



CENTRE FOR
**TRANSFORMATIVE
WORK DESIGN**



Curtin University

FUTURE OF WORK INSTITUTE



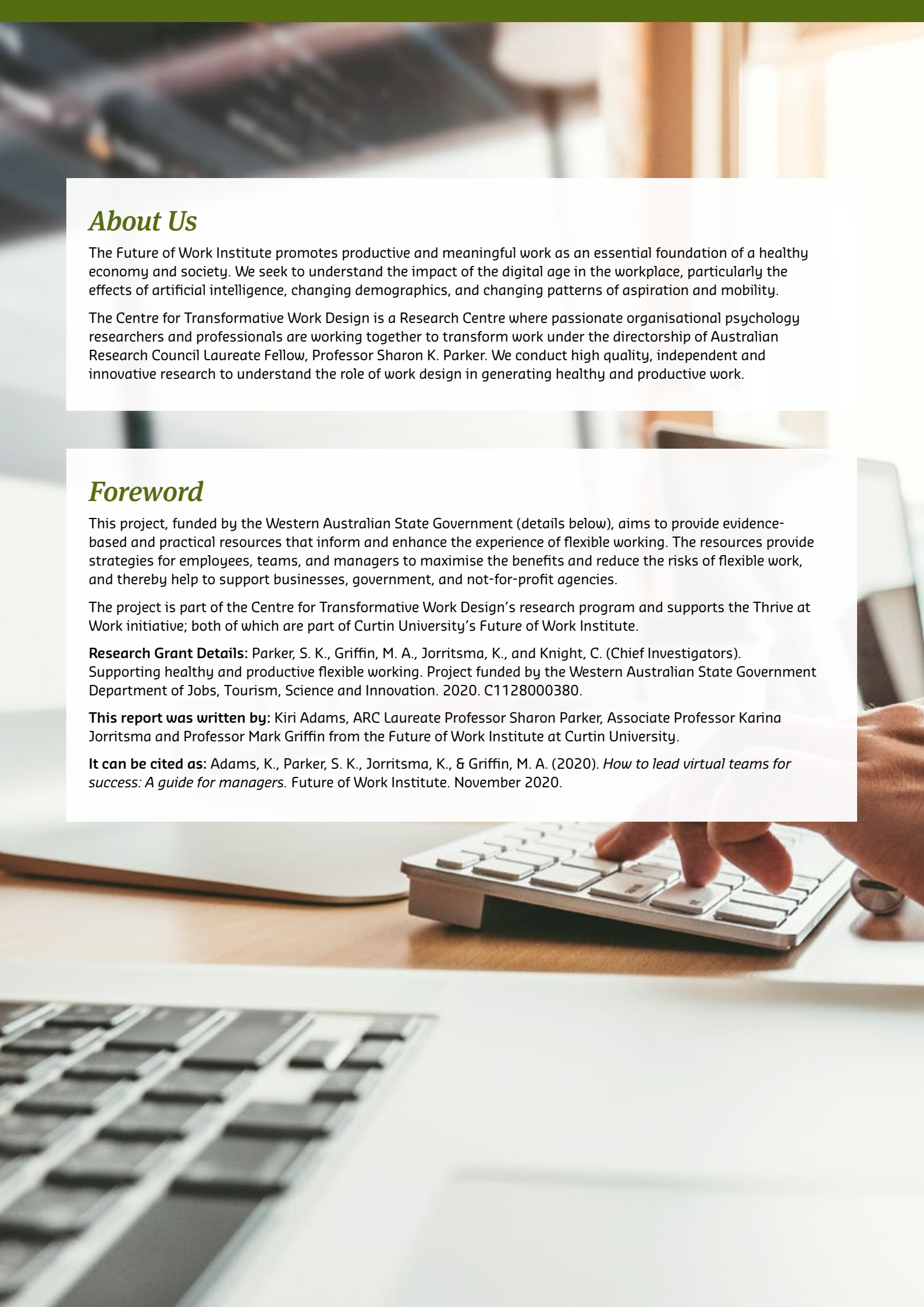
HOW TO MANAGE VIRTUAL TEAMS FOR SUCCESS

A GUIDE FOR MANAGERS

Innovative research.
Informed leaders.
Inspired workers.

Make tomorrow better.

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About Us

The Future of Work Institute promotes productive and meaningful work as an essential foundation of a healthy economy and society. We seek to understand the impact of the digital age in the workplace, particularly the effects of artificial intelligence, changing demographics, and changing patterns of aspiration and mobility.

The Centre for Transformative Work Design is a Research Centre where passionate organisational psychology researchers and professionals are working together to transform work under the directorship of Australian Research Council Laureate Fellow, Professor Sharon K. Parker. We conduct high quality, independent and innovative research to understand the role of work design in generating healthy and productive work.

Foreword

This project, funded by the Western Australian State Government (details below), aims to provide evidence-based and practical resources that inform and enhance the experience of flexible working. The resources provide strategies for employees, teams, and managers to maximise the benefits and reduce the risks of flexible work, and thereby help to support businesses, government, and not-for-profit agencies.

The project is part of the Centre for Transformative Work Design's research program and supports the Thrive at Work initiative; both of which are part of Curtin University's Future of Work Institute.

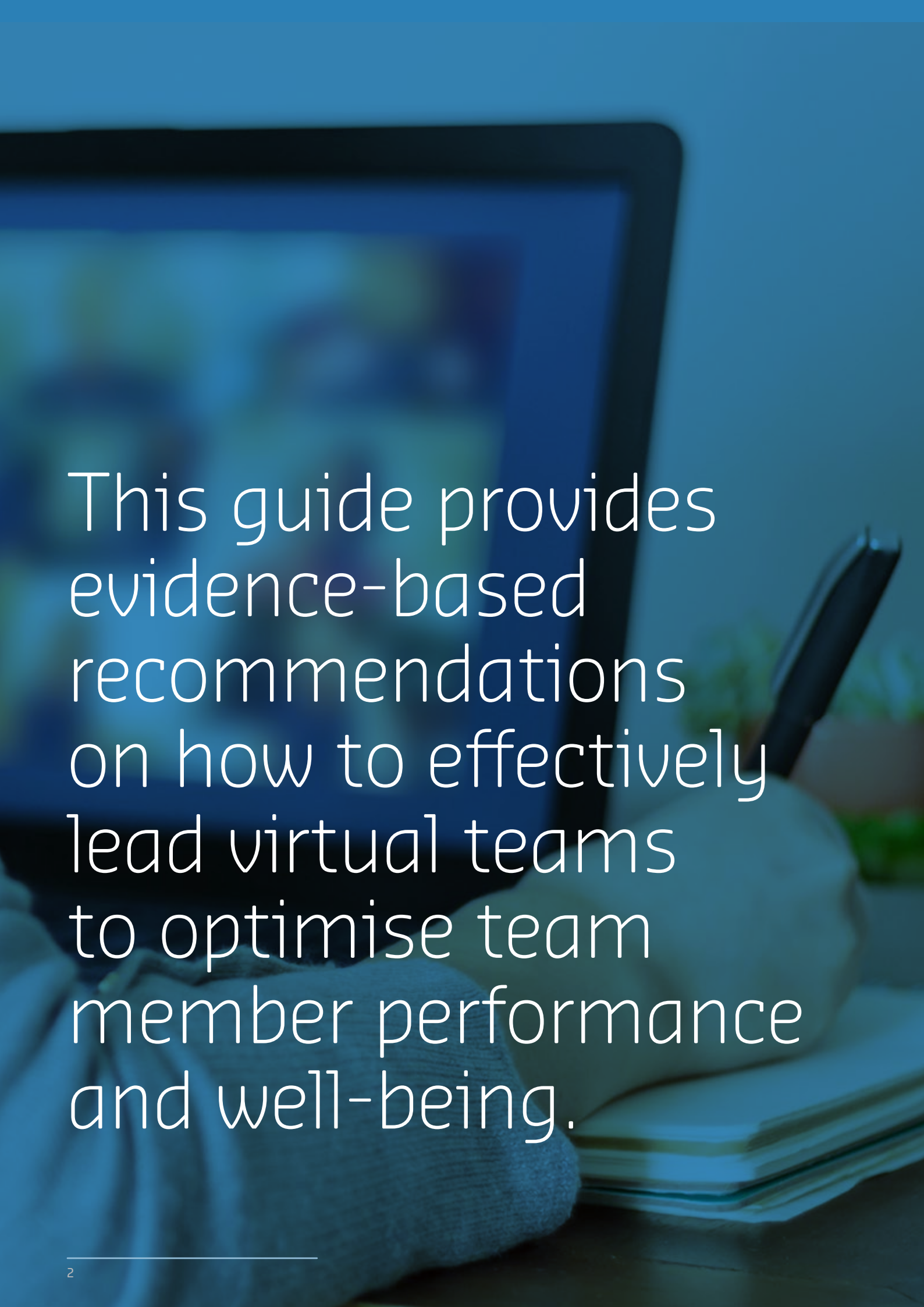
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This guide provides evidence-based recommendations on how to effectively lead virtual teams to optimise team member performance and well-being.

What's in this guide?



Leaders face unique challenges when managing virtual teams. This guide provides evidence-based recommendations on how to effectively lead virtual teams to optimise team member performance and well-being.

These strategies are structured around the SMART Work Design model, a holistic framework that can be used to design meaningful and motivating work that improves well-being, reduces risk and enhances productivity.¹ An overview of the project background and aims, as well as the literature review of flexible working and virtual teams on which the guidance is based, can be found in Appendix A and Appendix B of this guide, respectively.

For ease of reading, the terms 'manager' and 'leader' have been used interchangeably throughout this document and refer to a person responsible for overseeing the work of a team.

The following guides are also available and can be accessed below.

- **"How to Make My Flexible Work SMART: A Guide for Workers"** – Provides guidance on how to engage in flexible working effectively as an individual worker.
- **"How to Lead Flexible Work: A Guide to Successful Policy and Practice for Managers"** – Provides general guidance for managers of flexible workers.

The SMART Work Design model is a holistic framework that can be used to design meaningful and motivating work that improves well-being, reduces risk and enhances productivity.

What are virtual teams?

A virtual team, also known as a remote, dispersed, or distributed team, is commonly defined as “an interdependent group of people working toward a common goal but separated by a number of boundaries, such as those of space, time, culture, or organizational affiliation.”²

As such, members of a virtual team depend on technology to communicate and coordinate their activities. A hybrid team is a type of virtual team that is defined by their use of both technology-mediated communication *and* face-to-face communication.^{3,i}

Virtual teams function differently than non-virtual teams, and thus face distinct issues that can affect performance.ⁱⁱ The literature investigating virtual team performance is complex and mixed. The major meta-analysesⁱⁱⁱ on the topic show that, on average, different levels of team virtuality show no association with team performance.^{4,5} This suggests that virtual teams can perform better or worse depending on many factors, such as a team’s work design and leadership.



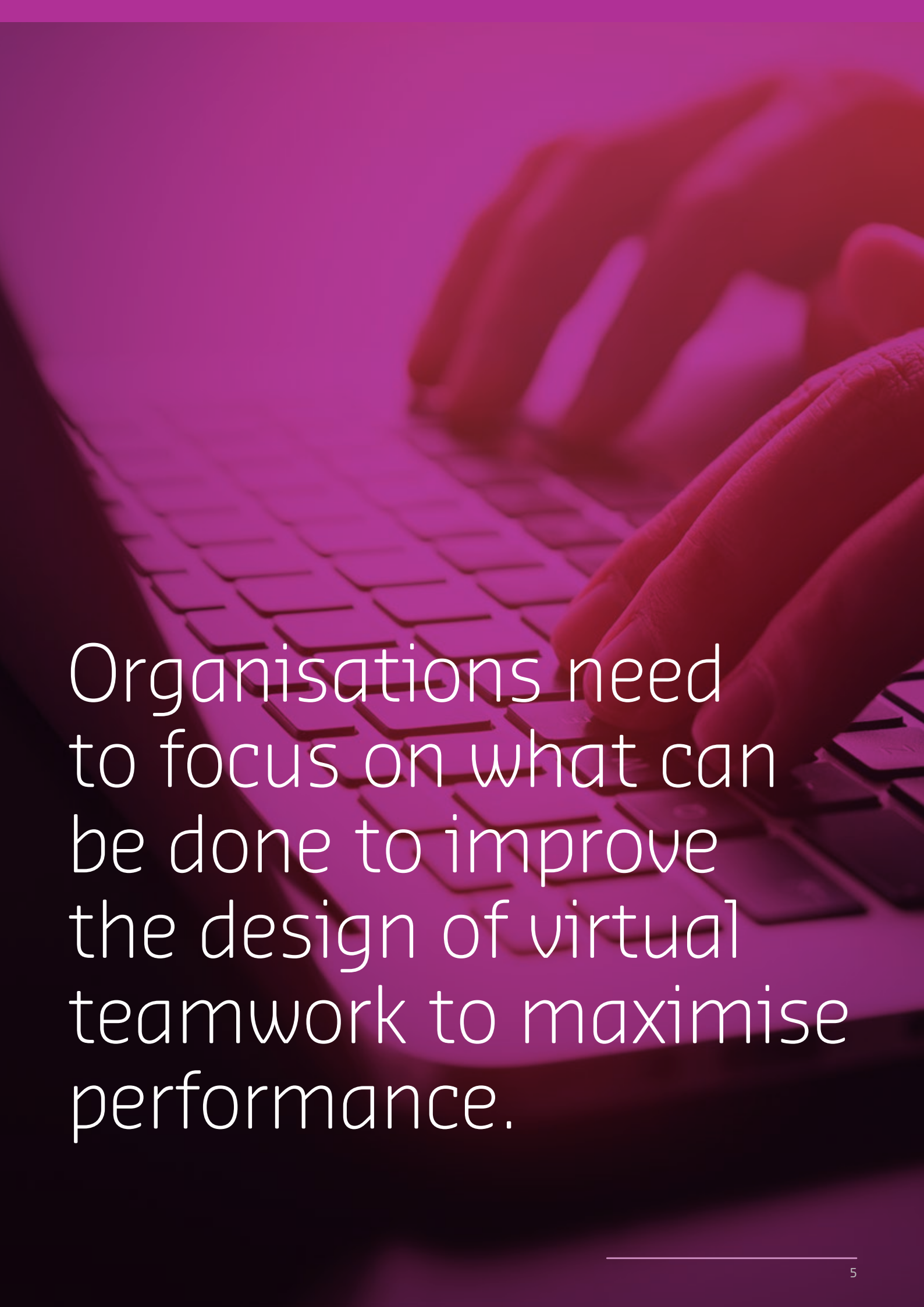
Based on this research, it is important to remember that “Just bringing people with the required knowledge and skills together virtually provides no guarantee that they will be able to work effectively and innovate across contexts.”⁶ As virtual teamwork becomes increasingly common, we encourage organisations and managers to move away from the question “Do virtual teams perform as well as non-virtual teams?” to instead ask “*What can be done to improve the design of virtual teamwork to maximise performance?*”

Virtual teams function differently than non-virtual teams, and thus face distinct issues that can affect performance.

i See ‘Team Virtuality’.

ii See ‘Challenges of Virtual Teams’.

iii A meta-analysis is a statistical method that combines the results of multiple scientific studies on the same topic.



Organisations need to focus on what can be done to improve the design of virtual teamwork to maximise performance.



Virtual team
performance can be
enhanced through
changing the way that
work is designed.

SMART Work Design: A key ingredient for virtual team success

Team work design is an umbrella term that refers to the way a team's tasks, activities and responsibilities are organised.⁷

This guide will introduce core concepts of work design, such as autonomy, social support, and interdependence. A review of the effectiveness of work design on team outcomes found that good team work design predicts increased team performance.⁴



For more information about work design and its history, visit the Centre for Transformative Work Design.

While there are many challenges inherent in virtual team work, research has found that good work design can mitigate against any negative effects of team virtuality.⁷ Specifically, virtual team performance can be enhanced through changing the way that work is designed, for example, by increasing team autonomy, social support, and feedback. This research highlights the importance of creating appropriate work design when teams operate virtually.

We use the SMART Work Design model to unpack how work design can enhance virtual team work. 'SMART work' is work that is Stimulating, promotes Mastery, supports Autonomy, is Relational, and has Tolerable Demands.

A large body of research indicates that these work design characteristics improve performance, motivation, and mental health and well-being.⁸

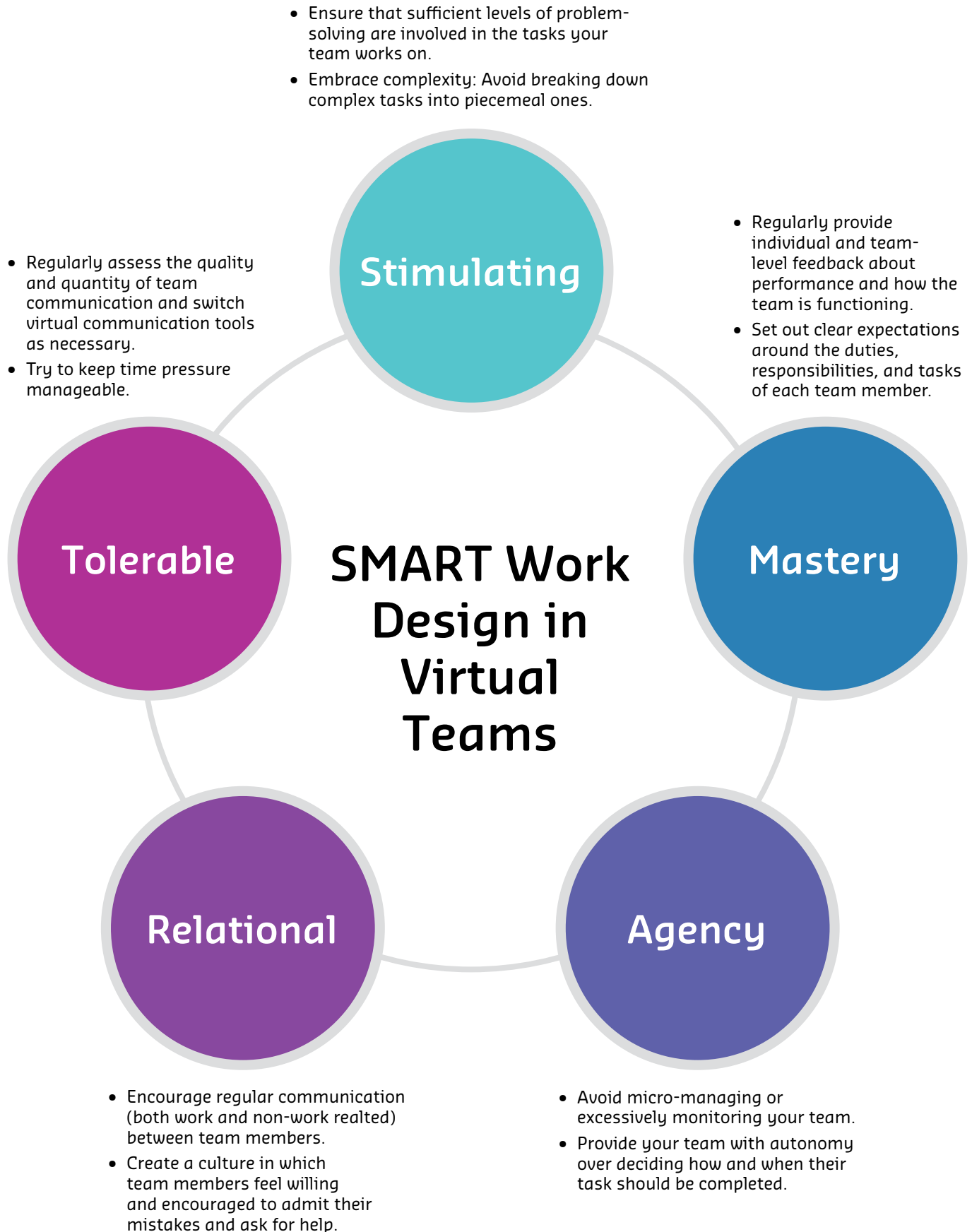


For more information about the SMART Work Design model, visit smartworkdesign.com.au.



Good work design improves performance, motivation, and mental health and well-being.

SMART Work Design Strategies for Managers of Virtual Teams



A top-down view of several hands of different skin tones stacked together in a circle, symbolizing teamwork and collaboration. The hands are wearing white and dark-colored sleeves. The entire image has a blue tint.

More ideas can
be generated in a
group than by one
person alone.



STIMULATING: EMBRACE AND SUPPORT PROBLEM SOLVING AND COMPLEXITY

Stimulating work is defined as work that is varied, interesting, meaningful, and challenging. For teams, this means having tasks that require problem-solving and are complex.

Teams are ideal for problem solving

Teamwork in general is well-suited to high levels of problem-solving, as more ideas can be generated in a group than by one person alone.⁹ Virtual teams have been found to be more likely than non-virtual teams to share **'unique information'**, that is, information that is held by a single team member.¹⁰ This is because many virtual communication tools involve a time lag in the exchange of information (such as email and text-based chat). This time lag is advantageous in some ways, in that it allows team members more time to process information shared by other team members, and consider and research their own responses before contributing to the team discussion.¹¹ It follows that virtual teams should be particularly well-suited to problem-solving tasks.¹²

Virtual teams are especially useful for 'generate' and 'choose' tasks

There is emerging research to suggest that some tasks are better suited to virtual settings. This can be explained by the **Task-Media Fit Model**, which suggests that tasks and communication mediums can be matched based on the communication medium's capacity to meet the information richness requirements of a task.¹³ For example, some tasks may be more suited to mediums lower in media richness and therefore better suited to be carried out by virtual teams.¹⁴

While there are many ways to classify team tasks, the most widely accepted classifies team tasks into four categories:¹⁵

1. **'Generate'** tasks – such as creativity (e.g., brainstorming) and planning (e.g., agenda setting)
2. **'Choose'** tasks – such as problem-solving or decision-making tasks that require choosing a correct answer or reaching a consensus.
3. **'Negotiate'** tasks – such as resolving conflicting interests or points of view via negotiation.
4. **'Execute'** tasks – tasks that require physical movement or coordination (e.g., production lines).

These categories reflect "successively increasing degrees of interdependence among team members, making a group consensus successively more difficult."¹⁶ In other words, carrying out these tasks as a virtual team becomes increasingly more difficult as the categories advance from 1 to 4.

Beginning with **'generate'** tasks, there is some evidence to suggest that virtual teams perform particularly well in brainstorming tasks, generating more unique ideas and solutions than teams who brainstorm face-to-face.^{17,18} This may be due to several advantages that communication via technology has over face-to-face communication, specifically that:

- Individuals feel less inhibited by social norms and conformity pressures, including feeling less fear of being judged for expressing divergent ideas.^{19,20,21}
- There is less potential for production blocking (that is, the fact that during face-to-face team brainstorming, members must take turns verbally expressing their ideas), which is a significant cause of productivity loss in face-to-face brainstorming.²²
- Team members have more direct access to team members who have problem-relevant information.
- There is a written record of communication, allowing team members to assess gaps in what has been discussed or decided.¹²

Virtual teams perform particularly well in brainstorming tasks, generating more unique ideas and solutions than teams who brainstorm face-to-face.



As a rule of thumb, tasks that have more cognitive requirements (i.e., **'generate'** and **'choose'**) are generally better suited for virtual teams, as opposed to tasks that require physical movement (i.e., **'execute'** tasks).¹² This is because technology has not yet advanced to the point of being able to fully support teams (such as surgical teams and firefighters) that predominantly carry out **'execute'** tasks.

In terms of **'choose'** tasks, there is some evidence to suggest that problem-solving is well-suited to be performed virtually via text-based chat (a communication medium low in media richness).²³ Finally, **'negotiate'** tasks, which involve a higher degree of conflict management, have been found to be best performed face-to-face rather than virtually.²⁴



STRATEGIES FOR MANAGERS OF VIRTUAL TEAMS: PROBLEM-SOLVING

- Review what kind of tasks your team/s are working on to ensure that sufficient levels of problem-solving are involved.
- Maximise the advantages of the virtual setting and encourage **'generate'** tasks (such as team brainstorming) to be carried out using email or text-based chat.
- If you manage a hybrid team, identify which tasks are better suited to be carried out virtually vs face-to-face, keeping in mind that face-to-face communication is superior for tasks that involve negotiation and/or require high interdependence among team members.

Virtual teams thrive on complexity

Work that is stimulating is often complex, multifaceted, and difficult to perform.²⁵ Complex work can improve virtual team performance through its ability to stimulate:

- Efficient and effective communication²⁶
- Team reflection and learning²⁷
- Better team solutions via debate among team members about how best to complete a complex task.²⁸

Complex work also involves working on non-routine tasks, that is, tasks which cannot be accomplished in a consistent way or using a standardised procedure.¹²

Non-routine tasks require high levels of creativity and problem-solving to deal with ambiguous and unique situations that have no obvious answer. This can challenge team coordination, requiring teams to invest significant amounts of time and effort into brainstorming, planning, and generating and deciding on solutions.²⁹

For this reason, complex work involving non-routine tasks is ideally suited to teams provided with sufficient autonomy regarding how and when to accomplish tasks (we will discuss autonomy more in the section on 'Agency').

Teams that can self-manage in this way have been found to perform better in non-routine tasks (compared to routine tasks), due to their ability to effectively adapt to novel situations.³⁰

Additional strategies for supporting teams in carrying out complex work are shown in the Strategies box.



OUR RESEARCH

Our global longitudinal study on work design during COVID-19 found that a high level of problem solving was associated with:

- greater job satisfaction
- task adaptivity (the ability to successfully adapt to changes in work tasks)
- task proactivity (the ability to initiate changes to the way a task is carried out).

Both task adaptivity and task proactivity are associated with higher work performance and greater internal work motivation.³¹



STRATEGIES FOR MANAGERS OF VIRTUAL TEAMS: HANDLING COMPLEXITY

- Allow your virtual team to embrace complexity: Avoid breaking down complex tasks into piecemeal ones.
- Provide your virtual team with enough time to master the complexity of a project.
- Facilitate learning and growth by allowing time for your team to reflect on the process once a project is complete.
- Set expectations around frequent communication and information sharing that keeps all team members 'in the loop'.
- Provide your virtual team with sufficient autonomy to make decisions around how and when they accomplish tasks.

Complex work can improve virtual team performance through its ability to stimulate efficient and effective communication, team reflection and learning, and better team solutions.



TEAM CHARTERS

The creation of high-quality team charters, which clearly lay out team roles, responsibilities, and processes, have been found to lead to more effective team performance over time, especially in combination with high quality team performance planning.⁴¹ The creation of a team charter involves prompting team members to:

- Consider the team mission and objectives
- Identify important stakeholders (e.g., clients, customers, managers)
- Identify the strengths, weaknesses, and work styles of each team member
- Outline the roles and responsibilities of each team member
- Specify how the team will function (e.g., decision-making styles) and how work will be accomplished
- Establish useful feedback mechanisms
- Determine how performance will be evaluated.

MASTERY: BUILD TEAMS WHO ARE CLEAR ABOUT WHAT AND HOW WELL THEY ARE DOING

Mastery refers to how much role clarity and feedback is provided to teams and their individual team members. Role clarity and feedback allow team members to master their tasks and perform to a high level.

Role clarity sets the foundation for effective virtual teams

Role clarity refers to the degree to which individuals have a clear understanding of the tasks, responsibilities, objectives, and expectations of both their own role and that of their team members. When role clarity is high, there are clear expectations around 'who does what' within the team.

High levels of role clarity benefit both virtual and non-virtual teams in a number of ways, including:

- Higher levels of employee job satisfaction³²
- Reduced turnover³²
- Higher collective well-being of team members, especially in relation to understaffed teams³³
- Increased extra-role performance and team engagement³⁴
- Fostering the development of team trust³⁵
- Better team coordination³⁶

Research on global virtual teams has found that role clarity increases individual team member satisfaction and performance.³⁷ Clarity about roles is also important in the development of 'swift trust' within newly formed global virtual teams, especially those which are time-limited project teams.^{38,39} Role clarity also helps to maintain trust in global virtual teams by way of reducing uncertainty in the team environment.^{38,40}

Leaders of virtual teams must be aware that defining roles too tightly can be detrimental to team performance and well-being by reducing autonomy.¹² In highly complex situations or projects, leaders should consider managing by results, that is, providing clarity about the team's goals or outcomes and then allowing the team to decide how to go about achieving those outcomes.⁴²

It is also important to encourage team members to collectively establish clarity around 'who is doing what' by discussing their expectations with each other. Providing virtual and hybrid teams with autonomy to make decisions about how and when they accomplish team tasks is conducive to effective team performance and will be discussed in detail in the section on 'Agency'.



It is especially important for leaders to check in with their team around role clarity when changes occur in the environment or team. During the COVID-19 lockdown, a small, Perth-based creative agency set up three regular virtual team meetings per week. One meeting was compulsory to attend, with flexibility provided to allow people to work through the meeting as needed. The remaining two virtual meetings were optional to attend, and involved the team manager making themselves available to answer any questions, discuss any concerns, and clarify expectations, responsibilities and tasks.

High levels of role clarity lead to better team coordination, performance, engagement and satisfaction.



STRATEGIES FOR MANAGERS OF VIRTUAL TEAMS: **ROLE CLARITY**

- Ensure the team has clear expectations around its duties, responsibilities, and the tasks of each team member. Allow time to explain what tasks need to be completed and what the objectives are.
- Pay close attention when tasks are complex and employees work across several teams and/or report to several managers, as this can greatly reduce role clarity.⁴³
- Remember that providing role clarity isn't a 'one off thing' – make sure to check in with your team occasionally to ensure that your expectations still match up.
- Consider creating a team charter with your team.
- Encourage team members to share information about their tasks and responsibilities to increase transparency across the team and provide team-level role clarity.
- Be careful not to define roles too tightly. Consider defining objectives and responsibilities at the team-level and then encouraging team members to autonomously define their own roles based on this information. This enhances self-management within a team.

Feedback about outcomes and processes helps create effective teams

Feedback from others refers to the degree to which co-workers and managers provide clear information about performance.⁴⁴ Feedback can take two forms:⁴⁵

- outcome feedback (information about performance, or the outcomes of the work); and
- process feedback (information about *how* an individual performs a job).

Feedback can be provided either to individual team members or to the whole team by combining individual feedback.⁴⁶

Feedback is believed to improve both virtual and non-virtual team performance because “it guides, motivates, and reinforces effective behaviours and reduces or stops ineffective behaviours”.⁴⁷ Specifically, virtual teams that receive feedback from their team members about team processes (such as planning and goal setting) show better performance and conflict management strategies compared to virtual teams who receive no feedback.^{46,48}

Receiving outcome and process feedback at the team level has been found to increase productivity in virtual teams performing brainstorming tasks.⁴⁶ In fact, teams that receive outcome and process feedback at both the

individual and team-level are most likely to see improvements in team performance^{49,50} as this allows individual team members to see how their individual efforts contribute to the overall performance of the team.

Feedback is also important for team learning and improvement and can lead to significantly increased performance when highly specific feedback is given regarding the exact source of mistakes.⁵¹ This allows teams to plan more effectively and enhance the transparency of processes and structures.⁵² Feedback is also essential for developing and maintaining trust and strengthening team identification in virtual teams.^{14,53,54}

GUIDED REFLEXIVITY: AN INTERVENTION TO REDUCE SOCIAL LOAFING

Feedback has been found to be particularly helpful in reducing social loafing in virtual teams.⁵⁵ **Social loafing** occurs when team members exert less effort because they know their individual efforts are not directly observable and thus they believe their contributions are unlikely to be rewarded.⁵⁶

“When members’ contributions to the group cannot be identified readily, they respond by identifying less with and contributing less to, the group.”⁵⁷

Providing feedback about an individual team members’ performance and contributions has been found to increase individual contributions to the team.⁵⁸

Research shows that feedback is more effective when combined with an intervention called guided reflexivity.⁵⁹ Guided reflexivity is an intervention in which leaders prompt teams to reflect and discuss team goals, strategies (e.g., decision-making), processes (e.g., communication), and outcomes, so the team can learn and adapt, making changes accordingly.⁶⁰

This process fosters shared team understanding and is conducive to team performance in that it provides an opportunity for team members to learn from past successes and failures and decide on how to improve for the future.⁵⁵ This process is especially useful after a team reaches

a milestone (e.g., completes a project)⁶¹ or when a new technology is implemented.⁶²

Team reflexivity increases the visibility and transparency of the team process and individual team members’ activities, specifically what and how they are working.⁶³ This increased knowledge of how others are involved in a collective task, leads individuals to see their fellow team members in a more positive light, and thus perceive less social loafing behaviour.⁵⁵ This may have a more direct impact on reducing social loafing by helping individuals to see that their own contributions are visible and identifiable by the rest of the team.⁶⁴

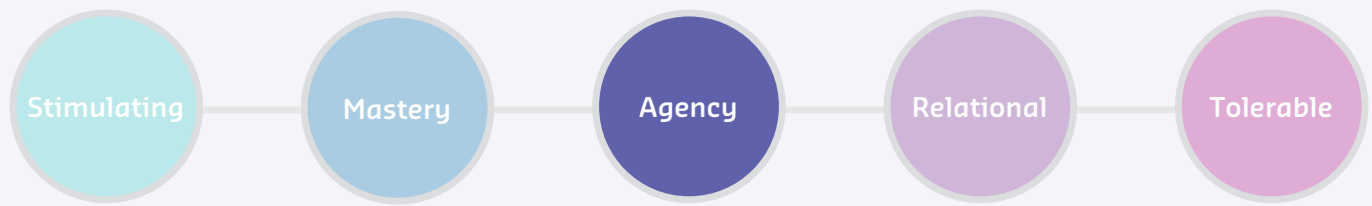
Feedback allows team members to see how their individual efforts contribute to the overall performance of the team.



STRATEGIES FOR MANAGERS OF VIRTUAL TEAMS: FEEDBACK FROM OTHERS

- Regularly provide feedback at both an individual and team-level about performance (the outcomes of the work) as well as processes (i.e., how the team is functioning).
- Structure information exchange so that there is an easily accessible written record of team communications and decisions available for all team members.
- Provide opportunities for team members to give each other feedback.
- Consider providing regular opportunities for guided team reflexivity, by encouraging your teams to 'stop and reflect'. Following mistakes, encourage your team to reflect on the question, "What can we learn from this?"
- Don't forget to participate in reflection yourself! Team leaders who model reflection are more likely to see reflective behaviours in their team members.⁶⁵

Feedback improves team performance by guiding, motivating, and reinforcing effective behaviours.



AGENCY: ALLOW YOUR VIRTUAL TEAM GREATER SELF-MANAGEMENT TO FLOURISH

Agency or autonomy refers to the level of control a team has in deciding when and how their tasks should be completed.⁴ High levels of autonomy in virtual teams have shown a number of benefits to team member well-being including positive perceptions of decision quality, job satisfaction, and communication effectiveness.⁶⁶ In both virtual and non-virtual teams, high levels of autonomy have been associated with better team performance.⁴ Psychological ownership theory suggests that autonomy strengthens feelings of responsibility and conscientiousness over how work gets done, increases extra-role activity, and fosters feelings of pride, identity, and psychological investment in outcomes.^{67,68,69}

Teams with high levels of autonomy (often called self-managing teams), “take responsibility for their work, monitor their own performance, and alter their performance strategies as needed to solve problems and adapt to changing conditions.”⁷⁰

This makes self-managing teams well-suited to carrying out complex, non-routine tasks.⁷¹ Specifically, autonomy has been shown to lead to increased risk-taking and experimentation.⁷² That is, team members do not necessarily need to wait for managerial permission or guidance before making crucial, proactive decisions in the face of situational changes (e.g., rapidly changing customer needs).⁷³



When team members have a clear understanding of the team goals and objectives, they can determine what must be done and then make decisions on their own.⁷⁴

Autonomy is closely linked with interdependence, which is defined “the degree to which the interaction and coordination of team members are required to complete tasks.”⁷⁶ Being provided with autonomy has a positive effect on performance in teams with high levels of interdependence,⁷⁷ thus, highly interdependent teams will benefit most from being provided with autonomy to become self-managing.⁷⁸ This is because teams with high interdependence are already well-practiced in regular communication, interaction, and coordination, and thus taking on autonomy requires little to no additional time or effort from team members.

On the other hand, autonomy has been found to have a negative effect on performance for teams with low levels of interdependence (i.e., where team members work relatively independently).⁷⁷ This is because in order to function well, teams naturally require some cooperation and coordination between team members, and therefore the combination of team member independence with overall team autonomy can drive team members further apart. Providing a less interdependent team with autonomy also requires team members to commit significant time and effort to interact and coordinate with other team members, thus reducing performance.^{79,80}

Self-managing team members see a clear relationship between their own efforts and the finished products.

Thus, before providing a team with autonomy, it is crucial to assess the level of existing interdependence in the team.

It is important to remember that some organisations and teams may not be ready for self-management, but will nevertheless benefit from managers who empower their employees. Leaders who decide to provide their interdependent teams with autonomy will need to provide help and guidance to their team in order to maximise its benefits. For example:

- Self-managing teams need leaders to provide a strong shared vision, a clear understanding of their goals and objectives, as well as sufficient information to be able to complete tasks and make sound decisions.⁸¹

- Leaders should consider developing their team's ability to have open-minded discussions of opposing positions (termed 'skills of constructive controversy'), as research has found that this boosts confidence, and improves group decision making and productivity in self-managing teams.⁷⁵
- Leaders must allow the members of self-managing teams to feel enabled and empowered to improve processes and respond to changing demands.⁸² This helps team members to develop the initiative and proactivity required for functioning in an effective self-managing team.^{83,84}
- Team trust is also essential for the effective performance of virtual teams,^{85,86} with higher levels of autonomy associated with greater trust and collaboration in virtual teams.⁸⁷ Leaders of virtual teams must be careful not to inadvertently reduce team trust through excessive monitoring or micro-managing behaviour.⁸⁸ Instead, leaders should help to create a strong sense of trust within the team, and strategies for doing so will be discussed in the following section.



A WA Government agency survey on employee experiences during COVID-19 found that for those who worked in teams, autonomy was associated with reduced burnout and increased job satisfaction, productivity, self-goal setting behaviour. It was also associated with a greater level of thriving at work, specifically via increased:

- **Confidence** – one's belief in their ability to perform tasks and behaviours required to do their job.
- **Purpose** – the feeling that one's work has meaning and purpose.
- **Energy** – the feeling of being energised and enthusiastic about work.
- **Growth** – having a strong focus on learning and development.
- **Relationships** – the feeling of being connected to others.



STRATEGIES FOR MANAGERS OF VIRTUAL TEAMS: AUTONOMY

- Avoid micro-managing or excessively monitoring your virtual team. Instead, set clear team goals and provide the team with sufficient freedom to make their own decisions about how and when to accomplish team tasks. For more information, check out **'Tethered or trusted? The "There's no excuse not to be at your desk" phenomenon'**, a blog post by ARC Laureate Professor Sharon Parker.
- Be sure to foster a strong shared vision for your team. Provide your team with a clear understanding of their goals and objectives, and ensure they have the necessary information available to be able to make good decisions.
- To improve the productivity of your self-managing team:
 - Build shared team goals. Together with your team, work to develop shared goals, integrated roles, common tasks, and shared rewards.
 - Encourage your team to have open discussions regarding their opposing views. Cooperative, skillful disagreement with each other helps team members to develop the confidence to proactively deal with changing needs and create new solutions.⁸⁹
- Consider the level of **interdependence** your team has when deciding how much, if any, autonomy to provide your team. Autonomy has been found to benefit performance in highly interdependent teams, while reducing performance in less interdependent teams.⁷⁷



RELATIONAL: CREATE CONNECTION AND COORDINATION IN VIRTUAL TEAMS

Relational work design refers to the extent to which a team experiences a sense of support and social contact from colleagues and leaders. Closely related, interdependence and trust will also be discussed in this section.

Trust is more vital in virtual teams than face-to-face teams

Trust is defined as an individual's willingness to accept vulnerability based on positive expectations of the intentions and behaviour of another individual.⁹⁰ Accordingly, team trust is defined as a shared perception of trust that team members have for each other.^{86,91}

Trust is more important for the performance of virtual teams as compared to non-virtual teams, due to the inherent uncertainty that team members must operate under in virtual settings.^{85,86,92} In non-virtual settings, individuals can rely on cues such as facial expressions, conversational nuance, and voice tone, to evaluate the intentions of others.^{93,94}

Non-virtual teams also benefit from the ability to see their team members working on team tasks.⁸⁶ Conversely, "virtuality limits team members' ability to monitor and verify each other's progress on team tasks."⁸⁶ This lack of transparency, along with low media richness and communication delays, can lead to misinterpretations and misunderstandings, with negative judgements about others made quickly and based on little evidence.⁹⁵

In trusting that one's team members have positive motives and intentions, individuals can suspend their judgements, overcome misunderstandings and conflicts, and increase the sharing of information.⁹⁶

Trust also facilitates cooperation and coordination,⁹⁷ information processing, and positive team-related attitudes.^{85,86}

In the absence of face-to-face social contact, trust is generally formed in virtual teams through open communication, timely responses, and knowledge sharing.⁹⁸ Teams that combine informal social communications with task communication are able to develop trust quickly.⁹⁹ Goal congruence (shared team goals) has been found to be critical in building trust in virtual teams.⁸⁷ Early in a team's formation, it is important for leaders to encourage team members to show evidence of and provide information about their ability, benevolence, predictability, integrity, and transparency.³⁵ For example:

- To increase perceived task-related ability: Online profiles (e.g., LinkedIn) and shared databases can help to inform other team members about the reputation, expertise, and qualifications of their fellow team members.
- To increase perceived team-related ability, task- and team-related benevolence, and transparency: Chat software, team meetings, informal online and offline chats and discussion boards provide opportunities for team members to help each other and discuss problems and mistakes.

- To increase task-related predictability and team-related integrity: Identify and commit to shared team values, norms, and communication rules.
- To increase perceived transparency: As a leader, provide a clear outline of responsibilities and feedback about work processes. Consider implementing workflow management systems to increase perceived transparency in the team.

In the absence of face-to-face social contact, trust can be formed in virtual teams through open communication, timely responses, and knowledge sharing.



Conflict, especially relationship and process conflict, harms virtual teams

Leaders should manage any conflict between team members to foster good working relationships and strong cohesion within the team. There are three broad types of conflict:¹⁰⁰

- Relationship conflict: interpersonal issues such as resentments, annoyances, and personality clashes
- Task conflict: differences in opinions about work details and goals
- Process conflict: differences in opinions about the methods by which work should be carried out.

Recent meta-analyses on the topic have found that on average, relationship conflict and process conflict are generally detrimental to team performance across all team types, while moderate levels of task conflict can be beneficial to performance in decision-making teams.^{101,102} This is because task conflict can help team members to confront important issues and take on different points of view.²⁸ Social interdependence theory suggests that some level of conflict is unavoidable due to the level of interdependence required to function as a team; with team effectiveness relying on *how* a team reacts to conflict.¹⁰³

Teams are said to react to conflict in one of three ways: cooperation, competition, or avoidance. As much as possible, leaders should encourage, model and foster a cooperative team environment, as teams that react to conflict in a cooperative fashion generally perform better than teams who are competitive or avoidant in their reaction.¹⁰⁴

Additionally, in order to minimise any productivity loss, leaders should be aware of any relationship or process conflict in their team and look to implement conflict management training to help individuals better handle conflict.⁵ It is important to note that this approach is likely to be most beneficial for long term teams rather than temporary teams.¹⁰¹

Teams that react to conflict in a cooperative fashion generally perform better than teams who are competitive or avoidant in their reaction.

Encourage virtual teams to share open information

The sharing of “open information” has been found to be critical to the performance of virtual teams.¹⁰ Open information sharing refers to information that is already known by all team members (e.g., reiterating the main action points after a meeting).

Virtual teams are generally less likely to share open information due to the

time-consuming nature of sharing free-flowing information via email or text-based chat (it’s almost always easier to chat and share redundant information in person!). Research has found that open information sharing helps to mitigate the negative effects of communication via technology by promoting psychological safety, trust, and cohesion among team members.¹⁰⁵

Open information sharing promotes psychological safety, trust and team cohesion.



STRATEGIES FOR MANAGERS OF VIRTUAL TEAMS: TRUST

- Encourage regular communication. Frequent communication between team members helps to build trust by providing reassurance that others are attending to tasks, thus increasing feelings of team cohesiveness.⁹⁸ In low-trust teams, frequent communication helps to provide “constant confirmation that teammates are still there and still on task.”¹⁰⁶
- Establish communication norms and expectations, specifically around responsiveness, reliability, and consistent follow-through.⁹⁹ Remind team members that they each have unique and important insights and information that should be shared with the team.
- During the formation of a virtual team, encourage team members to share personal information about themselves.¹⁰⁷
- Create a psychologically safe culture in which team members feel willing and encouraged to admit their mistakes and ask for help. To create this culture, ensure that you acknowledge novel ideas and encourage people to ask for help and provide constructive criticism to each other.¹⁰⁸
- Early in a team’s formation, encourage team members to show evidence of and provide information about their ability, benevolence, predictability, integrity, and transparency.
- For hybrid teams, meeting and working together face-to-face at least once a month can help to develop trust and improve performance.¹⁰⁹ Similarly, during the formation of a virtual team, it is beneficial to organise an initial face-to-face meeting if possible.¹¹⁰ These face-to-face meetings foster more efficient team development, more effective conflict resolution, and greater team cohesion and satisfaction.¹¹¹
- Implement conflict management training in your team if you notice relationship or process conflict occurring.
- Encourage sharing open information in order to promote the development of positive team processes such as cooperation, trust, and psychological safety. Keep in mind that rich communication mediums such as video-conferencing are better suited to open information sharing (as compared to email for example).

A high level of interdependence is beneficial for stable, long-term virtual teams

As previously described, interdependence is defined as “the degree to which the interaction and coordination of team members are required to complete tasks.”⁷⁶ A high level of interdependence in a team is particularly important for completing complex tasks, when it is crucial to engage the knowledge, skills and resources of many team members.^{112,113}

In long-term virtual teams, interdependent work fosters a sense of team identity and efficacy through increased communication and cooperation within teams.¹² Specifically, interdependence in this context has a positive effect on team learning,^{114,115} goal setting,¹¹⁶ planning and negotiation behaviours,¹¹⁷ trust,^{112,118} and team performance.¹¹⁹



It is important to note that interdependence can reduce performance when virtual teams are temporary or short-lived, that is, when team members share no previous experience and expect little to no future interaction beyond a specific project.^{111,120} This aligns with research findings that show communication partners who expect future interaction are more cooperative when negotiating, and more actively engaged in information-seeking strategies including self-disclosure and information sharing.^{111,121}

Additionally, teams with previous experience together are more likely to have a shared vision of objectives and plans, exhibit greater coordination and teamwork, and make more accurate decisions.^{122,123,124} Experimental research indicates that short-lived or temporary virtual teams are typically more impersonal, uninhibited, and antisocial,^{19,125,126} and therefore, leaders should be wary of attempting to increase interdependence in such teams.



STRATEGIES FOR MANAGERS OF VIRTUAL TEAMS: INTERDEPENDENCE

- If your team is established and long-term, increase interdependence in your team by re-designing how your team works on specific tasks. For example, create workflows that:
 - Assign collective responsibility for tasks and objectives,
 - Enable team members to exchange ideas and information and communicate more frequently; and
 - Implement team-level reward systems.¹²
- If your team is temporary or short-lived, optimise team effectiveness by reducing the level of interdependence. For example:
 - Separate out the responsibility for tasks or objectives among team members
 - Limit team meetings to those that are absolutely necessary
 - Consider using individual-level reward systems.

In long-term virtual teams, interdependent work fosters a sense of team identity and efficacy through increased communication and cooperation within teams.

Social support creates a rich social context in which virtual teams thrive

Social support refers to the extent to which work provides “opportunities for advice and assistance from others”.⁴⁴ Social support can be provided by co-workers and/or managers, and is made up of two aspects:¹²⁷

- 1) Instrumental support: the provision of practical help, assistance, work-related information, and feedback to help get the job done.
- 2) Social and emotional support: the provision of sympathy, caring, comfort, and encouragement.

For the purposes of this guide, we will focus on social support as provided by co-workers and provide tips on how managers can foster this. For a detailed description of how managers can provide social support to their employees directly, please see the accompanying guide, “**How to Lead Flexible Work: A Guide to Successful Policy and Practice for Managers.**”

When social support is high in a team, it means that team members have opportunities to meet and get to know their team members on a personal level. Social support has several benefits at the individual level, including:

- Improving well-being, commitment to the organisation, job satisfaction, and job involvement^{25,128}
- Reducing withdrawal and counterproductive work behaviours¹²⁹
- Decreasing role ambiguity and job stress¹³⁰, therefore reducing the likelihood of burnout.¹³¹

While there has been little research focused on the specific role of social support in virtual teams, it has been proposed that social support may benefit virtual teams by creating a richer social context.⁴⁶ This aligns with evidence showing that social and personal communication in virtual teams is essential for effective team functioning.¹³² By encouraging frequent and informal communication between team members, leaders can create a culture in which team members feel psychologically safe to

communicate and build relationships with their team members.¹³³ Team members with strong relationships are more likely to encourage and support each other to experiment and take risks; skills which are critical for novel innovation.¹³⁴

Interestingly, research on innovation has found that virtual teams with high levels of social support outperform non-virtual teams (also with high levels of social support) in generating novel innovations.¹³⁵



STRATEGIES FOR MANAGERS OF VIRTUAL TEAMS: SOCIAL SUPPORT

- Create opportunities for team members to ‘virtually meet’. Create shared ‘virtual morning teas’ or consider enhancing the visibility of coffee kitchens in different locations by installing cameras and screens so that dispersed team members can virtually meet.
- Encourage team members to set up and interact on non-work related channels on virtual platforms such as Microsoft Teams or Slack, so that team members can get to know each other better. For example, team channels may be based around recommendations, pets, food or virtual social events.
- During video meetings, factor in five minutes at the beginning and end of the meeting for informal and unstructured conversation. Take the lead in initiating these conversations.
- Consider introducing a buddy system for new members of the team.¹³⁶



A Western Australian energy provider who implemented a roster system during the COVID-19 lockdown (i.e., teams worked two weeks in the office followed by two weeks at home) found that using a buddy system was the key success mechanism to onboarding remotely. New employees who were rostered to work from home were

assigned an in-office buddy to help them settle in and learn the ropes. A bonus learning to come out of this process was the effectiveness of using screen-share as a learning tool for new employees. Both trainees and trainers reported finding this much easier and more comfortable than the usual way of hovering over each other’s shoulders!

Personal and informal communication in virtual teams is essential for effective team functioning.

Managing diversity requires special attention to conflict and cohesion

Leaders face unique challenges when managing cultural diversity in virtual and hybrid teams, as research has found that diverse virtual teams exhibit higher levels of conflict and lower levels of cohesion than non-virtual teams.^{137,138,139} This can be due to differences in language, cultural values, and time zones.¹⁴⁰ Virtual and hybrid teams (especially those with members located in different countries or regions) are more likely to form sub-groups based on these demographic attributes, and to suffer from performance issues as a result.^{141,142}

In light of these challenges, diversity can be managed effectively by using a number of different strategies. Firstly, leaders must develop cultural awareness in both themselves and their team members.¹¹⁷ This can be done by providing training on the causes of conflict to help identify potential trouble spots and likely areas of conflict. Better awareness of diversity and its implications can help teams to evolve, adjust and develop ways to deal with their differences more effectively.¹¹⁷ For example, differences in assumptions between team members from differing organisational or regional cultures can be highlighted and openly discussed so that different perspectives within the team can be better understood.

Building a common team perspective and reinforcing whole team identification is also important when managing diverse virtual teams, as this helps to foster a strong collective identity and positive relationships between subgroups.¹⁴³ Encouraging a high level of information exchange is one way to foster this. Specifically, through information exchange, team members have been found to identify and develop more commonalities and reduce in-group/out-group barriers.¹⁴⁴ Additionally, to mitigate in-group/out-group conflict, leaders can foster a psychologically safe environment in which open and supportive communication is encouraged.¹³⁴



STRATEGIES FOR MANAGERS OF VIRTUAL TEAMS: DIVERSITY

- Develop cultural awareness in yourself and your team members.¹¹⁷
- Be aware of and address any barriers related to distance and time. For example, rotate the starting times of virtual meetings to minimise the inconvenience for those in different time zones. Also, ensure that public holidays in different countries, states and regions are considered when scheduling virtual meetings.
- Build a common team perspective and reinforce whole team identification through encouraging a high level of information exchange.¹⁴³
- Foster a psychologically safe environment by making yourself accessible to team members for guidance and support, regularly asking for the input of team members, and encouraging team members to openly and constructively discuss their ideas and mistakes.¹³⁴
- If possible, arrange for virtual teams to meet face-to-face for team building exercises, particularly in the early stages of formation and then periodically throughout the team's life cycle.²⁰

Better awareness of diversity and its implications can help teams to evolve, adjust and develop ways to deal with their differences more effectively.



TOLERABLE DEMANDS: CREATE OPTIMAL WORK DEMANDS TO SUPPORT VIRTUAL TEAM OUTCOMES

This section of the SMART work design framework refers to whether the job demands placed on teams are tolerable. While team members of virtual teams may face many demands, including work-home conflict, role conflict and emotional demands, these will be addressed as follows:

- Strategies for individuals on how to manage work-home conflict can be found in **“How to Make My Flexible Work SMART: A Guide for Workers.”**
- Strategies for managers on how to reduce their employees’ work-home conflict as well as the emotional and physical demands of flexible work can be found in **“How to Lead Flexible Work: A Guide to Successful Policy and Practice for Managers.”**

For the purposes of this guide, we focus on the demands of time

pressure and the demands associated with information and communication technology (ICT) as they relate to virtual teams.

Effective use of communication technologies enhances virtual team trust and productivity

ICT demands refer to technological challenges that are associated with a job, including difficulties with communication and technological issues.

Given that virtual teams rely almost exclusively on technology to communicate, it goes without saying that technological issues can significantly reduce the effectiveness of communication. For example, poor internet connections can cause delays and impair both the quality and quantity of team communication.¹²

Leaders of virtual and hybrid teams need to consider which communication technology is most suitable for a given task. That is, leaders must consider the capacity of a communication technology to meet the information-richness requirements of a task.^{13,iv}

For example, there is some evidence to suggest that virtual text-based chat is particularly well-suited to collaborative, problem-solving tasks²³, while tasks that require negotiating are more effective when done face-to-face.²⁴

Additionally, communication technology that allows for the exchange of visual and verbal cues is conducive for trust-building, particularly in the early stages of a team’s development. Teams that use rich communication technologies early in the team’s life are more likely to successfully build and manage trust than those who use ‘leaner’ (i.e., less rich) technology.^{53,145} However, once a virtual team is established, leaner communication mediums are able to be used to communicate and maintain trust.¹⁴⁶

Cognitive overload is a significant cause of communication breakdown and results in reduced productivity in virtual teams.⁷⁴ This can occur when a single sensory modality (e.g., text via email or instant messaging) is used to provide a large amount of task information,¹⁴⁷ or when an unnecessary number of advanced,



complex technologies are used to communicate.¹⁴⁸ The 'communication mode repertoire' refers to the selection, provision, and patterns of use of multiple communication mediums for specific communication purposes.¹⁴⁹ Leaders need to provide guidance to their team in establishing the communication mode repertoire, and then proactively monitor its effectiveness on a regular basis in collaboration with the team.¹⁵⁰



During the COVID-19 lockdown, a national engineering and manufacturing business found innovative ways to tackle their ICT demands. They implemented the software Mural, a subscription-based online visual workspace to help their teams collaborate on creative tasks and strategic planning during the work-from-home period. The business also utilised the application Trello much more during the pandemic, helping their newly virtual teams to set goals, plan projects, and communicate progress updates and achievements.



A national mining contractor and a large, independent, not-for-profit research institute reported how the application Microsoft Teams went from rarely being used to becoming the main tool for communicating during the COVID-19 lockdown. Both organisations reported that the use of Microsoft Teams has continued since returning to the office, and is now used as a default option for meetings, rather than phone-in meetings.



STRATEGIES FOR MANAGERS OF VIRTUAL TEAMS: ICT DEMANDS

- Regularly assess the quality and quantity of team communication and switch virtual communication tools if necessary. For example, if email discussions become overused, especially for discussion of complex issues, consider using a richer communication technology such as video-conferencing (or a face-to-face meeting if you manage a hybrid team).
- To avoid cognitive overload in your team, limit the number of advanced, complex communication technologies to those that are actually needed.
- If you manage a hybrid team, identify which tasks are better suited to be carried out virtually vs face-to-face, keeping in mind that face-to-face communication is superior for tasks that involve negotiation and/or require high interdependence among team members.
- Alternatively, consider providing your hybrid team with some autonomy to decide whether a team task is best suited to be accomplished face-to-face or virtually. Research shows that hybrid teams show a similar relationship between communication and performance to that of face-to-face teams, due to their ability to meet both face-to-face and work virtually based on best fit.¹¹⁰
- Consider trialling different tools and software to determine which best suit your team's needs.¹⁵¹ Popular options include:
 - **Chat:** Microsoft Teams, Slack, Google Hangouts
 - **Project management:** Trello, Jira, Asana
 - **Web and video conferencing:** Google Meet, Zoom, Cisco Webex
 - **Collaboration and prototyping:** Mural, Invision, Marvel, Adobe XD
 - **Scheduling:** Calendly, Doodle
 - **Workflow automation:** Zapier, Microsoft Flow, Monday.
- When new technologies and tools are implemented, ensure that training is providing to team members so that they are competent, comfortable and motivated to use it in a consistent way across the team.¹⁰⁸
- Check out '**Are you a Zoom Zombie? How to take control of your virtual meetings**', a blog post by ARC Laureate Professor Sharon Parker.

Moderate levels of time pressure make work more stimulating and productive

Time pressure occurs when there is an inadequate amount of time to accomplish work-related tasks, and can be perceived at both the individual and team level.¹⁵²

While high levels of time pressure are normal and expected from time to time in most lines of work, prolonged experience of intense time pressure can be detrimental. Therefore, time pressure should mostly be kept at moderate levels for both virtual and non-virtual teams so as to keep work stimulating and productive without leading to burnout.¹⁶¹

Keep in mind that there may be instances in which it is very difficult or impossible to reduce the level of time pressure within a team. When this occurs, consider increasing job resources (i.e., the **Stimulating, Mastery, Agency, and Relational** aspects of the SMART framework). For example, providing teams with more autonomy or allowing more opportunities for social support can help to offset the negative effects of high job demands.¹²

Time pressure should mostly be kept at moderate levels so as to keep work stimulating and productive without leading to burnout.

ADVANTAGES: “High levels of time pressure is stimulating”

- Increases the pace and rate of task completion by team members.¹⁵³
- Improves the quality, quantity, and efficiency of team communication.¹⁵⁴
- Enhances team engagement (i.e., collective dedication and vigor).¹⁵⁵

DISADVANTAGES: “High levels of time pressure are detrimental”

- Excessive levels of time pressure increase susceptibility to burnout and reduced job satisfaction.¹⁵⁶
- Reduces effectiveness of decision-making processes and outcomes.^{157,158}
- Reduces efficacy¹⁵⁹, accuracy and performance.¹⁶⁰



STRATEGIES FOR MANAGERS OF VIRTUAL TEAMS: TIME PRESSURE

- Try to keep time pressure manageable (i.e., stimulating but not exhausting), by carefully considering how much time is required for certain tasks within a project. Use conservative estimates (i.e., worst-case scenarios) when time-budgeting for projects.
- Regularly monitor time pressure and workload to identify what may cause fluctuations in demands.
- Encourage team members to speak up early if they think they cannot complete a task within a given time frame, so that necessary adjustments can be made as early as possible.
- Set clear objectives with agreed upon deadlines. Encourage team members to speak up if they have an idea or if they can offer help with a specific objective.¹⁰⁸

FINAL CONSIDERATIONS

In considering the SMART Work Design framework and associated tips above, it is important to remember that to be effective, strategies need to be implemented in combination. For example, focusing on providing more autonomy to your team without also considering task complexity, interdependence, and role clarity, is not likely to be very effective in boosting team performance.

Leaders of virtual teams should regularly monitor their team’s level of SMART work design and identify when high job demands can be reduced by increasing resources (Stimulating, Mastery, Agency, and Relational). Finally, it is critical for managers and organisations alike to remember that

instead of asking whether virtual teams perform as well as non-virtual teams, it is more effective to focus on what can be done to improve the design of virtual teamwork to maximise performance.

Individual team members can also play a role in managing their work design effectively, and further information on this can be found in the guide, “**How to Make My Flexible Work SMART: A Guide for Workers.**” Additionally, there are broader issues around flexible work (such as mental health and well-being) that are applicable to all managers regardless of whether they lead a team. Further information on this can be found in the guide, “**How to Lead Flexible Work: A Guide to Successful Policy and Practice for Managers.**”

A background image showing several hands assembling white puzzle pieces against a teal gradient with bokeh light effects. The text is overlaid on the lower half of the image.

Key findings were
synthesised from a
comprehensive review
of academic and non-
academic literature.

Appendix A - Project Overview

Aim

The aim of this individual guide is to provide guidance for managers on how to coordinate virtual and hybrid teams effectively. This guidance draws on literature and research on collaborative remote working and virtual teams.

Process

This guide was created using the following three-staged approach:

1. A comprehensive literature and desktop review of academic and non-academic literature was undertaken, with key findings synthesised.
2. A sample of industry and government agencies were engaged for anecdotal evidence on how managers and teams responded to working virtually during COVID-19.
3. Stages 1 and 2 were synthesised, and along with the Future of Work Institute's own research, this was used to develop evidence-based strategies for managers of virtual and hybrid teams.

The following guides were also created using the above approach and can be accessed below. It is recommended that they are read in conjunction with this guide.

- For individuals: **"How to Make My Flexible Work SMART: A Guide for Workers."**
- For managers: **"How to Lead Flexible Work: A Guide to Successful Policy and Practice for Managers."**

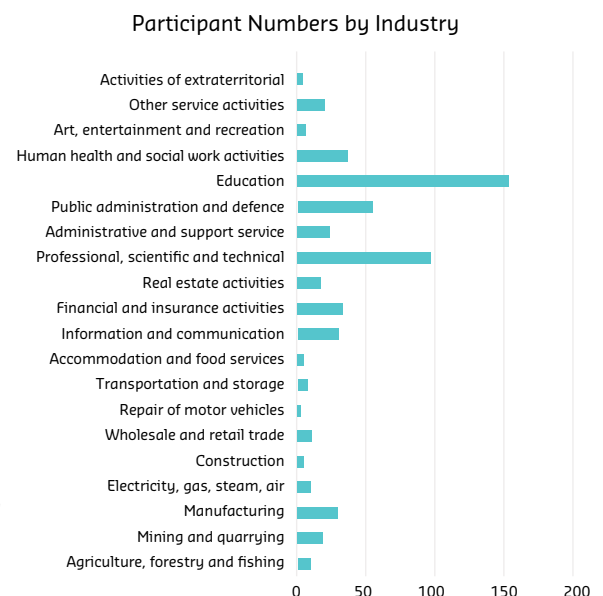
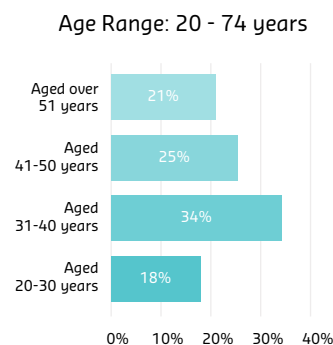
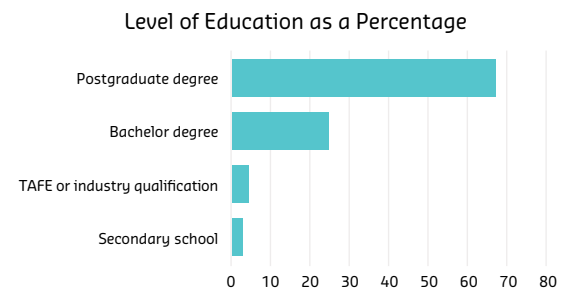
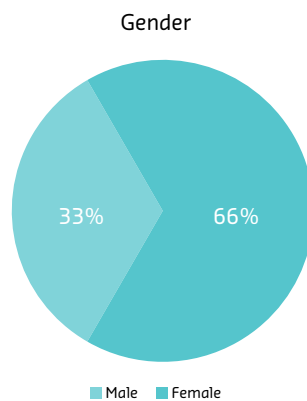
In addition, the Centre for Transformative Work Design, part of the Future of Work Institute at Curtin University, undertook a Global Thrive at Work from Home survey with the aim to understand how workers were being affected by the COVID-19 pandemic and how best to support large-scale working from home during this crisis. The survey explored:

1. the multiple factors involved in influencing home workers' well-being and productivity;
2. employees' level of mental health and well-being;
3. the strategies organisations and individuals adopted to cope with working from home.

The Global Thrive at Work from Home survey is longitudinal, spanning over a 6-month period that commenced in April 2020.



This guide includes results from the Global Thrive at WFH survey at time 1 in April 2020, during lockdown when individuals were mostly working from home (4+ days per week). A total of 452 employees were surveyed at Time 1 with some demographic information provided below.



Appendix B - Literature Review

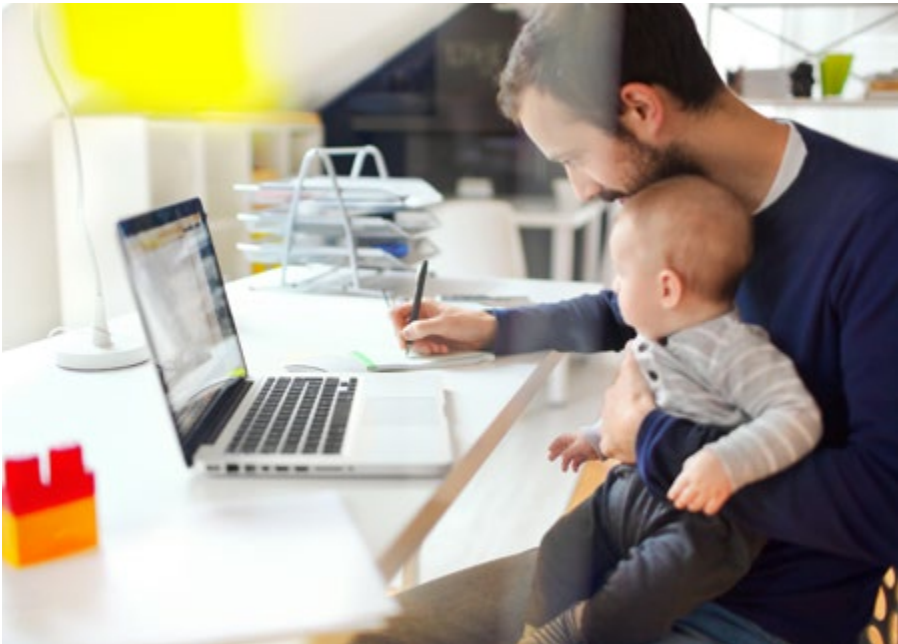
Flexible Work

Flexible work, also known as telework, telecommuting, and remote work, is an umbrella term for an alternative work arrangement in which employees perform tasks in a location away from the primary or central workplace and interact via information and communication technology, for at least some part of their work schedule.¹⁶² Flexible work has become an increasingly widespread practice due to globalisation and innovations in technology that allow work to be done anywhere, anytime.

The most recent pre-COVID-19 data available on the prevalence of flexible work in Australia indicates that 32.1% of working Australians regularly worked from home.¹⁶³ In 2019, 72.7% of Australian organisations reported having a formal flexible work policy or strategy in place.¹⁶⁴ However, the results of the Household, Income, and Labour Dynamic in Australia (HILDA) indicate that only 1% of respondents reported having a formal flexible work arrangement in place, which suggests that the majority of Australian workers who engage in flexible work, do so on an informal basis.¹⁶⁵

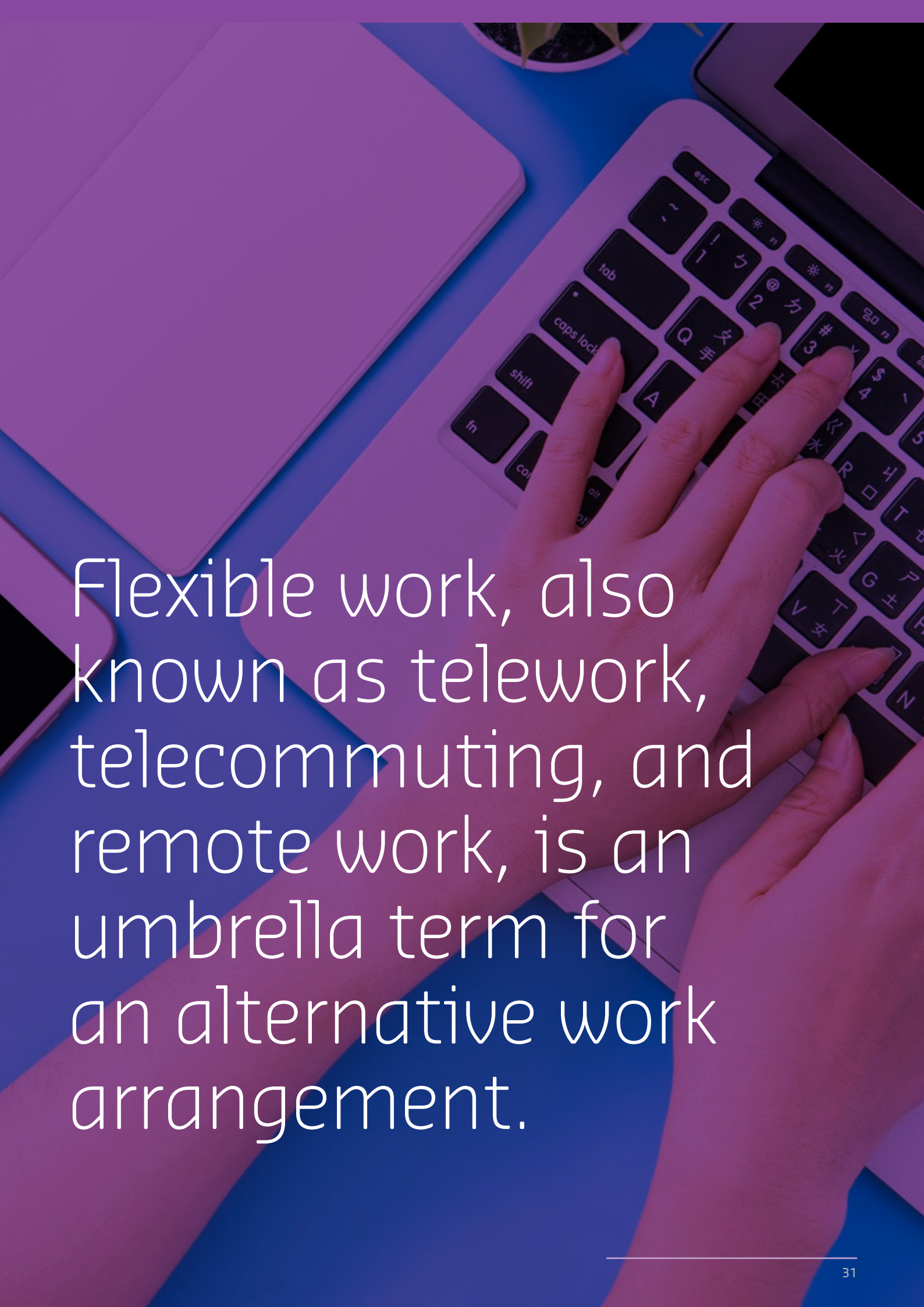
There are two dimensions of flexibility that underpin flexible work arrangements: (a) flexibility in the scheduling of work, and (b) flexibility in where work is accomplished.¹⁶⁶ Flexibility in the scheduling of work includes the provision of flexibility in the timing and duration of work hours including ‘flex-time’ and compressed work weeks. While flexibility is inherent in the work of many gig and contract workers, full-time employees increasingly have scheduling flexibility, with professionals and those higher in the organisational hierarchy being more likely than lower level employees to have scheduling autonomy.¹⁶⁷

The advantages of flexible work arrangements for both the employer and the worker are well documented in the literature. A review of the literature¹⁶⁸ identified 11 distinct themes in the literature in reference to the advantages of flexible work for both the worker and employer.



WORKER-LEVEL	EMPLOYER-LEVEL
• Greater work-life balance via the ability to better coordinate work and non-work tasks. • Spatial mobility i.e., flexible work makes participating in work possible from different places, such as remote areas.	• Increased work morale due to increased job satisfaction among staff. • Improved ability to recruit and retain staff.
• Increased work autonomy i.e., workers have more freedom to decide how to structure and schedule their work. • Productivity gains i.e., workers are able to work in an environment with fewer distractions and use time saved on commuting productively. • Economic advantages (e.g., reduced costs associated with commuting, food, clothing etc).	• Increased agility i.e., flexible work allows access to work related information regardless of time and space. • Productivity gains i.e., workers are able to work in an environment with fewer distractions and use time saved on commuting productively. • Economic advantages (e.g., reduced costs associated with office space, equipment etc).
• Increased job satisfaction i.e., greater autonomy in when, where and how work is carried out increases job satisfaction.	

For a comprehensive discussion of the benefits of flexible work for employees, see the guide “How to Make My Flexible Work SMART: A Guide for Workers.”

A close-up photograph of a person's hands typing on a silver laptop keyboard. The image is heavily overlaid with a semi-transparent purple color. The text is written in a white, sans-serif font across the lower half of the image.

Flexible work, also known as telework, telecommuting, and remote work, is an umbrella term for an alternative work arrangement.

Team Virtuality

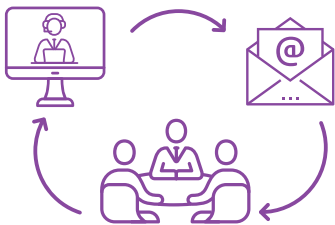
One of the key advantages of virtual teams is the flexibility it affords organisations in pooling talent and expertise from across the world to meet the demands of the increasingly competitive global environment.¹⁶⁹ On a local level, organising work virtually can allow an organisation to coordinate the inputs and actions of multiple employees across the organisation without requiring employees to be located in the same place.¹⁷⁰

For these reasons, as well as innovations in collaborative software, virtual teamwork is becoming increasingly common, with two thirds of multinational organisations utilising virtual teams in 2012.¹⁷¹

In a global survey in 2016, 85% of workers reported having engaged in virtual teamwork.¹⁷² Virtual teamwork is also becoming more common amongst workers who are located in the same place, via the use of online collaboration tools to accomplish team tasks.¹⁶⁶ According to a 2013 study by McKinsey (a global management consulting firm), over half of the surveyed organisations reported having adopted a knowledge-sharing or collaboration tool (e.g., video conferencing, instant messaging software, and collaborative document editing software), compared with only 28% in 2009.¹⁷³

Until recently, research on teams has focused on developing many different classification systems

in an attempt to standardise the way that team context is defined and measured.^{15,174,175,176,177,178} However, none of these proposed systems have been widely adopted in the literature, and instead, there is a growing consensus that team virtuality should be conceptualised as a continuous dimension rather than an artificial dichotomy of 'virtual' vs 'non-virtual'.^{12,123,170,179,180} In other words, researchers are starting to agree that team virtuality should be measured on a spectrum from low to high virtuality. See figure below which illustrates the spectrum of team virtuality, specifically the key criteria and examples for low, medium, and high levels of virtuality.¹²

LOW VIRTUALITY	HYBRID TEAMS	HIGH VIRTUALITY
Working in close proximity; teamwork happens almost exclusively face-to-face	Teamwork happens both via virtual tools and face-to-face meetings	Working in different locations (time zones) ; teamwork exclusively relies on electronic technology
		
Examples: e.g., mostly action teams, such as, firefighting crews or emergency response teams during task episodes (e.g., extinguishing fires, operating patients).	Examples: e.g., mostly knowledge workers that use virtual technology to accomplish their teamwork, such as agile scrum teams, project engineering teams, science teams, service teams etc.	Examples: e.g., mostly software programming crowd-working teams, Electronic Sport League Teams, Teams in Multiplayer Online Games, Teams working entirely remotely during the COVID-19 pandemic.



When viewed as a continuum in this way, virtuality can be viewed as a variable state which can be used to describe any team.¹⁴⁵ A team with zero virtuality would work in close physical proximity and interact almost exclusively in a face-to-face environment. On the opposite end of the spectrum, the members of a purely virtual team would work in different places at different times, and may never meet face-to-face, interacting exclusively via technology. While these extreme forms of virtuality certainly exist, most teams are likely to have a moderate level of virtuality, using at least some form of technology to coordinate tasks and accomplish teamwork.^{145,170} These are often called hybrid teams and are defined by their use of both technology-mediated and face-to-face communication.³

While we recognise the importance of viewing team virtuality as a continuum, for simplicity we use the terms “virtual teams” (i.e., teams that have a high degree of virtuality), “hybrid teams” (i.e., teams that have a moderate degree of virtuality) and “non-virtual teams” (i.e., teams that have a low degree of virtuality) throughout this guide.

Challenges of Virtual Teams

Virtual and hybrid teams face many unique challenges, including:

- Communication and knowledge-sharing difficulties
- Difficulties in communicating across boundaries of time and space
- Difficulties in developing and maintaining trust between team members
- Lack of team cohesion in diverse teams
- Social loafing.

Each of these are addressed in detail below.

Communication and knowledge-sharing difficulties

By nature of relying heavily on technology to communicate and collaborate, virtual team members must contend with a significant lack of non-verbal and verbal cues when communicating (e.g., body movements, body orientation, facial expressions, and the tone, pitch, and pacing of verbal communication). There are two theories in the literature which help to explain this:

- 1) **Media Richness Theory** posits that different communication mediums vary in their capacity to convey information effectively.¹⁸² For example, face-to-face meetings are considered to be the richest form of communication, in that they provide immediate feedback, multiple cues, and language variety, enabling ambiguous information to be understood quickly. Communication mediums such as telephone calls and audio and video conferencing are considered to have higher levels of media richness than written communication mediums such as email and text-based chat.

Since this theory’s inception, researchers now recognise that media richness does not have a direct positive relationship with team performance.⁷⁴ Frequent use of rich communication mediums does not necessarily guarantee enhanced team performance.¹⁸³ The Task-Media Fit Model suggests that tasks and communication mediums can be matched based on the communication medium’s capacity to meet the information richness requirements of a task.¹³ That is, some tasks may be more suited to mediums lower in media richness.¹⁴ Additionally, some research has found that the effectiveness of communication medium richness may depend on individual cognitive styles and preferences.¹⁸⁴



2) **Social Presence Theory** argues that communication mediums are more effective when they can convey social presence; that is, the perception that people are physically and emotionally present during communication.¹⁸⁵ Communication mediums rich in social cues such as face-to-face meetings, telephone calls, and audio and video conferencing are considered more effective forms of communication due to their ability to convey social presence.

Communication mediums that convey high social presence have been found to be better suited to tasks requiring decision-making and negotiation.¹⁸⁶ Conversely, less rich communication mediums are sometimes more appropriate for tasks that require low social presence.¹⁸⁷ For example, when interpersonal conflicts are

occurring within a team, it can be beneficial to mediate via text-based communication to help reduce emotional flares and allow team members to better focus on task-related issues.¹⁸⁷

Both the Media Richness and Social Presence theories suggest that many communication technologies used by virtual and hybrid teams, particularly those such as email and text-based chat, can hamper cues that convey trust, attentiveness, and meaning.¹⁸⁸ Indeed, research suggests that virtual collaboration can cause lags in the exchange of information, an increased number of misunderstandings, a reduction in information seeking attempts, and more incoherent messages.¹⁸⁹

For example, when using written communication mediums, silence from one or more team members

can be interpreted in a number of different ways, including: agreement, opposition, indifference, lack of understanding, and attentional oversight, among other things.⁹⁵ While it is true that it can also be difficult to interpret a team member's silence in face-to-face meetings, physical distance and reliance on communication technology "add new dimensions of uncertainty and complicate efforts to resolve this uncertainty."⁹⁵

Research has found that communication difficulties can be exacerbated when virtual teams rely on technology-mediated communication during critical phases of team action cycles, such as when deliverables must be executed (due to the fact that task interdependency is often higher in this phase of the team process).¹⁷⁰

Difficulties in communicating across boundaries of time and space

It goes without saying that differences in time zones can make team collaboration difficult.¹⁸⁶ Team members who are located in different countries present an even more complicated situation due to differences in language, culture and values.⁸⁴ One of the most comprehensive models of national culture is by Hofstede (2001), in which he defines it as “a collective phenomenon, because it is at least partly shared with people who live or lived within the same social environment where it was learned.”¹⁹⁰ It is the collective programming of the mind that distinguishes the members of one group or category of people from another.”¹⁹¹

Hofstede’s research defines national culture in terms of five value dimensions, the most validated of which is individualism/collectivism (that is, personal interests vs group interests).^{192,193} Some research has found that people from collectivist cultural backgrounds are more willing to help others, make personal sacrifices and display more cooperative behaviour compared to people from individualist cultural backgrounds.¹⁹⁴ Therefore, the difference in values between individualist and collectivist cultures may potentially affect communication and behavioural patterns in individuals working in teams.¹⁹⁵

Much research has examined this theory in practice, for example, one study on global virtual teams found that team members from the United States felt it was more important to include team members in discussions and decision-making, compared to team members in Belgium, India and The Netherlands.¹⁹⁶ Similarly, another study found that some cultures (i.e., Brazil) showed a preference for rich

communication technologies such as audio and video conferencing, while others (i.e., United States) preferred using less-rich mediums such as email and online text-based chat software.¹⁹⁷ This may be partly explained by research which suggests that people in individualistic cultures tend to rely more on the use of words to convey meaning, while collectivistic cultures value tone of voice, timing, facial expressions and behaviour as important in conveying meaning.¹⁹⁸ Successful cross-cultural communication requires being aware of cultural differences (i.e., behaviour that valued, preferred and acceptable differs across cultures).^v

Difficulties developing and maintaining trust between team members

Lack of trust has been found to be an issue for virtual and hybrid teams due to communication difficulties related to the lack of cues and social presence inherent in the use of communication technologies.^{53,96} Trust between team members is vital for effective team performance^{199,200} and has been found to be associated with team members’ willingness to help other team members²⁰¹, perceptions of team cohesion²⁰², and willingness to share knowledge and resources.²⁰³

Teams with low levels of trust show reduced performance for a variety of different reasons, including:

- Less sharing of information and ideas.²⁰⁴ Instead, these teams experience irregular and unpredictable communication and exchange little information.
- Less cohesive team culture⁹⁹
- Ineffective problem solving²⁰⁵ and reduced creativity²⁰⁶, which results from team members being less open and more defensive in their relationships with other team members²⁰⁷



- Deliberate withholding of information,²⁰⁵ refusal to cooperate, and frequent monitoring of one another²⁰⁸
- Less group citizenship behaviours, such as helping and team sportsmanship²⁰⁹
- Reduced job satisfaction¹⁰⁷

Virtual and non-virtual teams develop trust in different ways.⁹⁹ Non-virtual teams are more likely to develop trust based on social and emotional attachments, for example, via a history of interpersonal interactions and communication.^{98,210} Establishing trust in virtual teams is more complicated, given that team members may have no past relationships to draw on, no future to reference, and often no opportunities to meet face-to-face. Research has found that in virtual teams, trust is developed through task-based relationships where the quality, timeliness and predictability of information sharing and responsiveness are essential components.^{98,210} Social bonds are still necessary for the formation of trust in virtual teams, however developing trust through these mechanisms takes significantly longer than for non-virtual teams.^{107,211}

^v Due to the intended audience for this guide (i.e., Western Australian organisations), national and ethnic diversity in global teams is not addressed in the practical strategies section of this document.

One of the most common classifications of trust is that of McAllister's (1995) distinction between cognitive and affective dimensions of trust.²¹² That is, the way individuals evaluate whether a fellow team member is trustworthy is based on:

- **Cognition-based trust:** perceptions of reliability, integrity, and competence.
- **Affect-based trust:** perceptions of genuine care and concern for the welfare of the trustee.

These two types of trust affect team performance differently. Specifically, perceiving team members as capable, competent, and reliable strengthens members' belief in the team's ability to successfully achieve its goals and objectives; motivating them to contribute towards these goals.²¹³ On the other hand, perceiving team members' as being genuinely caring, helps team members to feel more comfortable raising issues and disclosing personal information. This also results in motivating individuals to contribute towards maintaining positive social bonds and team cohesion.^{86,213}

Conflict and team cohesion issues in diverse teams

A lack of team cohesion can occur in diverse virtual and hybrid teams, which can lead to interpersonal conflicts, reduced team performance, higher turnover rates, and absenteeism.¹⁷⁸ Dependence of communication technology and the inherent lack of social presence in virtual teamwork has been found to reduce intimacy and identification among team members and thus also reduce individual feelings of work meaningfulness.²¹⁴ Research has shown that language barriers and perceived differences in culture can have a negative impact on team identification.¹³⁷ Team members physically located in different countries, states or regions have been found to have difficulty gathering and remembering contextual information about their team members.⁹⁵



Virtual and hybrid teams, especially with members located in different countries, states or regions, are more likely to experience “faultlines”; the creation of sub-groups based on demographic attributes such as cultural similarities, time zones, and language.^{140,141} Such sub-groups have been found to impair group functioning.¹⁴² The following theories are central to understanding the psychological underpinnings of sub-group formation, and both involve people attempting to achieve and maintain a positive self-identity.

- **Social Categorisation Theory** posits that people implicitly categorise themselves as being a member of certain groups (e.g., based on race, religion, economic status, cultural backgrounds etc) and evaluate these groups (i.e., in-groups) as more attractive compared to the groups they do not belong to (i.e., out-groups).²¹⁵

- **Similarity/Attraction Paradigm** suggests that people identify more strongly with people they perceive as being similar to themselves in terms of physical, social and psychological traits.²¹⁶

The more salient the differences between in-groups and out-groups, the more biased and emotionally attached individuals become towards their in-group, which can lead to conflict with members of out-groups.¹³⁸

Social loafing

Social loafing is defined as the “tendency for individuals to make less effort when they work collectively than when they work alone or co-actively.”^{55,217} Social loafing has been found to negatively affect productivity in virtual and hybrid teams.⁵⁷ Perceptions of social loafing can lead team members to feel less connected to their team, less satisfied with being a part of their team, and more likely to evaluate their team performance as below capacity.^{55,218} The phenomenon of social loafing can be explained by the following models:

- **The Collective Effort Model**, which suggests that a team member will be willing to exert effort on a team task only if they expect their efforts to lead to outcomes that they perceive as important, meaningful and personally satisfying (e.g., pay, enjoyment, feelings of group cohesiveness and belonging, feelings of self-worth).⁶⁴
- **Social Impact Theory**, which suggests that team members are less motivated to work hard when their individual efforts cannot be directly observed and evaluated.²¹⁹ This can lead to social loafing in two ways:
 1. Individuals feel they can reduce their efforts in the team without suffering negative consequences; and/or
 2. Individuals feel isolated and ineffectual in a team and therefore ‘give up’ efforts to contribute.^{56,57,220}

- **Moral Disengagement Theory**, which suggests that individuals are able to knowingly engage in unethical conduct by rationalising their behaviour using a number of psychological mechanisms.²²¹ Drawing on this theory, Alnuaimi and colleagues (2010) found that there are three mechanisms which underpin social loafing behaviour in virtual teams:²²²
 - **Diffusion of responsibility.** The lack of social cues in virtual teams can contribute to a lack of understanding about individual responsibilities in a team and can lead to the shifting of responsibility and accountability onto others.
 - **Attribution of blame.** Individuals justify their social loafing behaviour by blaming the influence of other team members’ behaviour.
 - **Dehumanisation.** The use of communication technology can reduce perceptions of social presence and thus create feelings of detachment among team members. Through this, an individual’s perception of shared humanity decreases and the interests of other individuals can be easily disregarded.



Further Information

Learn more about work design at the Centre for Transformative Work Design.

For more information about our demand-driven research, visit the Future of Work Institute.

Learn about how to manage your own work design and engage in flexible working effectively as an individual worker in the guide, “**How to Make My Flexible Work SMART: A Guide for Workers.**”

For general manager guidance on how to lead flexible workers and navigate the broader issues around flexible work, check out “**How to Lead Flexible Work: A Guide to Successful Policy and Practice for Managers.**”



A blurred background image of an office environment. In the foreground, the silhouettes of two people are visible, one on the left and one in the center, both facing right. In the background, another person is standing, also facing right. The overall scene is out of focus, with a blueish-purple tint.

Virtual team
performance can be
enhanced through
changing the way that
work is designed.

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