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Making time for life: A whole-of-industry initiative to reducing work hours and promoting health and gender inclusion in project-based construction work

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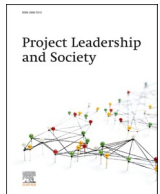
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Empirical Research Paper

Making time for life: A whole-of-industry initiative to reducing work hours and promoting health and gender inclusion in project-based construction work

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ABSTRACT

A cross section of participants representing a 'vertical slice' of the construction industry workforce were interviewed to: (i) understand the way that long hours are experienced by project-based workers and the factors contributing to the long hours culture, and (ii) explore the factors motivating a 'whole of industry' cultural reform initiative focused on reducing work hours in the Australian construction industry. Deeply entrenched systems of work within the construction industry, including competitive tendering processes and the imposition of financial penalties for time overruns, contribute to long work hours that are detrimental to workers' health and wellbeing. Moreover, construction companies develop project programs on the basis of assumptions that projects will run smoothly in all respects. Risks associated with program 'slippage' are passed down the supply chain to subcontractors. The problem of long work hours in construction project work means that a single organisation (whether client or constructor) cannot adequately address the issue. This has led to public sector client organizations and private sector construction organizations to engage in a unique collaborative initiative to reduce work hours and, in doing so, enable health, wellbeing and gender diversity in the Australian construction industry.

1. Introduction

Long working hours are known to be harmful for workers (Wong et al., 2019), and act as a structural barrier to women's participation in construction (Clarke et al., 2018). However, despite this knowledge, little progress has been made in construction to modify working hours so that project workers' health is protected and gender diversity is promoted (Lingard and Wakefield, 2019). Furthermore, much of the research examining the impact of working time in construction has been focused at the individual and organizational level, yet individuals and organizations on their own have limited ability to modify working hours due to broader structural impediments that perpetuate long and inflexible hours of working in the construction industry. While it is critical to understand the impact of long working hours on workers' health and gender equality, what is needed now is research focused on solutions to overcome the structural impediments in construction that continue to reinforce long work hours in project-based work.

There are growing calls to understand workers' health using a multi-level framework (Sorensen et al., 2021; Lingard and Turner, 2017).

Importantly, a multi-level framework considers components of a system operating at different levels to identify the genesis of conditions of work that shape workers' health. Sorenson et al. (2021) argue that it is critical to identify structural forces that create employment conditions and work arrangements and focus on modifying the way work is structured, managed, and experienced by workers to promote health and wellbeing. Similarly, in moving the emphasis away from focusing on the individual to focusing on the broader work context, ISO 45003 (*Occupational health and safety management – Psychological health and safety at work – Guidelines for managing psychosocial risks*) clearly articulates the need to manage psychosocial risks by considering the best fit between tasks, structures and work processes and the needs of workers, as well as to design and manage work in ways that prevent psychosocial risk and promote well-being at work (International Organization for Standardization, 2021).

The construction industry is a system comprising of many inter-related levels. These include government agencies (that take on the role of client in public infrastructure projects), construction organizations that compete with one another to tender for, plan and execute

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construction projects, and workers who undertake project-based work. The construction workforce consists of white collar (professional) and blue collar (trades and labour) groups who have different levels of authority, working conditions, and pay structures. White collar workers are often directly employed by the construction organization, while blue collar workers are usually employed by smaller suppliers that are subcontracted to larger construction organizations operating as principal contractors. We argue that it is important to consider work hours and related impacts arising from activities that occur at multiple levels of the construction industry system so that conditions of work that shape construction workers' health are better understood, and appropriate more holistic health and wellbeing interventions can be developed.

A multi-level examination of working time and its impacts was conducted to identify what changes can be made to the construction industry system to modify work hours in a sustainable way, with a focus on enabling time for life, gender inclusion, and health and wellbeing. A resulting intervention seeking to address working hours from a whole-of-industry perspective is described which addresses the structural barriers to modifying working time. Specific objectives of the paper are:

- 1) To draw on qualitative data collected from a 'vertical slice' (i.e. from multiple levels) of the construction industry's workforce to understand the way that long hours are experienced by project workers;
- 2) To explore the underlying factors contributing to the persistence of a long hours culture, and
- 3) To describe and explore the factors motivating a 'whole of industry' cultural reform initiative focused on reducing work hours to improve time for life, health and wellbeing and gender diversity among project workers in the Australian construction industry.

The paper is structured in the following way. After the introduction we consider the literature according to long work hours, health, safety and wellbeing; time in project-based construction work; and the social dimensions of time. We then outline the research methods including participants, data collection and analysis. We then present the results, followed by the discussion and conclusions.

2. Long work hours, health, safety and wellbeing

Long work hours affect the balance between work and non-work life and have a negative impact on health and well-being (Charlesworth et al., 2011; Fagan and Walthery, 2011). International studies have linked long work hours to poor mental health, depression and anxiety (Artazcoz et al., 2009; Bannai and Tamakoshi, 2014; Dinh et al., 2017) and chronic diseases such as cardiovascular disease and diabetes (Artazcoz et al., 2009; Van der Hulst, 2003). Working long hours affects workers' ability to sleep, exercise, eat healthily and care for themselves and others (Venn and Strazdins, 2017) and the risk of fatigue and occupational injury also increases as work hours rise (Dembe et al., 2005; Dong, 2005; Kecklund, 2005).

Weekly hours in project-based construction work are long, exceeding the 'tipping point' beyond which health is adversely affected (Lingard and Francis, 2004; Dinh et al., 2017). Further, long work hours are associated with stress, fatigue, disrupted sleep, insufficient recovery and productivity losses in project-based construction work (Alvanchi et al., 2012; Beswick et al., 2007; Goldenhar et al., 2003). The length and rigidity of work hours also contribute to high levels of work-to-family conflict and an imbalance between work and non-work life in the construction workforce (Lingard et al., 2010; Turner et al., 2009; Cattell et al., 2017). This is important because work-to-family conflict is significantly associated with burnout, psychological distress, depression, anxiety, sleep problems, poor mental health, substance abuse and marital dissatisfaction in construction workers (Bowen et al., 2018; Kotera et al., 2020; Lingard and Francis, 2005; Lingard and Sublet, 2002; Tijani et al., 2021). The need to work long, inflexible, and unsocial hours has also been identified as a contributing factor to suicide among

construction workers (Milner et al., 2017).

Despite periodic industry reviews and calls for wholesale reform, the Australian construction industry has been stubbornly resistant to change (Loosemore, 2003). Initial trials of a five-day work week were conducted in the mid-2000s in a small number of construction projects but these did not lead to a sustainable change in industry practice despite showing some evidence of improved life balance for project workers (Lingard et al., 2007, 2008). More recently, a five-day work week trial in New South Wales again highlighted the health and wellbeing benefits of changing working time practices in the construction industry (Galea et al., 2021).

3. The social dimensions of time

The way that time is understood in contemporary society has been identified as a barrier to changing work hours in the construction industry (Smiley et al., 2014). We argue that broader theoretical perspectives relating to time are relevant to understanding the experience of long hours and in framing opportunities to reform the culture of long hours in construction project work.

Adam (1995) describes how time has been standardised and de-contextualised such that abstract units (e.g. minutes, days, weeks, months) are used to quantify and allocate time. These units are assumed to have neutral value, i.e. all units of time are deemed to be the same (irrespective of when, where and how they are experienced). Although standardised time is a dominant feature of contemporary culture, Adam et al. (2002) argue that people's lives are simultaneously influenced by times other than standardised time, such as the seasons, periods of daylight and darkness, and the rhythms of the human body. Recognising that time is not context-free has important implications for the way that work is organised. That is, work spent at night, at the weekend or on a public holiday is unlikely to be experienced in the same way as work undertaken during the day during the standard work week (e.g. Monday to Friday in Australia). The implications for working time are apparent in the harmful effects of night shift work (Garde et al., 2020) and the fact that human health is dependent on a rhythmic pattern of rest and recovery (Sonnentag, 2001; Demerouti et al., 2009).

Moreover, Adam et al. (2002) observe that management research and thinking are predicated on the assumption that time is objectively calculable, predictable and controllable. Thus, timelines are established and resources allocated to tasks based on estimates of person hours required to complete them. However, in practice, human endeavour is characterised by uncertainty and variability (Adam et al., 2002) and rigidly defined schedules may not reflect the way that work is done.

Time is also commodified in economic exchange relationships. For example, labour is paid for by the hour, week or month, and labour costs are calculated in the number of person-hours worked in a given period. Organizations can achieve a competitive advantage by compressing work into shorter units of time (Adam et al., 2002). However, this is potentially problematic as it can result in work intensification and stress for workers.

Adam (1995) also argues that the monetisation of time elevates the status attached to time spent in paid work and devalues the time that people spend in other life activities, for example childbirth, caring and emotional work. Despite the social importance of these activities, they exist 'in the shadow' of economic time (Adam, 1995). Moreover a persistent gendered division of labour means that the domestic work of many women is largely unrecognised and under-valued, despite the fact that this work often enables others to engage in paid employment in an unencumbered way.

4. Time in project-based construction work

The de-contextualisation and commodification of time is particularly prominent in project work in which time performance (i.e. completion of work to a pre-determined timeline) is considered to be a critical

determinant of success (Serrador and Turner, 2015). Soderlund (2005) argues that project deadlines are a “fundamental organisational rationale for project organising” (p. 381) and project management teams play a role in setting the pace of work, changing the time orientations of workers to respond to project milestones, and monitoring the ‘rhythms’ of the project to identify and resolve activities that may be out of step with requirements. However, these project rhythms can be out of step with other aspects of workers’ lives, for example family activities (Lingard et al., 2010).

Soderlund (2005) also acknowledges that the work of project managers involves putting pressure on project participants to ensure timelines are met, which can create the feeling that project-based work is “constantly under time pressure” (p. 384). When unexpected events threaten time-related goal attainment, project workers experience this as stressful (Gällstedt, 2003). The relationship between time, health and wellbeing in project work is also evident as limited time resources impact project workers’ wellbeing (Nordqvist et al., 2004) and create psychological distress (Zika-Viktorsson et al., 2006), while unexpected delays contribute to an intensification of work which is damaging to workers’ health (Tüchsen et al., 2005).

5. Research methods

5.1. Participants

A cross section of participants representing a ‘vertical slice’ of the construction industry workforce were invited to participate in an interview. Inclusion of viewpoints from three levels of the construction industry workforce allowed us to explore: (1) how workers at different levels within the construction industry experience and explain the factors that contribute to long hours of work; and (2) the motivation for initiation of a ‘whole of industry’ cultural reform program focused on reducing work hours to improve time for life, health and wellbeing and gender diversity among project workers in the Australian construction industry.

The three levels of the ‘vertical slice’ consisted of:

Client representatives and chief executive officers of construction contracting organizations: Participants were purposefully selected due to their experience in procuring and tendering for construction projects. Participants were executive leaders employed by some of Australia’s largest construction firms, or directors/department heads within government agencies with responsibility for the delivery of programs of construction work.

Project-based white-collar workers: Professional and managerial workers employed directly by a large construction organization engaged to deliver a large public infrastructure (road upgrade) construction project were invited to participate in an interview.

Project-based blue-collar workers: Manual construction workers engaged in civil engineering works were invited to participate in an interview. These interviewees were subcontracted workers directly employed by a small-to-medium-sized construction firm engaged by the principal contractor.

Data collection was approved by the University Human Ethics Advisory Network and met the requirements of the *Australian National Statement on Ethical Conduct in Human Research*.

5.2. Data collection and analysis

Qualitative data was collected by undertaking semi-structured interviews which explored participants’ experiences of working time and perceptions of the factors that contribute to long work hours in project-based construction work. The interviews with industry leaders (client representatives and chief executive officers of construction contracting organizations) also explored their motivation for initiating a culture change program to address working time and the impacts on time for life, health and wellbeing and gender diversity.

All interviews were transcribed and de-identified prior to analysis. Data collected from the three different groups of workers was subjected to thematic analysis following steps established by Braun and Clarke (2006).

6. Results

6.1. Sample characteristics

Interviewee characteristics are summarized in Table 1. Of the nine executive leaders interviewed, five were female and four were male. Four worked for construction contractor organizations and five worked for client (government) organizations. Of the eight managerial and professional workers engaged at the road upgrade project, six were male and two were female. The six project-based manual workers interviewed were all male and engaged in a variety of roles including labourer, plant operator, leading hand and foreman. The manual workers were typically employees of subcontractors engaged by a principal contractor organization to deliver a construction project.

6.2. Themes

The results of the thematic analysis relating to objective one and two are summarized in Table 2. Results for each of the participant groups is presented in the following sections with the use of illustrative quotes to provide context to the findings.

6.3. Perspectives of blue-collar construction workers

The blue-collar construction workers described the negative effects of working long hours – particularly over a six-day week – on their health and wellbeing: “After working last Saturday and coming in today, I just feel like I’m just there. I haven’t left, to be honest ... You know and I feel fatigued straight up.” Another explained the impacts on being able to engage in life outside work: “You go home and you’re exhausted and if you wanted to go and do something, like if you wanted to go and have some dinner or go and do an activity, there’s always in the back of your mind, ‘Oh, I can’t possibly have dinner or do that activity because I don’t have time to give myself enough physical and mental rest to do another 10 or 12 h day the next day’”.

This also meant that workers are unable to participate in family events: “... there’s a lot of times she’s [interviewee’s domestic partner] representing both of us. You know, going and seeing grandkids. Just juggling family. Birthdays, all that. We’re a tight family and she’s always making excuses up for me. ‘He won’t come to this barbecue because he’s working today.’ ‘He’s not going to this birthday party because he’s working today.’”

The experience of long work hours is not the same for all blue-collar workers. For example, workers’ willingness to work long hours, particularly Saturdays, varied depending on their age/life stage:

“The older I get, I don’t want to keep working six days a week. Next year, when I turn 60 and the boss says, ‘Listen, we’re working six days a week’ I’ll be saying, ‘Find a replacement driver for weekends or find a

Table 1

The sample demographic characteristics.

Role	N	Demographic information
Clients and construction executives	9	4 construction contractor executives, 5 government client executives 5 females, 4 males
Project-based white-collar workers	8	All white-collar workers engaged in an infrastructure construction project 2 females, 6 males
Project-based blue-collar workers	6	All male, roles included labourer, leading hand, plant operator and foreman
Total participants	23	

Table 2
Thematic analysis of the impacts and contributing factors for long hours.

Blue-collar workers	White collar workers	Clients/executives
- Long hours of work (and a six-day week) have a negative effect on life and health - Missing out on family time is a consequence of long hours/Saturday work - Work hours are not experienced the same way by all blue-collar workers - Different preferences for trade-off between time and money - Failure to meet project timelines impacts employing organization, clients and end users/customers.	- Long hours of work (and a six-day week) have a negative effect on life and health - Missing out on family time is a consequence of long hours/Saturday work - Brutal daily rhythms to try to manage work and family - Gender norms and expectations increase pressure on women - Expectation of being always available for work - Unpredictability of hours (external socio-political context)	- Long hours of work (and a six-day week) have a negative effect on life and health - Long hours are driven by tight (perhaps unrealistic) project timelines - Competitive tendering contributes to acceptance of tight timelines - Project uncertainty and unexpected events increase time pressure - Financial penalties for time overruns increase time pressure - Different assumptions about work hours, productivity and project time performance - Female workers challenged by long hours due to domestic/caring work

replacement driver full stop.' I can't keep doing it." Another interviewee observed: "I heard stories some guy said, 'Oh, if we don't get to work on Saturday, I want to work 12 hours a day', but you know, then he's young, and he was ambitious, and maybe he's got a half a million dollar loan on a house, and three young kids. But that's him, you know."

The relationship between work time and money is a key factor shaping blue-collar workers' experience and acceptance of working long hours and weekends: "... for some of us we need the extra hours. My entire life, my mortgage, and my vehicles, everything is based around the six-day working week, because that's extra money I get." Another interviewee explained: "If I were to lose my Saturday, that's a lot of overtime. I'm probably out of pocket \$250, \$300."

There is also a difference in experience and preference between workers who are paid a weekly wage versus a monthly salary: "If it was my choice, I would change the hours that we do from 7am until 3:30pm, but I would still have an optional Saturday for everyone. But that's just me, because I'm on a salary, see. So, I only get paid until 3:30. But a lot of the guys that are on an hourly rate, they would definitely disagree with what I've just said. I know a lot of them would rather get that overtime ... I know a lot of the guys on the site, finances are more of an issue than the hours that they're working." Other workers valued free time more highly than additional pay: "... what I earn is more than plenty for me, for my lifestyle and for my domain. And I just want to have more free time for myself, that's all."

The blue-collar workers were also mindful that failure to meet project timelines has consequences for their employing organization (a subcontractor), the principal contractor and the client/end users of a project. This time pressure (emanating from different levels in the system of procurement and work) affects the stress of construction workers: "... if you don't meet those deadlines, it doesn't just hold [their direct employer] up, it holds [the principal contractor] up, and then people are building new houses, so it holds them up, and so the stress was pretty bad [for us]."

6.4. Perspectives of white-collar construction workers

White-collar construction workers also experience time-based conflict between their work and non-work lives. One commented "Everything is related to work hours. I've given up gym, exercising, and seeing friends." Another explained: "I can't do what a normal guy in his mid-20s would do due to work hours."

This not only affects workers but also affects their families: "Given the long hours/early starts required on site I spend limited time with my family during the week." Another worker explained: "I have two young children and another on the way. I don't look after them as much as I'd like to." Weekend work was identified as being damaging: "One of the biggest issues is weekend work, this really impacts on work/family balance. Long days during the week are manageable, but the weekends really impact both myself and my family."

The white-collar workers described the brutal rhythms of their lives as they strive to make time for family and life outside of work: "To be successful in this industry, at the 'frontline' like engineers and supervision, you need to be able to maintain a high level of energy 24-7. This is to both to fulfil your project delivery role and satisfy your family ... that you don't just get too busy to participate at all. I have managed to achieve this balance, but to do so I leave my house at 4.40am and get home 6.45pm onwards." Another interviewee described their daily routine: "Up at 5.30 a.m. and get home from work at 7.30pm. 7.30 dinner, 1 1/2 h on the couch and then it's bed time, Monday to Friday." Sometimes making time for non-work activities involves making trade-offs in time allocated to recovery: "When I was first out of university in a graduate role, I let work become my life. Sleep – work – home – sleep. I decided I didn't want that life and actively chose to have a life outside of work. But I only get 6 h sleep a night which is not sustainable in the long run."

Female construction professionals are affected by gender stereotypes and are concerned about how they will be able to combine parenthood and caring with a career in the construction industry: "Unfortunately, females have it tougher. As much as all males deny it, we have to work harder, longer to be respected and be part of the team. It's scary to think that everything may change for me once I have family because my priorities will change but to maintain my career I'll have to work even harder and even longer."

The white-collar workers described an expectation that they are constantly available for work: "At the project every issue is seen as highly important however small. We must address concerns straight away, like it's the end of the world. There is pressure to answer the phone at all hours. It's hard when I'm trying to enjoy life outside of work. There are many interruptions." Being contacted out of work hours even occurs during company-sponsored 'mental health' days away from work: "On the mental health day I am on the phone anyway with the site. There is much to pre-plan so that things happen on site while I'm on the mental day off ... It defeats the purpose of having a mental day off."

The white-collar workers also explained that their work hours are unpredictable: "I don't know if I have to work on the Saturday until the day before." Moreover, the interviewees explained that short term periods of relief from work intensity are nullified by adjustments that are made to the project schedule: "There are constantly program changes. If ahead of schedule, they draw in the schedule. So if you think you have some breathing space, they bring the time forward."

The white-collar workers attributed long (and irregular) hours at the project to client expectations and changing road traffic volumes: "Travel volume and client demands drive [the] work schedule. Work hours [are] often up in the air until the last minute." The socio-political context of the road upgrade project was also identified as a contributing factor: "It's a very public project. Pressure and media attention comes with this type of project. The client demanded changes regarding traffic so we cannot stop traffic anymore. Traffic must continue to flow while [the] project takes place. The client does not want poor press from complaining drivers."

6.5. Perspectives of construction executives and clients

The construction executives acknowledged that long hours of work in project-based construction work negatively affect workers' health and life outside work: "... when you've got long days you're probably not looking after yourself. You're probably not getting enough sleep. You're also maybe not looking after yourself in terms of your fitness and wellbeing ... that has a large impact on your mental health and you get caught up in a bit of a spiral." Interviewees also recognise that work hours (especially weekend work) are not compatible with family routines: "... there is weekend work, so there's an element around being out-of-step with family patterns, there's certainly a degree of inflexibility – people not being able to participate in things like school events or that type of thing ... there's a degree of inflexibility that impacts people's ability to connect with their families."

Unrealistic project timelines established by clients were identified by construction executives as a major contributor to long hours in project-based construction work: "... the government will announce it's got to be completed in three years. But if you didn't have that three-year timeframe and you said to the industry you give me a contract program that you are 90% sure of delivering on, they might have said four years ... lo and behold it did take four years. So there's an artificial timeline that's put on these contracts." The acceptance of tight (unrealistic) timelines was perpetuated by competitive tendering processes: "... so if contractor one goes 'I think your timetable's unrealistic and you're going to need people on 24 h shifts' but contractor two says, 'no, it's fine, we can do that and we can do it shorter' but has no idea how they're going to do it. They still win the job, because nobody cares in the assessment as to whether or not there's any long-term harm on the individual." When unrealistic timelines are accepted by principal contractors the consequences are typically passed down the line to their subcontractors: "... we're often required or requested to meet ridiculous timetables and timeframes which, in an effort to win the work, you will say yes to, and then you just simply pass it down onto your subcontractor workforce; it goes around in this spiral of lunacy."

The construction executives argued that project timelines are difficult to predict as problems in projects can disrupt progress and create unanticipated time pressure: "... we have an optimism bias. We all believe that we can deliver it, you never say to yourself 'oh we're going to have all these challenges' but obviously in the delivery you do. It rains, it doesn't rain, unions, designs not delivered on time ... there's a number of different factors that contribute to being under pressure for time delivery."

The challenges are exacerbated by significant financial penalties for project time overruns: "There's such consequences in our industry for lateness from a financial perspective, organizations then drive time as such an imperative, but it puts a lot of pressure onto individuals and that means longer days."

Another construction executive commented: "... So what we're asking clients to consider is to be more realistic about the risk that you're getting the contractors to take, because that itself brings an enormous amount of pressure. So the way that jobs are procured and having more realistic timeframes about the delivery, would certainly help [to create] less onerous contracts."

Some client interviewees believed that reducing work hours (particularly cutting Saturday work) would increase project durations: "... if we're looking for a five-day work week rather than a six-day work week it's got to have impacts on timeframes." However, other interviewees argued that long hours reduce production efficiency and that work hour reductions would result in a net increase in productivity: "... this is a systemic issue that we've driven ourselves into this myth of long hours gives you faster, better outcomes which is complete crap." Construction executives described projects that have been delivered on-time when working five (rather than six) days a week: "The best example is where you can sit with the client and say 'we're actually going to give you a program that is a five day a week program' and then work with them collaboratively to understand how you're going to achieve their end dates ... we've proved that on some projects, not every project, but some projects that its better, that's more productive."

The construction executives also observed that long hours can

discourage women from entering the construction industry in project-based roles: "Women still generally speaking, carry the lion's share of the domestic load. So, one of the multiplying factors in the construction industry, because of the lack of flexibility, is that women have less ability to balance those demands compared to other industries where they might have more flexibility. I think there are some things that are harder for women, and women also face different challenges which also impact mental health."

6.6. The culture in construction initiative

In 2018 a Construction Industry Culture Taskforce (CICT) was established to design and implement a significant culture change program in the Australian construction industry. The CICT comprises the Australian Constructors Association, a peak body whose membership is made up of the 19 largest construction, infrastructure and service companies operating in Australia, and the State Governments of New South Wales and Victoria. Thus, the CICT involves a unique collaboration between construction contractors, that ordinarily compete with one another for projects, and the public sector clients that procure these projects. Through this collaboration CICT members seek to drive cultural reform in relation to work hours in the construction industry. To this end the CICT has developed a draft Culture Standard that requires that construction organizations seek to ensure that all workers work 50 h or less per week, and no workers work over 55 h per week. Sites are also required to operate from Monday to Friday. In exceptional circumstances where this is not possible (such as projects requiring occupancy or continuous plant activity), construction organizations are required to demonstrate why Monday to Friday work is not feasible and ensure all workers are working a maximum of five days per week. These changes present a radical departure from the normalised working time arrangements in the Australian construction industry, in which Monday to Saturday work is standard.

6.7. Motivation for the CICT initiative

Interviews explored the motivation for clients and construction executives to pursue this radical change to industry practice. Six themes emerged relating to the aspects of industry culture that participants recognise need to change to prevent harm created by long and rigid work time arrangements. Table 3 outlines the key themes and illustrative quotes. The key themes include a shared belief in the following needed industry actions: to address the culture of long and rigid work hours as a 'root cause' of poor health; to ensure project timelines established in procurement consider the health and wellbeing of project workers; to stop incentivising and rewarding long hours and presenteeism; to provide flexible working time arrangements; to improve work quality to increase the industry's ability to attract and retain workers; and to ensure the drivers of long hours are addressed at all levels within the construction industry system of work.

7. Discussion

7.1. Time for life and health

Workers at all levels in the 'vertical slice' of the construction industry workforce recognise the harmful effects that long hours of work have on the health and wellbeing of project workers. Health-related impacts of long hours are attributed to: (i) less time to recover from work; (ii) longer exposure to work-related hazards; and (iii) interference with time spent in non-work activities (Caruso, 2006; Venn and Strazdins, 2017). White-collar project workers also observed that their time outside work was often encroached upon by work-related phone calls, and out of hours contact (see also the study by Zhang and Bowen, 2021). Project workers described daily routines in which they wake early, work a long day and return home late, leaving little time for leisure activities or effective recovery. The effort-recovery theory (Meijman and Mulder,

Table 3

Thematic analysis of motivation to drive cultural change with regard to working time.

Theme	Illustrative quotes
To address the culture of long and rigid work hours as a 'root cause' of poor health	Things like this [improving mental health] don't change on their own, and you actually need really targeted and deliberate actions for organizations to change, for culture to change, and for people to change their behaviour. I think if anything that would be one of the important takeaways from this; if it hasn't changed, why hasn't it changed? It hasn't changed if there hasn't been focused and deliberate interventions. I'm telling you now, I'm not going to do just a sleep class and a yoga class, because unless we address the culture, it's pointless because you can't get home to practice the sleep or the yoga, or to buy the healthy food that you've learnt how to cook. You know, all these things are important but the root cause is critical.
To ensure project timelines established in procurement consider the health and wellbeing of project workers	We're often required or requested to meet a ridiculous timetable and timeframes which, in an effort to win the work, you will say yes to, and then you just simply pass it down onto your subcontractor workforce. And so that setting up right from the beginning, is absolutely fundamental in terms of really sticking to appropriate timetables that consider the wellbeing, and the longevity of people to be able to work and stay in this industry, absolutely critical. Project planning cycles just need to take mental health into consideration more than they presently do. I keep going back to leadership. Have you bid that job correctly or are you just trying to bid the job to win the job?
To stop incentivising and rewarding long hours and presenteeism	We've established, as a construction industry, this macho bravado culture where we herald and reward and promote people on unhealthy work practices, and unsustainable work practices in terms of excessive hours of work and, you know, aggressive behaviour, etcetera. As a construction sector, we've done that for decades. I often say to my executives you know I don't want you working stupid hours, it's okay to come into the office late having dropped off your kids or gone for a run or done something for yourself and tell people about it, you don't need to sneak in.
To provide more flexible working time arrangements	Flexible working needs are so unique even if you got the same job, because you don't have the same life. And you don't have the same requirements, your outside of work obligations, etcetera. So just because there's two foremen, they're never going to have the same needs around balancing life. We define flexible working as organising how, where or when you work so that it works, it allows you to meet your personal and professional obligations, in a way that works for your client, your team and yourself.
To improve work quality and increase the industry's ability to attract and retain workers	I actually think that government and contractors should be working together to think about how, as an industry, we can build a better quality talent pool. That's not to say that people aren't quality at the moment; it's just we don't have enough.

Table 3 (continued)

Theme	Illustrative quotes
	This change in mindset [of long working hours] will potentially bring, and we're very much hoping that we can move the needle so that the benefits are in a happier workforce, a larger workforce, more people attracted to work in the industry, less attrition, less time that people need to take on leave for stress. We do know that we've been able to retain people who were going to leave because the person offering them a job was offering more money but was not offering five out of seven [work days], so they chose to stay. So we've had quite a few examples of that where they're [staff] obviously valuing the time that it provides them.
To ensure the drivers of long hours are addressed at all levels within the construction industry system of work	Working alongside our government partners is tackling the root cause, and it is so essential. So the whole, this is a systemic issue, this is not one party. So it's not government's problem, it's not the contractor's problem, it's not the subcontractor's problem, it's all of our problem. Looking at the system, all the people who were sitting in the system and all feeding in and any one person can maximise their position in the system, but it could be detrimental to everybody else in it whereas if you actually want it to be the best long-term sustainable system, you've all got to share in the upsides and the downsides. There's a role for government to understand the impact it is having on the market and not to sort of pour fuel on the fire. There's a role there and to reflect on what we procure and when we procure it and how we procure it. I think there's a potential role in the procurement process to set standards and expectations, which already happens across a range of activities such as safety.

1998) holds that the effort spent at work creates load reactions (such as accelerated heart rate, elevated blood pressure and fatigue) which return to pre-stressor levels if recovery opportunities are sufficient and the body's physiological responses are changed from a state of activation to one of rest (Demerouti et al., 2009). However, when recovery opportunities are insufficient (for example in the case of long working hours or when demands continue after-hours), a chronic load reaction can accumulate over time. This sustained load reaction is a significant risk factor for impaired health and wellbeing (Sonnentag, 2001). Insufficient recovery is linked to poor health, and high levels of insomnia, burnout, stress, depression, sickness absence and working while sick (presenteeism) (Wentz et al., 2020).

7.2. Incentivisation of long hours

Participants described how long hours of worked are incentivised in project-based construction work. Blue-collar workers who are paid an hourly wage described how working long hours (including overtime) provides them with necessary income. For some of these workers, reduced hours were seen as undesirable because their weekly wages would be reduced. However, this was not a concern for all blue-collar workers, some of whom indicated they would sacrifice pay to have more free time outside of work.

Given the well-documented health effects of long work hours, the long-term sustainability of working very long hours in often physically

demanding work should be of concern to construction workers and employers. Yet mandating work hour reductions without careful consideration of the financial implications for project workers is unlikely to succeed where a subset of workers remain concerned about how this will affect their pay. It is critical that workers' preferences in relation to working time arrangements be better understood in relation to their remuneration. For example, research needs to explore whether (and the extent to which) workers in different life circumstances are willing to sacrifice a portion of their wage for a reduction in work hours.

The extent to which a reduction in working time is achievable with no commensurate reduction in pay should also be carefully considered. For example, there is some evidence to suggest that the productivity of trade-based construction workers decreases as the number of hours worked per week increases (Hanna et al., 2005). As noted by one of the participants in the present research, working long hours does not necessarily produce "faster, better" outcomes.

Participants in the present research also described how long hours of work are driven, in part, by the construction industry's systems of competitive tendering for work. Participants noted that principal contractors compete with one another for work and, in the interests of winning work, may sometimes accept tight (possibly unrealistic) project timelines. Under these circumstances construction work needs to be compressed into a shorter period of time and participants in the present research acknowledged this meant that time pressures are cascaded down the supply chain to smaller suppliers and subcontractors. The harmful effects of tight project schedules are exacerbated by contractual arrangements in which principal contractors are exposed to the risk of substantial financial penalties for time overruns (Hayford, 2020). In combination, these characteristics of the construction industry's broader systems of work create strong structural barriers to reducing the working time of project workers.

7.3. Time and family life

The fact that working non-standard hours is qualitatively different to working a standard work week is acknowledged in 'penalty rates' of pay that apply for working outside standard hours and at the weekends. Participants in the present study noted the harmful effects of working non-standard hours, particularly when work schedules are not compatible with the timing of other life activities, e.g., family routines (Tammelin, 2018). Both blue-collar and white-collar project workers described how they regularly forego participation in important family activities and events because of their work schedules. In some cases, this was framed as a 'choice' made by project workers (for example to pursue career opportunities or maximise pay) but participants' comments also indicate that they regret being unable to participate more fully in family life and are concerned about the effect on their family members and relationships.

Male participants in the present study also explained how their domestic partners take exclusive responsibility for caring and family work, enabling them to make an unyielding commitment to project-based work (Pedulla and Thébaud, 2015). Thus, the entrenched working time practices of the construction industry appear to shape the way that families organise their work and family time and reinforce a highly gendered division of labour within households. This is likely to be problematic for female workers in project roles who are less likely to have support at home. It is noteworthy that one of the female white-collar workers in our sample foreshadowed the challenges she expects to face should she decide to have a family while in her project role.

7.4. Predictability and control of working time

The management of construction project programs involves a rigorous process of estimating how long project activities will take and allocating resources to activities to ensure that timelines are met. It is

estimated that labour costs account for between 30% and 50% of the total cost of a construction project (Karimi et al., 2017), and therefore determining how much time construction work will reasonably take has important implications for project pricing.

However, it may be more difficult than expected to calculate and control time in project planning because living processes are, by their very nature, unpredictable (Adam, 1995). Participants in the present study acknowledged that the assumptions underpinning project programs are sometimes flawed. They describe a prevailing 'optimism bias' in the construction industry whereby decision-makers develop programs based on the assumption that projects will run smoothly in all respects. However, in reality, construction projects typically experience unexpected events and delays that disrupt the program and create pressure to make up for lost time. These pressures will be felt by project workers and constitute another challenge for companies attempting to reduce working time.

7.5. Working time flexibility

It was acknowledged by participants that working time flexibility is also important. However, Adam (1995) observes that flexibility has different forms and can have different (sometimes contradictory) effects. Participants observed that workers may differ with respect to what flexible arrangements would work best for them. Participants also described situations in which work schedule flexibility is implemented in ways that benefit organizations rather than workers. For example, at the road construction project, white collar workers described how, when work was ahead of schedule and workers felt they had a bit of 'breathing space,' the organisation made adjustments to the program to 'draw in' scheduled activities and bring future deadlines forward. These workers also describe how their work hours frequently changed to accommodate temporal variability in road traffic volumes and flow. These examples show how flexibility of working time can work in different ways, i.e. in the interests of workers, or in the interests of organizations. It is important to note that flexibility in the latter category may not be beneficial to project workers' health and wellbeing, and therefore the way that work schedule flexibility operates for project workers is important to consider.

8. Conclusion

It is evident from the foregoing analysis that long and inflexible hours in project-based construction work are deeply entrenched and driven by factors operating at different levels within the construction industry's systems of work. As such, interventions designed to modify working time need to target different levels of activity in the work system of construction, including procurement, competitive tendering, planning, scheduling and sub-contracting of work.

Given the complex and inter-related nature of the construction industry, it is unrealistic to expect that problematic working time arrangements can be resolved by a single organisation, whether at the client or contractor level. In order for change to working time patterns to be implemented in a sustainable way, there is a need to create a level playing field within which construction companies tendering for work are not disadvantaged by submitting project programs that provide realistic time allocations for tasks and establish timelines that enable healthy work hours for project personnel. One of the Chief Executives interviewed as part of the present study suggested that clients can influence this by requiring all bidders for a project to submit a program that is evaluated as having a 90% chance of being delivered on time and then engaging an independent consultant to verify these programs before selecting a construction company for a project.

The CICT initiative represents the first collective attempt to deal with the issues of long and rigid work hours, health, wellbeing and gender diversity at source. The CICT has developed an ambitious draft Culture Standard that is currently being trialled in six pilot construction projects

with the support of participating clients and contractors. The collaboration between clients and contractors is a critical factor contributing to the ability of the CICT to achieve such a radical change to working time practices in the Australian construction industry. Arguably, the multi-level cultural change program needed to address the construction industry's challenges could not be achieved without strong leadership and collaboration between clients and contractors across the sector.

It is proposed that the Culture Standard will eventually be incorporated into public procurement processes such that all companies bidding for work will agree to implement the Culture Standard during project delivery (Construction Industry Culture Taskforce, 2021, p.5). It is hoped that this approach will provide the level playing field that is needed if sustainable change is to be achieved.

8.1. Limitations

The study is limited by the small sample and the potentially subjective experiences of project workers from a single company or project. However, data obtained from chief executive officers suggest that there are deeper structural issues driving long work hours which are likely to be widespread across the construction industry and not unique to a single organization or project. The limitation of the small sample is counterbalanced by the uniqueness of exploring the problem from the perspectives of workers at different levels of the construction workforce. More research is needed (and is being undertaken by the authors) to explore the effects of different models of working time driven by the implementation of the draft Culture Standard at case study construction projects.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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