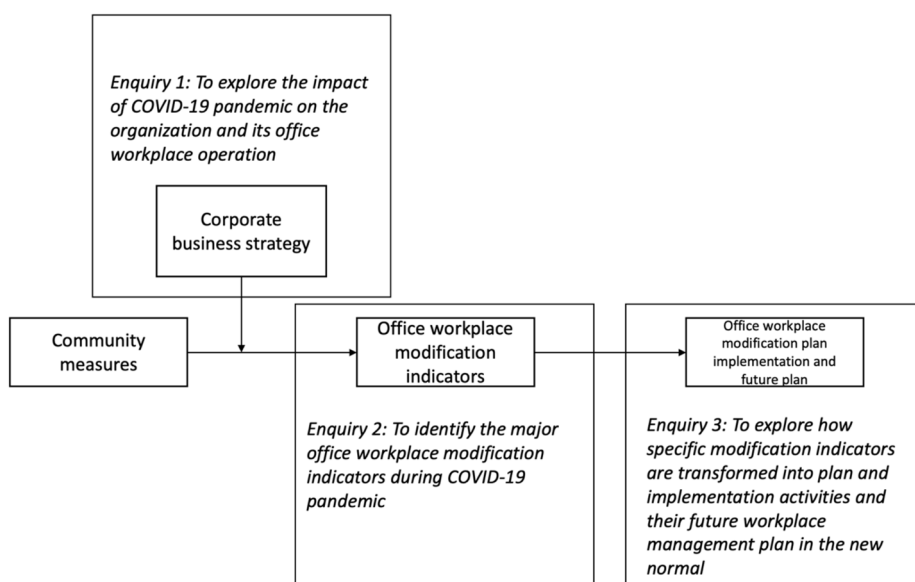


Figure 1.
Office workplace
modifications
framework

The workplace modification framework was developed based on the literature review. The main argument of the study is that different organisations would respond to the community measures differently in terms of workplace modification activities. The CRE theory was reviewed to support this argument. Aside from this, it is worthwhile to look into how these organisations responded to the community measures. Thus, public and industrial guidelines and workplace safety management were reviewed and the NIOSH framework was adopted to analyse the workplace modification activities during the COVID-19 pandemic. The three enquiries were developed based on the framework with the aim to collect empirical data to verify the framework. The development of the three enquiries are explained as follows.

To ensure public health and to engage in controlling the COVID-19 pandemic, organisations have undertaken initiatives to comply with the community measures. These organisations have been affected by the COVID-19 pandemic to various degrees and it is important to explore what the major impacts are and how they have affected an organisation's business and operation (Enquiry 1). The answers to the questions help to understand how organisations align their CRE strategies to business changes.

To translate the measures into specific workplace management plans, organisations need to assess their real estate portfolios and identify the major modification indicators for developing workplace modification activities (Enquiry 2). For example, current office workplace layout may be an obstacle to maintaining social distancing due to the limited space. Thus workplace redesign could be a strategy to implement social distancing, and thus workplace redesign would be identified as the major modification indicator to comply with social distancing. For organisations with an agile configuration design, a plan to set up signage is regarded to be sufficient to ensure social distancing. The workplace modification indicators also indicate an organisation's risk management strategies during the COVID-19 pandemic. With reference to the "hierarchy of control" framework, the workplace modification indicators reflect the adoption of specific risk control approach. For example, building system assessment and adaptation is one type of engineering control while personal hygiene education is one type of administrative control. Furthermore, specific workplace modification activities implemented during the COVID-19 pandemic and the challenges for the implementation process are explored (Enquiry 3).

3. Research methodology

3.1 Interviewee sampling and selection

A qualitative approach was adopted in this study. In order to explore the workplace management practice during the COVID-19 pandemic, in-depth interviews was considered to be the most efficient way to obtain information from workplace management practitioners from different corporations. The targeted interviewees are CRE managers or facilities managers from both in-house teams or workplace management contractors in The Netherlands. For organisations that outsourced workplace management or facilities management services, on-site workplace management executives from real estate and facilities consulting firms were invited to participate in the interview. Aside from individual professional backgrounds, the corporation business nature of the office workplace is another criteria for interviewee selection. In order to understand how different organisations react to the COVID-19 pandemic differently and how the business strategies of these organisations affect their office workplace modification plans, office workplace of organisation with a different business nature are included. A number of 30 invitation emails were sent out to potential interviewees in July and August 2020, and a total number of 8 interviewees participated in the interviews. [Table 1](#) shows the background information of the eight

Table 1.Background of the
interviewees

Interviewee	Position	Nature of the organization	Contractual relationship with the organisation
A	Consultant in real estate and facility services	Manufacturer	External consultant
B	Corporate real estate manager	Higher education institute	In-house management team
C	Managing consultant	Managing consultant corporate and public real estate	External consultant
D	Investment officer	Real estate investment company	External consultant
E	Facilities management specialist	Engineering consultancy company	In-house management team
F	Corporate real estate manager	Commercial bank	In-house management team
G	Corporate real estate and facilities manager	Management consulting firm	External consultant
H	Associate/facility and hospitality management lead	Real estate consulting firm	External consultant

interviewees, including their positions, nature of the organisation that they are working or delivering service for, and their contractual relationships with the organisations.

3.2 Data collection and analysis

A total number of three open-ended interview questions were designed based on the three enquiries from of investigation framework. The questions for interviewees from both in-house team or workplace management consulting firms are listed as follows:

- What are the major challenges that the COVID-19 pandemic has brought to your organisation (your client side organisation) and how does that affect your organisations' (your client side's) business plan and workplace operation during and in the post COVID-19 period?
- Guided by the current community measures, what aspects in the workplace need to be modified in your organisation (your client side organisation) to prepare for the workplace re-entry and the new normal?
- What factors affect the development of a workplace modification plan in your organisation (your client side organisation)? And can you share with us specific activities that your organisation (your client side organisation) has implemented or planned for the workplace modification?

All interviews were conducted on an online basis. Each interview lasted approximately from 45 min to 1 h. At the end of each interview, the interviewer provided a brief summary with the aim to confirm the accuracy of the information with the interviewees and to validate the completeness of the information regarding each question. The interview results were transformed into transcript afterwards for data analysis. Thematic analysis was adopted as the main analysis tool combined with coding technique to identify the structure of the interview results and relationships among the coded contents.

4. Interview results

A three-level coding hierarchy was developed based on the identified themes, as shown in [Figure 2](#). The first level includes three themes that were identified from the interview

contents: impact (challenge) of the COVID-19, workplace modification indicators and workplace modification implementation. The interviews were coded based on the three enquiries and the interview questions.

The second level includes summative categories under each theme in Level 1. When asked about the impact that the COVID-19 pandemic brought to the organisations, interviewees shared their opinions from three perspectives: impact on corporation, individual and top management. For the question regarding the office workplace modification indicators, interviewees' answers reflected organisations' responses to the community measures and they were categorised under: modification in response to social distancing, engineering control and personal protection. Regarding the third enquiry on office workplace modification plan and implementation, interviewees brought up topics related to risk management, major factors that affect the implementation and organisations' future workplace plan.

The third level presents the specific issues that more than one interviewee shared in the interviews. An elaboration on the interview results by themes and frequently mentioned topics are presented as follows.

4.1 Theme 1 – impact of the COVID-19 pandemic

Interviewees' responses regarding the impacts of the COVID-19 pandemic mainly focus on three themes, shown in Figure 2. Under each theme, they further described specific management practices or examples of the manifestation of the impacts. According to the interviewees, corporations have been affected by the COVID-19 pandemic to different degrees. Manufacturing organizations seem to have severely suffered from the COVID-19 pandemic as the productivity has significantly dropped due to the social distancing and "work from home" measures. Workers were not allowed to attend work for a period of time and only a limited number of workers were permitted to work onsite in order to maintain social distancing. Other companies whose core businesses are to provide consulting services seem to have suffered less from the COVID-19 pandemic. The COVID-19 pandemic may have interrupted their businesses, e.g. some of their business projects were forced to pause as the client companies weren't able to operate their businesses. In hindsight, the demand of other types of projects increased during the pandemic. The revenues from the core businesses have dropped at various levels for different companies. However, workplace operation costs on workplace management also dropped as most of the office areas were shut down. More than half of the interviewees suggested that "working from home" helps to cut the workplace operation costs, especially on electricity costs. In some cases, employees' transportation and accommodation costs for regular business travel were saved due to the travel ban. Due to this situation, some companies quickly relocated their operation expenses to workplace modification activities. For companies with a strategic vision to create a virtual

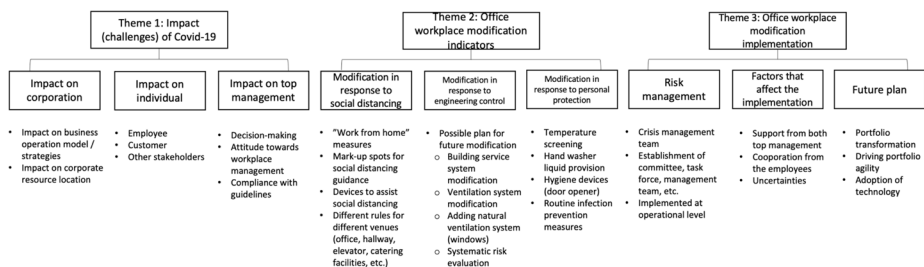


Figure 2. Interview results by themes and frequently mentioned topics

platform for future operation, the COVID-19 pandemic's impacts on them were less significant. Interviewee B, F and H mentioned that the occurrence of COVID-19 further confirms the necessity to convert physical workspace into virtual workspace and transform the traditional workspace into agile workspace in the companies. The activity-based workplace strategy has been advocated in the past few years, but not very welcomed by organisations or employees who prefer a traditional workplace layout.

The changes of the business climate as well as the working mode have triggered some companies to review their CRE strategies, especially on the expenses allocated to workplace space provision and management. Interviewees A, E, F and G suggested that most companies' CRE strategies will commit to a certain degree of changes regardless of their financial situation and even for companies that smoothly sail through COVID-19, they are expecting to restructure the CRE management team and service provision to prepare for the new normal.

Six interviewees (A, B, C, D, E, F) mentioned the impacts on individual employees from their companies. They quoted a few comments from their colleagues during the interviews, such as "not used to the new working mode (working from home)", "lacking face-to-face communication", "missing the team working atmosphere", "looking forward to go back to the office" were mentioned among the interviewees when they described the comments from the employees of the organisation regarding "working from home" measures. They also expressed that the "working from home" measures do not affect employees' working quality and output to a significant level, and regular surveys and interviews with employees have been conducted to understand employees' working conditions and personal emotions. "Work is not much affected during working from home", "get used to the new working mode", "workload is not reduced while it may be increased from time to time when working from home" were statements shared by employees of the organisations. Aside from individual employees, top management decision-makers' attitudes under the COVID-19 pandemic were discussed in the interviews. Top management decision-makers' attitudes towards the workplace strategies and management was positive and employee oriented. Shared by interviewees A, B, C and G, health and safety have been the prime issues that top management have emphasised since the outbreak of the COVID-19 pandemic. Further, the COVID-19 pandemic has created an alert to the top management that talents', especially young employees', value towards a company.

4.2 Theme 2 – workplace modification indicators and future plans

Interviewees were asked in the second question to share how the CRE management team or facilities management team conduct workplace modification in corresponding to the community measures. Regarding workplace management practice, all companies are taking a proactive role in adapting to the community measures and an extra amount of expenditure has been committed in modification activities in response to "social distancing" and "personal protection", according to eight interviewees. They suggested that many companies do not have a concrete plan for office redesign, but in the long run, office space is subject to further modification to suit the long-term safety and health requirements to prevent the spread of the COVID-19 pandemic. What is worth noting is that, more than half of the interviewees (interviewee C, D, E, F, G) indicated that office space provision will be cut down as "work from home" becomes an alternative option for both companies and the employees. As less space may be needed in the future, office redesign may be constrained to soft renovation instead of major refurbishment projects, such as change of layout or configuration design, seating plan rearrangement, installing add-on facilities (e.g. signage to urge indoor personal protection), while refurbishment on building service system may not

be conducted. Thus, the workplace management resources will be more likely used in office renovation projects in the future.

According to all the interviewees, corporate resources are allocated in four major workplace management practices at the current time:

- (1) implementing activities to ensure social distancing, such as marking the distance every 1.5 meters as guidance, planning pathway logistics inside the office area, developing staff working plans to limit the number of staff at different functional spaces, such as elevator, canteen, hallway, office space, etc.;
- (2) monitoring workplace health and safety and delivering personal protection services, such as providing hand wash gel at the workplace, regular workplace cleaning services, etc.
- (3) providing support to employees who work from home, such as transporting working equipment to the employees' home; and
- (4) developing human resources plan to comply with the "working from home" mode.

4.3 Theme 3 – factors that affect the workplace management implementation during the COVID-19 pandemic

Interviewees were asked to share their opinions about the factors that affect workplace management implementation during the COVID-19 pandemic. Four interviewees stated that the risk management mechanism of a company plays an important role in coping with the COVID-19 pandemic. Interviewee A stated that a task force committee was established to discuss the plans and procedures of workplace management during the COVID-19 pandemic and members of the task force committee were selected from both the top management team, facilities management team and representatives from different departments of the company. Interviewees B, E and G indicated that a risk management team is responsible for managing the unexpected events that occurred at his company and under the COVID-19 pandemic, the team has been engaged in collaborating with different company segments to cope with the community measures and arranging employees' working conditions. The rest of the interviewees (interviewees C, D, F, H) also mentioned that the companies reacted to the COVID-19 pandemic in a very efficient manner due to their previous experience with risk management in workplace operation. Based on the overall sharing by the interviewees, the general practice was that the facilities management teams quickly took the responsibility to implement the modification management activities by first, assessing the current operations and situation of the affected portfolio; second, relocating resources, including financial resources and human resources, to implement the changes and provide services; third, collecting users' feedback and making adjustment to the management activities.

Regarding the factors that affect the implementation of the workplace modification, interviewees explained that the implementation processes have been smooth. Support from the top management has been sufficient and most employees have been cooperative. The major concern from all interviewees is the uncertain future, such as how long the pandemic will last, whether an effective vaccine would be created, whether home office would become part of the new normal, etc. As for future plans for workplace management, three major trends are identified based on the interview results: portfolio transformation, driving the portfolio agility and technology adoption.

5. Discussion

The interview findings provide sufficient information to answer the research enquiries. Furthermore, they help to verify the office modification framework and prove the relationships among the community measures, corporate business strategies, office workplace modification indicators and modification plan implementation illustrated in the framework. The COVID-19 pandemic as an external force has affected different levels of strategies of an organisation. As reflected by the findings summarised under Theme 1, corporate business strategies and office workplace modification activities have been found to vary substantially by industry sector during the COVID-19 pandemic. CRE managers actively interpret the corporate business strategy and provide quick responses to implement risk management in the office areas. Three levels of risk control are used to respond to the community measures: engineering controls, administrative controls, and personal protective equipment. Among the three types of control, administrative control approach has been adopted most commonly among organisations to implement management activities during the COVID-19 pandemic (e.g. marking of 1.5 meters of distance, “work from home” policy, etc.) followed by personal protection equipment provision (e.g. hand wash-gel, masks, door-opener device, etc.). Engineering control activities have rarely been adopted (e.g. office configuration re-design, system assessment, etc.). The findings summarised under Theme 2 and Theme 3 reveal that, though the initial managerial responses from the CRE managers mainly focus on complying with the community measures, the office workplace modification activities vary in different organisations. The variation is manifested in terms of office workplace modification plans. The following discussion is conducted based on four aspects: modification at operation level, modification at strategic level, a theoretical discourse from the lens of c CREM and the implication for the office workplace management in the new normal.

5.1 Modification at operational level: risk management in office workplace

The value of the office workplace for an organisation lies in ensuring the operation of businesses activities with the support of physical space and relevant service provision. Once a COVID-19 infection case is identified within the office area, the whole building or even the whole area will be locked down for cleaning and disinfecting. Failure of the office workplace creates operational risks and would further damage an organisation’s operational capability. The interview results reveal that the risks that the COVID-19 pandemic has brought to office workplace management centre on workplace infrastructure, while the property asset value and contractual relationships have not been affected so far.

During the COVID-19 pandemic, most of the office workplace modification activities remain at the operational level, and they have mainly been designed and implemented in response to social distancing and personal protection measures. With clear recognition of the potential risks, companies have taken on a positive attitude and adopted rapid and discrete action to interpret the community measures into specific workplace modification activities. Currently, companies’ quick reaction and modification activities are based on specific guidelines from local authorities and professional associations. What is worth noting is whether or not companies can maintain a high level of sensitivity after employees return to work at the office and how they interpret the community measures into specific organizational policies. This requires the CRE managers or facilities managers to conduct comprehensive risk assessment to prepare for possible risks and to tailor human resources policies to provide resilient working in the new normal. Pandemic control was not emphasised at non-clinical workplace areas previously. Office workplace safety during the COVID-19 pandemic has caused growing public concern. The current workplace

modification practice indicates that administrative control and personal protective equipment are two major control approaches during the COVID-19 pandemic. In the long run, it is expected that organisations will be adopting the “hierarchy of control” framework to prevent and manage risks related to pandemic spread.

5.2 Modification at strategic level: re-aligning corporate real estate strategies

The COVID-19 pandemic presents a tremendous external force to global business activities, under which company leaders are reorienting their business strategies and implementing agile operations in order to navigate through the negative impacts while at the same time seeking meaningful changes for long term development in the new normal. The workplace concerns the employees’ and customers’ safety and thus has been given prime importance along with core business development during the COVID-19 pandemic. The interview results indicate that office modification activities have been commonly implemented by companies whose business activities need to be carried out in the physical space setting. For companies whose businesses rely less on the office workplace, such as banks, consulting companies, etc., their businesses are less affected by the COVID-19 pandemic as most of the business activities can be carried out at home by their employees. This allows them a certain degree of flexibility to adjust their business strategies as well as workplace modification plans within a short period of time.

The suddenness of the COVID-19 outbreak put most companies in a passive situation in coping with the changes that occurred in the office workplace. Companies with a vision for long term CRE development have quickly recognised the opportunities to further leverage the workplace changes and embarked on re-aligning the different business sectors to handle the changes, such as monetising the CRE asset, portfolio transformation, driving portfolio agility, etc. As the ongoing COVID-19 pandemic has enabled “working from home” (WFH) to be widely accepted and to exist for the foreseeable future, WFH may become a norm for both employers and employees in the long run. CRE portfolios will be restructured based on headcounts analysis to identify the business activities that can be carried out at home. In a sense, WFH may become a job criterion for some positions. This could lead to structurally less use of office space and thus, selling and leasing back the office space will be alternatives for companies to shore up cash. Also, office redesign for more agile space could become a trend in the new normal. Both strategies require the alignments between the CRE sector and other business sectors, such as the HR department, facilities management department, etc.

5.3 A retrospective lens towards corporate real estate theory

This study designed an office workplace modification framework from a theoretical perspective on strategic alignment, which outlines the relationships between an external force (COVID-19 pandemic), corporate business strategy and office workplace modification strategies (indicator identification and plan implementation). In the literature, the CREM strategic alignment is an often-discussed topic. The CREM strategic alignment is implemented to respond to industry changes, business developments and organisational adjustment. The discourses of CREM strategic alignment usually centre on theoretical discussion. As the COVID-19 pandemic has made it a universal practice for organisations to modify their office workplace management, their engagement in CREM strategic alignment in real estate portfolio management appear to be more evident. Highly strategic alignment is required between the adjusted business model and the office workplace modification plan. The practice of committing in workplace modification activities manifest in the alignments between strategies and operations, CRE portfolio and workplace modification plan, facilities management team and other function sectors in the organisation. The COVID-19 pandemic

is a unique incident but has triggered universal practice of office modification. The evidence of CRE strategic alignments during the COVID-19 pandemic has sharpened the theoretical lens of CRE and provided empirical evidence to support the CRE theories.

Under the COVID-19 pandemic, CRE theories can be used to explain a common social concern, which is that social distancing measure may undermine employee collaboration in an organisation. According to [Haynes et al. \(2017\)](#), an organisation's culture and value have impacts on the formation of the office atmosphere while the office design will influence an organisation's paradigm. Implementing social distancing in office workplace will to certain extent creates isolation and in the long run would lead to negative influences on the inter-relationship among employees. A pandemic proof office design that addresses the social distancing measure without undermining the collaborative spirit of the organisation becomes urgent. From a CRE theoretical lens, "openness" has two dimensions of implication: space and personality, and open space would positively affect inter-personal relationships. In the post pandemic era, the degree of openness in office workplace may be reduced and inter-personal interactions may take place more often in virtual space. A new dimension of knowledge regarding space management is calling for theoretical interpretation in the near future.

5.4 Implications: virtual office space creation as an office modification plan

Office space manifests several dimensions of organisational paradigm, such as "organisation culture", "communication" and "collaboration". A new dimension has been reinforced during the COVID-19 pandemic, which is "virtualisation". Digital technologies have been used in the past decade to support distancing communication and have been regarded to have shortened the time span to facilitate workplace efficiency. After the outbreak of the pandemic, digital technologies have become the only solution for most organisations to cope with WFH community measures. They have extended the office space beyond the physical office workplace and enabled virtual office. Thus, office space management needs to be rescoped to include virtual space management. It is foreseen that a new workplace management model will emerge. Organisations may choose to shrink their office space or create flexible working plans for their employees. In either scenario, virtual office space will be created to support resilient organisation development and it is one of the key office workplace modification plans.

6. Conclusion

This study investigated the office workplace modification activities under the COVID-19 pandemic with the aim of understanding how organisations have responded to external forces (COVID-19 pandemic) and comply with the community measures in their office workplace environment. An office workplace modification framework containing three major research enquiries was developed. In-depth interviews with office workplace professionals were conducted to collect data to answer the enquiries. A structured analysis of the interview findings from the CREM strategic alignment perspective revealed that organisations have engaged in portfolio transformation, development of agile workplace strategies and office workplace redesign plans to suit the new normal. The findings imply that first, office-based workplace modification needs to align organisations' business strategy as well as integrating employees' work experience. CRE managers need to collaborate with human resources team to provide support employee wellness. Second, digital workplace will become an inevitable trend for office-based workplace development. CRE managers need to partner with their companies' information technology (IT) teams to improve digital facilities and increase the connectivity with digital technologies.

This is a timely study on office workplace management as office workplace has become a prime concern for most employees and organisations during the COVID-19 pandemic. The manifestation of office workplace management activities and the CRE strategies identified from this study have well supported the CREM strategic alignment theory. It is foreseen that office workplace management will encounter other challenges due to the uncertainties that occur in the post COVID-19 pandemic. The findings of this study provide a practical lens to look at the future changes of the office workplace environment. However, the small sample size of interviewees has limited the findings to be used to explain the general workplace management practice in other countries. Recognising the significance of this research topic and the limitation of the current study, the research team will further conduct more interviews in The Netherlands and extend the study to other countries.

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