Using Enterprise Collaboration Systems during a pandemic

What factors influence the value derived from the push to working through Enterprise Collaboration Systems during the Covid-19 pandemic?

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Date: 2021-09-29
Course Code: 4IL50E
Subject: Information Systems / Digital Business Development
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Voices of people working from home

Working from home is fantastic. The pandemic was a blessing in disguise as working from home means no more time wasted commuting you continue doing this kind of study so the government and industry will do something about the workers...also do industry specific study on WFH conditions

Unrelenting. With work, child and domestic duties it is exhausting.

My coworker is now my cat. Best. Coworker. Ever.

Much better working hours - I start at 3:30am, and end the work day at about 3:00pm, and have Fridays off in lieu

Pandemic and State’s response has afforded me an opportunity to reconnect with partner, who is an oncology patient, shortly about to undertake intensive chemotherapy at the end of August 2021. Though stressful, challenging and difficult, I do feel my relationship with partner, and communication with partner, is stronger and on a deeper, common level. I am cherishing this time.

I would not work for a company that was fixed office attendance.

I think it has proven that many of us are able to work from home; offices should continue to allow this option - it would ease traffic and public transport congestion, not to mention stress, allow flexibility for parents to pick up children from school (especially if they are unwell), etc... the benefits outweigh the negatives.

I love it and hate it at the same time

I feel like I have so much more time in my day working from home. Its better for life balance but I also think I'm more productive.
Abstract

Why do individuals derive different value when working remotely using Enterprise Collaboration Systems during Covid-19? This mixed methodology research used a Service-Dominant Logic lens and undertook a literature review, qualitative interviews and a quantitative survey to identify the characteristics and variables that impacted perceived value for individual Australian Actors. To assist future studies it also developed an equivalency model of value and the desire to work remotely. The research found the strongest predictive variable is the suitability of the workspace, followed by a list of a dozen significant variables. By knowing these variables and their predictive weights, Actors can adjust them to optimise the value derived from working remotely through ECSs.

Keywords

Enterprise Collaboration System (ECS)
Covid-19
Pandemic
Service-Dominant Logic
Work From Home
Remote Work
Mixed Method
Acknowledgements

This research is a co-created effort. I would like to acknowledge some of the people that have been part of this research:

As researchers we stand on the shoulders of those who have come before us. Thank you to all who have pushed the boundaries of knowledge just that little bit further forward.

I also thank my family for putting up with me sitting locked up reading for days at end, loudly interviewing, and getting up in the middle of the night to type notes. And especially thank you to Nicole for your very insightful contributions to the research!

My thesis supervisor Dr Bani-Hani’s assistance was instrumental in assisting me establish a framework and define the crux of the matter: the research question.

The interviewees have been amazing. They have kindly volunteered not just their time and effort, but also their observations, thoughts, and their own research. This study has benefited immensely from what combined is centuries of their business experience and understanding.

The research firm CoreData Australia (www.coredat.com.au) has been outstanding in its support by sponsoring the delivery of a very professionally executed quantitative survey.

And thank you for reading this.
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1 Introduction

1.1 Preamble

Yesterday I went for a stroll on the beach. Walking barefoot on the sands of the Pacific Ocean, feeling the warmth of the sun and listening to the waves rolling in, feeling good. As the city is in lockdown and people are working from home, the weekday surf was more crowded than usual.

![Crowded weekday surf](image)

Back home I interviewed somebody online for my research with a Swedish University, and had the interview transcribed by a bot within half an hour. After lunch with my family, it was time to help my youngest daughter with some schoolwork through her school portal, whilst sitting outside and enjoying the fresh air. In the evening, my partner and I logged into a range of Enterprise Collaboration Systems (ECSs) to work with consulting client staff in Europe and in Asia.

I am clear that I am benefiting from the growth in the use of ECSs during the Covid-19 pandemic. At the same time research shows 46% of young Australian primary school students are at risk from the move to studying from home (Brown et al, 2020), there have been job losses (Alon et al, 2021) and yet employees working are working longer hours (Friedman, 2021, AP Research Institute, 2021, Predotova & Vargas Llave, 2021). The benefits are not evenly distributed, the value people derive is not the same.

So, the question this research seeks to answer is:

What are the factors that make the difference in the value derived?

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1 Information systems used to facilitate efficient sharing of documents and knowledge between teams and individuals in an enterprise, see 2.1 - Enterprise Collaboration Systems.
1.2 Research Setting

In 2020 the SARS-CoV-2 virus spread widely from Wuhan, China (Kraus et al, 2020), causing a global pandemic stretching into current date (September 2021). On March 20, 2020, the World Health Organisation officially declared it a pandemic (WHO, 2020). Governments and organisations globally have responded by various near universal measures such as social distancing and working remotely (Anderson et al, 2020).

Prior to the pandemic there was a trend towards remote working, including for the author. However, the Covid-19 pandemic suddenly pushed hundreds of millions of people into relatively new circumstances. It has been an “accelerant” (Atlassian, 2020) for the move to distributed way of work. Many companies have mandated remote work (Ries, 2020), making it fundamental to have the ability to do this effectively.

Enterprise Collaboration Systems (ECS) (Prakash et al, 2020) have become integral to this new way of working. Covid-19 has expedited the adoption of these tools (Koceska and Koceski, 2020).

However, different Actors within different networks interact differently under this new paradigm. The researcher and many others (for instance the UN Development Program, Draskovic et al, 2021) believe there is a great difference in the benefit derived from the sudden enforced usage of ECSs. Some Actors will prosper, whereas other will ‘simply not get it’ (interviewee quote, April 2021).

This study aims to identify the circumstances and the characteristics of the Actors that make them more likely to prosper in the environment of substantially remote work using ECSs, and thereby identifying which Actors are more likely to need what assistance to successfully pivot to a new way of working.

1.3 Prior Research and Knowledge Gap

“Nothing has such power to broaden the mind as the ability to investigate systematically and truly all that comes under thy observation in life.” – Marcus Aurelius

There has been limited research in the field of how the rapid growth of ECS impact the individual Actors, yet the changes have been drastic. We are currently still undergoing the impact of the Covid-19 pandemic, the changes are also ongoing, and what was true 18 months ago is not the case today.

As Raišiene et al (2020) point out: most the research on using ECSs is based on pre-pandemic research.
Morrison and Ruiz conducted a comprehensive meta-study in 2020, analysing 255 prior studies. It grouped collaboration challenges into five major categories:

1. geographic distance;
2. temporal distance;
3. perceived distance;
4. configuration of distributed teams; and
5. diversity of workers.

However, this still only addresses the group outcomes and not the individual Actors’ outcomes. Furthermore, all the studies deal with pre-pandemic information.

The focus used in many prior studies of ECSs is one of organisational efficiency. There has been some very good research that has been firm-centric (Heinonen et al., 2010) or focused on the system per se (Breidbach, 2016, Yang et al 2021), leaving gaps for research that focuses on the Actors themselves.

Okubo et al’s study undertook two surveys in 2020 to also look at changes from pre-emergency (April 2020) to June 2020. It does look at teleworking exclusively, specifically excluding mobile tools (Okubo et al, 2020, p18).

This research follows Breidbach and Maglio’s 2016 suggestion, with the additional accelerant of the changes brought by the Covid-19 pandemic: “Future work may consider how individuals in complex multi-actor value networks perceive value through use or experience after exchanging and integrating resources by means of ICT. [...] ICTs can be used to transform the structure of value co-creation processes from co-located contexts into dynamic, distributed, and technology-enabled ones” (Breidbach and Maglio 2016, p. 83)

There is also evidence of a change over time in how Actors work with ECSs as the pandemic has been in place for some time (Deloitte AG, 2021, Predotova and Vargas Llave, 2021). Hence there is a knowledge gap in three dimensions:

- temporal based
  - in a pandemic circumstance
  - 18 months into the pandemic
  - with continuously upgrading technology
  - in a shifting society
- Australia specific
- from the Actors’ mutual value creation point of view

This research addresses these gaps through a literature review, a qualitative analysis of a range of Actors through the Covid-19 pandemic, and a quantitative analysis of a number of dimensions in the Actors’ contexts.
1.4 Scope and Limitations

To provide a broader understanding that can provide data that is able to be generalised, the study is based on interviews with Actors from several different organisations. This means that the study will not describe the exact uptake within the singular organisation but aims to identify the universally valid patterns.

For both scientific and practical reasons, the individuals interviewed are based in Australia, working for primarily English-speaking organisations. The logic behind that choice is to reduce the number of external country-based variables such as technical infrastructure, language(s), and general societal uptake of technology.

The EU and other surveys (Eurofund 2020, Ascender 2021) show a difference in the responses between different nations. Ascender’s survey has very different response between Australian and Singaporean / Malaysian employees to the question whether they want to continue working from home post-Covid-19. 37% of Australian employees surveyed would take a pay cut to be able to keep working from home, whereas only 13-14% of Singaporean / Malaysian employees would. Ascender’s GM Inna Wahlberg posits the difference may be because of different home circumstances and the prevalence of living in large family households, but without thorough research we do not know whether it might as well be because there is better air conditioning in the office, a different cultural emphasis on earnings, availability of better Internet, or any of a range of dimensions.

1.5 Target Audience

This study is ultimately intended to be of practical benefit (Corley and Gioia, 2011) for three separate target groups:

1. Organisations that use, or plan to use, ECSs
2. The various individual Actors that are the end-users
3. Providers of ECSs

Looking at the impact of the drastic change in current circumstances enable us to plan for the future. Makarius et al (2021) urge leaders to consider how to “leverage recent remote-work experience” to plan for the future.

As Work Futurist Dom Price expresses it (Atlassian, 2020):

“The best way to tackle the challenges we face is to get much more comfortable in the uncertain, unplanned, and ever-changing. Now is our opportunity to use the challenges we have been presented with to adapt for the better, guided by deep insights from real-world experiences of employees around the world”. 
This research aims to provide a more solid and scientific base for decision making on deployment strategies, and for further research in the field of intra-organisational business communication, focussing on the intersection between Strategic Human Resource Management, Organisational Development and Information Systems.

The research thus favours Gregor’s definition (2002, p2) of Information Science as a discipline at the intersection of knowledge of the properties of physical objects (machines) and knowledge of human behaviour.

1.6 Thesis Organisation

The thesis is organised linearly. It commences with the purpose of the research (section 1), then moves to a theoretical background (section 2), followed by a description of the overarching methodology and process (section 3).

Following the review of the literature (section 0) the initial hypotheses are set (section 4.6).

Then the qualitative study is detailed and discussed (section 0), followed by an analysis of the results from the qualitative study.

The model to be tested is then updated (sections 5.6 and 5.7).

Using the updated model, the quantitative study results are detailed (section 6) and the aggregated results discussed (section 7).

Method strength (section 7.2) and reflections on the method (section 7.3) are briefly analysed.

The last content chapter has the brief conclusion (section 8).

References and Appendices are at the end. The complete Descriptive statistics Output is large yet relevant, and attached as a separate file.
2 Background / Theory

2.1 Enterprise Collaboration Systems
As defined by Prakash et al (2020, p52) Enterprise Collaboration Systems (ECS) are an association of groupware, the internet, tools, extranets, and additional networks used to manage enterprise-wide communications, mainly the giving documents and information to the particular teams and individuals in any enterprise. Some models of enterprise communication tools comprise video conferencing, e-mails, sharing of a collaborative document, project managing, and others.

Randall (2021) proposes segmenting ECSs into three main functions: Communication, Coordination and Content Management.

![Figure 2 - Types of Collaboration](source: Info-Tech’s 2020 Enterprise Collaboration Tools: Market Trends and Buyer’s Guide.)
According to Koceska and Koceski (2021), “The primary benefit of these applications is that they provide real-time, transparent access to an organization’s workflow, allowing users to set, follow up on and complete projects and tasks from any online device”. The functionality of ECSs help organisations cope with crises (Bhat et al, 2017), and in this case with the Covid-19 pandemic.

Taking a real-life current look at Figure 2 - Types of Collaboration; for this research the researcher is situated on the other side of the world from the university and cannot travel there due to Covid-19 related restrictions. Hence the researcher has worked with the thesis supervisor using ECSs across the three main functions. The systems used are OneDrive (File Sync and Share and Collaborative Editing), Outlook (Calendar and Email) and Zoom (Video Conferencing and Screen Sharing).

2.2 Service-Dominant Logic
The study’s research paradigm - or worldview - is anchored in Service-Dominant Logic. Vargo and Lusch (Vargo, 2009) introduced eight premises in 2004 to conceptualise the Service-Dominant Logic framework. It has expanded over time and most recently this was extended with an 11th premise in 2016.

The five axioms are the core points from which the other premises can be derived. The first and central axiom is that service is the fundamental unit of exchange; service is exchanged for service. Service is here defined as using competences for the benefit of another party. The axioms and the eleven Foundational Premises (FP) are as follow:
### Table 1 - Service-Dominant Logic Axioms and Foundational Premises, Vargo (2021)

<table>
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<th>Axiom 1</th>
<th>FP1</th>
<th>Service is the fundamental basis of exchange.</th>
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<tr>
<td></td>
<td>FP2</td>
<td>Indirect exchange masks the fundamental basis of exchange.</td>
</tr>
<tr>
<td></td>
<td>FP3</td>
<td>Goods are a distribution mechanism for service provision.</td>
</tr>
<tr>
<td></td>
<td>FP4</td>
<td>Operant resources are the fundamental source of strategic benefit.</td>
</tr>
<tr>
<td></td>
<td>FP5</td>
<td>All economies are service economies.</td>
</tr>
<tr>
<td>Axiom 2</td>
<td>FP6</td>
<td>Value is cocreated by multiple actors, always including the beneficiary.</td>
</tr>
<tr>
<td></td>
<td>FP7</td>
<td>Actors cannot deliver value but can participate in the creation and offering of value propositions.</td>
</tr>
<tr>
<td></td>
<td>FP8</td>
<td>A service-centered view is inherently beneficiary oriented and relational.</td>
</tr>
<tr>
<td>Axiom 3</td>
<td>FP9</td>
<td>All social and economic actors are resource integrators.</td>
</tr>
<tr>
<td>Axiom 4</td>
<td>FP10</td>
<td>Value is always uniquely and phenomenologically determined by the beneficiary.</td>
</tr>
<tr>
<td>Axiom 5</td>
<td>FP11</td>
<td>Value cocreation is coordinated through actor-generated institutions and institutional arrangements.</td>
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</table>

The second axiom is that Value is cocreated by multiple Actors, always including the beneficiary. This means that value is not created by A and delivered to B, it is a mutual creation process. A in this case might propose value, but without the recipient there is no value. The term Actor in axiom 2 and its Foundational Premises assists the shift from a traditional supplier-customer model, and highlights that the parties all partake in the value creation.

The value creation happens “across levels of context, over time, and through replication” (Chandler & Vargo, 2011). This study is therefore not concerned with one specific interaction, but instead looks at the Actors’ perception over a period of time.

Axiom 3 identifies that all Actors participate and are integrating resources. The integration process is effectively the act of value creation. This has the implication that value cocreation is often a networked process with many parties involved. In Service-Dominant Logic Actors are also not only individuals, they can be organisations, nations, families, departments, football teams or any other social or economic Actor.
Since all Actors are considered as resource integrators (Vargo and Lusch, 2008), the value they perceive and cocreate is contingent on their individual success. This requires that they can interact, exchange resources and integrate these in the context of their own reality (Vargo and Lusch, 2008).

This research follows Ekman et al’s (2016) view of Actors as generic roles that may shift. Actors are both providers and beneficiaries, can be active or passive, and have multiple roles simultaneously.

“The modern world can be described as a network of connected circles where humans interact with each other, and where the leadership can vary depending on the context.” (Diana Niu, Executive VP Human Resources Volvo Group, Svenskar i världen, 26 April 2021, translated from the original Swedish by the researcher).

Axiom 4 is that value is always uniquely and phenomenologically determined by the beneficiary. In Shakespeare’s play King Richard the Third, the king exclaims: “A horse! A horse! My kingdom for a horse!” (Act 5, Scene 4) when he loses his horse in the battle of Bosworth, leaving the king helpless on the battlefield. One can currently purchase a horse in Sydney Australia for $500 (Horsedeals.com.au). This is substantially less than the cost of the Kingdom of England, which in 2019 had a net wealth of approximately 12.9 trillion pounds (Office for National Statistics, 2019). The gap is an illustration of the difference between the phenomenological value of something and the price of something. The price (or market value) is a figure measuring the approximate intersection of demand with supply, discussed as early as the 13th century by Taqiyuddin Ahmad bin Abdul Halim (Ibn Taimiyah) in Majmu ‘Fatawa Shaykh al-Islam. In Service-Dominant Logic we are looking at the value created, as measured by the recipient at that temporal point. Being phenomenological, it can mean that for instance a horse is more valuable to somebody in the midst of a medieval battlefield, than to a non-riding car owner in the heart of a large metropolis.

The concept of context (Vargo, 2009) is fundamental to the phenomenological approach to value. By delving into the Actors’ contexts, this study seeks to identify whether value may be more or less derived under different parameters.

The final axiom - 5 – is that value cocreation is coordinated through actor-generated institutions and institutional arrangements. Institutions here are not organisations, but the rules and norms that guide behaviour. The value cocreation from an individual level upwards combine per the institutions to create service ecosystems.
Löbler (2013) argues Service Dominant Networks (SDN) come into existence at the point when resources combine to enable a service. This means they are fugacious, which implies the rapid changes and recombinations of operand and operants triggered by the Covid-19 pandemic have created a gigantic plethora of new and dynamic Service Dominant Networks. Chandler and Lusch (2015) also emphasise that the Actors’ external connections have a temporal context.

Zimmermann (1951 pp 814-815;) as quoted in Lusch and Vargo, 2004, states resources “evolve out of the triune interaction of nature, man, and culture,..”. Therefore, as the interaction changes, so do the resources. Lusch and Vargo takes this further in 2011 by pointing out that there are ‘potential resources’, which do not become resources until they are actually utilised and integrated.

As an example with implication for the study: the Actors’ home Internet connection was a potential resource a couple of years ago. When Actors were forced to undertake their value cocreating processes from their homes, the potential resource becomes integrated into the process and becomes an actual resource in the value cocreation.

Importantly for the study of Information Systems, the example shows cocreation incorporates both the technology and the actual business / organisational processes and structures (Böhmann et al. 2014). “Information systems (IS) play an increasingly dominant role in such value co-creation processes (Lusch and Nambisan 2015) in that they expand actor-to-actor networks beyond their temporal, organizational, and spatial boundaries. Thus, economic and social actors increasingly exchange and integrate resources in multi-actor settings facilitated by digital technology (Breidbach and Maglio 2016; Davis et al. 2011).” There are computing and network resources that allow distributed Actors to facilitate their resource exchange (Constantinides et al. 2018).

Lusch and Nambisan (2015) discussed service platforms as including ECSs such as MS Teams and the Atlassian products such as Jira. The collaborative platforms are the coordinating mechanisms. The information technology becomes both an operand facilitating resource and an operant trigger of value cocreating activities.
Service-Dominant Logic has implications on multiple levels. The macro level can be stated as there is a value co-creation based on the exchange within the service ecosystem. At the foundation the Service-Dominant Logic paradigm relies upon the actions of the Actors and needs to be understood at a micro-level from whence the macro level emerges. The below figure from Storbacka et al (2016, p3010) illustrate the flow of the Actors’ actual engagement at a micro level driving the resource integration patterns, leading to the ultimate macro level outcome of value co-creation.

Figure 4 - Coleman's bathtub applied to SDL

This research adopts a micro-fundamental approach as advocated in Storbacka et al’s paper, building on the works of Coleman (1990) and Hedström and Swedberg (p22, 1998). Storbacka defines Actor engagement as (2016, p3015)

“both the disposition of Actors to engage, and the activity of engaging in an interactive process of resource integration within the institutional context provided by a service ecosystem”

An Actor may perceive a range of value from positive to negative. This might lead to less or more engagement and subsequently the level of provision and benefit. (Ekman et al 2016).

The Actors this research specifically focuses on are individuals within networks. The aspects probed are the situational mechanisms and the Actors’ disposition. In the diagram this corresponds to the left side of the bathtub, circled below.
2.3 Definitions

Lockdown  Intermittent government-initiated restrictions on freedom of movement.

Pandemic  The transmission of a disease with a wide geographic reach (Kuckertz et al., 2020).

Covid-19 Pandemic  The Covid-19 pandemic is the one the world is currently undergoing, caused by the SARS-Cov-2 virus.

Actors  The parties involved in Service-Dominant Logic value creation, including the beneficiaries.

Crisis  Some kind of problem that has an uncertain element to it (Wenzel, Stanske, & Lieberman, 2020). The observed events are not what normally occurs in society, resulting in uncertainty due to future events not being able to be predicted. Crises do not always have negative implications for all stakeholders. (Krauss et al, 2020)
3 Methodology and Method

“But a science is exact to the extent that its method measures up to and is adequate to its object.” - Gabriel Marcel

3.1 Scientific Premise

The epistemology relied upon can be described as that there is data and potential insights in the perspectives of the Actors cocreating through ECSs throughout the Covid-19 pandemic. However, just like Schroedinger’s cat the potentiality is not actuated until we actually look at it. Hence the study interviews and surveys the Actors to collect and analyse the data.

3.2 Method

The research design is a multi-method approach (Mingers, 2001, Gioia et al., 2012), which the researcher has utilised to seek the three specific practical benefits of:
- Triangulation;
- testing of qualitative information; and
- a deeper understanding of the data.

The method includes the Pavlou and Fygenson mixed methods research of 2006, as described in Venkatesh et al. (2013, p4), where a qualitative interview was used to define the factors that influenced the outcome, followed by a confirmatory quantitative study.

Further benefits sought from the mixed method approach utilised in this study are some of those listed by Venkatesh et al. (2013, p6), specifically:

- **Complementarity** - to gain complementary views about the same phenomena or relationships. The interviews are primarily with senior figures with extensive experience, whereas the survey has an unbiased sample giving complementary – or 360° - views.

- **Completeness** - to make sure a complete picture of a phenomenon is obtained. By overlaying the interview information, the research expands on the relatively narrow area the quantitative survey explores.

- **Developmental** - Questions for one strand emerge from the inferences of a previous one (sequential mixed methods), or one strand provides hypotheses to be tested in the next one. This research uses the interviews to probe for factors that may determine the value derived, so that these factors can then be tested quantitively.
• **Expansion** - to explain or expand upon the understanding obtained in a previous strand of a study such as the results from prior studies then brought up in the interviews for more in-depth understanding from a practical viewpoint.

• **Corroboration / Confirmation** - to assess the credibility of inferences obtained from one approach (strand). Although the qualitative interviews yielded some strong results, the quantitative survey then measures whether the beliefs and opinions unearthed in the qualitative research are valid across a large sample.

• **Compensation** – to compensate for the weaknesses of one approach by using the other. For instance, asking the interviewees more in-depth questions about why people with families would do better or worse to understand the underlying factors, and then having a large scale survey to obtain numerical evidence. The survey does not tell us why, and the interview does not give us sufficiently strong evidence, but together they compensate for each other’s weaknesses.
The below diagram illustrates the research process followed to derive insights from the data:

![Research Process Diagram]

**Figure 6 - Research Process**

3.3 Philosophical approach

When construing the practical research, the design is influenced by three underlying philosophical schools of thought, without being subordinated to a single philosophy. Aspects of the research questions are positivist, especially the quantitative section where it attempts to identify the outcome from the selected variables to enable a predictive model.

The interviews are interpretative since using a Service-Dominant Logic lens emphasises that value is a perceived phenomenological construct (Service-
Dominant Logic premise number 10, Lush and Vargo, 2016). The study thus seeks to find the value determined by the recipient. Quoting Groenewald (2004, p44):
“A researcher applying phenomenology is concerned with the lived experiences of the people involved, or who were involved, with the issue that is being researched.”
“Consistent with the framework the research questions therefore use a phenomenological approach emphasising the participants’ perceptions, feelings and experiences.”

Lastly, the research has a critical research element where it is trying to bring to light restrictive conditions of the status quo (Myers, 1997) and thereby seeks to reduce the underlying reasons why some Actors derive less benefit. For instance, if the research identifies factors decreasing the Actors’ perception of the value they derive, Actors and other parties can seek to rectify the issues in order of importance. In doing so, the researcher is following closer to Myers and Kleins’ (2011) description of Habermas’ lineage of critical research, which has a focus towards improving others.

3.4 Method of Literature Review

“When we inquire into any subject, the first thing we have to do is to know what books have treated of it.” - Samuel Johnson, quoted in Bosworth, 1791, p487.

To commence, the researcher followed Samuel Johnson’s recommendation and undertook a literature review. The purpose of the literature review was manifold:
• to identify prior research in the field, avoiding duplication
• to refine the questions asked
• to understand prior outcomes, enabling critical review
• to assist with research methodologies.

The review had two components:
• Scholarly work, empirical and theoretical
• Secondary sources / grey information (Adams et al, 2016) such as reports, editorials, media articles and online material.

The literature review was undertaken with a broad view and prior to putting the detailed hypotheses and potential variables into place. It was an inquiry, so it did not set out to look for the answers (Jon Kabat-Zinn, cited in Bentz and Shapiro, 1998, p. 39). Being a contemporary issue with a modicum of research published to date, the literature studies alone did not bear sufficient significance to answer the research question, albeit they have been of great value for the background research (i.e. Morrison-Smith and Ruiz, 2020). In the last three months a number of surveys have been published providing additional and more current information about people working from home during the Covid-19 pandemic.
3.5 Method of the Qualitative Study

“The best research you can do is talk to people” – Terry Pratchett

The study progressed to an exploratory research phase, followed by a descriptive research approach (Giri and Biswas, 2019). The study is categorised as a mixed method approach (Creswell, J.W. (2013). It goes through the data analysis cycle multiple times. The first cycle – the primarily exploratory phase - is a Qualitative study. As per Myers (2020), it also includes the author’s own impressions and reactions. Since the data used in the analysis is directly collected as well as derived from secondary sources, it is also described as a dual methodology approach, utilising Triangulation (Myers, 1997, Giri and Biswas, 2019). Triangulation here means that the validity of the research is tested from multiple angles to contrast and validate the data (Groenewald, 2004).

A qualitative study with in-depth interviews was seen as a beneficial approach in that it enabled the researcher to understand how the respondents saw and defined the points raised. By probing the respondents’ answers, the research sought to avoid Frege’s fallacy of assuming there is an ontologically objective meaning of language (Searle, 2016). Being a phenomenological study anchored in Service-Dominant Logic, the intent was “to provide a description of the human experience as it is experienced by the person herself.” (Bentz & Shapiro, 1998, p. 96). The interviews did not seek to discuss and unearth technology, but to find the essence of the human experience.

The value is only actualised in the usage process (Kuzgun and Asugman, 2015), so we need to find what happened at the usage point. The qualitative section of this study therefore uses elements of the qualitative research design expounded by Groenewald (2004), setting open ended questions to probe the participants’ own experiences.

The initial research using the qualitative study followed an inductive approach, where the research collected data and analysed patterns in it. The data in the qualitative interviews is analysed using thematic coding (Gibbs, 2007) in Computer-Assisted Qualitative Data Analysis Software (CAQDAS) (Baralt, 2012). The CAQDAS was used partly for ease of management and analysis, and partly to provide a more structured and auditable approach (Johnston, 2006, quoted in Baralt, 2012, p228).
3.5.1 Data Gathering – Qualitative Interviews

The primary data collection has been through in-depth qualitative interviews. The researcher interviewed Actors intimately involved in their respective networks’ ECSs, and then analysed the information gathered. The networks chosen were those with some type of ECS in place prior to the Covid-19 pandemic. The purpose of this selection was to minimise the variable of new installation issues, and enable a focus on the benefit distribution of the change created by the impact of Covid-19 pandemic per se.

As the study considers the delta in a temporal manner between pre-Covid and today, observational analysis commencing mid-Covid would not have been adequate. The choice of undertaking interviews facilitated the capture of current real time information (Eisenhardt, 1989). Interviews also enable more in-depth probing questions than questionnaires can provide.

The researcher notes there was a difference between the participants both in the duration of the interviews (between 30 minutes and 1 ¼ hr), and in the number of follow-up questions. The researcher ascribes this to the essence of a qualitative interview as an “an interchange of views between two persons conversing about a theme of mutual interest (Kvale 1996, cited in Groenewald 2004, p47), which is different to a structured question session.

The in-depth interviews uncovered substantial amounts of new information, relationships and concepts. To explore these, the researcher circled back to literature to review the prior research and the grey information available. This meant these two stages are not temporally linear but became recursive in their execution.

3.5.2 Interview Selection

Upon reflection the researcher avoided a snowballing (also known as chain-referral sampling) method of interviewee selection. This was to avoid building in an unknown and uncontrolled bias in the interview sample (Dudovskiy, 2021). Instead, the research uses a judgement sampling methodology, and acknowledges this has a personal bias. As part of the judgment made, the researcher ensured participants from multiple segments were included: the private sector, government sector and academia. The mix included fulltime employees, business owners, contractors and consultants. The research also included two interviewees from different organisations that undertake research, including in the field of remote work and enterprise collaboration. These interviewees were specifically selected for their detailed knowledge of and exposure to the questions raised.

The individuals selected for interview were pre-dominantly senior to mid-senior level in their respective networks, giving them a broader perspective of multiple
Actors. This was to ensure there was more information uncovered per interview. Information Technology knowledge and awareness was very specifically neither a positive nor negative selection criteria – except for the two researchers interviewed. The aim of this study is not technical, but rather an analysis of the impact on the different Actors.

3.5.3 Execution

Prior to the interviews the researcher sent out a document outlining:
- the aim of the thesis,
- the purpose of the interviews,
- privacy and confidentiality,
- a very broad outline of the theoretical lens of the thesis

The document did not ask the leading research question as the researcher did not want to pre-empt the conversation. Not doing so is not deceptive (Groenewald 2004), but allows the interviewee to keep a clear mind and assist the researcher in unearthing new aspects. Please refer to Appendix A - Pre-Interview Informed Consent and Conceptual Models for a copy.

The purpose of this document was to:
(a) provide a common framework for the discussion, and
(b) to assuage any concerns about confidentiality that could limit the veracity and completeness of responses.

Ahead to the interviews the researcher prepared a research protocol (Doz, 2011) to ensure integrity and coherence between the different respondents. Please refer Appendix K - Interview Protocol. The protocol served to re-focus the interview to the theory, allowing the resulting data to be more consistent (Locke, 1996); it ensured a common language (Searle, 2006). However, there were new themes unearthed in the interviews. Following Gioia et al’s recommendations (2011) the researcher did adjust the questions to probe these themes and ideas.

The interviews varied in length between 30 and 75 minutes and were recorded. As well as recording, the interviewer took contemporaneous notes to assist data integrity (Denzin, 2008) during transcription, as well as to refocus on key points. The recordings were transcribed using Otter.ai and Microsoft 365 and subsequently manually corrected in conjunction with the audio and/or video file.

3.5.4 Number of interviews

Prior to commencement the researcher targeted a total of eight structured interviews in addition to two unstructured interviews. Boyd (2001) considered two to ten research subjects as sufficient to reach ‘saturation’, whereas Creswell (1998, p113)
recommended “interviews with up to 10 people” for phenomenological studies specifically. As the scope of the structured interviews was limited and with a pre-defined protocol, the researcher predicted a comparatively low number of interviews would provide sufficient data. In addition, the large-scale survey would - besides the quantifiable questions - also ask the respondents if they have anything to add, potentially yielding further insights.

During the interview stage, the thematic prevalence analysis showed new data in the 7th and 8th of the structured interviews. Following Marshall et al’s (2013) recommendations this led the researcher to extend the number of interviews by three, to a total of eleven structured interviews. The thematic prevalence analysis now showed less new themes in the last three interviews. The last two introduced no new categories, and the ultimate interview showed only two new subcodes in the raw total of 127 introduced. This prompted the researcher to conclude the thematic analysis was near saturated and move to the next phase of the study.

It is important to note here that - just as with quantitative methods - the interviews are of a subsegment of the population and not the entire population. The data derived cannot be perfect without in-depth interviews of everybody in the affected population. However, the reduction in the number of new themes identified indicates to the researcher that the majority of potential data has been unearthed.

3.5.5 Analysis - Qualitative

The approach the researchers used for analysing the qualitative data was coding the interviews using a Thematic analysis approach (Braun and Clarke, 2006). The initial themes were developed using the Service-Dominant Logic framework and the prior literature review. The Service-Dominant Logic approach meant that themes were looking at the data from the Actors’ phenomenal point of view. The themes then included items fitting this such as:

- How does the Actor feel about the growth of the usage of ECSs?
- What are benefits of ECSs for the Actor?
- What are improvements the Actor wants to see to get more value?
- Who benefits from the growth in the use of ECSs?

The transcripts were coded using the QDA Miner tool, largely following the techniques presented by Baralt in Mackey and Gass (2012), identifying codes in the data, and then assigning them into larger themes, ultimately showing an emerging pattern. All coding was done manually in order to maximise accuracy; no automated coding was used.

The researcher used a reflexive approach. The initial researcher-denoted codes and themes enable an initial approach. These related to the specific questions asked of
the interviewees as per the interview protocol. For instance: assigning three codes on the theme of gender, being ‘Men Benefit’, ‘Women Benefit’ and ‘No difference’. However, the study did not solely utilise a fixed coding sheet. During the interviews new ideas emerged, and in-vivo codes were created. As an example, on the theme Gender a new code was created during the interviews titled ‘Women adapt faster’.

In doing so, the coding framework included a recursive (Dr Clarke in Braun and Clarke, 2018) analysis based on the data discovered. The thematic analysis can therefore be categorised as reflexive.

The themes and individual codes are listed in Appendix E - Themes and Codes

3.6 Method of Quantitative Study
From the patterns identified in the qualitative research and the literature review, the study develops a questionnaire to test the dimensions identified; a deductive approach. The questionnaire is then the final cycle, a Quantitative survey based on the results from the qualitative research.

The quantitative survey incorporates a qualitative element, the final question asked was a free field question as to whether the respondent has anything else to add.

3.6.1 Data gathering – Quantitative Survey
The study used two distinct distribution methods to maximise aggregated survey response. Survey A was distributed freely to a network of convenience. The recipients were encouraged to share and distribute widely, without being prompted for any selection criteria. The method of distribution is thus primarily a snowballing sample selection. The reason for this was to provide a wider distribution and reduce the researcher’s bias. Survey B was sponsored by a professional research company (CoreData Australia) and distributed to a panel. This created a very random distribution, with a large survey response.

3.6.2 Survey Design
Consistent with the philosophy of this research (3.3 - Philosophical approach), the questions are phenomenological and focused on the respondent’s perception of their circumstances.

The questionnaire (CoreData Survey) was kept as short as possible and focused on the very key research questions uncovered from the qualitative research and the literature review. The brevity of the questionnaire was engineered to maximise the response rate and distribution. For instance, one consideration by the researcher was
to also capture potential respondents that do not like spending time on technical devices, thereby removing a potential source of bias.

The research firm CoreData states 70% of their general population respondents complete CoreData’s surveys on mobile devices (Fagan, 2021). They have found surveys are often completed during ‘dead time’, such as whilst on public transport. The survey was therefore designed to be optimised on a mobile device as well as on a Personal Computer. Following Couper and Mavletova’s recommendations to reduce break-off rates in mobile web surveys (Chapter 6 in Toninelli et al, 2015), the survey is short and succinct, and the design is as simple as possible by removing items like grids, sliders, drop-downs and progress indicators. This design carries across to all survey respondents - for instance, using response radio buttons instead of sliders is demonstrably shown to reduce the risk respondents dropping out of the survey (Funke et al, 2011). To speed up response time, provide more accurate responses and remove bias towards respondents with higher verbal and cognitive skills, the survey defaulted to a five-point scale rather than a seven-point scale (Cabooter et al, 2010).

Survey A and Survey B ask identical questions with identical response mechanisms. The draft survey was tested across three different test respondents and finetuned from their feedback before Survey A was released. The research survey B was then built and released by the research company CoreData Australia. This survey (CoreData Survey) was distributed to a general population panel of 33,000 individuals. To maximise the response rate, completing the survey was incentivised with a competition entry (refer Appendix F - CoreData survey cover email).

3.6.3 Analysis - Quantitative

The survey had 1,258 respondents. Of these 646 respondents indicated they did not work regularly from home (Approximately how many days per week do you work from home (excluding during full lock-downs) = 0 Days) and did not complete the survey. This left 784 complete surveys from respondents.

The reason the incomplete responses were filtered out was to homogenise the research sample. This research is not seeking a subset of factors influencing the Actors’ experience only during the periods of the temporary lockdowns. As with the study by Yang et al (2021), we seek to separate working through ECSs from pandemic ‘confounding’ factors.

The quantitative data was loaded into the IBM SPSS Statistics software program for statistical analysis, and the two variables ‘How satisfied are you with working from home?’ and ‘How often would you like to work from home in the future?’ are both designated as targets with the remaining variables as inputs. The reasoning for
designating both as targets is because factor A (and ‘How often would you like to work from home in the future?’) is connected to an outcome X (‘How satisfied are you with working from home?’) does not mean A is the cause of X. Gregor (2002, p9) puts it well when she says: “The number of ice creams sold at beaches in Australia has a strong positive relationship with the frequency of shark attacks. We would not conclude that ice cream eating caused shark attacks. In both cases, a third variable which is a determinant of both is of more interest.”

To commence, the researcher did a full descriptive analysis. The complete descriptive analysis is attached in the file DESCRIPTIVE STATISTICS OUTPUT.pdf (116 pages). The researcher then prepared the data for modelling, using interactive data preparation. The objective was set to optimise for accuracy. To assist the modelling, the fields were rescaled used a z-score transformation with a mean of 0 and standard deviation of 1. No transformation nor binning was used. At this stage no feature selection nor construction was undertaken.
4 Literature Review Results

When reviewing the literature, a segmentation of key points emerges from the sum of the literature. Firstly, there are fundamental changes.

4.1 Changes

The Australian government institution the Australian Institute of Family Studies conducted surveys in 2020 (Baxter and Warren, 2021), showing over 60% of Australians worked from home in December 2020.

From a work output point of view, the evidence is that people are measurably more productive (Breidbach, 2016, Yang et al 2021, Brynjolfsson, E. and Petropoulos, 2021, Bloom et al, 2021, Omdia Future of Work (cited in Wiggers, 2021), Barrero et al, Aug 2021). From a Service-Dominant Logic point of view (Chandler and Vargo, 2011) this can be explained as

“When complex networks successfully institutionalize resources, they become joined together as a service ecosystem, or ‘a spontaneously sensing and responding spatial and temporal structure of largely loosely coupled value proposing social and economic actors’ interactions through institutions and technology, to
(1) co-produce service offerings;
(2) exchange service offerings; and
(3) co-create value’ (Lusch et al., 2010: 31).”

However, collaboration for creative work has reduced due to a lowering of the number of quality connections Actors maintain (PaperGiant 2020). The Collaboration networks have become “more static and siloed” (Yang et al, 2021) and our professional and personal networks have shrunk by close to 16% (King and Kovacs, 2021).

Several studies identify that people work longer. There are company heads that say working from home means people only work half the time (News.com.au, 2021), but the evidence is they work more. According to Atlassian (Friedman, 2021) its Australian users of Jira, Confluence and Bitbucket worked 32 minutes longer than pre-pandemic. The workday length has also increased in the USA (AP Research Institute, 2021) and in the EU (Predotova and Vargas Llave, 2021).

There have been job losses, not surprisingly they are highest in professions where it is impossible to work from home (Alon et al, 2021). In general business sectors that cannot be digitalised have been hit harder (Draskovic et al, 2021). For individual Actors, people working anywhere potentially creates new competitors for the
positions (Poleg, 2021). The inverse meaning is that employees that can work through ECSs benefit. Some have even picked up more work and started side businesses when they moved to working from home (Meyer 2021).

As the pandemic has progressed the impact has changed. Deloitte Switzerland’s survey shows an increase in perceived productivity from homebased work between 2020 and February 2021 (Deloitte AG, 2021). The Eurofund surveys show an increase in wellbeing from 2020 to 2021 (Predotova and Vargas Llave, 2021).

4.2 Benefits
Many of the changes from moving to working from home through ECSs are perceived as advantages by the individual Actors. (Draskovic et al, 2021) UNDP state key benefits include lack of a commute. This is reinforced by many studies, such as Predotova and Vargas Llave (2021), Raišienė et al (2020) and Dubner (2021) who states the most commonly cited benefit of working remotely is not having to commute. Draskovic et al (2021), the AP Research Institute (2021), Choudbury (2020) and others emphasise workers prefer flexibility in time and location, and in particular the perceived flexibility for different family circumstances. Men that can work remotely spend more time with their children (Alon et al, 2020), and Ziffer (2020) finds parents are happier about working remotely.

4.3 Disadvantages
There are also a number of perceived disadvantages - besides the longer working hours - which are seen as a negative by many Actors. A not uncommon concern is being passed over for promotion, in spite of being more productive (Bloom et al, 2015, AP Research Institute, 2021). Kurter (2021) points out the proximity bias means employees that have circumstances keeping them working remotely such as family or being disabled and not commuting are disadvantaged.

Working remotely through ECSs involve a lot of sitting still in front of a PC, which can bring health issues such as back problems and eyestrain (Predotova and Vargas Llave, 2021). Psychologically, a common concern is also the blurring of boundaries between work and home life, and the work–life balance challenges (Predotova and Vargas Llave, 2021, Raišienė et al, 2020).

Not being in a group environment can also be lonely and Actors have a need for socialisation (Raišienė et al, 2020), whereas our networks have as mentioned above shrunk by close to 16% (King and Kovacs, 2021). However, there is other evidence such as PWC Australia staff where 51% felt more connected to their fellow
employees after Covid started (Eggleton, 2021). This suggests networks have shrunk but become deeper in connection.

4.4 Variables that influence value perceived

The literature suggests multiple factors that influence the value Actors derive from working remotely through ECSs. PaperGiant undertook a research project for the ECS software provider Atlassian in 2020, spanning the USA, Australia, Japan, Germany and France. The research questions included the question “What’s driving differences in experience, or how well people adapt to these changes?” Their key findings included that the experience of remote work is determined by three key factors:

- Household
- Work Role
- Network quality (personal and work)

Raišienė et al’s 2020 study looks at happiness of Lithuanian teleworkers specifically, and attempts to segregate different conditional groups. The quantitative data was collated through a structured survey in March-April 2020, so at a fairly early stage of the pandemic. Their conclusions are that Millennial women working from home two days a week are the most satisfied teleworkers. The most dissatisfied teleworkers are baby boomer males who only started working remotely during Covid-19, or older generations who worked virtually 3+ days/week before Covid-19.

Predotova and Vargas Llave (2021), Morrison-Smith and Ruiz (2020) and other highlight equipment and set up as an important issue. Swiss research showed 22% being dissatisfied with their infrastructure (Deloitte AG, 2021). A US Study by Kintone (Melore, Aug 20, 2021) found that 35% of employees did not have the right office equipment at home, and 34% had too many distractions. In spite of this, 76% would work from home permanently. The study did ask what changes people wanted and found many would like to purchase an internet upgrade (48%), a new computer (40%), or a new desk or workstation (38%).

As Good Things Foundation Australia highlight (2021), there is a digital divide in Australia, where not everybody has the same access to the Internet, for a number of factors such as income and living remotely. 30% of people in remote First Nations communities have no household internet or phone, clearly this will make it impossible to cocreate value through ECSs. Webster (2021) talks about students having to set up the study desk out in the paddock to get internet. Di Pietro et al (2020) also underscores poor internet due to cost is an issue for many. Recognising this, and to combat the issue the G20 ministers reaffirmed their commitment to the goal of universal and affordable access to connectivity for all by 2025 (G20, 2021).
Nicolas Bloom of Stanford identifies three pandemic “golden rules” of remote work (Lufkin, 2021):

1. separate working space,
2. high-speed broadband, and
3. 6+ months of experience on the job so you know what you are doing

Engzell et al (2021) found that school students in the Netherlands suffered negative learning outcomes from studying remotely during Covid-19 school closures, and it was particularly pronounced for students from disadvantaged homes. This is echoed in Australia where “Nearly half (46%) of Australian children and young people are at risk adverse effects on their educational outcomes.” because “many families lack the physical spaces, technology and other resources to support learning at home” Brown et al (2021)

“Perhaps it won’t be long until your colleague with the bigger home and their own private office with working wifi is promoted above you as you are sat on your loo, balancing your laptop on your lap, trying to dial back in for the team meeting.” – Tiffany Philippou quoted in Reichelt (2020).

4.5 Post covid

Much of the research has measured if the Actors do want to continue working remotely, and there is substantial evidence from various geographies that many want to continue. Deloitte Switzerland in February 2021 found 62% of office workers wanted to work from home on some days each week even after the pandemic, and 26 percent would prefer to work from home all the time. Only 12 percent want to work full time in the office. (Deloitte AG, 2021)

More Australians want to work from home an average of two days per week after the COVID-19 pandemic, according to a survey by the University of Sydney Business School. (Sydney University, 2020). Boston Consulting Group found in a survey that up to 60% of people that can would want to work partially from home (Ziffer 2020). Atlassian (2021) found 53% of Americans would continue to work
from home, even at extra cost. According to Australian Bureau of Statistics (June 2021) “The most common aspects of life Australians wanted to continue after the COVID-19 restrictions ease were working from home (33%)“.

Besides maybe wanting to retain their side businesses (Meyer 2021), Kelly (2021) points out people have routines at home; they are spending time with their families and do not want to go back to commuting into an office.

Some literature indicates there is a difference in the propensity to return to the office based on age. In addition to Raišienė et al’s 2020 conclusions, Shah’s US survey (2021) found “The age group 18 to 24 (16%) and 41 to 56 (17%) are the higher adopters of work-from-home, while the age group 25 to 40 (10%) and 57+ (11%) are the least adopters of work-from-home policy” and Ziffer (2020) states younger Actors are more likely to want to return to office, but older (50+) Actors are less happy with working remotely.

4.6 Model

Following the literature review we have information to formulate hypotheses for testing. Much of the literature mentions variables that may influence the value derived. To commence, the research will test whether variable change the value for individual actors. The primary null hypothesis H0 is therefore that different Actors derive the same degree of benefit from the rapid growth of ECS during the Covid-19 pandemic.

Using our Service-Dominant lens: If value is context driven, different contexts should yield different phenomenological value. As Predotova and Vargas Llave (2021) put it: circumstances play a role. This is then our alternative hypothesis H1.

As recommended by Bower (2021), if the null hypothesis is rejected the study will move onto identifying why the null hypothesis is rejected by interrogating the dimensions / circumstances / characteristics. The purpose will be to see whether those specific dimensions yield a different value outcome. As per the research question: What are the factors that make the difference?

To start with the grey literature review unearthed a number of age-based beliefs about the use of technology. The general thrust is that older Actors will do worse because they are not as good at technology as younger Actors. There are also actual research studies showing that it might be better to ask the grandchildren to program the remote, they are better at rapidly figuring out new devices (Lucas et al, 2014).

The logic chain behind the belief that older Actors would do worse seemed to be:
Older Actors did not grow up with the same amount of technology.

They are not as good with modern technology.

They will be less able to work with tools such as ECSs.

Older Actors will not derive as much value from ECSs as younger Actors.

However, the researcher has not found research support for the logical leaps. For instance, because a 4-year old child is good at rapidly trying new approaches, does that mean a 25-year old will function better in a network that has shifted to creating value through ECSs? Lucas and Gopnik’s research (Lucas et al, 2014) showed that 4-year olds were quicker than college students with new technology. Does that really mean we can extrapolate to there being the same difference between 25-year and 60-year old Actors? And even if the older Actor is slower with new technology, does that really mean they derive less value from the growth in the use of ECSs?

The recent research by Veríssimo et al (2021) shows orienting and executive inhibitory efficiency actually increase with age, until the 70s. Is the age-based belief therefore doxa or knowledge? To test, this research proposes to start from the other end: is there a difference in the value derived based on the age of the Actor? If there is, then the researcher can work backwards using qualitative analysis to find the causes.

The first secondary hypothesis is therefore:

HAge Older Actors get the same value from the increased use of ECS during Covid-19.

In the literature review two large scale surveys from 2020 (Australian Bureau of Statistics, July 2020 and Raišienė et al, 2020) in Australia and Lithuania respectively found women were happier with the shift to working from home. However, the Eurofund survey of June/July 2020 found women on average were slightly less happy than men with their experience of working from home. Reichelt (2020) finds women benefit more from an equal playing field where extroverts are not dominating the conversation.

To confirm whether these previous findings are true for our population, this study will then test HGender and its direction (positive/negative for which gender(s)) for the survey population as at this point in time.
The second secondary hypothesis is then:

HG The Actor’s Gender does not influence the perceived value derived

The aim of the qualitative interviews and the literature review is to unearth dimensions that may have potential impact upon the value. Each of these dimensions will be tested in the quantitative section of the research. Following the qualitative stage of the research we will specify the remaining hypotheses:

HX Dimension X does not influence the perceived value derived.

The research seeks to confirm and to identify the factors that influence the value derived. It is looking for probabilistic causation (as per Hume 1784, quoted in Gregor 2002, p5). The initial model is therefore as per the below diagram:

![Figure 8 - Initial Model](image)
5 Qualitative Study Results

The results are guided by the thematic analysis. Even if individual interviewees contributed good insights, the takeaway results are focused on universal patterns and recurrence of themes and codes across multiple interviewees. The qualitative results are here grouped by the main themes found in the interviews and look at the trends with the most recurrences first.

Following Pratt’s advice (2009) to show the data and not just telling about it, the research findings include interviewee quotes that highlight common themes and key points made by the interviewees. For further curated quotes see Appendices B - Selected Interview Comments and L - Survey.

5.1 Changes

“Frightened of change? But what can exist without it? What’s closer to nature’s heart? Can you take a hot bath and leave the firewood as it was? Eat food without transforming it? Can any vital process take place without something being changed? Can’t you see? It’s just the same with you—and just as vital to nature.” - Marcus Aurelius, Meditations

The interviewees unequivocally agreed that the usage of ECSs has grown very rapidly during the Covid-19 pandemic. The analysis as well as the literature review show that Covid-19 forced a very rapid change in the Actors’ behaviour.

Other key changes include that a number of new ECSs are being used, overlaying a change of more usage with much more varied usage. There is even remote brain surgery through telemetrically controlled robots (Zaer et al., 2020), although this is not as commonly used as WhatsApp or Zoom which have seen explosive growth in their usage (see also Marks, 2020).

Working through ECSs has led to growth in the amount of data generated, although emails have decreased in favour of alternative communication such as chats. Being forced to use digital technologies has also created the required cultural change for digital innovation.

“Whereas a lot of people have deliberately said, I like doing it the old way. I don't want to, I don't want to try it, I don't want to change. And all that resistance has just been pushed aside.”

This can be elucidated through Service-Dominant Logic where the networks are fugacious, meaning the rapid changes and recombinations of operand and operants caused by the Covid-19 pandemic have created new Service Dominant Networks. The change is consistent with the literature where Krauss et al (2020) point to the
restrictions making “personal interaction impossible and force even late-adopting employees and managers of family firms to adapt to new digital workflows and technologies (e.g. virtual meeting technologies)”. Brynjolfsson, E. and Petropoulos, G. (June 10, 2021) also agree that Covid-19 accelerated digital innovation to drive productivity.

Between the commencement of the pandemic and now there have been changes. Most pertinently the respondents identified that almost all Actors have become better at working through ECSs.

“We are using ECSs more, and we are using them better.”
“You know that thing with the video is not on, the microphone is scratchy? That is gone.”

The changes imposed force Actors to learn new ways and creates a change in culture. A cultural shift is that it is now also acceptable to be working from anywhere; to be in another state, country or having a meeting whilst going for a walk. The default is now to work partly remotely, it is no longer the exception. With this management has had to evolve and micro-management is disappearing. Remote work does require high trust environments.

63% of the interviewees were very happy about the growth, with a sizable minority feeling divided about it. A very strong theme is however that having the ECSs during the pandemic saved us! Working through them is often not as good as face-to-face for many tasks, but we would have been much worse off without them.

“thank goodness, we've got it. But I wish we didn't have to use it”

One interviewee expressed their feelings about having to do all work through ECSs by quoting his 95-year old father:

“This wheelchair is great, it’s amazing…. I wish I could walk, but I’m glad I’ve got this”.

Looking at the literature, others agree. Davis says (in Dubner 2021) that the technology has saved them and enabled remote work. Murray (2021) states “As difficult as the pandemic was for a lot of working parents, it would have been worse without Zoom.”

5.2 Benefits

“There is a tide in the affairs of men. Which, taken at the flood, leads on to fortune;“
- Shakespeare, Julius Caesar, Act-4, Scene 3

Using ECSs brings a lot of efficiencies and productivity increases. The added functionality of the systems overlay with more focused and productive work. Having virtual meetings mean other Actors are on time. The time limits also tend to
be more enforced, so the meetings are focused and productive. This is consistent with the literature review and many studies pointing to a productivity increase, such as Bloom et al (2021), Omdia Future of Work (cited in Wiggers, 2021), Barrero et al (Aug 2021), Brynjolfsson and Petropolous (2021), and others.

The change has also led to Actors doing new things, workwise as well as socially. ECSs help Actors keep in contact with not just their work networks, but also their social and family networks – all value cocreating networks.

The fundamental location independence of working through ECSs saves on physical travel, inversely extending to the benefit of living/working wherever the Actor most wishes to be. Not having to commute, and the ability to work from anywhere are strong benefits the analysis confirmed.

“The no commute is fantastic!”

In the literature review Dubner (2021) stated the most commonly cited benefit of working remotely is not having to commute. The qualitative research support this and finds Actors that are remote benefit the most from working through ECSs. Actors can even be in different continents and work in different time zones. Two interviewees that do this were especially happy with being able to work outside of normal business hours and then have the daytime for themselves and their families.

As Qiyang et al (2021) identified, working through ECSs enabled better access to work from remote and global locations, removing the transport inequity. A 2021 poll of 2000 Americans working remotely found 62% (Shah, 2021) had moved to a new city and 61% indicated they wanted to move country.

Lastly, ECSs are seen as a great leveller in other ways. They enable a more direct contact with different levels of organisational hierarchies and give more equality in the way we interact. Much in-person communication and work interactions suit a type of Actor, often an outgoing and dominant type. When going through an ECS more retiring Actors or linearly thinking Actors have the ability to shine, so their contribution is both more effective and recognised. On another dimension, Actors are no longer as disadvantaged for having family commitments, living away from main cities, being physically disabled, etc. In the literature Glover (2020) states having a flexible workplace enables the employer to welcome in a diverse workforce in a way that suits them. (Glover, 2020).

5.3 Disadvantages

“Gregor realized that the lack of all immediate human contact, together with the monotonous life surrounded by the family over the course of these two months must have confused his understanding” - Franz Kafka, *The Metamorphosis*
There is a wide range of disadvantages cited, but the two most common ones are related to missing out on face-to-face contact. In person interaction is seen as more effective. Firstly, over a video camera or the like the socialising is seen as poor. The incidental catch-ups are missing; the non-task oriented coffee with the co-workers are replaced with focused work meetings or previously planned and structured social conversations. ECS providers recognise this and to try to overcome this with virtual work and meeting spaces that attempt to recreate those ‘watercooler’ interactions (Seal 2021).

Secondly, it is difficult to read body language over a camera. Being unable to read other Actors’ body language depletes value from the interactions. Several interviewees cited presenting or speaking to a group of people where in the past they could identify the audience reaction and adjust their interaction, but now are strongly lacking immediate understanding of the reception of their communications. Lastly, not being physically present makes it harder to imbue culture and train new staff.

The physical health aspects are also an issue. Working from home on ECS involves substantial screentime. This has an effect on the body from poor ergonomics to eye stress. Combining with that several interviewees feel video conferencing is more draining than physical meetings creates a health issue. According to Fauville et al (2021) video conferencing is often more draining than face-to-face meetings, but it can be managed to be less tiring (Ramachandran, 2021). Working through ECSs can also be draining due to poorly managed work life balance, especially as the Actors are made more readily available.

“Working more hours from home than in the office”
Per the literature, UN’s report (Dracovic et al, p15) agrees remote work has made it harder to distinguish between what is work time and what is private time.

The literature also supports the health issues. 26% of Americans working from home suffer eye stress according to OnePoll, cited in Melore, Aug 6 , 2021). According to MDLIVE’s analysis (2021) of one million diagnoses in the US for the year to February 28, 2021 found visits for eye conditions such as eye strain, eye fatigue and blurred vision rose 33% during the analysis period, while headaches increased by 60% and migraines increased 75%. Muscle, nerve and tendon problems of the arm and hand were up 150%, and back and neck issues were doubled.

5.3.1 Improvements wanted
To reduce the disadvantages, the interviewees pointed to several strategies and desired changes. The organisational support can make a difference. The form of
support includes items such support with ergonomics and the workspace. Prompting employees to take breaks and move around reduces the physical issues.

Organisations can also initiate virtual social catchups, and helping Actors build networks and connections.

“They’ve had to work a bit harder to reinforce the culture”

Security on some ECS tools was raised as a concern and roadblock to the usage of them. This is something that needs to be addressed by providers of ECSs to remove the barriers and concerns.

5.4 Variables that influence value perceived

5.4.1 Personal Characteristics

“The workplace was created by extroverts, for extroverts.” - Richard Etienne in Morgan, July 2021.

The Actors that suffer the most are – not unsurprisingly - those that are uncomfortable with technology. The analysis did not unearth any common trait in these Actors, except for the lack of comfort.

There is a belief that Actors that are confident work well through ECSs, in particular in video meetings and large group chats which can be slightly intimidating for shy Actors. Another aspect mentioned as important to be good with ECSs is to be happy and open to learning new things. Some Actors are ‘just better with it’.

The interviewees were divided as to whether Introverts or Extroverts benefit more. 63% (7) believed introverts benefit, and 36% (4) believed extroverts benefit more. Examining the responses more granularly the researcher found the differing benefit distribution was predicated by how the ECSs were seen to be used. Corresponding to the growth of asynchronous activities, introverted Actors derive a benefit in cocreating value in their own environment on their own terms. One interviewee cited another Actor who is very introverted and loves working through ECSs as it gives them the control of which people they interact with, in what manner and when. Unlike a meeting in physical room, working through ECS can enable the quiet people to have the same input as the loud person dominating the conversation.

“It equalises the voice “

On the flip side, some usage of ECSs such as in video conferences can push introverts into personally uncomfortable positions where they cannot ‘hide’.

The extroverts are seen as benefiting from ECSs when used in video calls and other group communication activities. The ECSs provide a communication channel to replace the face-to-face interaction reduced by the Covid-19 pandemic restrictions.
Being extrovert is seen as giving confidence and the ability to express oneself in a group forum. To summarise, extroverts are seen to benefit in synchronous communication, whereas introverts benefit from the asynchronous and controlled aspects of ECSs.

5.4.2 Tasks

“And one man in his time plays many parts” - Shakespeare, As You Like It, Act-II, Scene-VII.

ECSs cover a gamut of value cocreation activities, however some tasks seem to be more suited for them. The types of work that benefit the most are typically the linear and process-oriented activities. Creative tasks often require a friction and randomness to help generate new ideas, and ECSs today are not so effective at supporting this.

“You have to work harder at making connections with people that aren’t within your instant work stream to get that wider collaboration piece happening.”

This is consistent with the literature review (Morgan 2021, Yang et al, 2021, PaperGiant 2020).

Relationship building activities such as new sales also do not work as well through ECSs. As a consequence, Sales staff will be more prone to go back into the office, Account Managers might, but technical staff such as programmers will stay working remotely through ECSs. This is tempered by the fact that new sales are more likely to have the early contacts through video conferencing, enabling qualification of prospects prior to travelling to meet customers face-to-face.

People and line management is harder with a distributed workforce, and there are multiple and wide-ranging new types of issues to deal with. For instance, assisting staff to build and maintain new connections, ensure they have emotional support, help them set up a good working environment, etc. The evidence is that managers have to work more.

“You have to spend more time leading when everyone's working remotely.”

Due to the reduced ability to read body language, the interviews highlighted the difficulties where one presents to a group of people; for instance a lecture. However - just as in other networks - in academia the same Actors play multiple roles. There is a huge difference in the value derived as a presenter versus as audience. As audience partaking in conferences, suddenly academics can attend multiple conferences across the globe at a fraction of the cost in both travel time and money. This is echoed in the literature, where Professor Davis when interviewed (Dubner, 2021) points out the same: lectures through electronic media miss the element of
reading the students’ body language and he hates it. On the flip side Professor Davis also says:
“I could go to seminars anywhere around the world. And that has made me more productive.”

It is strongly indicated that people who cocreate and think asynchronously benefit through working through ECSs. This is also indicated in Yang et al’s study of US Microsoft employees (2021) which found working from home had less synchronous work and more asynchronous tasks. Activities that were typically synchronous are redesigned, which can bring new benefits. For instance, global conferences now sometimes have pre-recorded presentations so the attendees can consume them at a time and pace that suits them, and then meet and interact virtually at select times. On a local level this extends to smaller workshops and seminars where Actors that prefer to digest material when it suits them benefit from the change. The ECS provider Atlassian quote success internally using pre-recorded videos which they then collected feedback from (Reichelt, 2020). Moss et al (2021) and Van de Sande and Scott (2021) point out that designing conferences to operate through ECSs “spearheads science into becoming a more inclusive and supportive environment for all participants, irrespective of their career-level, race, gender, or background.”

5.4.3 Workspace
Another dimension of location highlighted by the research is that Actors that have a good space to work in benefit. The shared household where three people are fighting over the dinner table position is a vastly less comfortable value cocreation environment than the separated, well set up home office. As an alternative, most the benefits of remote working through ECSs can be found in coworking spaces.

The importance of the workspace is echoed in both the grey and the formal literature. Stuart cites (2021) workers resorting to clearing out the wardrobe and putting a lock on the door to work in it without being disturbed. Swiss office workers cited distractions and interruptions as one of the three greatest (28%) environmental challenges (Deloitte AG, 2021), followed by lack of suitable home office space (20%). Di Pietro et al (2020) also highlight the lack of workspace as an issue for some students.

5.4.4 Experience in the network
When coming into a new network the Actors naturally have less connections. Theoretically it would be harder then to generate and partake in Service-Dominant Networks, and less value would be derived. Actors’ engagement is determined by their present-day connections in the service eco-system (Storbacka et al, p3013).
36% of the interviewees felt there was no major difference for new people, but 64% said that new people suffered. They have no connections with other employees, they do not get socialised and training is much harder. When you have not met the people you work with in person, it takes longer to build up rapport and trust to make the interactions more effective. In the literature, UK Chancellor Rishi Sunak says being able to go to the office and create relationships helps young workers’ careers (Morrin, 2021). This is consistent with Yang et al’s (2021) research findings that the collaboration networks have become more static; there are less new ties, and workers spend less time with newly added ties.

5.4.5 Experience with ECSs

When the pandemic commenced, many Actors had already been working extensively through ECSs. Actors new to ECSs had an initial disadvantage, but to a great extent that has evened out over time. According to the early literature, results indicate that the prevalence of distributed teams and remote work among ASDT helped with the transition to fully remote work during the Covid-19 pandemic (Marek et al, 2021), but this effect is shown by the qualitative research to have dissipated over time.

A problem partially created by the rapid change was the lack of business processes and procedures to work through ECSs. Communication and collaboration can become disjointed where the procedures are not established.

“It is like a group of people screaming in a room”

In terms of the Service-dominant Logic Axiom 5: Value cocreation is coordinated through actor-generated institutions and institutional arrangements, and these arrangements do not exist yet.

The lack of established procedures can also add substantial stress to Actors as they do not know how much they are supposed to be working, and how available they need to be. As an interviewee expressed it:

“what it comes down to, we've just started using things and we haven't set any systems and procedures and policies so there's that question of "ooohh", if I don't respond to this will I lose my job or will there be a mark against me, so there's that lack of clarity as to what is required by the organisation. So that's a prompt, it's not just they don't can't think for themselves, because there is no definition around it. Their fear prompts them to perhaps work as opposed to a lack of understanding how to have a work life balance”.

5.4.6 Family

The interviewees said (82%) that Actors with families benefit the most from having the flexibility and ability to be with their families. A related benefit is also that they
have social interaction and people around them, compensating somewhat for the reduced social interaction at the office. Two of the interviewees took a contrarian view and felt people with no family did better, as they had less distractions and concerns.

It is clear from both the interviews and the qualitative question on the survey that the periods of enforced home schooling during lockdowns are a serious concern, leaving an overall more ambiguous result.

“The attending to a school age children and assisting them whilst concurrently attending to professional duties is a departure from at-home working pre-COVID.”

The literature also shows a divided outcome. According to Atlassian (2020) caregivers were less likely (49 percent) to agree that effective working from home was easy than those without children (61 percent). Anecdotal evidence is that parents are especially struggling with working whilst children are concurrently kept at home due to lockdowns (Black, 2021).

5.4.7 Gender

All interviewees felt there was no difference between women and men. This compares to the literature review where several studies (Raišienė et al 2020, Eurofund 2021 and Australian Bureau of Statistics, July 2020) are inconclusive by virtue of the trichotomy that they respectively indicate women have a stronger preference to work from home, men have a stronger preference, and there is no difference between men and women. Those surveys are across different nations and slightly different points in time, whereas this study focuses on the Australian circumstances as of winter 2021. To further test and verify, the researcher includes gender as a variable in the quantitative analysis.

5.4.8 Age

The second initial model variable is Age. The results here are varied; 45% of the respondents felt there is no difference based on an Actor’s age. However, one interviewee (9%) felt younger Actors benefit more and 36% believe older Actors benefit more.

When interrogating the response, the reasons of the ‘Same’ and the ‘Older’ proponents are that age is irrelevant, but it is other factors that make a difference. Example factors raised included technical aptitude and ability to learn, and personal circumstances. Older Actors were described in general as generally having less requirements for social interaction and better home circumstances than younger Actors, hence benefitting more from working through ECSs. The sole respondent
considering younger Actors deriving more value cited the belief that younger Actors are generally better with technology. To test further, the quantitative study measures Age as a variable, but also environmental factors such as family and workspace.

5.5 Post covid

“I can't go back to yesterday - because I was a different person then.” - Lewis Carroll, Alice's Adventures in Wonderland, 1865

Actors were forced into using ECSs remotely, and in doing so started using more tools, and using them better. Most organisations and Actors will now continue to use them more post covid. Just as the literature indicates, the interviewees will also continue to work remotely through ECSs at least part of the time. The quantitative study also surveys the test sample to verify the propensity to keep working through ECSs.

5.6 Updated Model

The interviews and research above identified the following additional dimensions that can be measured in a quantitative survey:
- Previous experience in working through ECS’ from home
- Length of commute to the regular place of work
- Length of time working in the specific network
- Confidence in video meetings
- How tired the Actor is after a day working from home through ECSs
- Suitability of workspace in the home. This includes the specifics of:
  - Amount of workspace
  - Ergonomics
  - Privacy / noise
  - Internet connection
  - IT hardware
  - Collaboration software
  - Business processes and procedures for remote work

These aspects are then incorporated into the model to be tested through a quantitative study. The quantitative study also includes the variables of Age and Gender, in order to verify the qualitative research findings. The test model is thus:
5.7 Outcome Equivalence Model

Much of the prior research looks at whether the respondents want to continue working from home post-pandemic (i.e. Eurofund 2021, Raišienė et al 2020, Predotova and Vargas Llave 2021). This research uses a Service-Dominant lens to analyse whether the Actors are currently deriving value from working through ECSs. This is a different approach.

To understand whether the response ‘wants to work from home post-pandemic’ and the response that they ‘currently derive value’ have mutual predictive value, the researcher is asking both questions from the same respondents and calculating the correlation. Measuring this objectively will assist further studies and confirm whether researchers can validly compare across differently phrased research.
Figure 10 - Equivalency Model
6 Quantitative Study Results

As per G. Loftus’ admonitions (Bowers, 2021) the analysis attempts to graphically show – where applicable – the distribution of the answers to provide a richer intuitive picture of the distribution than a statistical significance test can. After all: “What is the use of a book without pictures or conversations?” (Alice in Wonderland, Lewis Carroll 1865). Only selected key descriptive tables and graphs are included here, for the full list refer the document Descriptive Statistics Output.pdf.

6.1 Equivalency Model

The general analysis pointed to strong predictive behaviour from the variables ‘How often would you like to work from home in the future?’ and ‘How satisfied are you with working from home?’ The percentage of respondents that wanted to work from home in the future was 89.5%, distributed as per the following diagram:

![Bar Chart](image)

The satisfaction distribution is as per below, with a mean of 3.90.
Isolating and analysing these outcomes in detail provides the following correlation data:

<table>
<thead>
<tr>
<th>How often would you like to work from home in the future?</th>
<th>Statistic</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Mean</td>
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<td>Lower Bound</td>
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<tr>
<td></td>
<td></td>
<td>Upper Bound</td>
</tr>
<tr>
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<td>5% Trimmed Mean</td>
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<tr>
<td></td>
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</tr>
<tr>
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</tr>
<tr>
<td></td>
<td>Maximum</td>
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</tr>
<tr>
<td></td>
<td>Range</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Interquartile Range</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Skewness</td>
<td>.325</td>
</tr>
<tr>
<td></td>
<td>Kurtosis</td>
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</tr>
<tr>
<td></td>
<td>Mean</td>
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</tr>
<tr>
<td>Frequency</td>
<td>95% Confidence Interval for Mean</td>
<td>Lower Bound</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>A few times a month</td>
<td>5% Trimmed Mean</td>
<td>3.28</td>
</tr>
<tr>
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<td></td>
<td>Std. Deviation</td>
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</tr>
<tr>
<td></td>
<td>Range</td>
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<tr>
<td></td>
<td>Interquartile Range</td>
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<td>One day a week</td>
<td>Mean</td>
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<tr>
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<td></td>
<td>Median</td>
<td>4.00</td>
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<tr>
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<td>----------------</td>
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</tr>
<tr>
<td>Range</td>
<td>4</td>
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<tr>
<td>Interquartile Range</td>
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<tr>
<td>Skewness</td>
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<td>0.148</td>
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<tr>
<td>Kurtosis</td>
<td>1.335</td>
<td>0.294</td>
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<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td><strong>Full time</strong></td>
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<tr>
<td>Mean</td>
<td>4.66</td>
<td>0.047</td>
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<td>95% Confidence Interval for Mean</td>
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<tr>
<td>Range</td>
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<tr>
<td>Kurtosis</td>
<td>7.369</td>
<td>0.327</td>
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</table>

As the data shows, there is a very strong predictive factor between the two. The correlation is especially true for the respondents indicating greater satisfaction (4 or 5), who are much more likely to indicate they want to work from a substantial amount of their time.

The variable ‘How often would you like to work from home in the future?’ was transformed into Numeric Work From Home (‘NUMWFH’) with the values 1 to 5 where 1 is ‘Never’ and 5 is ‘Fulltime/Near Fulltime’. Undertaking a Pearson correlation analysis shows a very strong positive correlation, with a 2-tailed significance less than 0.001.
However, there is a small portion of respondents that indicated they were satisfied with working from home yet indicated that in the future they never want to work from home. The below boxplot illustrates the wide range of satisfaction of the ‘Never’ respondents, compared with the narrow ranges of the respondents wanting to substantially work from home.

In conclusion, the proposed equivalence model holds true to a significant level, but care must be taken not to blindly expect it to be always correct. Staying consistent with the Service-Dominant Logic framework, this research continues to look consistently at the outcome as the satisfaction currently perceived by the Actors, not what they think they may want to do in the future.
6.2 Analysis of Variables

Utilising the IBM SPSS Statistics software the researcher ran a predictive power analysis, transforming the data to optimise the measurement. The outcome ranked the variables with the highest effect on the outcome: “How satisfied are you with working from home?”.

The analysis identified three variables as having the lowest predictive power:
- ‘Do you have any dependent children living with you?’
- Gender
- Age

The remaining variables have some predictive power. The full list sorted from the strongest predictive to the least predictive variable is as follows:
### Target

<table>
<thead>
<tr>
<th>Name</th>
<th>Measurement Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>How satisfied are you with working from home?</td>
<td></td>
</tr>
</tbody>
</table>

### Predictors

<table>
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<th>Name</th>
<th>Measurement Level</th>
<th>Predictive Power</th>
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</thead>
<tbody>
<tr>
<td>Transformed</td>
<td>Overall how suitable do you find your work space at home?</td>
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<td>0.30</td>
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<tr>
<td>Transformed</td>
<td>Business processes and procedures for homework</td>
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<td>0.17</td>
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<tr>
<td>Transformed</td>
<td>Ergonomics</td>
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<td>0.15</td>
</tr>
<tr>
<td>Transformed</td>
<td>Amount of workspace</td>
<td></td>
<td>0.14</td>
</tr>
<tr>
<td>Transformed</td>
<td>How confident do you consider yourself knowledgeable in meetings?</td>
<td></td>
<td>0.12</td>
</tr>
<tr>
<td>Transformed</td>
<td>Privacy</td>
<td></td>
<td>0.10</td>
</tr>
<tr>
<td>Transformed</td>
<td>IT hardware</td>
<td></td>
<td>0.08</td>
</tr>
<tr>
<td>Transformed</td>
<td>Collaboration software (e.g., Slack, Zoom, Teams)</td>
<td></td>
<td>0.07</td>
</tr>
<tr>
<td>Transformed</td>
<td>Approximately how many days per week do you work from home excluding weekends</td>
<td></td>
<td>0.07</td>
</tr>
<tr>
<td>Transformed</td>
<td>After a day working from home, how do you feel less stressed compared to when you were in the office?</td>
<td></td>
<td>0.07</td>
</tr>
<tr>
<td>Transformed</td>
<td>Did you use a laptop while working remotely?</td>
<td></td>
<td>0.07</td>
</tr>
<tr>
<td>Transformed</td>
<td>How often do you think about your equivalent office workplace commute?</td>
<td></td>
<td>0.06</td>
</tr>
<tr>
<td>Transformed</td>
<td>Internet connection</td>
<td></td>
<td>0.04</td>
</tr>
<tr>
<td>Transformed</td>
<td>How long have you worked with these people you engaged with at the workplace?</td>
<td></td>
<td>0.01</td>
</tr>
<tr>
<td>Transformed</td>
<td>Which age group do you fall into?</td>
<td></td>
<td>0.01</td>
</tr>
<tr>
<td>Transformed</td>
<td>Which gender do you identify?</td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>Transformed</td>
<td>Do you have any dependent children (within 18 years old)?</td>
<td></td>
<td>0.00</td>
</tr>
</tbody>
</table>

Figure 11 - Predictive power of variables
Graphing the inputs that have a predictive power over 0.05:

![Predictors Recommended for Use in Analysis](image)

Given that the single variable with the most predictive power is the suitability of the workspace, and four of the most significant variables are sub-segments of Overall Workspace, the predictive power of the suitability of the Actors’ Workspace by far outstrips other considerations such as prior experience with ECSs.

Using the data, the researcher then built a regression model using the SPSS function Automatic Linear Modelling. To commence the analysis removed ‘How often
would you like to work from home in the future?’ as being an outcome, not a
variable upon which the Actors’ value derived is dependent. The confidence level
was set at 95% and the purpose to create a standard model. The process chosen was
a forward stepwise selection method with criteria for entry and removal set to
Information Criterion (AICC). The best subset selection method engendered the
same result (Information Criterion = -136.922). See Appendix I - Linear Model
Description for the full model description. To commence, the data is transformed
for the model as follow:

<table>
<thead>
<tr>
<th>Field</th>
<th>Role</th>
<th>Actions Taken</th>
</tr>
</thead>
</table>
| (Afteradayofworkingfromhome
  Doyou/WillSelflessorretirecompared
  edtowhen transformed)                      | Predictor            | Trim outliers Replace missing values |
| (Amountofworkspace
  transformed)                                 | Predictor            | Merge categories to maximize
  association with target                     |
| (Approximatelyhowmanydaysper
  weekdoyouworkfromhomeexclud
  ingduring transform)                        | Predictor            | Merge categories to maximize
  association with target                     |
| (Businessprocessesandprocedure
  forremote work transformed)                  | Predictor            | Merge categories to maximize
  association with target                     |
| (CollaborationSoftwareZoom
  SlackTeamsInnetc_transformed)                | Predictor            | Merge categories to maximize
  association with target                     |
| (Didyouregularlyworkfromhomeprior
tocovid19_transformed)                         | Predictor            | Merge categories to maximize
  association with target                     |
| (Ergonomics_transformed)                      | Predictor            | Merge categories to maximize
  association with target                     |
| (Howconfidentdoyouconsideryour
  child videomeetings_transformed )            | Predictor            | Trim outliers Replace missing values |
| (Ihavewhoworkedwiththe
  peopleyouengagewithwhilswork
  ingfromh_transformed)                        | Predictor            | Merge categories to maximize
  association with target                     |
| (Howlongisyourtypicalcommuteto
  yourregularonwork/Placeofwork
  Acommut transformed)                         | Predictor            | Merge categories to maximize
  association with target                     |
| (Internetconnection_transformed)              | Predictor            | Merge categories to maximize
  association with target                     |
| (ITHardware_transformed)                      | Predictor            | Merge categories to maximize
  association with target                     |
| (Overallhowsuiteddoyoufindyou
  workspacemathome_transformed)                | Predictor            | Trim outliers Replace missing values |
| (Privacynoise_transformed)                    | Predictor            | Merge categories to maximize
  association with target                     |
| (Whichagegroupdoyoufallinto_transformed)      | Predictor            | Merge categories to maximize
  association with target                     |

If the original field name is X, then the transformed field is displayed as
(X_transformed). The original field is excluded from the analysis and the
transformed field is included instead.

One or more records were excluded because of a predictor or target that is
missing, a frequency weight that is missing or less than one after rounding, or a
regression weight that is missing, negative, or zero.
The model generated with the top 7 variables are shown in the following diagramme. The by far most important variable is the suitability of the workspace, followed by Confidence and Tiredness. The latter has a negative correlation: if the Actor is more tired at the end of the workday than when working from the office, they are less likely to be satisfied.

The steps taken each decrease the model information criterion (make it stronger). As the below table highlights, the variables each decrease the Information Criterion with a smaller amount. The final information criterion once all variables with 0.05 are included is -136.
The model has a strong predictive outcome, with a small residual:
Of the standardised samples four remain with a Cook’s Distance in the model greater than 0.02 (16/n). All of these had a satisfaction value of 1. 49 data points exceed 4/n.

Displaying the model with only effects with significant values less than 0.05 leaves the below variables.

Mapping the Variables’ Estimated Means graphically shows the strength and direction of their effect.
6.3 Context matters

The primary null hypothesis was H0 that different Actors derive the same degree of benefit from the rapid growth of ECS during the Covid-19 pandemic. As stated, our alternative hypothesis is if - using our Service-Dominant lens - value is context driven, different contexts should yield different phenomenological value. In addition to the literature and the qualitative findings, the strength of the quantitative model’s ability to predict the value derived supports the alternative hypothesis.

The research proceeds to test the various sub hypotheses, the various variables. The key variables for the research of Gender, Age and Workspace are discussed in more depth below. To see further detail on the statistics of the other variables with ‘How satisfied are you with working from home?’ as the outcome, please refer to the file DESCRIPTIVE STATISTICS OUTPUT.pdf
6.4 Gender

The quantitative analysis showed a 0.00 predictive value from the Actor’s gender. A Bayesian analysis of variance (ANOVA) estimate of coefficients show the Male and Female results overlapping, with Other too small a sample size.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mode</th>
<th>Posterior Mean</th>
<th>Variance</th>
<th>95% Credible Interval</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which gender do you identify as? = Female</td>
<td>3.864</td>
<td>3.884</td>
<td>0.003</td>
<td>3.750</td>
<td>3.978</td>
<td></td>
</tr>
<tr>
<td>Which gender do you identify as? = Male</td>
<td>3.950</td>
<td>3.950</td>
<td>0.004</td>
<td>3.826</td>
<td>4.073</td>
<td></td>
</tr>
<tr>
<td>Which gender do you identify as? = Other</td>
<td>4.000</td>
<td>4.000</td>
<td>0.284</td>
<td>2.956</td>
<td>5.044</td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: How satisfied are you with working from home?
b. Model: Which gender do you identify as?
c. Assume standard reference priors.

This is consistent with the qualitative evidence.

### Independent-Samples Kruskal-Wallis Test Summary

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Total N</th>
<th>Test Statistic</th>
<th>Degree Of Freedom</th>
<th>Asymptotic Sig.(2-sided test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total N</td>
<td>781</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test Statistic</td>
<td></td>
<td>.882&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree Of Freedom</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asymptotic Sig.(2-sided test)</td>
<td></td>
<td>.643</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. The test statistic is adjusted for ties.
b. Multiple comparisons are not performed because the overall test does not show significant differences across samples.
A Kruskal-Wallis test shows the significance as 0.643, well above the sought 0.05 cut-off, and the researcher concludes the difference in the value derived by gender is so small as to be irrelevant. The hypothesis HG The Actor’s Gender does not influence the perceived value derived is retained.

6.5 Age
With a predictive power of 0.01, there is minimal indication of any difference in the value Actors perceive based on their age. However, there is some support for the qualitative result that younger Actors derive less value.

To measure the strength the researcher proceeded to undertake a Kruskal-Wallis test with a sought significance level of 0.05.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mode</th>
<th>Postanor Mean</th>
<th>Variance</th>
<th>95% Credible Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which age group do you fall into? = &lt;= 25</td>
<td>3.476</td>
<td>3.476</td>
<td>0.067</td>
<td>2.968 - 3.985</td>
</tr>
<tr>
<td>Which age group do you fall into? = 25-34</td>
<td>3.797</td>
<td>3.797</td>
<td>0.111</td>
<td>3.581 - 4.003</td>
</tr>
<tr>
<td>Which age group do you fall into? = 35-49</td>
<td>3.945</td>
<td>3.945</td>
<td>0.005</td>
<td>3.799 - 4.091</td>
</tr>
<tr>
<td>Which age group do you fall into? = 50+</td>
<td>3.936</td>
<td>3.936</td>
<td>0.004</td>
<td>3.816 - 4.056</td>
</tr>
</tbody>
</table>

a. Dependent Variable: How satisfied are you with working from home?
b. Model: Which age group do you fall into?
c. Assume standard reference priors.

Independent-Samples Kruskal-Wallis Test Summary

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total N</td>
<td>781</td>
</tr>
<tr>
<td>Test Statistic</td>
<td>6.552</td>
</tr>
<tr>
<td>Degree Of Freedom</td>
<td>3</td>
</tr>
<tr>
<td>Asymptotic Sig.(2-sided test)</td>
<td>.088</td>
</tr>
</tbody>
</table>

a. The test statistic is adjusted for ties.
b. Multiple comparisons are not performed because the overall test does not show significant differences across samples.
The statistical significance was 0.088, so the null hypothesis HAge Older Actors get the same value from the increased use of ECS during Covid-19 is retained.

Now, overlaying the qualitative research we found there was a belief younger Actors would derive less value due to often having a less suitable workspace. Since the suitability of the workspace is such a strong predictor, a correlation here would explain part of the small predictive power of Age. A Bayesian estimate shows the quality of the workspace is in fact related to age (Variance .005).

In conclusion, the predictive power of Age is largely predicated on the quality of the workspace as a function of Age.

6.6 Workspace
As the model shows, the strongest predictive variable is the Overall suitability of the workspace at home. Confirming this, a one-way ANOVA analysis shows this clear linear relationship, with a very strong significance (<0.001).
How satisfied are you with working from home?

### ANOVA

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>332.389</td>
<td>4</td>
<td>83.097</td>
<td>83.809</td>
</tr>
<tr>
<td>Within Groups</td>
<td>769.408</td>
<td>776</td>
<td>.992</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1101.798</td>
<td>780</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The correlation is so strong the variable can almost be substituted for the result of how satisfied the respondents are with working from home.
7 Discussion

“If I give you a pfennig, you will be one pfennig richer and I’ll be one pfennig poorer. But if I give you an idea, you will have a new idea, but I shall still have it, too.” – Albert Einstein

7.1 Discussion of the Results

Having ECSs saved many organisations when the Covid-19 pandemic hit. Many Actors moved abruptly to working remotely through ECS and usage exploded. The rapid enforced change led to a cultural shift. From a change management point of view the attitudinal roadblocks to digitalisation were immediately almost completely removed. The default is now to work from out of the office some of or all the time; it is no longer the exception.

Of the Australian respondents surveyed 62% worked regularly on ECSs (not just during full lockdown), consistent with the literature. The mean satisfaction with working from home of these respondents is 3.9 on a scale of 5, with a mean of 4. The qualitative discussions also show a high level of value derived from working remotely through ECSs. As in the literature review, this is a strong result and it shows in the survey statistic that 89.5% of the respondents want to continue working remotely fully or to at least some extent after Covid-19.

The research finds respondents’ desire to continue working remotely post covid is near equivalent to the phenomenological value they perceive, giving us a useful tool for further research.

Concurring with the findings of Breidbach (2016), Brynjolfsson, E. and Petruopoulos (2021) and many others, the perceived benefits of working through ECSs are substantial. The study finds this is especially true for Actors undertaking linear and asynchronous tasks, and for Actors that want to live remotely (or do not have the choice).

Working through ECSs can bring organisations a more diversified workforce from the benefits of location independence, flexibility around family and the additional space for introverts to control the environment. But if you cannot work through ECSs you may be left behind.

Working through ECSs is not perfect and currently does not suit all types of tasks nor personalities. Extroverts are seen to benefit in synchronous communication, whereas introverts benefit from the asynchronous and controlled aspects of working through ECSs. Common disadvantages include longer working hours, narrower interactions and health issues from sitting still and staring at monitors. It is more
difficult to read body language, socialisation is poor so new contacts are difficult to build up, and creative processes can be stifled.

Actors need to see that ECSs offer a different way of working. Meetings may provide less ability to read body language, but you have other technology tools and benefits at hand, such as instant transcription of the meeting. Presenters find it hard to gauge the audience reaction, but can present to huge audiences across the globe, and audiences can attend from the time and place that suits them.

Looking back at the Service-Dominant Logic theoretical lens, the research has looked at the situational mechanisms, the Actors and resources and engagement platforms.

![Figure 12 - Coleman's bathtub applied to SDL](image)

Having the pandemic push Actors into new circumstances has spurred faster change and new resource integration patterns. This has led to an increase in efficiency and growth in productivity. The trade-off for organisations is that it has been more work to manage a distributed workforce.

The research shows conclusively that the variables impact the value perceived. To optimise the Actors’ experience of working from home there are a number of variables that are controllable and can be adjusted. If we change these variables to assist the action-formation mechanisms, this leads to greater value cocreation. As per Ekman et al (2016): if the Actors perceive more positive value engagement should increase and subsequently the level of provision and benefit.
The final model for estimating the Actors’ value derived from working through ECSs is illustrated below. The sizes of the input arrows correspond to their predictive strength. The outcome of Value derived is overlaying the near equivalent outcome of the Actors’ desire to work from home in the future.

Figure 13 - Value Derived Final Model

The strength of the variable ‘Suitability of the workspace’ assists Actors prioritise actions to optimise their working remotely outcome. If the workspace at home cannot be made more suitable, Actors could utilise coworking spaces to retain most the benefits of remote working.

To optimise the value cocreated the research finds through merging the qualitative results and the quantitative model that Actors (including organisations, software providers and service networks) can:

- Set up Actors’ home offices better
- Proactively expand Actors’ networks to create new resource integration patterns
- Provide new tools
- Look after Actors’ physical and mental health
- Train Actors to overcome technology and communication barriers
- Establish clear business processes and procedures for the Actors in the network.

These actions will drive better results; more cocreated value.
7.2 Method Strength

7.2.1 Validity
The research set out to identify if there were differences in Actors’ perception of the value they received from the increased use of ECSs during the Covid-19 pandemic. If this is the case, what were the dimensions that influenced the value phenomenologically received?

All the structured interviews clearly answered the first research question, and unearthed several key dimensions.

Several key dimensions where then tested quantitively in a clear and simple survey. The responses directly addressed the research questions.

The use of the interview protocol and probing questions to examine the answers ensured convergent validity (Bacharach, 1989, p503) within the interviewees, and assisted the researcher in construing the survey in the simplest format to answer the research questions without interpretation. The research therefore has strong convergent validity across the quantitative survey as well.

Addressing internal validity; the qualitative research – both the interviews and the qualitative component of the questionnaire – and the extensive literature review combined to provide a good picture of the ‘why’ of the research results. This gives the results strong internal validity (Eisenhardt, 1989).

7.2.2 Reliability
The Australian labour force is 13,154,200 people (ABS, 2021). In June 2021 34% of employed Australians reported they worked from home in the four weeks prior to the June survey (ABS, June 2020). This means approximately 4.4M Australians worked from home in the period.

The preferred Sample Size for a very large population is \( (Z\text{-score})^2 \times \text{StdDev}^2 \times (1-\text{StdDev}) / (\text{margin of error})^2 \)
This is approximately \((1.96)^2 \times .5(.5)) / (.05)^2\)
\(3.8416 \times .25) / .0025\)
\(.9604 / .0025\)
\384.16\)

So, when seeking a Confidence level of 95%, with a margin of error of 5%, the study requires a sample size of 385. With more than double that sample size, the researcher considers the data analysis finds to be reliable.
To further confirm the data collected in this study is reliable, the quantitative section of the study used triangulation. The AIF survey with 3,627 respondents show 67% of respondents working remotely in December 2020 (Baxter and Warren, 2021), in the vicinity of this survey’s figure of 62.3% in June 2021. The question ‘How often would you like to work from home?’ overlaps the ABS survey (Australian Bureau of Statistics Survey) question. The ABS in June 2021 found there was minimal difference in the response between women and men (35.2% v 35.4%).

Their methodology included survey responses from 3,414 respondents, enabling a reasonably strong result (Australian Bureau of Statistics Survey Methodology). The ABS’ cited margin of error for the question is 2.6%. Finding that the responses to the overlapping question in this study were similar to the responses in the ABS survey provided further confidence that the results of this research are reliable.

7.2.3 Ethical Considerations
This study includes how different individual Actors deal with specific changes, some of which changes may end up being permanent. If anything, the purpose of this study is to ultimately assist all Actors in organisations implementing ECSs, including Actors that to date have not benefitted from the growth in ECS over the Covid-19 pandemic.

All research participants are volunteers (Giri and Paswas, 2019). The individuals or groups of individuals referred to in the interviews could be disadvantaged by any perception within their respective networks that they currently do not deal optimally with these changes. To minimise any risk of this happening, the organisations and individuals are all anonymous and the data confidential. Privacy and confidentiality are strictly kept and - as recommended by Giri and Paswas (2019) - this has been made clear to the research participants.

7.2.4 Personal Data
The research is compliant with the General Data Protection Regulation and the Australian Privacy Act of 1988. No personal data nor personal information is collected.

7.2.5 Conflicts of Interest
The researcher declares no conflict of interest.
7.3 Reflection on Methodology

Although the approach to the multimethod research had been planned out in a linear fashion, the researcher had not predicted the number of ideas uncovered in the semi-structured interviews. This led to the research going back to an iterative literature review throughout the interview phase, so that potentially valuable ideas and reflections would not be lost. It seems purposeful then to approach the interviews with a Socratic attitude: “that what I do not know I do not think I know either” (Plato, Apology, 21d), and be ready to go back to research what is unearthed.

Phrasing this in the terms of Mingers’ table (2001, p252) showing different multimethod research designs, the research was initially envisaged as Sequential, but in reality became both Sequential and Parallel.

![Figure 14 - Mingers multimethod research designs](image)

Utilising a mixed method including qualitative research methodology had the benefit of avoiding the trap Bacharach (1989) warns the quantitative researcher of: using extensive mathematical models to find relationships and only ordering the variables using assumptions.

Engaging with a professional research company and their existing panel for the quantitative survey showed to provide a very large response rate in a short period of time. For research which has temporal relevance such as this, it was very useful.

The freeform qualitative question at the end of the quantitative survey generated some very good feedback (Appendix L - Survey) and the researcher recommends this as a matter of course for future surveys, especially for mixed method research approaches. The comments provided further depth and insight into the research.
8 Conclusion

The context Actors operate in is crucial to the value they receive from the rapid growth in the use of ECS during Covid-19.

The dimension that was identified as especially important for the Actors’ perceived value derived is the suitability of the workspace at home, followed by the correlated but less influential variables of

- Business processes and procedures for remote work
- Confidence on video calls
- Not being tired out by working through the ECSs
- The inverse length of the Actor’s normal commute, and
- Amount of days worked at home pre-Covid

The study showed that the variables Actors’ gender, age and whether they have family have none to minimal impact on an aggregated level. On a personal level, family circumstances can be a benefit or disadvantage.

By improving the predictive variables above Actors will increase their perceived value derived, and therefore the level of provision and benefit.

Various research asks question similar to whether individuals get value from or enjoy working from home, and/or if they want to continue working from home post-Covid. This study confirms these outcomes are very highly correlated and can - with some caution - be used equivalently to enable comparisons across differing studies.

8.1 Contribution

The analysis finds some assumptions commonly held and challenges them. The researcher believes the result to be of interest (Davis, 2016) and hopes it adds value to the target audiences, particularly that it will help Actors get greater value from the use of ECSs.

In addition, future researchers may benefit from three points:
1) the researcher’s experience of undertaking literature reviews of current topics recursively,
2) the recommendation to incorporate an open-ended qualitative question in quantitative surveys; and
3) the Equivalency model.
8.2 Future Research

“The pleasures arising from thinking and learning will make us think and learn all the more” – Aristotle, *The Nicomachean Ethics*

The research on the participants’ experience is based on their feedback, which has already been through their own filtering and sense making of their experiences. A stricter approach would be to delve deeper into the participants’ feelings through the use of Interpretative phenomenological analysis (Smith and Eatough, 2006). This would necessitate much further in-depth studies of each individual interviewed.

Knowing the environment makes such a profound difference brings up questions for management. How does a network maximise the value the Actors derive, and how does that carry across to the value for the network as a whole?

This research is temporal and identified a shift over duration of the Covid-19 pandemic. Tracking further changes over time could provide new insights. It would also be of interest to compare the data across multiple regions to find other potential dimensions.
9 References


AFP Relaxnews (13 Sep 2021), Employees working from home are twice as likely to work more than 48 hours per week, The Star, https://www.thestar.com.my/tech/tech-news/2021/09/13/employees-working-from-home-are-twice-as-likely-to-work-more-than-48-hours-per-week


ComputerSweden, (2021-05-04) Tunga myndigheter nobbar Microsoft Teams – "exponerar känsliga uppgifter"


Davis, M.S., (2016), That's Interesting! : Towards a Phenomenology of Sociology and a Sociology of Phenomenology

Deloitte AG, (2021), Remote working: most employees want to go back to the office after the pandemic - but not as often as before, https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/about-deloitte/deloitte-ch-survey-results-remote-working.pdf


Doz, Y., Qualitative research for international business, Journal of International Business Studies, 42 (5) (2011), pp. 582-590


Eggleton, M., Professional services: PwC rewire the notion of the workplace, Australian Financial Review, April 21, 2021


Engzell, P., Frey, A, and Verhagen, M.D., Learning loss due to school closures during the COVID-19 pandemic, Proceedings of the National Academy of Sciences Apr 2021, 118 (17) e2022376118; DOI: 10.1073/pnas.2022376118


Fauville, G., Luo, M., Queiroz, A.C.M., Bailenson, J.N. and Hancock, J, Zoom Exhaustion & Fatigue Scale (February 15, 2021). Available at SSRN: https://ssrn.com/abstract=3786329 or http://dx.doi.org/10.2139/ssrn.3786329

Friedman, A. (Nov 5, 2020), Proof our work-life balance is in danger (but there’s still hope), Atlassian Blog, https://www.atlassian.com/blog/teamwork/data-analysis-length-of-workday-covid

Funke, F., Reips, U-D, Thomas, R.K., ‘Sliders for the Smart: Type of Rating Scale on the Web Interacts with Education Level’ (2011) Social Science Computer Review 29(2) 221.


Locke, K., Rewriting the discovery of grounded theory after 25 years?

Lufkin, B. (12 August, 2021), Why the 'Great Remote Work Experiment' may have been flawed, BBC, [https://www.bbc.com/worklife/article/20210810-why-the-great-remote-work-experiment-may-have-been-flawed](https://www.bbc.com/worklife/article/20210810-why-the-great-remote-work-experiment-may-have-been-flawed)


Mackenzie, E. (7 Sep 2021), As a Year 12 student, I know this year's HSC exams won't be fair. ATARs will reflect pandemic privilege, ABC News, [https://www.abc.net.au/triplej/programs/hack/as-a-year-12-student-im-concerned-about-this-years-hsc-pandemi/13530368](https://www.abc.net.au/triplej/programs/hack/as-a-year-12-student-im-concerned-about-this-years-hsc-pandemi/13530368)


Moss, V. A. et al. (2021), Forging a path to a better normal for conferences and collaboration. Nature Astronomy 5, pp213–216


News.com.au, Billionaire developer Harry Triguboff says bosses who allow employees to work from home are ‘parasites’, May 22, 2021,


Qiyang Liu, Zihao An, Yang Liu, Wanyun Ying, Pengjun Zhao, Smartphone-based services, perceived accessibility, and transport inequity during the COVID-19 pandemic: A cross-lagged panel study, Transportation Research Part D: Transport and Environment, Volume 97, 2021, 102941, ISSN 1361-9209


Stropoli, R. (Aug 18, 2021), Are we really more productive working from home?, Chicago Booth Review, https://review.chicagobooth.edu/economics/2021/article/are-we-really-more-productive-working-home

Svenskar i Världen (26 April 2021), Från pyramider till cirklar – om framtidens ledarskap


Ziffer, D. , (23 June 2020), Most workers want 'hybrid' jobs at the office and at home after coronavirus, study finds, ABC News.

Dear interviewee,

Thank you for agreeing to participate in an interview as part of this empirical Master of Science degree study. Your contribution is very valuable! There is no need to specifically prepare anything for the interview in advance.

This document introduces very brief definitions of Service-Dominant Logic (S-D Logic) and Enterprise Collaboration Systems (ECS), which form the theoretical framework of the study and hence our discussion.

**Service-Dominant Logic**
The underlying idea of S-D logic is that humans apply their competences to benefit others and reciprocally benefit from others' applied competences through service-for-service exchange. Value co-creation occurs in networks, in which resources are exchanged among multiple actors.¹

**Enterprise Collaboration Systems**
Information systems used to facilitate efficient sharing of documents and knowledge between teams and individuals in an enterprise. ECS **tools** include the Internet, groupware, various forms of software and hardware and internal and external networks. ECS **solutions** include a variety of enterprise communication tools, including email, video conferencing, project management software and collaborative software.²

In addition, here are some brief practical matters.

**Informed Consent**
- Your participation is voluntary, and you can stop the interview at any given point.
- The results are solely used for academic and scientific purposes. There is a possibility that the results from the thesis will result in a journal or conference publication.
- Your participation and responses will be handled with confidentiality.
- The data will be summarised and in the published material specific items will not be ascribed to specific organisations.
- The interview will be audio-recorded and transcribed. You have the right to request and obtain a copy of the transcription at any point in time.

Thank you again for your participation!

¹ Source: https://en.wikipedia.org/wiki/Service-dominant_logic
² Source: https://www.techopedia.com/definition/1014/enterprise-collaboration-systems-ecs
B. Selected Interview Comments

About enabling quiet people to have their say:
“it equalises the voice “

No procedures for communication:
“It is like a group of people screaming in a room”

“You have to work harder at making connections with people that aren’t within your instant work stream to get that wider collaboration piece happening.”

Work life balance:
“The boundaries are blurred”

“taking location out of it suddenly gives you access to different business models.”

Hybrid model:
” for the people that have chosen to work remotely or flexibly, I think that will be a dis-enabler”

About management:
“you have to spend more time leading when everyone's working remotely.”

About the rapid move to ECSs:
“Whereas a lot of people have deliberately said, I like doing it the old way. I don't want to, I don't want to try it, I don't want to change. And all that resistance has just been pushed aside. Typically, what you have to do on when you're doing digital transformation, you have to have a change management team. And all they're doing is trying to convince people to actually give it a give it a go.”

“We are using ECSs more, and we are using them better”

Culture:
“they've had to work a bit harder to reinforce the culture”

About using ECSs:
“thank goodness, we've got it. But I wish we didn't have to use it”

Work-life balance and Procedures
“what it comes down to, we've just started using things and we haven't set any systems and procedures and policies so there's that question of “ooohh”, if I don't respond to this will I lose my job or will there be a mark against me, so there's that
lack of clarity as to what is required by the organisation. So that's a prompt, it's not just they don't can't think for themselves, because there is no definition around it. Their fear prompts them to perhaps work as opposed to a lack of understanding how to have a work life balance”
### Time expected for life to return to normal (b)

<table>
<thead>
<tr>
<th>Sex</th>
<th>Male</th>
<th>Female</th>
<th>Location</th>
<th>All persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 4</td>
<td>14.9</td>
<td>7.4</td>
<td>Australia</td>
<td>11.7</td>
</tr>
<tr>
<td>5 to 14</td>
<td>14.0</td>
<td>7.3</td>
<td>Australia</td>
<td>10.2</td>
</tr>
<tr>
<td>15 to 24</td>
<td>13.5</td>
<td>6.8</td>
<td>Australia</td>
<td>9.5</td>
</tr>
<tr>
<td>25 to 34</td>
<td>13.2</td>
<td>6.6</td>
<td>Australia</td>
<td>8.9</td>
</tr>
<tr>
<td>35 to 44</td>
<td>13.2</td>
<td>6.6</td>
<td>Australia</td>
<td>8.9</td>
</tr>
<tr>
<td>45 to 54</td>
<td>13.1</td>
<td>6.5</td>
<td>Australia</td>
<td>8.8</td>
</tr>
<tr>
<td>55 to 64</td>
<td>13.0</td>
<td>6.5</td>
<td>Australia</td>
<td>8.7</td>
</tr>
<tr>
<td>65 and over</td>
<td>13.2</td>
<td>6.6</td>
<td>Australia</td>
<td>8.9</td>
</tr>
<tr>
<td>Not sure</td>
<td>13.6</td>
<td>6.9</td>
<td>Australia</td>
<td>9.2</td>
</tr>
</tbody>
</table>

(b) 'Normal' was left to the respondent to define. If asked, examples were provided such as "your life before COVID-19" or "before the 1st March 2020".
D. Australian Bureau of Statistics Survey Methodology

Introduction

This publication presents results from the Household Impacts of COVID-19 Survey. This is the eleventh and final monthly survey, conducted throughout Australia between 11 and 20 June 2021.

This series is designed to provide insight into how the social and economic situation is changing for Australian households, with focus placed on how the COVID-19 pandemic has impacted on lifestyle and wellbeing.

The results for all past publications can be accessed by selecting ‘View all releases’ in the header of this publication.

This publication forms part of a suite of additional products that the ABS produced to measure the impacts of the COVID-19 pandemic on the Australian economy and society.

For more information refer to the Measuring the impacts of COVID-19 update.

Sample/Panel design and estimation

The scope of the survey was people aged 18 years and over in private dwellings across Australia.

The panel selection methodology was a random sample. The coverage of selections included all Australian geographies (excluding very remote locations) to ensure national estimates could be produced.

The person who completed household details became the person selected for the panel. Their participation in the survey is voluntary and respondents can opt out at any point.

For the first monthly survey in August 2020, a sample of over 4,900 private dwellings was selected to obtain responses from 1,561 fully responding dwellings. This defined the longitudinal panel for the subsequent surveys up until the October 2020 cycle.

In the November 2020 cycle, the sample was increased, with over 8,400 private dwellings selected to obtain responses from 3,400 fully responding dwellings. The fully responding count consists of 1,369 dwellings continuing from the first cycle in August 2020, and 2,031 dwellings from the increased November 2020 sample.
The increased sample of 3,400 defined the longitudinal panel for the subsequent surveys up until the February 2021 cycle.

The panel from August 2020 completed their last cycle in February 2021. In March 2021 a sample of around 9,500 private dwellings was selected to target a total sample of 4,146 fully responding dwellings. The fully responding count consisted of 1,676 dwellings continuing from the November 2020 cycle, and 2,246 new participants, bringing the total panel to 3,922 people.

The June 2021 cycle included 3,414 continuing participants, a response rate of 87% of the total panel.

The panel data was weight adjusted using the ABS Estimated Residential Population (ERP) projections as at August 2020. Benchmarks comprised of Age, Sex, and Geographic variables. In addition, adjustments were made based on the number of persons living in the household and the education level of the selected person.

Due to the anticipated changes in non-responding households across the survey cycles, each survey sample is re-weighted to maintain consistent full population estimates across the surveys.

**Data collection**

The topics in the June 2021 survey include:

- emotional and mental wellbeing
- COVID-19 vaccine attitudes and experiences
- symptom testing behaviours
- health precautions
- expectations for household income, saving and spending
- training and development of skills
- participation in selected activities
- perceptions of the future after the COVID-19 pandemic
- job status.

Information was gathered via online forms or telephone interviews. Interviews were conducted with any responsible person aged 18 years and over who was a usual resident of the selected household.

Some topics have been repeated in both the fortnightly and monthly surveys. The monthly iterations of the survey gathered information via online forms and telephone interviews. Previous fortnightly iterations of the survey were collected via the telephone only. Where relevant, comparisons are made based on the
weighted representative data for both surveys. The change in survey methodology means that comparison of results for the topics repeated across the survey iterations should be treated with caution.
### E. Themes and Codes

<table>
<thead>
<tr>
<th>Change</th>
<th>Count</th>
<th>% Codes</th>
<th>Cases</th>
<th>% Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chats increase</td>
<td>2</td>
<td>0.5%</td>
<td>2</td>
<td>18.2%</td>
</tr>
<tr>
<td>Communication</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Contentious people work more</td>
<td>3</td>
<td>0.6%</td>
<td>3</td>
<td>27.3%</td>
</tr>
<tr>
<td>Covid forced a rapid change</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Covid is not true work from home</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Do people work even when sick</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>ECS usage increase</td>
<td>15</td>
<td>3.9%</td>
<td>10</td>
<td>90.9%</td>
</tr>
<tr>
<td>Email decrease</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Lazy people use as excuse and work less</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>New tools come in use</td>
<td>4</td>
<td>1.0%</td>
<td>4</td>
<td>36.4%</td>
</tr>
<tr>
<td>People are worried and insecure</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>There is more data</td>
<td>3</td>
<td>0.8%</td>
<td>2</td>
<td>18.2%</td>
</tr>
<tr>
<td>We are more transactional working</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>We have to learn a new way</td>
<td>6</td>
<td>1.6%</td>
<td>3</td>
<td>27.3%</td>
</tr>
<tr>
<td>Work from home</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Default is to partly work remotely</td>
<td>3</td>
<td>0.8%</td>
<td>2</td>
<td>18.2%</td>
</tr>
<tr>
<td>New networks are based on interest not geography</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Different tools suit different people</td>
<td>2</td>
<td>0.5%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Management style has changed</td>
<td>2</td>
<td>0.5%</td>
<td>2</td>
<td>18.2%</td>
</tr>
<tr>
<td>Mixed systems</td>
<td>4</td>
<td>1.0%</td>
<td>3</td>
<td>27.3%</td>
</tr>
<tr>
<td>Scrabbles to use in poor policies and procedures</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Remote work require high trust environments</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
</tbody>
</table>

#### Who uses more / less?

<table>
<thead>
<tr>
<th>Who uses more / less?</th>
<th>Count</th>
<th>% Codes</th>
<th>Cases</th>
<th>% Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everybody uses digital more</td>
<td>3</td>
<td>0.8%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>People with business requirements</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Social people requesting interaction</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Established ECS users use more</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Unregistered users use less</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Some networks use more, some less</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
</tbody>
</table>

#### Feel about the growth of ECS usage

<table>
<thead>
<tr>
<th>Feel about the growth of ECS usage</th>
<th>Count</th>
<th>% Codes</th>
<th>Cases</th>
<th>% Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECS is saved us</td>
<td>7</td>
<td>1.8%</td>
<td>5</td>
<td>45.5%</td>
</tr>
<tr>
<td>Mixed</td>
<td>4</td>
<td>1.0%</td>
<td>4</td>
<td>36.4%</td>
</tr>
<tr>
<td>Positive</td>
<td>7</td>
<td>1.8%</td>
<td>7</td>
<td>63.6%</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Unlikely</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
</tbody>
</table>

#### Changes over time since beginning pandemic

<table>
<thead>
<tr>
<th>Changes over time since beginning pandemic</th>
<th>Count</th>
<th>% Codes</th>
<th>Cases</th>
<th>% Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Businesses work better</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>People accept meetings walking etc</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>People accept others are working from wherever</td>
<td>2</td>
<td>0.5%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>People have become better at working with ECS</td>
<td>6</td>
<td>1.6%</td>
<td>3</td>
<td>27.3%</td>
</tr>
<tr>
<td>People turning cameras off</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
</tbody>
</table>
### Benefits of ECoS

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Code</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captive audience</td>
<td>1</td>
<td>0.3%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Doing new things</td>
<td>2</td>
<td>0.5%</td>
<td>18.2%</td>
</tr>
<tr>
<td>ECoS enable contact</td>
<td>4</td>
<td>1.0%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Efficiencies</td>
<td>10</td>
<td>2.6%</td>
<td>45.5%</td>
</tr>
<tr>
<td>Flexible work</td>
<td>1</td>
<td>0.3%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Learn more about others outside work</td>
<td>1</td>
<td>0.3%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Levels the playing field</td>
<td>7</td>
<td>1.6%</td>
<td>26.4%</td>
</tr>
<tr>
<td>Location independence</td>
<td>9</td>
<td>2.0%</td>
<td>40.5%</td>
</tr>
<tr>
<td>More functionality than physical meetings</td>
<td>1</td>
<td>0.2%</td>
<td>1.1%</td>
</tr>
<tr>
<td>People are on time</td>
<td>3</td>
<td>0.6%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Saves travel</td>
<td>5</td>
<td>1.3%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Saving money</td>
<td>1</td>
<td>0.3%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Work is more focused</td>
<td>3</td>
<td>0.8%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Networks can be bigger</td>
<td>2</td>
<td>0.5%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

### Negatives of ECoS

<table>
<thead>
<tr>
<th>Negative</th>
<th>Code</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditability/data security of the tool</td>
<td>1</td>
<td>0.5%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Being more available</td>
<td>3</td>
<td>0.8%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Body language</td>
<td>6</td>
<td>1.6%</td>
<td>45.5%</td>
</tr>
<tr>
<td>Creative tasks hard</td>
<td>4</td>
<td>1.0%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Culture harder to imbue through ECoS</td>
<td>5</td>
<td>1.3%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Eye stress</td>
<td>1</td>
<td>0.3%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Fatigue</td>
<td>5</td>
<td>1.3%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Hybrid will disadvantage WiFH</td>
<td>1</td>
<td>0.2%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Not learning from eachother</td>
<td>1</td>
<td>0.2%</td>
<td>1.1%</td>
</tr>
<tr>
<td>People distracted / doing other things</td>
<td>3</td>
<td>0.8%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Sitting still</td>
<td>7</td>
<td>1.8%</td>
<td>45.5%</td>
</tr>
<tr>
<td>Socialising is poor</td>
<td>7</td>
<td>1.8%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Some matters not suitable for ECoS communication</td>
<td>1</td>
<td>0.2%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Teamwork is harder</td>
<td>2</td>
<td>0.5%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Tired drained</td>
<td>1</td>
<td>0.3%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Work life balance is suffering</td>
<td>3</td>
<td>0.8%</td>
<td>27.3%</td>
</tr>
<tr>
<td>In person is more effective</td>
<td>4</td>
<td>1.0%</td>
<td>27.3%</td>
</tr>
</tbody>
</table>

### Improvements wanted

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Code</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build networks and connections</td>
<td>3</td>
<td>0.8%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Easy secure archiving of data</td>
<td>1</td>
<td>0.3%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Indexing material and personalising communications</td>
<td>2</td>
<td>0.5%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Not having to use them ALL the time</td>
<td>1</td>
<td>0.2%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Security on some tools so we can use them</td>
<td>2</td>
<td>0.5%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Systems and Procedures</td>
<td>2</td>
<td>0.5%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Want to keep using post covid</td>
<td>3</td>
<td>0.8%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Tools to enable location independent innovation</td>
<td>1</td>
<td>0.3%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Coworking spaces for remote work</td>
<td>1</td>
<td>0.3%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Company support</td>
<td>3</td>
<td>0.8%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Ergonomics</td>
<td>1</td>
<td>0.3%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Take breaks</td>
<td>3</td>
<td>0.8%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Virtual social catch-ups</td>
<td>5</td>
<td>1.3%</td>
<td>27.3%</td>
</tr>
</tbody>
</table>
### Themes and Codes

<table>
<thead>
<tr>
<th>Theme / Question</th>
<th>Count</th>
<th>Percent</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal attribute for better with ECI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfortable in front of video</td>
<td>2</td>
<td>0.5%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Confident</td>
<td>3</td>
<td>0.8%</td>
<td>3</td>
<td>27.3%</td>
</tr>
<tr>
<td>Happier to learn</td>
<td>3</td>
<td>0.6%</td>
<td>2</td>
<td>18.2%</td>
</tr>
<tr>
<td>Just better with it</td>
<td>1</td>
<td>0.2%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Self disciplined</td>
<td>3</td>
<td>0.6%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td><strong>Who benefits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Businesses helping digital transformation</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Everybody</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>People with a long commute</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>People who work and think asynchronously</td>
<td>2</td>
<td>0.5%</td>
<td>2</td>
<td>18.2%</td>
</tr>
<tr>
<td><strong>Who suffers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Struggling: Older people that have less technical</td>
<td>2</td>
<td>0.5%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Those uncomfortable with technology suffer</td>
<td>5</td>
<td>1.2%</td>
<td>5</td>
<td>45.5%</td>
</tr>
<tr>
<td>Introverts that cannot hide</td>
<td>2</td>
<td>0.5%</td>
<td>2</td>
<td>18.2%</td>
</tr>
<tr>
<td>People with certain disabilities</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Physically active people</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Poor peripheral and setup</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Tactile people</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>People that think and energetic by conversation</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td><strong>Which age benefits more?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Older</td>
<td>5</td>
<td>1.3%</td>
<td>4</td>
<td>35.4%</td>
</tr>
<tr>
<td>Same</td>
<td>5</td>
<td>1.3%</td>
<td>5</td>
<td>45.5%</td>
</tr>
<tr>
<td>Younger</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td><strong>Gender?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men benefit</td>
<td>11</td>
<td>2.9%</td>
<td>10</td>
<td>90.9%</td>
</tr>
<tr>
<td>Women adapt faster</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td><strong>Family?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homeschooling is a problem</td>
<td>3</td>
<td>0.8%</td>
<td>3</td>
<td>27.3%</td>
</tr>
<tr>
<td>No family happier</td>
<td>2</td>
<td>0.5%</td>
<td>2</td>
<td>18.2%</td>
</tr>
<tr>
<td>People with family happier</td>
<td>15</td>
<td>3.9%</td>
<td>9</td>
<td>81.8%</td>
</tr>
<tr>
<td>Same/Both</td>
<td>3</td>
<td>0.8%</td>
<td>3</td>
<td>27.3%</td>
</tr>
<tr>
<td><strong>Location?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Different time zones benefit</td>
<td>2</td>
<td>0.5%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Easier starting from location agnostic</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Good space to work benefit</td>
<td>7</td>
<td>1.8%</td>
<td>5</td>
<td>45.5%</td>
</tr>
<tr>
<td>Nice environment benefit</td>
<td>1</td>
<td>0.3%</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>Remote benefit</td>
<td>12</td>
<td>3.1%</td>
<td>8</td>
<td>72.7%</td>
</tr>
<tr>
<td><strong>Introverts or extroverts?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extroverts happier</td>
<td>5</td>
<td>1.3%</td>
<td>4</td>
<td>36.4%</td>
</tr>
<tr>
<td>Introverts happier</td>
<td>17</td>
<td>4.4%</td>
<td>7</td>
<td>63.5%</td>
</tr>
<tr>
<td><strong>Having worked with ECI before?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difference has evened out with time</td>
<td>4</td>
<td>1.0%</td>
<td>4</td>
<td>36.4%</td>
</tr>
<tr>
<td>More comfortable</td>
<td>6</td>
<td>1.6%</td>
<td>4</td>
<td>36.4%</td>
</tr>
<tr>
<td><strong>Experience in network?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New people suffer</td>
<td>17</td>
<td>4.4%</td>
<td>7</td>
<td>63.6%</td>
</tr>
<tr>
<td>Same for new and experienced</td>
<td>4</td>
<td>1.0%</td>
<td>4</td>
<td>36.4%</td>
</tr>
<tr>
<td><strong>Task dimension</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managers work more</td>
<td>4</td>
<td>1.0%</td>
<td>2</td>
<td>18.2%</td>
</tr>
<tr>
<td>Sales and Marketing will meet more, developers not go into office</td>
<td>3</td>
<td>0.8%</td>
<td>1</td>
<td>9.1%</td>
</tr>
</tbody>
</table>
F. CoreData survey cover email
G. CoreData Survey

[Image of survey interface]

Working remotely during Covid-19
Description:

Start the survey

[Radio buttons for options]
### Privacy Issues

<table>
<thead>
<tr>
<th>Option</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

### Internet Connection

<table>
<thead>
<tr>
<th>Option</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

###Regression

<table>
<thead>
<tr>
<th>Option</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

When something doesn’t work, use the following options:
## CoreData Survey

### When working from home, are the following true?

<table>
<thead>
<tr>
<th></th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### After working from home, do the following apply?

<table>
<thead>
<tr>
<th></th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Plans on working from home, are the following correct?

<table>
<thead>
<tr>
<th></th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What were your goals for this tech?

- [ ] 1-3
- [ ] 4-6
- [ ] 7+  

Specify:

---

Anything you want to add about your work circumstances during the COVID-19 pandemic?

---

Congratulations! Your responses have been recorded and you've collected your extra incentives!
Working remotely during Covid-19

This brief survey is part of a thesis research project on working from home during Covid-19.
All responses are completely anonymous.
Estimated completion time: 4 minutes
If you have more than one job, complete for the main job or complete multiple surveys
(one for each job).
Your contribution helps, thank you!
Close date: Aug 16, 2021

1. Approximately how many days per week do you work from home (excluding during full lock-downs)?
   
   Mark only one oval.

   ☐ 0 Days
   ☐ 1-2 Days
   ☐ 3-4 Days
   ☐ 5+ Days

2. How satisfied are you with working from home?
   
   Mark only one oval.

   1 2 3 4 5
   Not very ☐ ☐ ☐ ☐ ☐ Very

3. Did you regularly work from home prior to Covid-19?
   
   Mark only one oval.

   ☐ Yes
   ☐ No
4. How long is your typical commute to your regular (non-WFH) place of work? (A commute can be anything from a walk to a flight)

   Mark only one oval.
   
   - 0-30 minutes
   - 30-60 minutes
   - More than 1 hour
   - N/A: I always work from home

5. How long have you worked with the people you engage with whilst working from home during Covid-19?

   Mark only one oval.
   
   - 0-1 year
   - 1-3 years
   - 3+ years

6. How confident do you consider yourself in video meetings?

   Mark only one oval.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not very</td>
<td></td>
<td></td>
<td></td>
<td>Very</td>
</tr>
</tbody>
</table>

7. After a day of working from home: Do you feel less or more tired, compared to when working in the office?

   Mark only one oval.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less tired</td>
<td></td>
<td></td>
<td></td>
<td>More tired</td>
</tr>
</tbody>
</table>
9. Overall, how suitable do you find your workspace at home?
Mark only one oval.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Unsuitable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Very suitable</td>
</tr>
</tbody>
</table>

9. Do you have any dependent children living with you?  
Mark only one oval.
☐ Yes  
☐ No

10. When working from home, are the below aspects Poor / Ok / Good?
Tick all that apply.

<table>
<thead>
<tr>
<th></th>
<th>Poor</th>
<th>OK</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of workspace</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ergonomics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Privacy / noise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet connection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Hardware</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration Software (Zoom, Slack, Teams, Jira, etc)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business processes and procedures for remote work</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11. How often would you like to work from home in the future?
   Mark only one oval.
   - Never
   - A few times a month
   - One day a week
   - Several days a week
   - Full time / near full time

12. Which gender do you identify as?
    Tick all that apply.
    - Female
    - Male
    - Other

13. Which age group do you fall into?
    Mark only one oval.
    - < 25
    - 25-34
    - 35-45
    - 50+

14. Anything you wish to add about your work circumstances during the Covid-19 pandemic?
I. Descriptive Analysis

Refer attached document Descriptive Statistics Output.pdf.
J. Linear Model Description

**Fields**

- **Target**: How satisfied are you with working from home
- **Predictors (inputs)**
  - Overall how suitable do you find your workspace at home
  - Hardware
  - How long is your typical commute to your regular work/remote work
  - Amount of workspace
  - Approximately how many days per week do you work from home excluding during
  - How confident do you consider yourself in video meetings
  - Did you regularly work from home prior to Covid-19
  - How long have you worked with the people you engage with whilst working from
  - After day of working from home do you feel less stressed compared to when
  - Business processes and procedures for remote work
  - Ergonomics
  - Internet connection
  - Privacy noise
  - Which age group do you fall into
  - Collaboration Software (Zoom, Slack, Teams, Jira) etc.
  - Use partitioned data: false

**Build Options**

- What is your main objective?: Create a standard model

**Basics**

- Automatically prepare data: true
- Confidence Level(%): 95

**Model Selection**

- Model selection method: Forward stepwise
- Criteria for entry/ removal: Information Criterion (AIC/C)
  - Include effects with p-values less than 0.05
  - Remove effects with p-values greater than 0.1
- Customize maximum number of effects in the final model: false
- Customize maximum number of steps: false

**Advanced**

- Random seed: 54752075

**Training Summary**

- Method: Linear Models
- Records used in training: 781
- Model type: Classification
- User: JohnB
- Application: IBM SPSS Statistics 26.0.0.1
- Date built: September 21, 2021 11:36.29 AM AEST

**Predictors used in model**

- Approximately how many days per week do you work from home excluding during
- Did you regularly work from home prior to Covid-19
- How long is your typical commute to your regular work/remote work
- Business processes and procedures for remote work
- How confident do you consider yourself in video meetings
- After day of working from home do you feel less stressed compared to when
- Overall how suitable do you find your workspace at home
K. Interview Protocol

Interview script
Preface
Not recording yet, will record later
The interview will be transcribed.
Then I will capture and collate Key concepts from all the interviews. The data will be anonymised and summarised.
Your name and position will not be recorded in the research

Service-Dominant Logic
The main idea is that value is co-created by multiple Actors … in an effort to increase the well-being of both the Actors and the system
Complex and dynamic exchange systems of Actors
Value creation practices are guided by institutions (i.e. rules, norms, meanings, symbols, and similar aides to collaboration)
“Value is always uniquely and phenomenologically determined by the beneficiary”

Enterprise Collaboration Systems
Cross-functional informational systems. Not just the application, it’s the whole system.

INTERVIEW
Have you personally experienced an increase in the use of ECS during Covid?

How do you feel about it?

Is it working well for you?

Good things?

Bad things?

What might make you happier about using ECS?

Have you noticed other actors in your network have increased their usage?

Which ones?

Common characteristics?
Happy about it?

Unhappy about it?

Dimensions I am analysing:
Age
Gender
Family
Location
Extrovert/Introvert
Previously worked predominantly with ECS
Amount of Experience within the network
L. Survey Comments

These are answers provided to the question:
“Anything you wish to add about your work circumstances during the Covid-19 pandemic?”

<table>
<thead>
<tr>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actually we will never be back full-time at the office (they reduce the amount of office space)</td>
</tr>
<tr>
<td>All client bookings must be cancelled during lockdowns</td>
</tr>
<tr>
<td>Artists always make do</td>
</tr>
<tr>
<td>At this point in the lockdown, I think I'd be happy to work in the office with a mask on all day long</td>
</tr>
<tr>
<td>At times throughout the pandemic my workload has doubled, and while locked down I worked significantly more hours than an in-office week</td>
</tr>
<tr>
<td>Attending to a school age children and assisting them whilst concurrently attending to professional duties is a departure from at-home working pre-COVID.</td>
</tr>
<tr>
<td>Aviation is an essential service</td>
</tr>
<tr>
<td>Before COVID I always wanted to work from home a few days a week but my employer was not supportive of that. Since having had to work from home due to COVID my employer is a lot more confident about letting me work from home and encourages me to do so when I have a large project to tackle.</td>
</tr>
<tr>
<td>Being able to do more housework catch up is great.</td>
</tr>
<tr>
<td>Bit of a square peg in a round hole being in a smaller place, but have to make it work!</td>
</tr>
<tr>
<td>Boss doesn't like staff working from home, working from home provides the additional comfort of not being micromanaged.</td>
</tr>
<tr>
<td>Boss has old school mindset. Must be in chair in office to be working. Lack of trust. Staff should be measured by what they deliver. Managers should be the ones determining if a staff member's role can be done at home effectively.</td>
</tr>
<tr>
<td>Business is booming</td>
</tr>
<tr>
<td>Business was looking at working from home prior to Covid 19 - due to the amount of people that work in the office</td>
</tr>
<tr>
<td>Can’t I just retire early?</td>
</tr>
<tr>
<td>Changed very little as I am in an essential industry</td>
</tr>
<tr>
<td>Childcare has become easier but work demands are higher</td>
</tr>
<tr>
<td>Currently unemployed</td>
</tr>
<tr>
<td>Did not think I would enjoy working from home when Covid first hit, but I quickly adapted. 2 days a week is ideal. Great to use the morning travel time for a bit of exercise. Evening travel time is too often spent working, need to</td>
</tr>
</tbody>
</table>
work on this signing off time. Have started a new job since Dec 2020 in lockdown. Then into office 3 days/week which helped to get to know more people. Now lockdown again. Definitely like a blend of home and office attendance is preferable - I would not work for a company that was fixed office attendance.

do not have access to a printer

Employers need to understand that this is exceptional times and not force employees back to the office until it is absolutely safe to do so. Otherwise there would be OH&S issues with illness and deaths. Who would be responsible?

Everyone and everything is essential. Our livelihoods depend on it.

Everyone is so soft and need to toughen up and get over themselves. Start doing the right thing & stop whinging! I'm tired of putting on the news and the first thing to come on is Covid-19. I would like to see us start with everything else first and then end with what the latest update is. It would be a nice change. I work in three jobs at 2 locations and 1 at home. I do what I am supposed to do and so should everyone else. Stop with the self entitlement attitude and we would be in a better place.

Feel much safer working from home during Covid times. Since I started a return to the office we had a tier 1 situation and went into 14 days of isolation. Not in a hurry to return to office scenario now.

Getting tired of lockdowns and the constant negative media

Glad that I'm in a role which allows work from home and flexible arrangements

Good change and reduction in costs associated with commuting

Hard at home with children. I'd no children would get more work done

Has meant my role has become a lot more flexible

Hate the lack of human contact and interaction. O am,not a natural hermit

Hating the lockdowns.

Have retired so that I can be nearer to my children/grandchildren

Have run my consulting business from home for years

homeschool sucks

i actually get paid more when on a covid supplement than when working. sigh

I actually really enjoy working from home, I am often more productive without the distractions of the office, plus I'm more relaxed and comfortable.

I am business owner so my circumstances are probably more challenging, we do allow staff to work from home on occasions though.

i am an actor i am doing just about allmy auditions by self tape

I am disabled and work at home not a paid job. I'm the quintiscential homemaker.

I am feeling very alone without physical contact.
I am lucky in the sense that I am not locked in a apartment whereas others who I have spoken to & are in small spaces, often in apartments find it stressful, lack of open space, too close to neighbours & in some cases the feeling of suffocation. Our future planning needs to take into account the many changes that have occurred for all of us to ensure that we have well designed reasonable living & outside spaces otherwise we are going to have increased emotional, mental illness which will impact all of us financially & support wise in the future.

I am retired but working in an unpaid capacity.

I cant work from home as a veterinarian - patients have to come into the clinic for medications and physical exams.

I dont miss the office environment and I’m not distracted as I am in the workplace.

I don’t work in an office I own a cafe and work from home doing marketing, accounting, correspondence etc. so no zoom just regular working from home.

I don’t work regularly.

From home just sometimes when lockdowns demand it.

I go to work 4 days a week.

I enjoy working from home. Suits me to the ground.

I feel fortunate to have a job that allows me to work from home.

I feel like I have so much more time in my day working from home. Its better for life balance but I also think I’m more productive.

I find I’m more efficient working from home.

I get more work done in a shorter period of time due to less distractions but some clients can be more demanding outside of normal business hours.

I get so much more done for myself when working from home.

I hate the lockdowns as they impact on small businesses and cause depression in the community.

I have 2 types of jobs - 1 can be done from home the other not.

I have been very lucky with no impacts.

I have continued to go to work and haven't worked from home at all but survey kept asking me questions about working from home regardless.

I have noticed feelings of isolation and many things that happen at the workplace are missed at home as personal network does not exist even with phone calls. Lock down six = depression, anxiety and a feeling of stuck.

I have only worked from home on my days off when required.

I heard an excellent summary of working from home. You increase productivity - less commute, easier to focus etc. But you lose creativity, because you don’t have random conversations to generate ideas.
I hope lockdown doesn't last into November, as is being suggested

I like being able to have the washing machine etc. on in the background so I can get ahead for the weekend & free up my time to see friends/family.

I live alone, so going into the office two days a week is wonderful - to see other work colleagues face to face and have a printer/scanner/photocopier to use.

I live in WA and the infrequent short sharp hard lockdowns are preferable to what appears to be happening elsewhere.

I lost my teaching job because of COVID 19 pandemic

I love it and hate it at the same time

I love working at home, even with annoying kids around. I never want to wear tight skirts, heels and have washed hair anymore!

I miss getting out in the field and don’t like the micromanagement

I miss my coworkers

I miss the incidental collaboration that comes from working in an office, especially with those from other teams

I much prefer working like this.

I now have 400 staff working 2 days a week at home. Transaction volumes remain unchanged

I started at my current role in July 2020 so have only met some of the people I work with daily once, and many people never face to face.

I support 2 families in a 3rd world country from my aged pension, and that is the main reason why i have struggled financially

I tend to do more work at home, that is, I don't always finish at 5pm and work over.

I think COVID proved that you can be trusted to get the job done from home and still keep up the required communication.

I think it has proven that many of us are able to work from home; offices should continue to allow this option - it would ease traffic and public transport congestion, not to mention stress, allow flexibility for parents to pick up children from school (especially if they are unwell), etc... the benefits outweigh the negatives.

I think sales efforts to monitor sales staff suffers and ability to monitor sales staff suffers.

I think working from home presents a win win situation for management and staff. Trust plays an important role. Staff gets more motivated. Management gets happy staff. It represents great Feng Shui because happiness and success win at the end of the day. Don't you agree?

I use a wheelchair and love that I no longer have to commute every day. I feel more confident meeting with people remotely knowing that I am not being viewed or spoken to differently because I use a wheelchair, or having to explain why I'm using the wheelchair, is it just not part of the conversation.
anymore and I feel that I am viewed instantly as being on the same level as everyone else, instead of having to demonstrate or prove otherwise. Love it!

I used to work 2-3 days/week from home, I love working full time from home - some tasks are better done remotely.

i want to be able to go back to work

I want to live in WA!

I was more productive working from home but also managed to be more mobile, less sedentary, blood pressure improved, lost some weight, so overall, from a work and a Health and Wellbeing perspective, it was a successful arrangement.

I wish it hadn't taken a pandemic for businesses to realise working from home was doable

I work as a paramedic so I can’t work from home. This survey was a waste of my time

I work as a photographer so no work at all

I work from home all the time, I have a small registered charity, my recipients are in the Philippines, so the majority of my work during Covid is between me and the Philippines. The work I miss during Covid, is my ability to visit schools in Sydney to facilitate donations of school supplies for my many recipients in the rural Philippines.

I worked one day a week prior to Covid so the transition to my 4 days work a week was easy and I love WFH!

I’ve loved the shift to Zoom

I’m not working at home at all, but would like to in the future

I’m over it !

I’m retired

I’ve had to adjust quickly to WFH with no real process put in place. It’s not ideal.

If Scott Morrison had sorted out quarantine and vaccines, we wouldn’t be in the mess we’re in currently

If workplaces weren’t stingy and invested in proper home set-ups, it would be perfect. But I will take working from home with a less than ideal workstation and hardware, over commuting into the office every day.

I’m a Sole Trader ( handyman ) The questions aren’t relevant to me.

I’m an academic - the students seem to prefer remote lectures

I’m grateful to have a job - others have it worse than me

I’m lucky enough to have my own home office all set up and I still hate working from home full time. Its not at all productive

I’m retired, so it means absolutely nothing to me.

I’m spending significantly less money by not having to pay for parking, fuel, food, coffee, etc.

Interstate travel restrictions have increased the need to work from home
<table>
<thead>
<tr>
<th>Comment</th>
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<tbody>
<tr>
<td>It has opened up working from home, we were not encouraged to do this pre-covid.</td>
</tr>
<tr>
<td>It is for me to take breaks and allow 1 hour for exercises - but you made no references to this</td>
</tr>
<tr>
<td>it is great, actually getting more done as no travel</td>
</tr>
<tr>
<td>It is hard to differentiate work from home</td>
</tr>
<tr>
<td>It is more relaxing arranging my day around my needs</td>
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<tr>
<td>It is something you either like and are good at, or not.</td>
</tr>
<tr>
<td>It is what it is</td>
</tr>
<tr>
<td>It would be nice to visit friends more!</td>
</tr>
<tr>
<td>It’ll be nice the company provide the last advanced technology to make working from home more efficiently.</td>
</tr>
<tr>
<td>It’s all good</td>
</tr>
<tr>
<td>It’s great that my company has been able to offer full working from home. It has its pros and cons. But I am happy that I have a job and am able to continue working at home.</td>
</tr>
<tr>
<td>Its Driving me NUTS</td>
</tr>
<tr>
<td>Its safer!</td>
</tr>
<tr>
<td>Its up to me if I want to WFH most of the time but the office is the more open and spacious</td>
</tr>
<tr>
<td>I’ve realised that I'm a social animal and need human interaction.</td>
</tr>
<tr>
<td>Keep me safe</td>
</tr>
<tr>
<td>Lack of collaboration the biggest obstacle with WFH and main driver back into office</td>
</tr>
<tr>
<td>Learning all the time and feel confident.</td>
</tr>
<tr>
<td>Less stressful</td>
</tr>
<tr>
<td>Lockdowns in VIC are starting to cause real problems. It's impossible to work productively from home with school-age or younger children, luckily my daughter is just past that otherwise it would be impossible.</td>
</tr>
<tr>
<td>Love it!!</td>
</tr>
<tr>
<td>Love not having to commute (saving time and money)</td>
</tr>
<tr>
<td>Loved the opportunity to adopt &amp; 'accepted without question’ way of working that also matches personal ideal. Finally!</td>
</tr>
<tr>
<td>Make allowances for a N/A answer /don’t know (or similar)</td>
</tr>
<tr>
<td>miss the travel</td>
</tr>
<tr>
<td>More empathy around interruptions while in full lockdown homeschooling children.</td>
</tr>
<tr>
<td>More federal government support needed</td>
</tr>
<tr>
<td>More productive at home but miss the social interaction with colleagues.</td>
</tr>
<tr>
<td>more productive while working from home</td>
</tr>
<tr>
<td>More stressful with limited social contacts</td>
</tr>
</tbody>
</table>
mostly back in the office since last june

Much better working hours - I start at 3.30am, and end the work day at about 3:00pm, and have Fridays off in lieu

My boss would generally not allow working from home if it wasn't for a lockdown. He has a perception that we need to "get back to work", rather than "get back to the office". Old school thinking. I'm actually more productive at home, I can concentrate better, but I miss the social interaction and office banter.

My company's attitude makes all the difference. I changed jobs in January 2021 and new company is well set up, trusts staff to work from home, actively engages with mental health questions.

My coworker is now my cat. Best. Coworker. Ever.

My job doesn't allow for working from home

My mental health has definitely deteriorated

My partner in serious motorbike accident and I couldn't see him during lockdown. was becoming conscious when lockdown started and I wasn't there for him. YET!!! football was being played. Not happy!!!!! sort and well paid society has exceptions during covid. UNACCEPTABLE!!!!

My responses would be different if I was trying to work with my kids & home school.

My work changed during the pandemic with my resignation from a company to doing my own consultancy work. Much of this has always been in my own home offering individual coaching and mentoring. This has gone to Zoom but is less satisfactory. I also do adjunct lecturing in higher ed.

My work circumstances actually improved due to the pandemic. Admittedly I'm one of the lucky ones.

My work is as a full-time student. Field work is suffering greatly with Covid.

NBN needs to be upgraded to FttP for everyone to facilitate ongoing WFH.

FttN is not suitable

Need greater support and assistance from employers

Need NBN to the door!

Never the same

nnnnnnnnnnnnnnnnnnnnnrgh

No Government support makes life much more difficult during lockdowns.

nO THIS PANEMIC IS A DISASTER

No, nothing has changed for me.

none Covid didn't impact me, I'm retired

None that is socially acceptable

Not having easy direct contact with co-workers makes working from home more challenging. But the benefits are great - more time at home, probably more productive too.
Not working due to Covid

On sick leave without pay for 2 years

Our bills have gone up for electricity and gas

Our business is in lockdown and we are getting no help from the State or Federal Government.

Pandemic and State's response has afforded me an opportunity to reconnect with partner, who is an oncology patient, shortly about to undertake intensive chemotherapy at the end of August 2021. Though stressful, challenging and difficult, I do feel my relationship with partner, and communication with partner, is stronger and on a deeper, common level. I am cherishing this time.

Peace and health

People are now abusing the process-extending periods of work at home as others return to work... it seems less than fair on those returning to the office

People going to work generates work

People think because you work from home they can contact you at any time they think is right by them no matter what the time is.

Pets at home is also a factor. I used to work occasionally from home, now over 4 days per week excluding lockdown

Poor Internet connectivity and others’ access to technology is a huge problem.

Pre-covid only a few television post-production companies hired remote video editors. Now they ALL do, and they've improved the technology to make it work. As a freelancer, this is great news for me going forward

Realise how lucky I am to be able to work from home all the time!

Reasons

Reduced travel time, reduced costs, saving wear & tear on vehicle, all good things

Self employed

since the pandemic we have closed our office and are now full time wfh

Sorry but I don't work anymore.

Thank goodness for local coffee shops!

That all workmates should be vaccinated

The best aspects of my job are gone if I work from home. I cannot enjoy the things that make it fun and rewarding.

The cat and dog love it

The Government are the Pandemic!

the incompetence of supposed public servants (esp politicians at the State level) and their lack of accountability makes life exceptionally frustrating

The no commute is fantastic
<table>
<thead>
<tr>
<th>Comment</th>
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<tbody>
<tr>
<td>The pandemic has left us with a lack of human interaction that I feel we all need.</td>
</tr>
<tr>
<td>The social isolation has been the hardest and physical tiredness after spending all day staring at a screen</td>
</tr>
<tr>
<td>The sooner this is over the better for everyone!</td>
</tr>
<tr>
<td>Too much screen time</td>
</tr>
<tr>
<td>Trying to work while children are home schooling is the most challenging thing</td>
</tr>
<tr>
<td>Unrelenting. With work, child and domestic duties it is exhausting.</td>
</tr>
<tr>
<td>Very thankful that I'm still able to work fulltime.</td>
</tr>
<tr>
<td>We are all over it, wanting to get back to some normality</td>
</tr>
<tr>
<td>We don't normally work from home unless it's approved so this forced WFH is going okay however a couple of days per week to WFH would be ideal however my boss will only allow 1 day per week for me once my teams performance is at its maximum.</td>
</tr>
<tr>
<td>We should have all been vaccinated</td>
</tr>
<tr>
<td>WFH is the best</td>
</tr>
<tr>
<td>WFH saves on emission, reduces traffic congestion and decentralises cities. Im also more productive</td>
</tr>
<tr>
<td>Where does work start and stop</td>
</tr>
<tr>
<td>While the flexibility is good, I fear a growing dependency on working from home for so long that may impact my confidence on returning to the office.</td>
</tr>
<tr>
<td>Work from home depends on nature of work. My IT-related work allows me the option of working from home.</td>
</tr>
<tr>
<td>Work on a cattle station, have prior to covid and will after. I live where I work and being in a remote area and all members of the business live on site</td>
</tr>
<tr>
<td>Work was already aiming for 1-2 days a week work from home, so H/W + S/W + procedures and routines were in place.</td>
</tr>
<tr>
<td>Work/life separation has been the biggest challenge of spontaneous WFH</td>
</tr>
<tr>
<td>Working from home destroys the office camaraderie built up</td>
</tr>
<tr>
<td>Working from home harder while homeschooling.</td>
</tr>
<tr>
<td>Working from home is amazing</td>
</tr>
<tr>
<td>Working from home is fantastic. The pandemic was a blessing in disguise as working from home means no more time wasted commuting</td>
</tr>
<tr>
<td>Working from home is hard as a young adult still living at home does take a hit to your mental health</td>
</tr>
<tr>
<td>Working from home unrelated to Covid-19</td>
</tr>
<tr>
<td>Working hours are more flexible. You may work continuously for hours, but then take a break or call it quits for the day. One major advantage, if you need to attend to something urgently after hours, you can do so immediately, as all your tools are at your fingertips.</td>
</tr>
</tbody>
</table>

APPENDIX Survey Comments
Working Largely in the Retail Wine Industry it has been largely a very busy time for me, so I have been very lucky overall, even though some of my "side gigs" have dried up.

<table>
<thead>
<tr>
<th>Working more hours from home than in the office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working remotely works but is it as beneficial as having an office base for the business?</td>
</tr>
<tr>
<td>Staff development is often observational, informal information sharing often occurs around the water cooler, relationship development is enhanced in person. These components are lost or diluted in WfH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Would love it without home schooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>you continue doing this kind of study so the government and industry will do something about the workers...also do industry specific study on WFH conditions</td>
</tr>
</tbody>
</table>