Understanding Time in Context:
Shift Work in a Precast Concrete Factory

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Abstract

This paper analyses the understanding of time in shift work systems and the consequences for employability and work-life balance. We use the case study method to examine an unusual case of shift work within the framework of a specific social and cultural context. A shift system in a factory in the construction industry resulted in productivity gains for the company and, contrary to what most research on shift systems reports, produced work-life balance benefits for employees. The system has been in operation for 14 years and has provided jobs for a population otherwise excluded from the labour market.

Keywords: shift work system, work organisation, work-life balance, time
Introduction

Shift work is a method of organising work of significant use. According to Eurofound (2012, p.41) some 17% of workers in the EU work in shifts.

Shift work was developed to optimise the use of capital, adjust to changing production demands (Bosworth & Dawkins 1980; Bosworth, Dawkins and Westaway, 1981; Jirjahn 2008), and to deploy emergency services (Hyman & Marks, 2008). From the beginning, there has been concern about the side effects of shift work (Bosworth & Dawkins, 1980) and there is an extensive literature on its (primarily adverse) consequences for health (Dembe, 2009; Eurofound, 2012; Finn, 1981; Haines, Marchand, Rousseau, and Demers, 2008). Scholars including Brough and O'Driscoll (2010), Haines et al. (2008), and Hyman and Marks (2008) have also studied the specific consequences of shift work for work-life balance (WLB).

Shift systems organise and distribute working time. The length and structure of shifts and rest time, as well as their stability (rotating or not), characterise the different varieties of shift systems (Bosworth & Dawkins 1980; Eurofound 2012). However, although ‘time’ has been analysed as a cultural dimension in the management literature, in the WLB literature the cultural embeddedness of shift work has received little attention.

In this research paper, we contribute to filling this gap by analysing an unusual case of shift work. Uniqueness of extreme or unusual cases has been recognised by different methodologists as worth studying (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Flyvbjerg, 2006; Stake, 1994). The case we selected presents an experience of a shift work system that uses distribution and duration of shifts to provide job offers that are attractive to specific segments of the labour market. People belonging to these segments either did not previously find conditions that enabled them to work (being previously inactive), or changed jobs to accept the shift work offer.

This paper is organised as follows. We first introduce key data on shift work and review the relevant literature. Secondly, we describe the empirical research conducted and explain methodology and findings. We then discuss these findings with the existing theory. We finally address the limitations of this research and suggest lines for potential future research.
Shift work in organisations

Shift work has been defined as “a situation in which one worker replaces another on the same job within a 24 h period” (Bosworth et al., 1981, p.145). Jirjahn (2008) defines it as “the operation of the same capital stock by different groups of workers on alternate hours” (p. 135). Reasons given to explain the use of shift work include the intensive use of capital and the need to provide specific services (Bosworth et al. 1981; Hyman & Marks 2008; Jirjahn 2008). Concerns about the consequences of this system of work organisation have entered the Eurofound (2014) definition, where shift work “involves a regular work schedule during which an enterprise is operational or provides services beyond the normal working hours and where different crews of workers succeed each other at the same work site to perform the same operations. Shift work usually involves work in the early morning, at night or at the weekend; the weekly rest days might not coincide with the normal rest”. The need for workers to work at different times (i.e., unstable shifts) is not included in the above mentioned Bosworth and Jirjahn definitions.

In EU legislation, as reported in the Eurofound web page (2014), shifts are considered in the framework of the working time directive: the Council Directive 93/104/EC of 23 November 1993 concerning certain aspects of the organisation of working time (as amended by Directive 2000/34 of 22 June 2000) defines shift work (Article 2(5)) as “any method of organising work in shifts whereby workers succeed each other at the same work stations according to a certain pattern, including a rotating pattern, and which may be continuous or discontinuous, entailing the need for workers to work at different times over a given period of days or week”. Shift work is subject to the directive’s general requirements regarding minimum daily rest.

The concerns implicit in the Eurofound and EU legislative definitions (unstable shifts and minimum daily rest) can be understood in the light of some data. According to the Fifth European Working Conditions Survey, work harms the health of workers in 33% of cases in shift work, compared to 23% in non-shift work. According to the survey, shift work has other consequences: 71% of shift workers report a good fit between working hours and social commitments, compared to 81% for non-shift workers; some 55% of shift workers declare ‘working at high speed at least half of the time’, compared to 44% of non-shift workers; some 40% of shift workers are ‘consulted before work targets are set (always or most of the time)’ compared to 48% of non-shift workers; and 60% of shift workers report “feeling at home in the organisation you work for” compared to 72% of non-shift workers (Eurofound, 2012; 41). Consequences of shift work on health (European
Commission, 2010) have been studied in the framework of recent attempts to modify working time legislation in the EU.

Length of time and distribution of time are two concepts that have been used to analyse shift work.

We can trace the antecedents of time analysis in work organisation to earlier studies of industrial organisation, including Thompson’s (1967) study of time and work-discipline in industrial capitalism. The analysis of female work in pre-industrial Catalonia by Casal-Valls (2012) is another example of this approach. In recent scholarship, organising ‘time’ beyond shift work has been extensively researched. Several special issues have specifically analysed time in management (Karsten & Leopold, 2003), and in WLB (Sabelis, Nencel, Knights and Odih, 2008).

Boundaries of time and space seem to be clear in the shift system, as opposed to the blurring of these boundaries in other jobs, especially in professional and managerial occupations. This blurring has been emphasised over the last two decades as being linked to the greater flexibility that information technology has enabled in some occupations. Time has also been researched in the WLB literature.

In part of the WLB literature (Hilbrecht, Shaw & Wilson 2008; Kelliher & Anderson, 2010; Steiber 2009; Tietze & Musson, 2005) the study of time is mainly connected with flexibility and with managerial and professional occupations (Hilbrecht et al., 2008; Tietze & Musson, 2005; Vincent & Neis, 2011). Results of these investigations point to the positive (Peters, Den Dulk &Van der Lippe, 2009), negative (Hyman & Marks, 2008), and sometimes both positive and negative consequences experienced by employees and their families (Kelliher & Anderson, 2010; Rodrigues Araújo, 2008; Tietze & Musson, 2005). Time is researched in the boundaries of paid and unpaid work for homeworkers by Tietze and Musson (2005). Interestingly, they use the concept of *tagwerk* (‘a day’s work’ in German) to refer to the “temporalities and ethos of household production” (p. 1335), in which “the organizing of work, rather than being rigidly pre-given, is controlled by individual workers, who take account of changing circumstances and situational contingencies when making decisions about the fulfilment of tasks, rather than the “clocking” of time” (p. 1336). However, there is another stream of the WLB literature in which time, and more specifically shift time, has been researched mainly in relation to operational activities and working-class employees (Brough & O’Driscoll, 2010; Hyman & Marks, 2008).
In contrast to how time is viewed by Tietze and Musson (2005, p. 1336), in shift work the boundaries of paid and unpaid work are clear and the ‘clocking’ of time matters. However, some experiences reported by Brough and O’Driscoll (2010) suggest a degree of employee participation in a method of organising that is often perceived as rigid. Indeed, these researchers identified previous research on organisational-level interventions regarding WLB that resulted in positive outcomes for employees and their employers.

The interventions selected by Brough and O’Driscoll (2010) included the participation of the employee’s partner in shift work training and management (Wilson Polzer-Debruyne, Cohen, & Fernandes, 2007); some types of shift change, specifically slow-to-fast rotations, backward-to-forward rotations, and shift self-management (Bambra, Whitehead, Sowden, Akers & Petticrew, 2008); or open rotation systems (Pryce, Albertsen & Nielsen, 2006). They concluded that “the manner in which shift work schedules are implemented is a more critical factor than the shift work per se” (Brough & O’Driscoll, 2010, p. 288).

However, in these studies on shift work and WLB, cultural embedeness is not analysed. According to Adam (2006), “Clock-time, which was developed in Europe during the 14th century, no longer tracks and synthesises time of the natural and social environment but produces instead a time that is independent from those processes: clock-time is applicable anywhere, anytime. Context no longer plays a role in clock-time” (p. 123). The patterns of shift work as described in the literature scarcely make reference to context.

In the same line, cross-cultural management literature has explored different aspects of time but given little attention to the role of time in work organization, and, specifically, shift work. Dimensions of time analysed in cross-cultural management studies include the discussion of long-term versus short-time cultures by Hofstede and others (1990, 2001); Trompenaars and Hampden-Turner’s (1998) distinction among cultures oriented to past, present, or future, as well as the sequential differentiation (some people see time as a sequence of events at regular intervals), or polychronic–synchronic distinction (people conceive time as cyclical and repetitive, compressing past, present, and future). From another perspective, Hall (1984) analysed how cultures value time (e.g., minutes, weeks, seasons) specifically in the western world.

Despite these different perspectives of time in the cultural analysis, ‘time’ as length, structure, and stability of shift work has not been addressed in cross-cultural management literature. The concept of a working day, its length and structure, including
the number of breaks and their duration, as well as the stability of this structure, has seldom been studied focusing on context. More specifically, the adequacy of shift work design to the specificities of time organizing in a particular context has not been investigated. Contextual understanding of time is not addressed by Brough and O’Driscoll (2010) in their analysis of the WLB effects of shift work. Analysis of the cultural aspects of time is also absent in shift work literature (Bosworth & Dawkins, 1980; Bosworth et al. 1981; Finn, 1981). However, there are reasons to consider that this perspective is worth studying.

Although Bosworth and Dawkins (1980) stated that ‘it is not possible to define a normal working day precisely’ (p.33), Finn (1981) introduced the idea of a circadian rhythm “that governs many of the major biological functions of the human body” (p. 32). Days are structured in different ways in different countries and respond to different habits and traditions (Bellisle, 2009).

For some scholars, shift is associated with working in unusual or unsocial hours. Finn (1981) uses the term of ‘dark hours’ to refer to what, for him, is essentially shift work: “Most discussions consider shift work to be any employment that regularly occurs between 7:00 p.m. and 7:00 a.m.” (p.31). For Finn, however, shift work is essentially night work. In contrast, Bosworth and Dawkins (1980; 34) consider one of the patterns to be ‘double day shifts’. However, darkness appears at different times in different countries according to latitude, and hours of daylight vary during the year. School times, shopping habits, and opening hours for different services that affect a shift worker’s life differ across countries and cultures. However, how shifts differ according to these different experiences of time has scarcely been researched.

In this paper, we analyse structure and length of shifts, and analyse cultural embeddedness and consequences for employability and WLB. We do this by investigating and discussing shift work at Mettallstruct (fictitious name), a family firm operating in the precast concrete industry.

**Research design and data collection**

Our research interest in Mettallstruct was generated by its unusual management of shift work. Following Stake (1994), who emphasised the interest of specific cases as a driver for research, we identified as worth studying an unusual length and structure of shift work, and its positive consequences for segments of the local labour force. Stake, as
well as other scholars (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Flyvbjerg, 2006), remarks on the appropriateness of the case research method for studying uniqueness. These researchers emphasise the potential of learning from a given case as the criterion for choosing this research strategy.

These authors also emphasise the appropriateness of the case study method when context matters. From the first approximation to the experience of Metallstruct, it became evident that specific features of the context had to be part of the investigation. The case study method gives us contextual information that is relevant in cultural studies.

Case studies can be developed using a variety of data (Stake, 1994; Yin, 1994) including document analysis, in-depth interviews with project leaders and other local actors, site visits, and observation. We conducted interviews with the two members of the family who are owners of the company. The father, Joan Marc, is the president; the son, Jofre, is the CEO. We also interviewed three managers and four employees. Interviews with employees at Metallstruct gathered different profile-linked reasons that led them to work at Metallstruct. Sequences of operational work were video-recorded. Contrasting information was obtained for secondary data, including an interview with a social worker and informal conversations with local inhabitants.

The research case was conducted in 2006. Information was updated in 2008, 2011, and 2013.

**The Case: Metallstruct**

Mettallstruct is a medium-sized family-owned company that produces concrete structural elements for the construction industry. It is part of a family group of industrial companies. Metallstruct employs 140 people of the 1200 employed by the entire group. The factory and the headquarters are located in a city of 15.000 inhabitants located in Catalonia, 140km from Barcelona. The city is in a local county of around 30.000 inhabitants where agriculture and stockbreeding have more weight than in the rest of Catalonia. However, the county also has other industries covering a range of activities. Traditionally, this county has less unemployment than other regions of Catalonia.

The factory is organised around three shifts: 8.55 am to 12.55 pm, 1.00 pm to 4.55 pm, and 5.00 pm to 9.00 pm.
Shifts at Metallstruct

Mettallstruct was founded in 1998 to provide other companies in the group with iron structures for construction. At the time, scarcity of labour was a challenge for the company. It could not find potential employees in an area with a low unemployment rate. There were no potential employees available at the usual working hours (40 weekly hours: 9.00 am to 1.00 pm – followed by a traditionally long lunch break and then 4.00 pm to 8.00 pm). This situation forced the company to rethink its normal organisational schedule.

The company initially considered employing farmers (usually working within family businesses) who could combine both jobs (farming and factory working). However, this approach proved infeasible. As Jofre remarked:

‘They were our first thought: we tried to persuade them that they had plenty of free time in winter because there is little farming work to do and their farms are small. However, we had some problems: firstly, it is seasonal work; and secondly, when in the summer we have the most work, they are also busy with the fruit harvest’.

Some of these farmers suggested approaching their wives, who usually also work in the family business. This suggestion was coincident with the observation that many women could be found waiting outside a local school at 1.00 pm and were therefore unlikely to be actively seeking full-time work. The urgent need for a solution led the company to consider options for designing work in a way that was compatible with school hours or other jobs.

‘They told us that their wives would be able to (work) [...] and so we asked ourselves the question: If we gave these women a schedule that allowed them to pick up their kids at exactly this time, but let them work for us in the mornings or afternoons, would the answer be a ‘Yes’?’ (Jofre)

The company made a feasibility study with the collaboration of local government and representatives of one of the trade unions. They subsequently advertised for workers in the local media and obtained a larger than expected number of applications. Shift work was mentioned but no reference was made to gender. More than 300 candidates, all of whom were women, turned up for interviews when the company was looking for just 25 employees.
While the company initially thought that only the 9.00 am to 1.00 pm shift would attract applicants, the time availability of the candidates soon made it clear that there were other possibilities. After discussing availability with the candidates, managers adjusted the schedule to comprise three shifts: 8.55 am to 12.55 pm, 1.00 pm to 4.55 pm, and 5.00 pm to 9.00 pm. The advancement of 5 mn allowed employees to deliver and pick up children at the nearby school.

The company's managers expected to fill the morning shift (8.55 am to 12.55 pm), but were worried about filling the other shifts. They were surprised to be able to also fill the ‘noon’ shift (12.55 pm to 4.55 pm) and the evening shift (5.00 pm to 9.00 pm).

‘We put on the nine-to-one shift in the certainty that we could fill it, because it lets women leave their kids at school and then go back at one to pick them up. We now do it this way, they set their watches... they start at five to nine, leave the kids at school, and at five to one we stop so they can go for the children’. (Joan Marc)

Assumptions about labour availability or how to organise the working day to attract the required workforce were proven wrong, and, in general, different profiles of workers opted for different shifts:

‘We thought the one-to-five shift would be very hard to fill, and the five-to-nine even more so. But no, we soon reached the right balance, and had no trouble filling all the shifts. The first shift started to fill up with young mothers who had to take their kids to school. The one-to-five shift went basically to women whose husbands didn't come home for lunch. And the five-to-nine shift has the oldest women. It was taken by grandmothers who look after the children of the younger women who worked in the morning, so in the evening they were free to join the evening shift. We have a good balance in this respect’. (Joan Marc)

Employees reported the benefits from their perspective: being able to contribute to the family income and having shifts that were compatible with shop opening hours, enabling them to continue with other duties. Despite being a ‘hard' job, some preferred it to previous jobs. An employee called Agnes explains:

‘People were talking about it in the city and I was looking for a four-hour job. Personally, I find it great because in the morning I do the books for my father, and when I worked eight hours in one place this was hard
going. This way, working four hours in the afternoon, it's perfect: I have the morning free for the books, and then of course all the places I need to go are open and I don't have to ask for time off anymore and now I can go wherever I want. [...] But it's hard work. There's no comparison between working at a checkout and handling metal parts - the fixing process etc., it's just not the same. But it's only four hours and it's adapted to us, so it's fine. I'm better off'.

Another employee, Gemma, used to work in a supermarket in the city where she did long hours. The four-hour working day and the choice of shifts made her change jobs. She had teenagers at home and was happy to spend more time with them:

-'I like it, I like everything really. If time goes by quickly it means you're enjoying yourself. And time goes by very quickly here [...] It's a question of practice. At first, maybe it's a bit more difficult because you see lots of lines (the plan) [...] but then you soon get to know the parts and where they go'.

Carmen, a Mettallstruct worker since its foundation, explains how this schedule has enabled her to go back to work after giving birth to her daughter:

-'I worked in another company when I was single and when I got married, I had my daughter and spent a year or so doing nothing. Then I came here. It's also been good for me to do the morning shift from 9 to 1 since I could combine it with the times when I took her to school [...] Most women have kids, and this is the best shift for them. Although some work from 1 to 5 because this suits them better; maybe they leave the kids in the school canteen and at 5, when they knock off work, they go and pick them up. Everyone has their own routine, for me 9 to 1 is best'.

In summary, the employees we interviewed reported gains related to more freedom to organise their family life (children, elderly family members, dependents, spouses, friends); personal and free-time options (education, friends, hobbies, etc.); and involvement in other community activities. Other benefits of the system were linked to personal situations and professional development possibilities. For people who had never worked before, many of whom were over 45, it was a chance to earn income and contribute to pensions. Other workers described their work at Mettallstruct as challenging and a source of satisfaction and recognition, despite the difficulties and hard work
involved; or socialisation (being part of a working group – as opposed to staying at home, or working individually, e.g. in domestic service). Employees mentioned improved attention to child care or education (free time, the possibility of picking up children from school, time to pay attention to adolescents) and time to help others in their business or do another job.

Owners and managers reported gains in terms of ‘solving the problem of a lack of potential workers’. In addition, they reported unexpected gains in productivity resulting from redesigning jobs to yield non-stop 12-hour production from 9 am to 9 pm, as well as improvements in product quality attributed to two factors: less tiring shorter shifts, and women being more ‘caring’ with the process. Moreover, this innovation in working hours enabled the company to stay in the area, remain involved in the social community, build corporate reputation linked to CSR practices, and innovate in organisational and production processes.

Both owners and managers welcomed this approach to shift work as it brought benefits to the community, keeping jobs and revenue within the region. This perception has been maintained during the current economic crisis (2011) and the resulting reduction in the number of employees.

The number of jobs had been gradually rising, from 30 at the start in January 1999 to 162 at the end of 1999. However, redundancies resulted from the economic and financial crisis that started in 2007 as the construction industry was strongly affected. The number of registered unemployed in the construction industry was of 17,500 in Catalonia in 1997 and grew to 101,000 unemployed people in 2013 (Idescat, 2013). Nevertheless, the short-shift system continues: ‘In 1999 we began the project. At the peak, in 2007, there were 250 workers. The shift system is still in force; it’s just that the construction industry is very badly hit by the [economic] crisis. We now have 110 women working in the factory’. (Jofre, May 2011).

**Analysis and discussion**

Shift work has been used traditionally to optimise use of capital (Bosworth et al. 1981; Jirjahn, 2008) and to provide services that require continuous staffing (medical care) or availability (emergency services). In recent decades, the market globalisation has led to an increase in 24/7 service for consumers in many industries (Hyman & Marks, 2008).
In contrast to the reasons reported in the literature, shift work at Metallstruct was designed because of a shortage of potential employees (in an economic boom) available to work the ‘usual’ timetable (40 weekly hours: 9.00 am to 1.00 pm, followed by a long lunch break and then 4.00 pm to 8.00 pm, or 3.00 pm to 7.00 pm). The urgency of a solution (moving away was rejected) led the management to rethink work organisation in terms of length and structure. The process of recruitment forced the company to listen to potential employees about time availability and challenge assumptions about the time availability of ‘ideal workers’ (Acker, 1990).

Contrary to what is usually reported in shift work literature (Bosworth & Dawkins, 1980; Finn, 1981; Hyman & Marks, 2008), our research points to the positive aspects of shift working for employers, employees, and the local community. These positive aspects arise because the shifts are short, stable, and scheduled to meet the ‘life patterns’ of subgroups of the working population in harmony with established uses of time in a particular cultural context. We argue that the reasons for success lay in the capacity to challenge assumptions about organising time and in the social and cultural embeddedness of the new shift system.

In contrast to what is argued by Adam (2006), context is given a role in this shift organisation. Clock-time of work organisation is conceived within the framework of the clock-time of community life. The shift system at Metallstruct is designed in line with the social and cultural habits of ‘day organising’ that have been insufficiently studied in management studies. What in the local area is perceived as evening, or late evening, in other cultures, geographies, or countries may be perceived as early night, or night. As Finn (1981) pointed out, darkness happens at different times in different places.

The same can be said about breaks for lunch and rest. ‘Lunchtime’ in Metallstruct’s local area (between 1.00 pm and 4.00 pm) is afternoon in many other countries. For a person in the area to finish work at 9.00 pm means finishing 30 minutes after shops in the city centre close. However, short shifts (4 hours) are compatible with the local organisation of life, including school time patterns (usually 9.00 am to 1.00 pm and 3.00 pm to 5.00 pm).
The fact that this combination is possible provides stability and predictability (Bosworth & Dawkins, 1980; Finn, 1981) to the shift system, which is developed at Metallstruct in the line with the ‘usual’ opening hours of other business (namely, from 9.00 am to 9.00 pm). This stability and predictability avoids the negative consequences often associated with shift work (Bosworth et al. 1981; Jirjahn, 2008) while at the same time providing 12 hours of non-stop labour that meets the company’s productivity requirements.

Our findings are coherent with an analysis of the consequences of shift work on WLB reported by Brough and O’Driscoll (2010): “the way shift work schedules are implemented is a more critical factor than the shift work per se” (p. 288). Shifts were designed at Mettallstruct to echo the needs and time availability of potential employees. Adding to the suggestions of these scholars for studying embeddedness in an organisational culture when analysing organisational interventions, we propose researching embeddedness in a cultural context.

From the cultural perspective, what we find in Mettallstruct’s case points to the need for revisiting assumptions regarding time organisation. Assumptions about ‘how long’ and ‘when’ work and rest are due or acceptable may be undermining innovation in ‘working day’ or tagwerk organisation. What is noon in some countries is afternoon in others; and schools, universities, businesses and services are organised with different time patterns. Methods of organisation should consider capital use optimisation and service needs from the point of view of the employer, as well as benefits for health and WLB from the point of view of employees.

We also found in Mettalstruct that life course matters. Research in WLB has stated that needs of balancing personal and working time evolve along the course of life (Craig & Sawrikar, 2009; Erickson et al. 2010; Martinengo, Jacob & Hill, 2010). At Mettalstruct, women choosing different shifts are in different age groups. We have seen in our research that grandmothers help their adult sons and daughters take care of their young families. This approach to family life is very common in Mediterranean countries, but may differ in other Western countries. Such life course patterns should be considered in contextual research in WLB.
Conclusion and future lines of research

In this research we analysed an unusual case of shift working. While the negative effects of shift work are associated with instability (working at different times), short notice changes, and insufficient rest time (Eurofound, 2012), the case studied had beneficial results for employers, employees, and the community. We claim that there has been insufficient exploration of the possibilities of shift work embedded in a specific socio-cultural context, as observed in the researched case study. The case analysed indicates a possible line for innovation in work organisation that could be a solution for segments of the potential workforce if a cultural understanding of how these segments organise their days is researched. This is socially relevant in the light of the current economic situation in Europe and concerns about increasing labour participation and reducing unemployment among specific segments.

The case enables us to stress that despite possible productivity gains, a preferred shift system may be neglected or silenced when other potential workers are available for a ‘standard’ shift organisation. In the analysed case, rethinking work was done because there was no available workforce at standard work schedules. While the case focuses on profiles of women whose time availability had been neglected, the same reasoning could be applied to time availability for men who have been excluded from labour markets for similar or other reasons (those who want to assume paternity obligations or opt for non-standard working hours and careers).

In deconstructing the cultural construction of work organisation, we highlight the potentiality of (re)thinking work design in the cultural context and reconsidering assumptions regarding work time and productivity.

It could be claimed that this case was developed during a period of economic growth and low unemployment (the 1990s). However, the model has been maintained in 2012, when plenty of potential workers were available because of high unemployment. The formula has been maintained despite an economic crisis that is severely affecting the construction industry. We claim that this is linked to the coherence with the needs of the women and that the system has brought greater than expected productivity gains to the company.
Our investigation opens a line of potential research that is relevant for society. Future studies should investigate whether the shift system (when it starts and finishes and how shifts combine) and the length (duration) of a shift may enable different segments of the labour market to combine their time availabilities. Research is needed to inquire whether it may be possible to avoid undesirable consequences (Eurofound, 2012) if shift work is ‘rethought’ to provide stability and minimise undesired effects. It should be noted that short shifts enable people otherwise excluded from the labour market to work. These possibilities go far beyond the typical ‘mummy track’ portrait used to refer to professional and managerial occupations (Benschop & Doorneward, 1998), and include other, usually neglected, segments of the population. In times of economic crisis this is more relevant than ever. It is also worthwhile researching the type of jobs to which this system can be applied. Similarities with ‘shared work’ can also be explored.

Future research should also explore time availability in different moments of life (Bengston & Allen, 1993) and in specific cultures. Type of families and the roles of families vary with cultures (OECD, 2011) and this has an effect on how people manage the work-family relationship.

Finally, future research should consider the fact that the case develops in a semi-urban area. While this could limit generalisation to other types of environments, studies in other settings should be encouraged. While it is true that five-minute proximity facilitates transit from ‘work’ to ‘non-work’ activities, experiences with public transport facilities in large cities and industrial estates should be explored.

We should also be cautious and consider the limitations of this research. As Flyvbjerg (2006) noted, findings from a unique case study cannot be generalised. However, although these possibilities will probably not be applicable to all shift work, they may apply to a sufficiently large part that the practice is worthwhile exploring. Implementation may mean that the negative consequences for health of current shift systems may be mitigated; and part of the potential labour population, now neglected in work inclusion, who paradoxically have time available for work at different times of those usually required in job offers, could enter the workforce.
References


## APPENDIX 1: Evolution of employees (all women) at Metallstruct, age groups

<table>
<thead>
<tr>
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<th>Number of employees (age groups)</th>
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<td><strong>1999</strong></td>
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<td></td>
<td>16-24 year old: 4</td>
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<td></td>
<td>25-34 year old: 67</td>
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<td>35-44 year old: 63</td>
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<td></td>
<td>45-54 year old: 27</td>
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<td>55+ year old: 1</td>
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<td>Total employees: 162</td>
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<tr>
<td><strong>2011</strong></td>
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<tr>
<td></td>
<td>16-24 year old: 0</td>
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<td>25-34 year old: 7</td>
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<td>55+ year old: 12</td>
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<tr>
<td></td>
<td>Total employees: 110</td>
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<tr>
<td><strong>2013</strong></td>
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<tr>
<td></td>
<td>45-54 year old: 48</td>
</tr>
<tr>
<td></td>
<td>55+ year old: 15</td>
</tr>
<tr>
<td></td>
<td>Total employees: 96</td>
</tr>
</tbody>
</table>