

**ORGANISATIONAL PERFORMANCE IN THE POST-COVID ERA LED BY TOP LEADERSHIP:
FOCUS ON THE MEDIATING EFFECTS OF VALUE CO-CREATION MINDSET****Hiroko Oe,**  **ORCID:** <https://orcid.org/0000-0002-2841-7583>

PhD, Professor, Graduate School of Business Design, Josai International University, Tokyo, Japan

Yasuyuki Yamaoka,  **ORCID:** <https://orcid.org/0000-0003-1082-9691>

PhD, Senior Researcher, the Open University of Japan, Chiba, Tokyo, Japan

Corresponding author: Hiroko Oe, hiroko-o@jiu.ac.jp**Type of manuscript:** research paper

Abstract: *In the midst of the transformations brought about by COVID-19 in contemporary society, new approaches and leadership styles are essential to ensure organizational success and sustainability. This paper aims to explore the significance of a mindset focused on co-creating value as a support for post-COVID-19 organizational performance and quantitatively validate its impact. Under the influence of COVID-19, it has become evident that conventional approaches alone are insufficient to guarantee the quality of organizational management. In a context where traditional management models no longer suffice, organizations must possess the capacity for adaptation and transformation. To achieve this, the fostering of a shared value co-creation mindset within the organization is crucial.*

The paper investigates the mediating effect of a value co-creation mindset on the relationship between top leadership and business performance within the framework of total quality management (TQM). By employing quantitative methods and analyzing 300 datasets collected from an online survey, this study examines the direct and indirect effects of top management leadership on performance, highlighting the mediating role played by the value co-creation mindset.

The findings reveal a noteworthy insight into the dynamics of leadership and organizational culture in the post-COVID-19 era. While the direct impact of top management leadership on performance appears to be insignificant, the indirect influence mediated by the adoption of a value co-creation mindset is highly relevant. This suggests that the significance of top management leadership lies in its ability to foster an internal culture that facilitates trust-building between top management and employees and encourages value co-creation.

In the context of the co-existence with COVID-19 in the foreseeable future, the implications of these findings are profound. It is evident that organizational sustainability and success hinge not solely on leadership with a clear message but also on the cultivation of shared values as an integral part of the organizational culture. As organizations navigate the challenges and opportunities presented by the post-COVID-19 landscape, the role of leadership and the cultivation of a value co-creation mindset emerge as pivotal factors in charting a course towards enduring success and resilience.

Keywords: working from home (WFH); top leadership; value co-creation; ICT management; total quality management (TQM); business performance.

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1. Introduction

1.1. Background of the study

The pandemic has promoted work-from-home (WFH) for staff working in companies, which, through the operation of digital technologies, has enabled them to keep working in a substantially more effective and productive work situation. Information and communication technologies (ICT) have, by their very nature, contributed to the implementation of operations across geographical and temporal barriers. On the other hand, the existing digital division and the problem of technology readiness for users are becoming more apparent (Durst et al., 2023). Long before, the current pandemic had a profound impact on our socioeconomic activities, Olson and Olson (2000) and others had been discussing the active use of remote work in terms of life-work balance.

Since then, businesses have witnessed the development of a new style of remote working with a backup of the notion of work-life balance (Nam, 2014). It is also argued that the promotion of online work can stimulate the attraction of different values and opinions from external stakeholders, which in turn contributes to promoting team collaboration and stimulating innovation (Hodgson & Wigglesworth, 2020).

1.2. Rationale and aim of the study

Although WFH has been actively implemented since the COVID-19 pandemic, research into the key factors that determine its success or failure has only just begun (van der Lippe & Lippényi, 2020). Read et al. (2020) explored the feasibility, acceptability and potential of digital technology in the remote work context, suggesting that making full use of online technologies should be a critical factor for businesspeople in achieving productivity efficiently, which sheds light on the research theme. However, a generalisation of an analytical model with measurements is required, from which actionable implications can be derived for relevant stakeholders on the theme of implementing trust-based remote work practices in disruptive environment.

Therefore, the purpose of this study is to construct a conceptual model and present arguments for further discussion through empirical analysis regarding the factors that determine the success or failure of new forms of work methods operating in the pandemic era.

2. Literature review

2.1. The total quality management paradigm with ICT implementation

Zhang et al. (2021) evaluated total quality management (TQM) in the service sector, in line with the discussion by Lins et al. (2019), who developed critical factors for the lean and innovative management of services. Kim et al. (2017) also integrated customers' different technology readiness in the implementation of ICT system in business management. Scholars have focused on a TQM perspective with a focus on ICT system embedded in organisational operation. To update TQM thinking from the perspective of knowledge sharing (Hough, 2004), Carnerud et al. (2020) fused sustainability and digitalisation in TQM. That is also consistent with the discussions by Birch-Jensen et al. (2020), who expanded the TQM framework in the context of the role played by customer satisfaction and measurements for improving business operations.

Kobayashi et al. (2008) discussed the role of operational practice, a well-known quality control measure, in the evaluation of business improvement strategy. In their research, they analysed the business strategy that originated in Japan along with other international contexts. In addition, accumulated research has contributed to business behaviour with suggestions over success factors for guiding businesses in a sustainable direction.

Similarly, Ahmad and Yusof (2010) developed the comparative study of TQM practices in Japanese and other markets based on empirical survey results. As noted, the TQM framework has contributed to the field of study by providing actionable implications for relevant business sectors in enhancing their business performance. Figure 1 demonstrates a basic outline of the TQM framework and the assessment dimensions that operate in Japan.

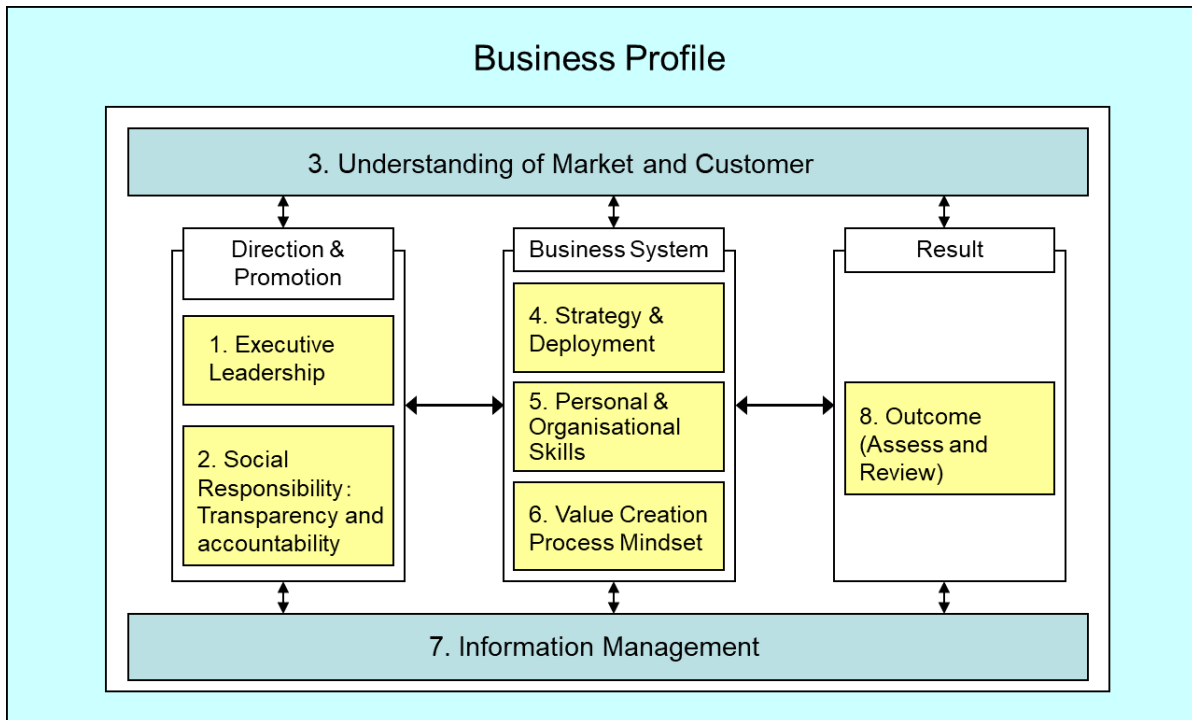


Figure 1: TQM model

Source: Adapted from the Japan Association of Performance Excellence (2019)

Figure 1 shows seven effective measures for the smooth implementation of TQM: top management leadership, social responsibility transparency and accountability, market and customer understanding, strategy and deployment, individual and organisational skills, value creation process thinking and information management. These seven measures create results (outcomes) through direct promotion (top leadership, social responsibility, transparency and accountability) and application of business systems (strategy and implementation, individual and organisational skills). TQM is recommended to be measured and evaluated using seven measures, while market and customer understanding and information management have a role to play as the backbone of the TQM structure (see Figure 1).

Thus, the impact of ICT on TQM has been incorporated as a major pillar in the TQM framework that was created and practised in Japan. However, a new challenge emerges here: how can we use ICT in the remote work environment that has resulted from COVID-19? The question is how to maintain and improve management quality in a remote working environment. Remote working means working from home (WFH) environment. The implementation of ICT and its operation are key to supporting WFH (Palumbo et al., 2020).

We will attempt to identify the elements related to ensuring and improving management quality in the development of a WFH environment that unprecedented COVID-19 has allowed us to experience and propose pathways to achieve this. That is the subject of this study.

2.1.1. Work environment in the working from home (WFH) era: ICT management and readiness

In the current disruptive pandemic environment, WFH has been discussed in the context of occupational mobility (Kramer & Kramer, 2020). Regarding the key factors enhancing acceptance and use of remote work practices, few studies have been conducted to develop a practical model based on technology acceptance theories and models (Razif et al., 2020). In leading research, Waizenegger et al. (2020) focused on the impact of the perspective of team collaboration and the implementation of WFH practices during the pandemic. As Nagel (2020) suggested, employees who work entirely from home during the COVID-19 pandemic have a greater job satisfaction than those who work in a hybrid way. She also emphasised that it was indispensable for researchers to analyse the current WFH behaviour based on the digital transition of the workplace due to COVID-19 pandemic. In line with this theme, Arcquisti et al. (2015) suggested that concern for privacy impact of employees' adoption of digital platforms and technologies for remote working.

It is commonly agreed that it is more effective when conversations happen face-to-face and the communicating parties have done the in-person interaction before shifting to the online interplay (Yuan &

Wu, 2020). This suggests that trust nurtured during face-to-face interactions is one of the key factors for the success of online communication and productivity (Akrouf & Diallo, 2017).

2.1.2. Sustainability and digital transformation in the context of WFH

Discussing sustainability and digital transformation in the context of WFH is an important issue when considering business strategies in the era of COVID-19. Felicetti et al. (2022) argued for the importance of establishing Corporate Social Responsibility (CSR) through TQM as one of the pillars of corporate strategy in the COVID-19 era, while others have recently argued that the quality assurance should be interpreted from a sustainability perspective (Ramanathan, 2020). Deleryd and Fundin (2020) argued that a sustainability model of management quality should be articulated to ensure social satisfaction in the new era. Ghafoor et al. (2020) conducted a bibliometric and thematic review and suggested that attention should be paid to the business excellence framework used in national business excellence awards and advocated by the Global Excellence Model (GEM) council. In their discussion, Reynders et al. (2020) focused on the information mediation role of middle managers, with the hope of finding “dependable” key people in the organisation, developing and getting them to perform their responsibilities.

Wen et al. (2020), based on the history of the quality management movement to date and the social changes brought about by COVID-19, proposed adopting a hypothetical path for TQM in future. Thus, in business organisations, business strategies are undergoing transformation under the influence of COVID-19 and management quality is experiencing a gradual shift in terms of management strategy. Learning from the history and past findings of the model and examining the components and the relationship between each component are not only meaningful but also urgent tasks for the construction of a new sustainable business entity.

2.2. Organisational performance in the WFH era

2.2.1. ICT management

In analysing the processes and practices of using digital platforms and relevant technologies for WFH, it is critical to review the impact of organisational structure from an information flow perspective (Thomas et al., 2021). In doing so, as Jensen (2018) suggested, the digital transformation of work should be analysed from a holistic view. Mergel et al. (2019) also stated that digital transformation should focus on an all-inclusive process in changing products and organisational culture. Moreover, digitalised practices should also be discussed in relation to the themes of value creation, co-creational collaborations and the adoption of digital platforms for remote working (Cennamo et al., 2020). This theme has assumed more significance under the COVID-19 impact. Vial (2019) has proposed reviewing comprehensive information strategy discussions on digital transformation to build and share its conceptual definition and provide issues to consider while designing a future agenda for further discussion.

H1: ICT management has an impact on the value co-creation mindset.

H2: ICT management has an impact on business performance.

2.2.2. Top leadership and value co-creation mindset

While discussing organisational digital transformation, it would be helpful to pay attention to the organisational structure, which is the basis for sharing information and nurturing trust to enhance mutual communication at the workplace. In doing so, a framework presented by Frederic Laloux’s “teal organisation” could provide us with a discussion platform to follow (Laloux, 2014).

Laloux (2014) proposed a guide to new organisational viewpoints with three key dimensions:

- 1) self-management (acting on your own in a relationship with a peer, not a hierarchy-based command);
- 2) wholeness (your ability, not being pushed into a narrow role defined by the organisation and bringing your values and entire personality into the organisation);
- 3) evolutionary objectives (not a specific fixed mission but depending on the situation and the objectives that the members themselves want to pursue).

Laloux (2014) suggested that the teal organisation construct, as a new form characterised by shifting overall objectives, is effective in coping with rapid market transformation and is flexible in seeking paths to achieve its objectives. Precisely, to cope with the unprecedented transformation brought about by COVID-19, it is important to have an organisational structure that is not limited to a disciplined central control system but backs up problem-solving and decision-making with a dynamic synergy between the external and internal environments, such as a teal organisation. Furthermore, this concept requires active discussion of the themes of individuals’ freedom, well-being and growth within the organisation, with a focus on top leadership to coordinate and drive the internal environment of the organisation (Pawlak, 2020).

At the same time, Breidenbach and Rollow (2020) suggested that building teal organisations requires “inner work” on the way to self-organisation. The latter implies that it is critical for organisational managers to understand key drivers and key elements enabling their organisational structure to pursue the pathways in an innovative and productive direction.

H3: Top leadership has an impact on the value co-creation mindset.

H4: Top leadership has an impact on business performance.

H5: Value co-creation mindset has an impact on business performance.

2.2.3. Indirect effect of value co-creation mindset as a mediator of business performance

Zhang et al. (2022) found that COVID-19 accelerated business transformation. In the process of demonstrating the success factors and impact mechanisms of digital transformation, SMEs focused on the function of the value co-creation mindset within the organisation. Foo et al. (2021) elucidated the impact of leadership and management on sustainability performance. The elements of value co-creation within the organisation were examined from the relational perspective of “guanxi”.

Alnakhli et al. (2021) explained the pathways through which the roles exerted by salespeople influence sales performance to promote value co-creation in B2B relationships. Similarly, in the context of East Asian economies, Xuecheng et al. (2022) argued that a value co-creation mindset among stakeholders is critical to the sustainable development of a company in the process of applying social exchange theory to examine pathways to responsible leadership and sustainable development. Gupta et al. (2021) demonstrated the importance of value co-creation in business relationships through a quantitative examination of its effects on equity.

Thus, a number of researchers have examined the process by which the value co-creation mindset within an organisation and in stakeholder relationships mediates the impact of corporate structure and top leadership and influences business performance in multiple contexts. Abbate et al. (2022) emphasised that in the coming era of symbiosis with COVID-19, we should transcend knowledge ecosystems and shift our perspective towards capability ecosystems. This shift in perspective can be expected to be an important guideline for the TQM agenda under the changing market and environment of digital transformation.

Eilers et al. (2022) described the organisational structure and mindset, in combination with an agile mindset, that enable flexible and opportunistic decision-making, achieving this transition. Based on the results of previous academic discussions, this study focuses on the mediating effect of the value co-creation mindset and sets the following as a final hypothesis to examine the factors and their relationship to support the sustainable development of business in response to this environmental change.

H6: ICT management has an indirect impact on business performance via a value co-creation mindset.

H7: Top leadership has an indirect impact on business performance via a value co-creation mindset.

2.3. Analytical model with hypotheses

In this study, referring to the TQM framework based on the Japanese Quality Management Award, the pathways that contribute to business performance incorporate two antecedents: ICT management and top leadership and the mediating effect of a value co-creation mindset. The model was examined, and the effectiveness of the model will be discussed through the testing of seven hypotheses, as shown in Figure 2.

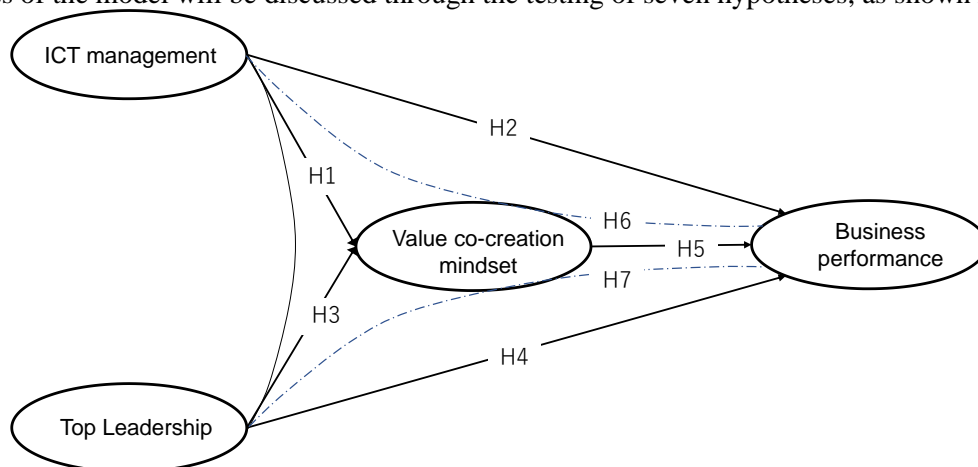


Figure 2: Conceptual framework

Sources: developed by the author.

3. Methodology

3.1. Approach

This study researched whether top leadership and ICT management influence business performance through hypotheses using quantitative methods. As Figure 2 shows, the impact will be tested using the value co-creation mindset as a mediating variable. The observed variables used in the analytical model are collected through a five-point Likert scale of selection, sharing questionnaires from previous studies.

The questionnaire was translated into Japanese following the process recommended by Brislin (1970) and subsequently finalised by two bilingual experts. Three university professors and four Japanese volunteers were invited to participate in the pilot test, which was conducted to check and improve the wording of each question in the survey and to improve the overall quality of the survey. Through this process, the wording and order of the questions were reviewed to ensure that respondents could respond smoothly.

3.2. Data collection and analysis

Data was collected by online survey targeted at Japanese working generations. In the end, a sample of 300 valid responses was collected, which was finalised by balancing attributes such as gender, age group, etc. After cleaning the obtained data, the hypotheses were tested by structural equation modelling (SEM) using IBM SPSS version 26 and AMOS version 26. The impact of each factor on business performance was measured.

4. Findings and analysis

4.1. Data profile

The profile of the collected data is demonstrated in Table 1.

	Frequency	Percent	Cumulative Percent
Gender			
Male	150	50.0	50.0
Female	150	50.0	100.0
Total	300	100.0	
Age			
20s	76	25.3	25.3
30s	74	24.7	50.0
40s	76	25.3	75.3
50s	74	24.7	100.0
Total	300	100.0	
Education			
Graduate school	32	10.7	10.7
Universities	151	50.3	61.0
Colleges and technical colleges	22	7.3	68.3
Vocational schools	36	12.0	80.3
High school	55	18.3	98.7
Junior high school	3	1.0	99.7
Other	1	0.3	100.0
Total	300	100.0	

Table 1: Demographic profile

Sources: developed by the author.

4.2. Factor analysis and validity of latent factors

An exploratory factor analysis was conducted with the dataset to generate factors to explain the entire dataset. Four factors were generated that constructed 73.7% of the dataset, whereas the model index was reliable, indicating KMO = 0.979, with $p = 0.000$. Cronbach's alpha (CA) test results also indicated the robustness and validity of the components, which were 0.930, 0.917, 0.967 and 0.902, respectively. From Table 2, it is observed that businesspeople perceive four dimensions. They are:

- 1) value co-creation mindset;
- 2) business performance;
- 3) ICT management;
- 4) top leadership.

	Factor				Alpha
	1	2	3	4	
Our company has a good organisational culture and mindset for collaboration.	0.781	0.329	0.300	0.224	0.930
Our company has a good organisational culture that aims to support business sustainability.	0.744	0.353	0.295	0.232	
Our company has a good organisational culture to share our views and goal.	0.707	0.300	0.255	0.318	
The business performance has been sustained even during the COVID pandemic	0.308	0.764	0.313	0.154	0.917
In the post-COVID era of the new normal, I trust the business performance can be sustainable	0.342	0.754	0.292	0.132	
The business of the company will be successful in the future	0.288	0.740	0.188	0.335	
ICT platforms are well developed and managed being actively developed.	0.268	0.257	0.858	0.198	0.967
ICT implementation and management is transitioning well.	0.279	0.240	0.853	0.205	
ICT system is well used and enabled smooth communication and decision making.	0.291	0.261	0.830	0.186	
The team is engaged with top leadership	0.510	0.290	0.306	0.615	0.902
Company vision and aim are shared within the team by top leadership.	0.504	0.309	0.320	0.584	
Messages from the top permeate the organisation and lead us	0.332	0.337	0.195	0.579	

Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 8 iterations.

Table 2: Factor analysis

Sources: developed by the author

4.3. Validation of variables

Table 3 shows that the minimum values of CR and AVE are smaller than 0.7, which meets the criteria for desirability (Urbach & Ahlemann, 2010). It has also been shown that the square root of the mean and mean variance (AVE) of each component is greater than the Pearson correlation coefficient between that component and the other components. This confirms the discriminant validity of the variables. The value of CA for each construct is greater than 0.6, which is the lowest acceptable value, and can be judged to be consistent with the construct of each variable (Hair et al. 2010). A correlation analysis was performed to check for the presence of multi-covariances between the relevant factors comprising SEM. In other words, high correlations are not suitable for feeding into SEM, as they indicate multicollinearity between variables. The correlation coefficient should be lower than 0.75 (Ratner, 2009). Thus, as a result of the convergent and discriminant validity tests, we can determine that the data set retains construct reliability and consistency. We can therefore move on to the next step, SEM analysis.

	N	Mean	SD	CA	CR	AVE	
Value co-creation mindset	300	2.831	1.065	0.930	0.802	0.575	0.758
Business performance	300	2.972	1.029	0.917	0.717	0.459	0.737** 0.677
ICT management	300	2.390	1.225	0.902	0.796	0.567	0.682** 0.627** 0.753
Top leadership	300	2.939	1.150	0.967	0.820	0.603	0.704** 0.702** 0.659** 0.758

Values bold on the main diagonal are the square rooted of AVEs; SD is standard deviation; CA is Cronbach alpha; CR is Composite reliability; AVE is average variance standard.

**P<0.01

Table 3: Convergent and discriminant validity test

Sources: developed by the author

4.4. Hypotheses testing

We followed the procedure of a recent study by (Oe and Yamaoka, 2023), which examined the direct effects using SEM; the direct effects of ICT management and top leadership on performance were analysed by mediating the idea of value co-creation. Figure 3 shows the SEM model of this study. Table 4 presents the results of the analysis, based on a bootstrap sample of 5,000. There, standardised regression weights, p-values, and percent confidence levels (PC) of 95% are presented for all direct and indirect effect paths.

4.4.1. Direct effect

First, the direct effect of the ICT management path to a value co-creation mindset shows 0.184 ($p < 0.001$, PC = 0.066, 0.298). Next, the top leadership to value co-creation mindset shows 0.728 ($p < 0.001$, PC = 0.622, 0.835). Hence, H1 and H3 are supported.

The direct effect of the ICT management path to business performance shows 0.204 ($p < 0.001$, PC = 0.082, 0.325). Then, top leadership to business performance shows 0.188 ($p > 0.05$). Consequently, H2 is supported, but H4 is not supported. The direct effect of the path of the value co-creation mindset to business performance shows 0.438 ($p < 0.001$, PC = 0.230, 0.645). Thus, H5 is supported. The R² of value co-creation demonstrates 0.737 and business performance is 0.578. That implies the developed model well explains the dataset and the model, and hypotheses reflect the real businesspeople's value perceptions and attitudes.

4.4.2. Indirect effect

The indirect effect of the ICT management path to the value co-creation mindset to business performance shows 0.081 ($p < 0.001$, PC = 0.024 to 0.152) and that of top leadership to the value co-creation mindset to business performance shows 0.319 ($p < 0.001$, PC = 0.161, 0.488). This implies that both indirect paths are significant. Thus, H6 and H7 are supported.

4.4.3. Fitting indexes

As shown in Table 4, observing the goodness of fit of the SEM research model presented in Figure 3, the goodness of fit index (GFI) is 0.947 (> 0.9) and the adjusted goodness of fit index (AGFI) is 0.913 (> 0.9). The comparative fit index (CFI) is 0.986. The root mean squared error of approximation (RMSEA) is 0.063 (< 0.10). This is above the desirable standard (Hair et al., 2010). In general, we conclude that the goodness of fit of the model used in the analysis here is good.

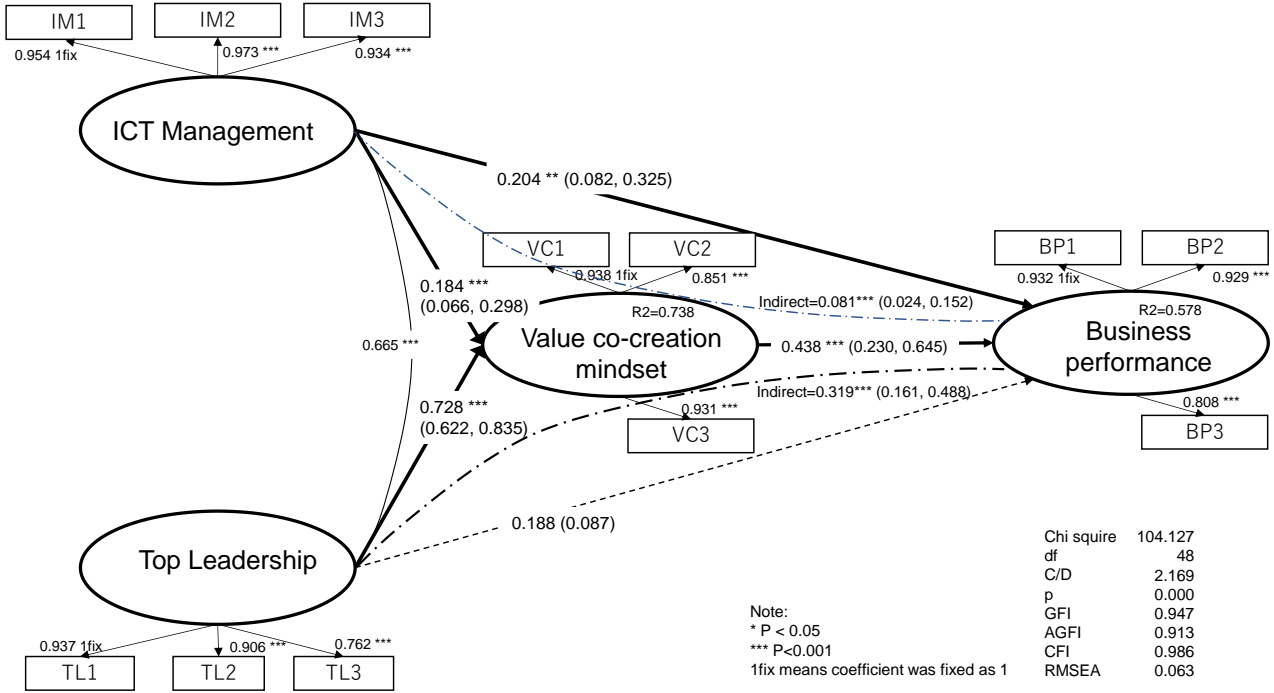


Figure 3: SEM analysis outcome

Sources: developed by the author

To		From	Estimate	P	95% PC
Value co-creation minset	<---	ICT management	0.184	***	(0.066, 0.298)
Value co-creation minset	<---	Top leadership	0.728	***	(0.622, 0.835)
Business performance	<---	Value co-creation minset	0.438	***	(0.230, 0.645)
Business performance	<---	ICT management	0.204	**	(0.082, 0.325)
Business performance	<---	Top leadership	0.188	0.087	
IM1	<---	ICT management	0.954	1fix	
IM2	<---	ICT management	0.973	***	
IM3	<---	ICT management	0.934	***	
TL1	<---	Top leadership	0.937	1fix	
TL2	<---	Top leadership	0.906	***	
TL3	<---	Top leadership	0.762	***	
VC1	<---	Value co-creation minset	0.938	1fix	
VC2	<---	Value co-creation minset	0.851	***	
VC3	<---	Value co-creation minset	0.931	***	
BP1	<---	Business performance	0.932	1fix	
BP2	<---	Business performance	0.929	***	
BP3	<---	Business performance	0.808	***	
Top leadership	<-->	ICT management	0.662	***	
Indirect effects					
Business performance	<---	ICT management	0.081	***	(0.024, 0.152)
Business performance	<---	Top leadership	0.319	***	(0.161, 0.488)
R2					
		Value co-creation minset	0.738		
		Business performance	0.578		
Fitting indexes					
		Chi square	104.127		
		df	48		
		C/D	2.169		
		p	0.000		
		GFI	0.947		
		AGFI	0.913		
		CFI	0.986		
		RMSEA	0.063		

Note1: df: degree of freedom, C/D: Chi-square/df, p: provability, GFI: Goodness of fit index, AGFI: Adjusted goodness of fit index, CFI: Comparative fit index, RMSEA: Root mean square error of approximation

Note2: Squared multiple correlations (SMC) in SPSS AMOS was used as R2.

Note3: *** means $p < 0.001$; ** means $p < 0.01$

Note4: 1 fix means coefficient was fixed as 1

Note5: 95% PC means percentile confidence intervals of 95%

Table 4: Path coefficients and fitting indexes

Sources: developed by the author

4.5. Discussion

The study results on how ICT management and top management leadership relate to business performance proved a significant relationship between ICT management and business performance. However, the direct impact of top management leadership on business performance was not remarkable. This result differs from the findings of previous empirical academic studies.

However, when the model reflects indirect effects via a value co-creating mindset, top management leadership is found to have an effect through a value co-creating mindset on business performance. The significance of this path is high and offers a novel and important perspective in light of the fact that previous discussions have concentrated on the significance of top leadership in isolation.

This suggests that it is not possible to improve business performance through top management flag-waving alone. For this, an internal culture is essential where value can be co-created and the maintenance and improvement of trust between top management and employees can be supported. In addition, the fact that top management leadership has a strong and significant effect on the value co-creation mindset suggests that

fostering a co-creation mindset does not occur spontaneously within employees but requires a firm will and the ability to execute from the top.

Subsequent to the transformation of the working way brought about by COVID-19, it is essential and more critical than ever to provide a restricted face-to-face working environment, clear top leadership and fostering of a mindset for value co-creation.

5. Conclusion

5.1. Theoretical contribution

The finding that the direct effect of top management leadership on performance is not significant but that the indirect effect through a value co-creation mindset is high contrasts with the previous organisational strategies that have concentrated solely on the significance of top leadership. The process of change is essential in the organisational environment since COVID-19 has made it clear that it is not possible to improve performance through top leadership alone. Besides, the maintenance and improvement of trust between top management and employees and an internal culture enabling value co-creation are critical. This suggests that an internal culture enabling value co-creation and the maintenance and improvement of trust between top management and employees is more necessary than anything else. The results of this research raise important perspectives that cannot be overlooked in ensuring sustainable growth for businesses in a period of change. That triggers further academic validation.

5.2. Practical implication

The result that top leadership has a strong and significant impact on the value co-creation mindset means that the development of a co-creation mindset does not happen naturally among employees, but it requires firm will and execution from the top. The results of this study have a practical value in suggesting how communication with employees in the business field should take place and the way forward for top management.

These results clearly show that the changes in working methods brought about by COVID-19, the limitation of the physical face-to-face working environment in the company and the development of clear leadership and a value co-creation mindset at the top in a dynamic organisation are more necessary and important than ever. Symbiosis with COVID-19 provides important guidelines for action in the era.

5.3. Limitations and further research opportunities

While this study should be commended for extracting from the data on attitudes towards businesspeople who survived under COVID-19 and for providing the suggestions necessary for business strategy in the era of symbiosis with COVID-19, it also encompasses several limitations. In future, the number of datasets should be increased, the opinions of businesspeople in different markets should be interviewed and comparative verification should be conducted to generalise, clarify and elaborate the obtained suggestions.

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H.O. is the initials of the author, Hiroko Oe. Y.Y. is the initials of the author Yasuyuki Yamaoka.

Conflicts of Interest: Authors declare no conflict of interest.

Data Availability Statement: The attained data is not allowed to be open to public because of the condition upon conducting the survey.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Reference

1. Abbate, T., Codini, A., Aquilani, B., & Vrontis, D. (2022). From knowledge ecosystems to capabilities ecosystems: When open innovation digital platforms lead to value co-creation. *Journal of the Knowledge Economy*, 13(1), 290-304. [\[Google Scholar\]](#)
2. Arcquisti, A. Brandimarte, L. & Loewenstein, G. (2015). Privacy and human behavior in the age of information. *Science*, 347(6221), 509-514. [\[Google Scholar\]](#) [\[CrossRef\]](#)
3. Ahmad, M.F.B., & Yusof, S.R.M. (2010). Comparative study of TQM practices between Japanese and non-Japanese electrical and electronics companies in Malaysia: Survey results. *Total Quality Management*, 21(1), 11-20. [\[CrossRef\]](#)

4. Akrouf, H., & Diallo, M.F. (2017). Fundamental transformations of trust and its drivers: A multi-stage approach of business-to-business relationships. *Industrial Marketing Management*, 66, 159-171. [\[Google Scholar\]](#) [\[CrossRef\]](#)
5. Alnakhli, H., Inyang, A.E., & Itani, O.S. (2021). The role of salespeople in value co-creation and its impact on sales performance. *Journal of Business-to-Business Marketing*, 28(4), 347-367. [\[Google Scholar\]](#) [\[CrossRef\]](#)
6. Birch-Jensen, A., Gremyr, I., Hallencreutz, J., & Rönnbäck, Å. (2020). Use of customer satisfaction measurements to drive improvements. *Total Quality Management & Business Excellence*, 31(5-6), 569-582. [\[Google Scholar\]](#) [\[CrossRef\]](#)
7. Breidenbach, J., & Rollow, B. (2020). *The Future of Work Needs Inner Work: A Handbook for Companies on the Way to Self-Organisation*. Vahlen. [\[Google Scholar\]](#)
8. Brislin, R.W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, 1(3), 185-216. [\[Google Scholar\]](#) [\[CrossRef\]](#)
9. Carnerud, D., Mårtensson, A., Ahlin, K., & Slumpi, T.P. (2020). On the inclusion of sustainability and digitalisation in quality management: An overview from past to present. *Total Quality Management & Business Excellence*, 1-23. [\[Google Scholar\]](#) [\[CrossRef\]](#)
10. Cennamo, C., Dagnino, G.B., Di Minin, A., & Lanzolla, G. (2020). Managing digital transformation: Scope of transformation and modalities of value co-generation and delivery. *California Management Review*, 62(4), 5-16. [\[Google Scholar\]](#) [\[CrossRef\]](#)
11. Deleryd, M., & Fundin, A. (2020). Towards societal satisfaction in a fifth generation of quality: The sustainability model. *Total Quality Management & Business Excellence*, 1-17. [\[Google Scholar\]](#) [\[CrossRef\]](#)
12. Durst, S., Davila, A., Foli, S., Kraus, S., & Cheng, C.F. (2023). Antecedents of technological readiness in times of crises: A comparison between before and during COVID-19. *Technology in Society*, 72, 102195. [\[Google Scholar\]](#) [\[CrossRef\]](#)
13. Eilers, K., Peters, C., & Leimeister, J.M. (2022). Why the agile mindset matters. *Technological Forecasting and Social Change*, 179, 121650. [\[Google Scholar\]](#) [\[CrossRef\]](#)
14. Felicetti, A.M., Ammirato, S., Corvello, V., Iazzolino, G., & Verteramo, S. (2022). Total quality management and corporate social responsibility: A systematic review of the literature and implications of the COVID-19 pandemics. *Total Quality Management & Business Excellence*, 1-20. [\[Google Scholar\]](#) [\[CrossRef\]](#)
15. Foo, P.Y., Lee, V.H., Ooi, K.B., Tan, G.W.H., & Sohal, A. (2021). Unfolding the impact of leadership and management on sustainability performance: Green and lean practices and guanxi as the dual mediators. *Business Strategy and the Environment*, 30(8), 4136-4153. [\[Google Scholar\]](#) [\[CrossRef\]](#)
16. Ghafoor, S., Grigg, N.P., Mathrani, S., & Mann, R. (2020). A bibliometric and thematic review of business excellence journal papers from 1990 to 2020. *Total Quality Management & Business Excellence*, 33(3-4), 355-387. [\[Google Scholar\]](#) [\[CrossRef\]](#)
17. Gupta, S., Zhou, J., Feng, S., & Nyadzayo, M.W. (2021). The effect of equity on value co-creation in business relationships. *Journal of Business & Industrial Marketing*, 37(2), 385-401. [\[Google Scholar\]](#) [\[CrossRef\]](#)
18. Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate Data Analysis*. Prentice Hall: Upper Saddle River, NJ, USA. [\[Google Scholar\]](#)
19. Hodgson, C., & Wigglesworth, R. (2020). *An ETF Called WFH Offers New Way to Ride Remote Working Trend*. Financial Times, 26.06.2020. [\[Google Scholar\]](#)
20. Hough, M. (2004). Updating our TQM thinking for a knowledge and service economy. *Total Quality Management & Business Excellence*, 15(5-6), 753-791. [\[Google Scholar\]](#) [\[CrossRef\]](#)

21. Japan Association of Performance Excellence (2019). *Japan Quality Management Award Assessment Criteria Document*. Tokyo, Japan: Seisansei Shuppan.
22. Jensen, T.B. (2018). Digital transformation of work. *Scandinavian Journal of Information Systems*, 30(2), 27-40. Retrived from: [\[Link\]](#)
23. Kim, J., Geum, Y., & Park, Y. (2017). Integrating customers' disparate technology readiness into technological requirement analysis: An extended Kano approach. *Total Quality Management & Business Excellence*, 28(5-6), 678-694. [\[Google Scholar\]](#) [\[CrossRef\]](#)
24. Kobayashi, K., Fisher, R., & Gapp, R. (2008). Business improvement strategy or useful tool? Analysis of the application of the 5S concept in Japan, the UK and the US. *Total Quality Management*, 19(3), 245-262. [\[Google Scholar\]](#) [\[CrossRef\]](#)
25. Kramer, A., & Kramer, K.Z. (2020). The potential impact of the COVID-19 pandemic on occupational status, work from home, and occupational mobility. *Journal of Vocational Behavior*, 119, 103442. [\[Google Scholar\]](#) [\[CrossRef\]](#)
26. Laloux, F. (2014). *Reinventing Organizations: A Guide to Creating Organizations Inspired by the Next Stage in Human Consciousness*. Nelson Parker.
27. Lins, M.G., Zotes, L.P., & Caiado, R. (2019). Critical factors for lean and innovation in services: From a systematic review to an empirical investigation. *Total Quality Management & Business Excellence*, 32(5-6), 606-631. [\[Google Scholar\]](#) [\[CrossRef\]](#)
28. Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, 36(4), 101385. [\[Google Scholar\]](#) [\[CrossRef\]](#)
29. Nagel, L. (2020). The influence of the COVID-19 pandemic on the digital transformation of work. *International Journal of Sociology and Social Policy*, 40(9/10), 861-875. [\[Google Scholar\]](#) [\[CrossRef\]](#)
30. Nam, T. (2014). Technology use and work-life balance. *Applied Research in Quality of Life*, 9(4), 1017-1040. [\[Google Scholar\]](#) [\[CrossRef\]](#)
31. Oe, H., & Yamaoka, Y. (2023) Discussion of purchasing virtual digital nature and tourism, In *A New Era of Consumer Behavior – In and Beyond the Pandemic*, ed. Umut Ayman. IntechOpen, London. Retrived from: [\[Link\]](#)
32. Olson, G.M., & Olson, J.S. (2000). Distance matters. *Human-Computer Interaction*, 15(2-3), 139-178. [\[Google Scholar\]](#) [\[CrossRef\]](#)
33. Palumbo, R., Manna, R., & Cavallone, M. (2020). Beware of side effects on quality! Investigating the implications of home working on work-life balance in educational services. *The TQM Journal*, 33(4), 915-929. [\[Google Scholar\]](#) [\[CrossRef\]](#)
34. Pawlak, J. (2020). Does teal suit everyone? Psychosocial factors affecting work attractiveness in an organisation with a horizontal structure. *Nierówności społeczne a wzrost gospodarczy*, 62, 228-244. [\[Google Scholar\]](#) [\[CrossRef\]](#)
35. Ramanathan, N. (2020). Embedding sustainability concerns into quality assurance. *Total Quality Management & Business Excellence*, 1-15. [\[Google Scholar\]](#) [\[CrossRef\]](#)
36. Ratner, B. (2009). The correlation coefficient: Its values range between +1/-1, or do they? *Journal of Targeting, Measurement and Analysis for Marketing*, 17(2), 139-142. [\[Google Scholar\]](#) [\[CrossRef\]](#)
37. Razif, M., Miraja, B.A., Persada, S.F., Nadlifatin, R., Belgiawan, P.F., Redi, A.A.N.P., & Shu-Chiang, L. (2020). Investigating the role of environmental concern and the unified theory of acceptance and use of technology on working from home technologies adoption during COVID-19. *Entrepreneurship and Sustainability Issues*, 8(1), 795. [\[Google Scholar\]](#) [\[CrossRef\]](#)
38. Read, J., Jones, N., Fegan, C., Cudd, P., Simpson, E., Mazumdar, S., & Ciravegna, F. (2020). Remote Home Visit: Exploring the feasibility, acceptability and potential benefits of using digital technology to undertake occupational therapy home assessments. *British Journal of Occupational Therapy*, 83(10), 648-658. [\[Google Scholar\]](#) [\[CrossRef\]](#)

39. Reynders, P., Kumar, M., & Found, P. (2020). "Lean on me": An integrative literature review on the middle management role in lean. *Total Quality Management & Business Excellence*, 33(3-4), 318-354. [\[Google Scholar\]](#) [\[CrossRef\]](#)
40. Thomas, M., Le Masson, P., Weil, B., & Legrand, J. (2021). The future of digital platforms: Conditions of platform overthrow. *Creativity and Innovation Management*, 30(1), 80-95. [\[Google Scholar\]](#) [\[CrossRef\]](#)
41. Urbach, N., & Ahlemann, F. (2010). Structural equation modeling in information system research using Partial Least Squares. *Journal of Information Technology Theory Application*, 11(2), 5-40. [\[Google Scholar\]](#)
42. van der Lippe, T., & Lippényi, Z. (2020). Co-workers working from home and individual and team performance. *New Technology, Work and Employment*, 35(1), 60-79. [\[Google Scholar\]](#) [\[CrossRef\]](#)
43. Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118-144. [\[Google Scholar\]](#) [\[CrossRef\]](#)
44. Waizenegger, L., McKenna, B., Cai, W., & Bendz, T. (2020). An affordance perspective of team collaboration and enforced working from home during COVID-19. *European Journal of Information Systems*, 29(4), 429-442. [\[Google Scholar\]](#) [\[CrossRef\]](#)
45. Wen, D., Sun, X., & Yan, D. (2020). The quality movement: Where are we going? Past, present and future. *Total Quality Management & Business Excellence*, 33(1-2), 92-112. [\[Google Scholar\]](#) [\[CrossRef\]](#)
46. Xuecheng, W., Ahmad, N.H., Iqbal, Q., & Saina, B. (2022). Responsible leadership and sustainable development in East Asia Economic Group: Application of social exchange theory. *Sustainability*, 14(10), 6020. [\[Google Scholar\]](#) [\[CrossRef\]](#)
47. Yuan, C.H., & Wu, Y.J. (2020). Mobile instant messaging or face-to-face? Group interactions in cooperative simulations. *Computers in Human Behavior*, 113, 106508. [\[Google Scholar\]](#) [\[CrossRef\]](#)
48. Zhang, C., Moreira, M.R., & Sousa, P.S. (2021). A bibliometric view on the use of total quality management in services. *Total Quality Management & Business Excellence*, 32(13-14), 1466-1493. [\[Google Scholar\]](#) [\[CrossRef\]](#)
49. Zhang, X., Xu, Y., & Ma, L. (2022). Research on successful factors and influencing mechanism of the digital transformation in SMEs. *Sustainability*, 14(5), 2549. [\[Google Scholar\]](#) [\[CrossRef\]](#)