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Videogame Developers among "Extreme" Workers: Are Death Marches Over?

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Abstract Purpose. The videogame industry is a work environment that is emblematic of O'Carroll's (2015) encompassing model of a 24/7/365 working time model of flexibility. We use O'Carroll's model to challenge two myths about videogame developers (VGDs): the long hours of work are in fact unpredictable hours, and *flextime* HR programs do not allow for real control over working hours.
Design/methodology/approach. We use a mixed methods approach (international online survey and 100 Canadian interviews) to analyse the case of VGDs - a different, but similar type of worker to the IT workers analysed by O'Carroll.
Findings. We can generalize O'Carroll's model based on the IT case to the VGD case. Based on these two cases, we propose that the rise of project-based work environments is a major explanatory factor of this raising trend in the 24/7/365 model of flexibility.
Research limitations/implications. More research examining project-based regimes in other sectors and settings is required to generalize further
Originality/value. Though this model can appear to fit the reality of knowledge work in general, it more accurately describes project-based work in creative environments, which is nearly always knowledge work, but the reverse cannot be inferred.
Paper type. Article.

Keywords: *videogame developers, working time, long hours, project-based work, knowledge work*

2

1. Introduction

The international videogame industry is an object of unrelenting critics about its working conditions[2]. Among factors related to this negative perception, "working conditions" is the top response in a recent survey (68%), before "sexism in the games" (67%) and "perceived link to violence" (62%)[3]. In particular, the issue of working time stands out among others that besmirch the industry's image of offering *extreme* jobs[4]. This takes place in a larger debate. Workers and employers came to a *certain truce* regarding the working time issue at the beginning of the 20th century as labor organisations succeeded in getting important legal limits placed on the working day and week. But as Shor[5] argued in *The Overworked American*, a new wave in working time management marked a return to conflict over working time. Scholars debate the effectiveness of 'long working hours' (i.e., fatigue causes mistakes) amidst growing demands for better work-life balance and new government measures in Europe to tackle long working hours. The phenomenon raises ethical issues that need to be addressed, like pay fairness (when the hours are unpaid yet necessary and requested), worker health and the reduction of free time.

However, when comparing contemporary international trends in working time for European and North American countries, the case is not one of universal long hours. Rather, two important trends stand out. The first is

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[2] Acton, M., *It doesn't have to suck*, *Gamasutra* Blog, December 25, 2010, http://gamasutra.com/blogs/BrendaBrathwaite/20110117/6815/Mike_Actons_quotIt_Doesnt_Have_To_Suck_gamedevquot.php, (accessed December 6, 2016); Hyman, J. *Quality of life: Does anyone still give a damn?*, *Gamasutra Blog*, 2008, May 13, http://www.gamasutra.com/view/feature/3656/quality_of_life_does_anyone_still_.php (accessed December 6, 2016); Peticca-Harris, Amanda, Johanna Weststar & Steve McKenna, "The perils of project-based work: Attempting resistance to extreme work conditions in video game development." *Organization,* 2015, *22*(4):570-587; Scott, S. R. *Maintaining Quality of Life as a Game Developer, Entrepreneur, and Parent*, *Gamasutra Blog*, 2014, October 10th, http://www.gamasutra.com/blogs/SeanRScott/20141010/227468/Maintaining_Quality_of_Life_as_a_Game_Developer_Entrepreneur_and_Parent.php (accessed December 6, 2016).

[3] Weststar, J. & M.-J. Legault, *Developer Satisfaction Survey 2014: Employment Report*, commissioned by the International Game Developers' Association (IGDA), 2014, https://www.igda.org/?page=dss2014 (accessed December 6, 2016).

[4] Burke, R. J. *Working to Live or Living to Work: Should Individuals and Organizations Care?*, *Journal of Business Ethics*, 2009, vol. 84, sup. 2, 167–172.

[5] Shor, J. *The overworked American: The unexpected decline of leisure*, Basic Books, New York, 1991.

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the polarization of working time: very long and very short work weeks are common, with a prevalence of long hours among knowledge workers. The second is an increase in *flexible working time* which takes three quantifiable forms, flexibility in: the length of working time, in the organisation of working time and in the duration of contracts. In other words, there is a *trend* towards a freer deployment of workers, on demand, over a 24-hour day, 7-day week and 365-day year.

Such is the model put forth by O'Carroll[6] in her analysis of the information technology (IT) sector. In a study of Irish IT workers, she highlights the flexibility of hours and demonstrates that this unpredictability introduces challenges with worker control over working time. She suggests that the 24/7/365 model and its associated challenges is germane to post-industrial knowledge work. Our article tests O'Carroll's claims, by discussing the trends and worker experiences highlighted in a report documenting 15 years of evolution in working time among videogame developers (VGDs)[7]. First, we find that O'Carroll's framework does generalize to VGDs; unpredictability is a key feature in their working time, rather than long hours per se, and they operate under a delusion of control over their working hours. However, we introduce two theoretical explanations of unpredictable working time to suggest that O'Carroll's model should not be generalized to all knowledge work. First, we claim that O'Carroll's 24/7/365 model of flexibility is made to suit the constraints of creative project-based environments such as the IT sector, the VG industry, performing arts and the general arts scene (museums, festivals, etc.), rather than knowledge work per se. Second, we claim that such a model is enduring (but not invulnerable) because of an encompassing placement system based on reputation that is common to these project-based industries.

2. Overview of Trends in Working Time

In the working time literature, there is some debate as to what constitutes 'long hours'. In this article, we will stick to the Working Time Regulations (WTR) that came into force in Europe in 1998 and defined long hours as

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[6] O'Carroll, A. *Working time, knowledge work and post-industrial society. Unpredictable work*, Macmillan, Houndmills, Palgrave, 2015.

[7] Legault, M.-J. & J. Weststar, *Working time among videogame developers, 2004-14. Compared results of IGDA international surveys 2004, 2009 & 2014 and of 2 rounds of Canadian interviews 2008 and 2013-14, Summary report*, 2015, http://gameqol.org (accessed December 6, 2016).

more than 48 hours a week[8]. It is understood that a 40-hour working week is a consensual standard[9] and that these two thresholds are used as benchmarks for comparison and not in a normative way.

As long as we consider aggregated statistics and the labour force as a whole, considerable variation in work time organisation is obvious among countries and sectors[10]. Due to variation in labour markets, it is challenging to engage in useful analysis of universal data such as multi-sector national data or international databases which mix developed and developing countries. However, if we focus on specific sectors and research questions, interesting common trends emerge.

In the United States and Canada (here referred to as North America (NA)), Burger observed a macro-trend of polarization in working time: both very long and very short work weeks have increased since the 1990s. The prevalence of extreme weekly working hours (here defined as 50 hours a week) has particularly increased among employees with college degrees to include 40% of men and 20% of women[11]. Other studies of European data noticed that the standard working day and week are still prevalent in industrialized countries, with the UK being an important exception. For instance, where 65% of EU workers had fixed schedules in 1995, 61% still had these schedules in 2005[12]. That said, the working hour profile is more varied across Western European countries as they have not

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[8] Kodz J., S. Davis, D. Lain, M. Strebler, J. Rick, P. Bates, J. Cummings, N. Meager, *Working Long Hours: a Review of the Evidence. Volume 1 - Main Report*, *Summary*, Institute for Employment Studies, Department of Trade and Industry, London, 2003, http://www.employment-studies.co.uk/report-summary-working-long-hours-review-evidence-volume-1-%E2%80%93-main-report (accessed December 6, 2016).

[9] Lee, S., D. McCann & J. C. Messenger *Working Time around the World. Trends in working hours, laws and policies in a global comparative perspective*, International Labor Organisation, Roultedge London, 2007, p. 138-139.

[10] Chung, H. & K. Tijdens, *Working time flexibility components and working time regimes in Europe: Using company-level data across 21 countries*, *The International Journal of Human Resource Management*, 2012, vol. 24, no 7, 1418-1434; Kerkhofs, M., H. Chung & P. Ester, *Working time flexibility across Europe: A typology using firm level data*, *Industrial Relations Journal*, 2008, vol. 39, no 6, 569-585; Burger, A. S. *Extreme working hours in Western Europe and North America: A new aspect of polarization*, London School of Economics (LSE) 'Europe in Question' Discussion Paper Series, Paper No 92, London, 2015, for an international comparison including Western Europe and North America, from 1970 to 2010.

[11] Burger, 2015, op. cit., p. 8-16.

[12] Morley, J., F. Sanoussi, I. Biletta & F. Wolf, *Comparative analysis of working time in the European Union*, European Foundation for the Improvement of Living and Working Conditions (EFILWC), Dublin, 2010, p. 18; Parent-Thirion, A., E. F. Macias, J. Hurley, G. Vermeylen *Fourth European Working Conditions Survey*, European Foundation for the Improvement of Living and Working conditions, Dublin, 2007.

responded in a standard way to global economic deregulation; Scandinavian countries and France kept strong welfare regimes, while others deregulated labor markets more radically[13]. Therefore, standard hours are under pressure[14] (and many countries have been converging towards the NA pattern, particularly among high-qualified-high-end jobs[15]. Extreme hours (both very long and very short) are increasing across workers' educational levels in Europe, with the most radical increase occurring in knowledge work in the form of long rather than short hours. In the 1970s, high-skilled workers enjoyed the most balanced work schedule, but the ratio of extremes in their category radically increased from the 1980s to 2010[16].

The continuous restructuring of global value chains calls for an increased flexibility in terms of contract types, assignments, and working hours. In order to adjust to increasing fluctuations in demand and to optimize their cost structure, employers look for ways to synchronize working time to market demands. Theory suggests that, as a result, fixed term contracts and very long working hours are on the rise while, at the same time, workers daily and weekly schedules are getting more de-standardized[17].

By scrutinizing this de-standardization among knowledge workers specifically, O'Carroll[18] observed a growing concern in the working time literature about an increase in *flexible working time*. This takes three quantifiable forms: flexibility in the length of working time (part- and full-time, long and short hours), in the organisation of working time (atypical work time on weekends and nights, home and tele-work, time banking, flexible time), and in the duration of contracts (temporary and permanent). In other words, the trend is not in terms of absolute increases in working time, but rather towards a freer deployment of workers, on demand, over a 24-hour day, 7-day week and 365-day year.

In this reality, workers experience standard (permanent) employment contracts coupled with working time demands that are unpredictable and irregular (e.g., no fixed hours, flexibility required, variation in starting times, short notification of changes to working time). Such a trend consists of wide individual variation instead of universal long hours, even

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[13] Burger, 2015, op. cit., p. 10.
[14] O'Carroll, 2015, op. cit., p. 3-4, Burger, op. cit., 2015.
[15] Burger, 2015, op. cit., p. 9-13)
[16] Burger, 2015, op. cit., p. 20)
[17] Burger, 2015, op. cit., p. 12)
[18] O'Carroll, 2015, op. cit.

inside the same company[19]. This is the case for a growing body of post-industrial knowledge workers, such as IT workers. O'Carroll[20] argued that this 24/7/365 model of flexibility is imposing itself as a new standard in work time organisation which gives rise to a working time culture characterised by a common understanding that boundaries between work and non-work are blurred, that non-work time can become emergency working time, and that a public commitment to long hours is expected. These changes have harsh impacts on work/life balance.

We acknowledge here that many occupations have long adopted non-standard and unpredictable schedules because they are more or less unavoidable: senior officials and managers, agriculture, crafts, technicians, hospitality, healthcare, policing and professionals[21]. These sectors do not show longitudinal variation in the organization of working time, and therefore cannot explain the statistical increase in *flexible working time*.

This flexible working time can take the form of the zero-hour contract[22]. In these sectors, the employer simply wants to make more intensive use of capital to improve profitability[23]. It can also take the form of individualized flexible time schedules like the *flextime* model where compulsory core hours are combined with open start and finish times around the core hours. Other organizational policies geared toward worker-oriented flexibility mandate a fixed number of hours, but allow a flexible schedule in which to work those hours[24]. These models are designed to give workers some autonomy over their working hours. However, predictability is important in terms of satisfaction with work/life balance because time fragmentation leads to scheduling problems in private social life[25] which particularly discriminate against

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[19] O'Carroll, 2015, op. cit., p. 25-27; Plantenga, J. & C. Remery, *The case of Information Technologies*, in E. Mermet & S. Lehndorff (eds), *New Forms of Employment and Working time in the Service Economy (NESY) Country case studies conducted in five service sectors*, European Trade Union Institute (ETUI), Brussels, 2001, 1-59, http://www.iaq.uni-due.de/aktuell/veroeff/am/lehndorff01cc.pdf (accessed December 6, 2016.

[20] O'Carroll, 2015, op. cit., p. 135.

[21] Fagan, C. *Gender and working time in industrialized countries*, in J. C. Messenger (ed), *Working Time and Workers' Preferences in Industrialized Countries: Finding the Balance*, International Labor Organisation, Routledge, London, 2004, 108-146, p. 122; O'Carroll, 2015, op. cit., p. 136-8.

[22] O'Carroll, 2015, op. cit., p. 141-4.

[23] Morley et al., 2010, op. cit., p. 18.

[24] O'Carroll, 2015, op. cit., p. 27.

[25] Plantenga et al., 2010, op. cit.; O'Riain, S. *Net-working for a living: Irish software developers in the global workplace*. In R. Baldoz, C. Koeber and P. Kraft (eds.) *Critical Studies of Work*, Temple University, Philadelphia, 2000.

those with caring responsibilities. Plus, flexible work policies do not always deliver worker control and autonomy in practice.

As O'Carroll concluded, an important feature of the 24/7/365 model of working time is that workers operate under a delusion of control as to their flexibility and autonomy. According to European working time surveys, a fair share of workers assert that they have *control* over their working hours. However, 20% among them are paradoxically dissatisfied with work-life balance, and experience more tension in managing the unpredictable demands of work than those who report less control over their hours[26]. In the context of an unpredictable work process itself, working time is doomed to be constantly negotiated and conflicted[27]. The 24/7/365 approach is often then an employer-oriented flexibility rather than a worker-oriented one, wherein *flextime* is claimed as a family-friendly feature but is also a trap[28]. Workers often anticipate that longer hours at the beginning of a project/career will be rewarded by shorter hours at the end. For instance, bonuses are often promised in return of outstanding contributions which are implicitly or explicitly linked to long hours, in what Perlow[29] calls "loyalty deals". Rather than bringing relief and empowerment, unpredictability and *unmet loyalty deals* ("disruptive bargains") create greater tensions in managing the unpredictable demands and cause dissatisfaction with work/life balance[30]. The promise of control never materializes.

Under flexible work time arrangements, each employee is free to negotiate their own arrangement. This way, working time arrangements are only available to the few and workers work under different and individual "à la carte" time and pay regimes. Some are advantaged vis a vis working time, but often trade progression, promotion or pay rises for this autonomy[31] because time commitment is often privileged over results[32]. As these

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[26] O'Carroll, 2015, op. cit., p. 9.

[27] O'Carroll, 2015, op. cit., p. 125.

[28] Lee, S., D. McCann & J. C. Messenger, 2007, op. cit., p. 127-131; O'Carroll, 2015, op. cit., p. 144-5.

[29] Perlow, L., *Finding time: How corporations, Individuals and Families can benefit from New Work Practices*, Cornell University Press, Cornell, New York, 1997.

[30] O'Carroll, 2015, op. cit., p. 125.

[31] O'Carroll, 2015, op. cit., p. 130.

[32] Chasserio, S. & M.-J. Legault, *Strategic human resources management is irrelevant when it comes to highly skilled professionals in the Canadian new economy!*, International Journal of Human Resource Management, 2009, vol. 20, no 5, 1113-1131, http://www.informaworld.com/smpp/title~db=all~content=g911806569, (accessed December 6, 2016); Chasserio, S. & M.-J. Legault, *Discretionary Power of project managers in knowledge intensive firms and gender issues, Revue canadienne des sciences administratives – Canadian*

arrangements are often unknown to other workers and the advantages and disadvantages are individualized, no one challenges the overall climate[33]. Despite much dissatisfaction, flextime persists in the IT sector.

In what follows we will investigate the generalizability of O'Carroll's findings regarding the unpredictability of working time and the delusion of control over that time by analysing the case of a different, but similar type of worker, videogame developers (VGDs). Then we will propose a new theoretical framework to explain the prevalence of the 24/7/365 model among certain groups of knowledge workers – those employed in project-based environments - as exemplified by IT workers and VGDs.

3. Methods

We use two sets of data in a mixed method approach. The first consists of cross-sectional self-report data collected in three International Game Developer Association (IGDA) surveys:

- 2004 Quality of Life survey (1000 respondents)
- 2009 Quality of Life survey (3362 respondents)
- 2014 Developer Satisfaction Survey (DSS) (2202 respondents).

This sample is international but primarily contains workers in Anglo-Saxon environments. In the 2014 data, a majority of respondents were from the United States and made up a total of 48% of the sample. Adding Canada (17%) and Mexico (0.6%) the total North American representation was 66%. Europe represented 20% of survey respondents, Latin America made up 6.7% and Asia represented 5%. It is important to note that the surveys were only released in English.

The surveys were completed anonymously online and they were advertised broadly across the IGDA member network and at its events. They were also spread through general word of mouth and at least in the case of the 2014 DSS through the professional networks of the authors and across social media. We cannot assert response rates because there is no official count of the international population of VGDs and we have no measure of how many people were aware of the surveys.

Journal of Administrative Sciences, 2010, vol. 27, no 3, 236–248, http://onlinelibrary.wiley.com/doi/10.1002/cjas.147/pdf (accessed December 6, 2016); Hochschild, A. *The Time Bind. When Work Becomes Home and Home Becomes Work*, Metropolitan Books, New York, 1997; Simpson, R. *Presenteism and the impact of long hours on managers*, in D. Winstanley & J. Woodal, *Ethical Issues in Contemporary Human Resource Management*, Macmillan press, Houndmills, 2000, 156-171.
[33] O'Carroll, 2015, op. cit., p. 94-96.

For the purpose of this paper we only use the responses from non-managerial salaried and contract developers. Specifically, the 2014 sub-sample (n=795) and the 2009 sub-sample (n=1145) used here include those who list development roles (i.e., game designers, interaction and level designers, programmers, visual and audio artists, writers, localisation experts), as primary roles and who do not have managerial roles in any capacity. The 2004 survey did not distinguish respondents by job role/discipline, so we will use all the data. In addition to articulating specific data in the article that follows, we will also refer to our comprehensive report on working time trends among video game developers from 2004-2014 which is available in open-access[34].

The second set of data consists of semi-structured in-depth interviews of 1-2 hours with Canadian developers. A first round (n=58) was conducted in Montreal in 2008 and a second round (n=93) was conducted in the top Canadian video game hubs of Montreal, Toronto and Vancouver[35] in 2013-14. The interview scripts differed on the whole, but both sets contained questions about experiences with working time. The two sets of interviews were analysed separately, but both with the grounded theory procedure[36]. Throughout this article we will include interview excerpts from the 2013-14 as yet unpublished set of interviews and provide citations of our previously published work when referencing the 2008 set of interviews. As a whole the interview sample excluded those in higher managerial roles.

A comparison with Irish IT workers is not problematic as VGDs show many common trends with O'Carroll's IT workers[37]. In terms of general working time statistics, Ireland has more in common with the UK and non-EU developed countries that have significantly higher proportions of people working long hours (i.e., USA, Australia, Japan) than it does to

[34] Legault, M.-J. & J. Weststar, *Working time among videogame developers, 2004-14. Compared results of IGDA international surveys 2004, 2009 & 2014 and of 2 rounds of Canadian interviews 2008 and 2013-14, Summary report*, 2015, http://gameqol.org (accessed December 6, 2016).

[35] Nordicity (2013) *Canada's Video Game Industry in 2013. Final Report*, Prepared for Entertainment Software Association of Canada, http://www.nordicity.com/media/20151210faaebhea.pdf (accessed December 6, 2016), p. 23 & 30.

[36] Charmaz, K., *Grounded theory. Objectivist and Constructivist Methods*, in Norman K. Denzin & Yvonna S. Lincoln (eds), *Handbook of Qualitative Research* (2nd ed), Sage, Thousand Oaks, 2000, 509-535.

[37] Weststar, J. & M.-J. Legault, *Developer Satisfaction Survey 2014: Employment Report*, commissioned by the International Game Developers' Association (IGDA), 2014, https://www.igda.org/?page=dss2014 (accessed December 6, 2016).

non-English speaking EU countries[38]. These are the workers most represented in our survey and interview data. As well, there is considerable similarity in the technical trades like quality testing, programming, game design and production management. A difference in the VG industry is the artistic trades which constitute a quarter of the VGD workforce in Canada[39]. But in our view the common project-based organisation of work is more important than these differences.

4. Do Developers Work Long Hours?

The first step in exploring the fit of O'Carroll's thesis of unpredictable 24/7/365 work with the video game industry is to analyse working time trends for the industry over the past 15 years.

A General Decrease in Regular Hours of Work

When investigating regular hours of work the international IGDA surveys distinguished between the hours developers are expected to work and those that they actually work. Regarding the former, we see a decrease in the number of hours that developers are expected to work or that are codified in contracts (Table 1). In 2014, more respondents reported that their studio management expects them to work 35-39 hours per week on regular schedule (a 'standard' week) than in 2009.

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[38] Kodz J., S. Davis, D. Lain, M. Strebler, J. Rick, P. Bates, J. Cummings, N. Meager, *Working Long Hours: a Review of the Evidence. Volume 1 - Main Report, Summary*, Institute for Employment Studies, Department of Trade and Industry, London, 2003, http://www.employment-studies.co.uk/report-summary-working-long-hours-review-evidence-volume-1-%E2%80%93-main-report (accessed December 6, 2016).

[39] Dumais, J.-F. *L'emploi dans l'industrie du jeu électronique au Québec en 2009. Un portrait sommaire de la situation*, Techocompétences, comité sectoriel de la main-d'œuvre en technologies de l'information et des communications, 2009.

Table 1. How many hours per week on average are you EXPECTED to work when in a REGULAR schedule? (2009 – 2014)

	% of respondents	
Weekly hours	**2009**	**2014**
0-20	2	3
20-24	1	3
25-29	0	1
30-34	0	3
35-39	8	18
40-44	71	62
45-49	10	6
50-59	7	2
60-69	1	0
70-79	0	0
80 +	0	3

We also observe a general decrease of working hours regarding actual hours worked. In 2014, more respondents reported working 35-44 hours per week instead of longer hours than in 2009 or 2004. In keeping with these results, the Canadian developers we interviewed reported working 42 hours on average in a normal week.

Mirroring the same trend, there has been a decrease in longer work hours during the same period. In 2004, 61% reported working more than 45 hours per week. This decreased to 41% in 2009 and to 34% in 2014 (Graph 1).

Graph 1- How many hours per week on average do you ACTUALLY work when in REGULAR schedule? (2004 – 2009 – 2014)
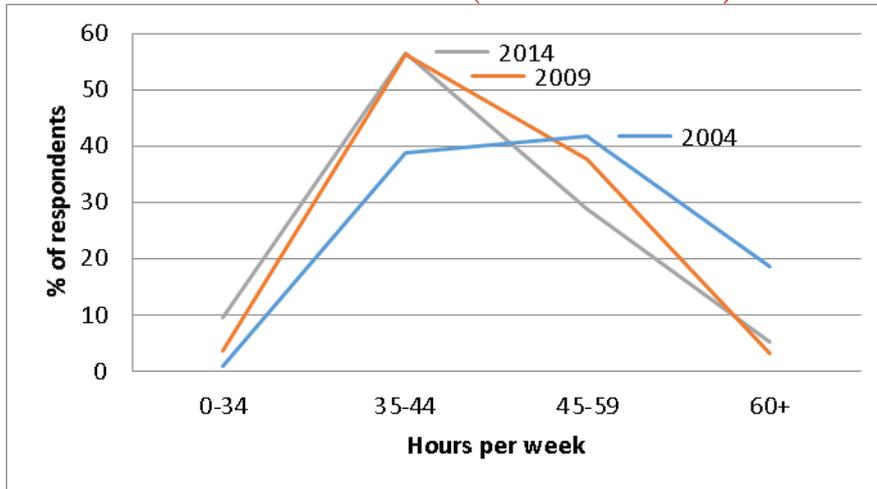
However, to fully answer the question of long hours, we have to look at the overtime work, which in the videogame industry is referred to as *crunch time*.

Crunch is decreasing, but still important

Crunch time, a project management notion

In the video game industry, *crunch* time is when a team goes into an extended period of work (beyond the regular hours) to meet milestones and deadlines to ship deliverables. This is known as *overtime* to most people outside of the industry.

Crunch time is a threefold notion that can be measured in terms of frequency, intensity and duration. VGDs could be asked to:

- engage in discrete periods of crunch over the course of a project (frequency);

- add working hours *to the regular weekly working hours* with the resultant length *o*f the work week varying between 45 and 90 hours (intensity);

- extend this practice over a few weeks or a few months (duration).

Frequency: The general practice is decreasing, but still part and parcel of the trade

From 2009 to 2014, the share of respondents to the international surveys who say that their studios try to avoid crunch has increased from 37 to 44% (Graph 2).

Graph 2. How does your company manage crunch time? (2009 – 2014)
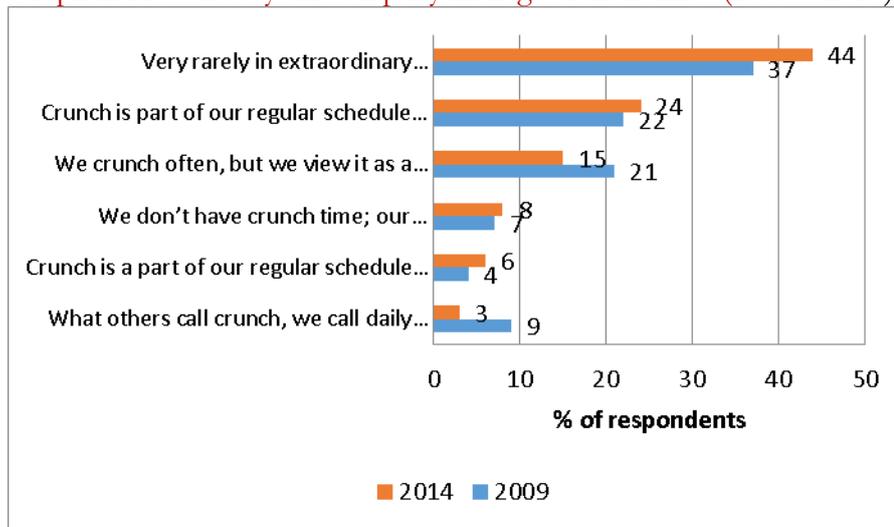
Combining two answer categories (1st and 4th on Graph 2) we see that the proportion of respondents who consider the practice of crunch as exceptional in their studio has increased from 44% to 52% over a ten year span. If we combine the second, third and last answer categories, we learn that the proportion of respondents who perceive the practice of crunch to be regular has decreased from 56% to 48%. This fits with data that suggest crunch time is declining. There has been an increase in studios that work without crunch time and a general decrease in the frequency of crunch overall. In 2009, 9% of respondents reported that on average they did not work any weeks in crunch over the year. This compares to 25% in 2014. Among those who did report crunch time, 52% reported averages of fewer than 10 weeks per year and 79% reported averages of fewer than 15 weeks a year. In 2014, 54% reported averages of fewer than 10 weeks per year and 65% of respondents reported averages of fewer than 15 weeks a year. This suggests that there is an improvement in the frequency of crunch time, largely reflecting a rise in the number of studios that do not crunch at all (Graph 3).

Graph 3. On average how many weeks per year do you crunch? (2009 - 2014)
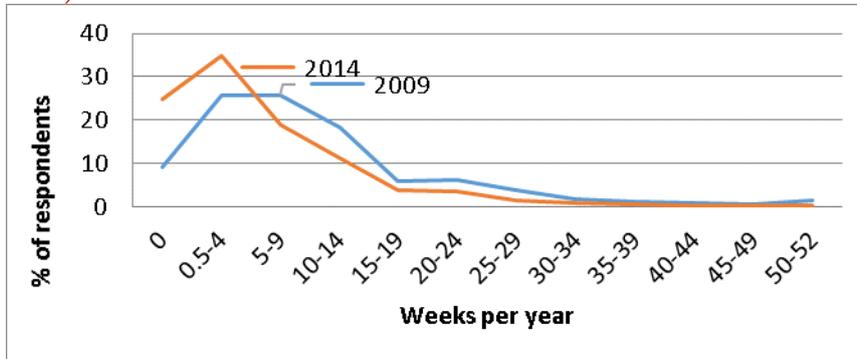
However, that still leaves many who do experience crunch. When asked if they had crunched in the past two years, 79% of respondents said yes and 42% of those said more than twice. More, 54% of respondents felt that crunch time was expected at their workplace as a normal part of their job and a further 11% said they were "not sure". The numbers are trending downwards, but a high proportion of developers still perceive that crunch is common and even accepted.

Individualized arrangements regarding crunch

The data now present a conundrum. How can a relatively high proportion (21%) of respondents say that they have not experienced crunch in the past two years when only 8% say that their studio policy is to never have crunch and at least 54% say that it is expected as a normal part of the job? An explanation lies in teasing out the studio policy versus the experience of individual developers. Indeed, Canadian interview material indicates that the majority of studios practice crunch at some level or in some instances, but workers on *some* projects or *some* individual developers can avoid it or refuse it. In keeping with O'Carroll's observations, working time varies according to the problems met in a given project or in a given part of a project. Facing this, people negotiate individually when they need adjustments and time is managed "à la carte" instead of responding to an organisational policy.

One-quarter of the interview respondents felt they could refuse to work in crunch time, for various reasons. They either worked in studios that practiced crunch but they individually refused, they may have had the option to refuse from time to time with a good reason, or they may have worked in studios that had a no crunch policy.

When crunch is prompted and developers explicitly refuse to work overtime, in general, their refusal has the effect of shutting them out of higher-profile projects and studios. Neither purely voluntary and freely agreed to, nor completely required and forced, overtime in the videogame industry falls under the broad category of "voluntary but expected" working hours[40].

Intensity: Hours worked on crunch time

Though the practice of crunch may not be extinct, when measuring intensity we also see an evolution in terms of how many hours developers are expected to work (Graph 4).

Graph 4. How many hours per week on average are you EXPECTED to work / do you ACTUALLY work when in CRUNCH time? (2009 – 2014)
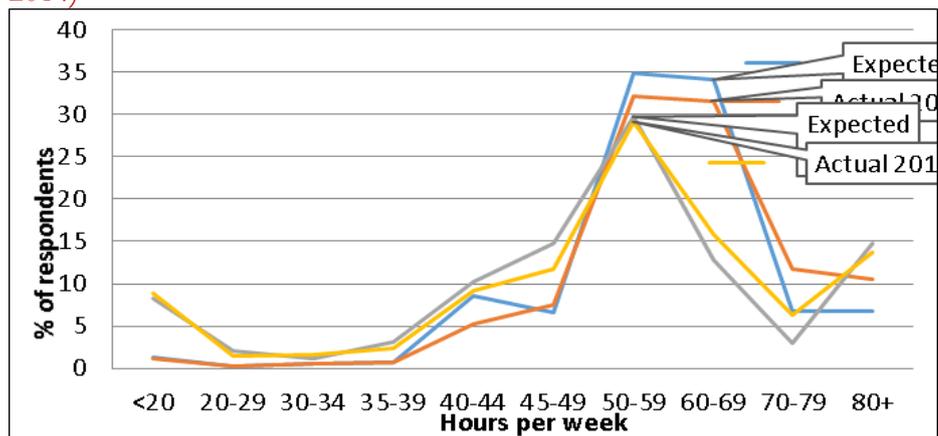
In 2014, more respondents to the international survey reported that they were expected to work 45-49 hours per week while in crunch time compared to 2009. Mirroring this, a smaller share of respondents in 2014 reported that they were expected to work 50-69 hours during crunch. That said, and off-setting this downward trend, the percentage of respondents who felt that their management expected them to work very

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[40] Campbell, I. *Snatching at the Wind? Unpaid Overtime and Trade Unions in Australia*, *International Journal of Employment Studies*, 2002, vol. 10, no 2, 109-156; Donnelly, R. *How "free" is the free worker? An investigation into the working arrangements available to knowledge workers*, *Personnel Review*, 2006, vol. 35, 78-97.

extreme hours of 80 or more per week during what they call a "death march" doubled between 2009 and 2014.

Duration: Weeks in a row of crunch time on a downward trend

The duration of an episode of crunch is also on a downward trend

Graph 5. On average how many weeks in a row do you crunch? (2004 – 2009 – 2014)
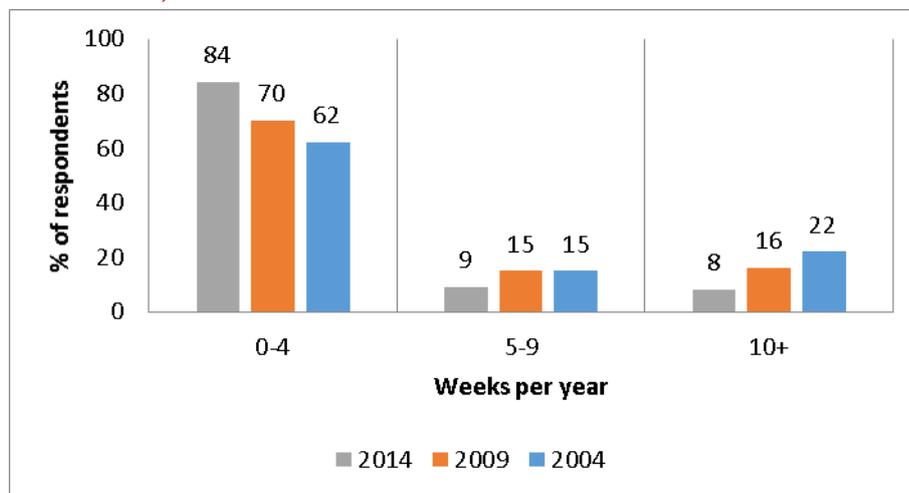
In the 2009 international survey, 79% of the respondents who worked in crunch were working doing so for fewer than 15 weeks in a row; this rose to 97% in 2014. Similarly, the percentage of respondents working in crunch for fewer than 10 weeks in a row increased from 78% in 2004 to 85% in 2009 and to 92% in 2014. The percentage of respondents working in crunch for fewer than 5 weeks shows a slight decline: 62% in 2004, 60% in 2009 and 55% in 2014.

Unpredictable working schedules as opposed to long hours

The following discussion is based on the international survey data on VGDs summarized above and supplemented by our Canadian interviews. Overall, the data suggest a reduction in regular hours worked as well as in the practice of 'crunch'. In light of the Working Time Regulations (WTR) definition of long hours (more than 48 hours a week), VGDs seem to progressively escape the "long working hours" universe on regular days,

across the multiple dimensions of crunch: frequency, intensity and duration.

However, the way overtime is managed is a source of enduring and significant dissatisfaction that interviews help us to understand. Unpredictability is a salient feature, as workers are often "asked" on very short notice, even if that implies a weekend. Calls for overtime work often takes the form of a simple request to order take-out food, but there can also be no call at all, just an *autonomous* decision from the developer.

> It was basically my boss will be like: "OK we're redoing something. Let me know what your dinner order is by this time" [...] So Tuesday comes along and we were waiting cause normally we know when there is overtime when we get asked to order a dinner. Basically they will go to a restaurant website or whatever and be like: "order anything you want from here" so that's our clue to know that there's overtime. (F-11-20-V-H-27-11-13-14-26-JL-MSO)
>
> [Studio] is very informal about their hours - like my start times, end times - so it's more of: I see the tasks that I need to have done by this day, and I see that I can't do that in a normal 9 to 5, so I just know that I have to work overtime. (F-18-07-T-Z-28-04-14-04-11-JT)

When discussing this issue, most Canadian respondents say that managers implicitly ask. Rather than asking directly, they suggest an emergency, complain that the job is due yesterday, or give a dirty look (or comment) about the progress of work or about leaving for the night.

> My current studio, our president will often make remarks [like]: they came in on the weekend and they didn't stay long enough, or "This project is due soon, so why are people going home on time?"… Usually passive-aggressively complain about it to one of us … but not talking to those employees. Yeah, there's definitely huge pressure. (F-03-07-V-F-12-19-13-14-26-LT)
>
> There was a weekend where we needed to do crunch, and it was being pressured in that - like, this was a very important, this is a very critical weekend... And my lead got a message from my boss angrily-worded - or it sounded like that - saying that if we're not coming in on the weekend, he wants an explanation why. (M-07-19-T-B-24-03-14-04-11-JT)
>
> So here's an example: one of my colleagues left at 6 and then he received an email saying: "Why did you leave at 6?". So he started early in the morning, maybe 8, because he lives far away and he will leave at 6. [...] (Who sent the email?) The studio lead. (Did you get paid for this extra time?) Not at [this studio]. (F-13-11-M-W-10-10-13-13-19-15-MSO)

In interviewing developers, we unveiled the same working time culture as in the IT sector, in which non-work time becomes a reserve of emergency

time where the emergency is defined by external deadlines, demands or changes[41] and working hours are tailored to meet them[42]. VGDs share the aforementioned commitment culture characterised by the common understanding that boundaries between work and non-work are blurred and the working day is as long as it takes to have the task done. Their contracts require flexibility as a working condition. Like IT workers, VGDs also show both a high commitment to the work and a growing discontent regarding working time.

5. The Illusion of Control over Working Time

Never a dull moment...

Likewise, unpredictability is built into the work organisation of game development as in IT more broadly. Any claim of workers' control over time management is, in fact, nullified by the responsibility for the client's satisfaction. As with O'Carroll's IT workers, VGDs rely on *loyalty deals* but end up in *disruptive bargains*.

Several studios offer *flextime* and the developers experience a similar tension in managing the unpredictable demands of work and high dissatisfaction with work-life balance[43]. Decisions regarding time management are assumed to be autonomous moves, but are in fact heavily influenced.

> It's mostly controlled by me. If we have a big deadline coming up or something like we wanted to get stuff done for GDC or we had a project [...] that we had to kind of push out the door... Even then, my boss doesn't usually ask. Sometimes he'll be all like: "Oh. Well, if you don't mind, you can do a little weekend work." But usually, it's kind of just: "Well, all this stuff needs to be done - for Monday" (F-05-19-T-L-19-03-14-04-11-JT)

As in O'Carroll's study, developers explain and justify the pressure they feel from managers or peers by the urge to solve any bug at the immediate moment of its occurrence. It means that, as every specialised person is

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[41] E.g., from publishers or console manufacturers; see O'Donnell, C. *Developer's dilemma: The secret world of videogame creators*. MIT Press, Cambridge, MA, 2014.

[42] Legault, M.-J. & K. Ouellet, *So into it they forget what time it is? Video game designers and unpaid overtime*, in D. Jemielniak et A. Marks, *Managing Dynamic Technology-Oriented Business: High-Tech Organizations and Workplaces*, IGI Global, coll. Information Science Reference, Hershey, 2012, 82-102.

[43] Peticca-Harris, A., J. Weststar & S. McKenna, 2015, op. cit.; Weststar, J. & M.-J. Legault, 2014, op. cit.

holding a part of the project on her shoulders, everyone has to be there in case there was a problem regarding their specific field. However, what can be seen as a "self-driven" propensity to crunch might actually stem from an internalization of the general career progress system enforced in creative project-based environments.

> I feel obligated to do it sometimes because I always feel like it's a team thing. Everyone else is staying ... I'd feel guilty if I went home and then just rested and did nothing. [...] Unless of course all my work is done but even then, if it was crunch and we were gonna ship the game in the next week and everyone is just really stressed out, I would want to help, I wouldn't want to go home. (F-11-20-V-H-27-11-13-14-26-JL-MSO)

Here we discuss videogame projects with external as well as internal clients, as some studios are integrated to publishers, some are contracting with different publishers and some sell a finished product to publishers[44]. Although these differences impact on a clients' power over the organisation of work and HR management it is out of scope of this paper to analyse each separately.

Disruptive bargains regarding time management

Studios seldom have formal policies that would apply the same standards and rules to everyone for crunch time compensation. Like among Irish IT workers, overtime is "the classic flexibility instrument" in this sector because it is free[45]. Developers seldom receive any formal wages for the overtime hours worked, whether at the regular rate or at a premium rate, and compensation is never guaranteed.

Producers or project managers can grant time off as compensation at the end of the project; these implicit or explicit promises can be the grounds for the O'Carroll's abovementioned "loyalty deals." Developers work hard and are loyal under the assumption of a reward (whether time-off or promotion or positive re-assignment, etc.) that may never come. However the attribution criteria for time off are rarely explicit; more often it is discretionary and with no guaranteed proportionality to the overtime hours. Acting further against accurate compensation for overtime, studios often lack a system to track developers' hours (a different system is enforced for testers, who are hourly salaried workers and paid at the

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[44] O'Donnell, 2014, op. cit.
[45] Legault, M.-J. & K. Ouellet, 2012, op. cit.; Legault, M.-J. & J. Weststar, 2015, op. cit.; Plantenga and Remery, 2002, op. cit., p. 476.

premium rate). As well, and as we will discuss more below, in practice, there are very few lulls in studio schedules and developers are actually restricted in their time off. In 2009, 46% of the survey respondents had experienced pressure to cancel vacations or been denied a vacation and in 2014, 36% did.

Some studios grant money instead of time compensation. At the end of the year, an amount is allocated to project team members on the basis of sales profits. This is then divided up among developers and paid out as bonuses. Their share is determined by their contribution to the final product, as estimated by the team leads and the producers. The criteria are wholly at the discretion of the superiors. Bonuses reliant on sales profits also introduce the risk that there may be none. Worse, studio management can refuse to distribute any bonus because the project has cost more than planned, without having to prove it. Still worse, the new model of online sales and digital downloads no longer means that sales are tightly clustered in the three months following the launch of the game (i.e., when the games would feature prominently on the shelves of game retailers), but can stretch out for years thereafter. With the high mobility of developers, the likelihood of reaching out to the members of a crew by the time a game has paid out is even lower.

> It is also common that promised compensation whether a bonus or time off, never materializes (32% of respondents reported this in 2014). Developers often have to strongly advocate to get promised compensation and this may explain why some people will drop the matter.
> If you worked 3 days of overtime, you'd get a day of vacation time, and I think you actually had to really push to get that. Otherwise, it wouldn't happen, unless you keep bugging them for it. The only other compensation you get is free dinner. (M-14-13-T-G-18-02-14-04-11-DK)

This causes "disruptive bargains" – where the assumed loyalty deal is broken on the part of the employer. It also causes resistance strategies to emerge in the form of individual arrangements. Some may get satisfying arrangements to meet their current circumstances, but in return for opting out of the prevalent culture they must forget any progression, promotion or pay rises[46].

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[46] Legault, M.-J. & K. Ouellet, 2012, op. cit.

6. A Project-based Work Pattern more than Knowledge Work

To this point we have achieved the first objective of our paper. We see that the work environment of VGDs fits with that articulated by O'Carroll for IT workers. We have similarly documented unpredictable and arbitrary hours ostensibly at the control of workers rather than constant long hours in employment contracts or explicitly required by employers. However, we diverge from O'Carroll regarding the reach or scope of this 24/7/365 model. She linked these features of the IT work process to knowledge work, but we argue that they better reflect the ethos of the project-management regime. This regime is gaining predominance as a means to organize work and work time in many knowledge work sectors, particularly those making original, one-of-a-kind products, with rapidly changing technology, for markets constantly seeking innovation[47]. While project-based work aimed at innovation is nearly always knowledge work, the reverse cannot be inferred.

In a project-based organisation, the design of each product (custom software or application, game, maintenance and customer service) gives rise to a contract. Budget conditions, deadlines and product specifications are the key risk factors; they are well-known as the *iron triangle* of PM. If the first two are too restrictive with regard to the third, they could lead to project failure[48]. Among the main sources of uncertainty and risk is certainly the ghost of 'failing to ship' or deliver the product on time and budget, regardless of the constraints attached to the evolving scope of the order[49]. The client will take part in the management of project tasks and largely influence project managers' HR decisions[50]. Uncertainty and risk inherent to any project echoes in the work process because contracts

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[47] Singh, V. and S. Vinnicombe, *What does "commitment" really mean? Views of UK and Swedish engineering managers*, *Personnel Review*, 2000, vol. 29, no 2, 228-258; Simpson, R. *Presenteeism, power and organizational change: Long hours as a career barrier and the impact on the working lives of women managers*, *British Journal of Management*, 1998, vol. 9, no 1, 37-50.

[48] Hodgson, D.E. *Project Work: The Legacy of Bureaucratic Control in the Post-Bureaucratic Organization*, *Organization*, 2004, vol. 11, no 1, 81–100.

[49] Legault, M.-J. IT firms' working time (de)regulation model, *Work, Organization, Labour and Globalisation,* on line, 2013, vol. 7, no 1, http://www.jstor.org/stable/10.13169/workorgalaboglob.7.issue-1 (accessed December 6, 2016).

[50] Chasserio, S. & M.-J. Legault, Strategic human resources management is irrelevant when it comes to highly skilled professionals in the Canadian new economy!, *International Journal of Human Resource Management,* 2009, vol. 20, no 5, 1113-1131, http://www.informaworld.com/smpp/title~db=all~content=g911806569, (accessed December 6, 2016); O'Carroll, 2015, op. cit., p. 43.

negotiated with tight budget and time conditions entail insufficient staffing and create a pervasive sense of crisis and required flexibility. In the 2004 international survey 42% of respondents complained about understaffed studios, unrealistic timeframes and overburdened developers. Half of the respondents in 2014 felt they had more work to do than time to do it. Indeed, working time is task-oriented instead of clock-oriented; in other words, the working day is as long as it takes to have the task done. Project contracts require flexibility as a working condition.

Our respondents describe the pressure of high international competition on studios to settle very demanding contracts where they must plan the production of sophisticated products in a short timeframe and with a low budget. Then, to reduce costs, they overwork their understaffed teams. The very fact that crunch is an option that is supported by labor laws in many jurisdictions is an affordance that perpetuates the practice of crunch.

> Everyone, I mean we were all painfully aware that the industry lobby at the BC government changed tech law so [employers] didn't have to pay overtime. (F-10-12-V-I-04-12-13-14-26-MSO)

In US and Canada, professionals are rarely unionized and legislation often allows for the existence of "exempt" positions in which employees are exempt from working hour regulations[51]. Specifically in the excerpt above, the VGD refers to the Employment Standards Regulation of her province (similar to the California State regulation), stating that the hours of work provisions of the Act, as well as the overtime and statutory holiday provisions, do not apply to "high technology professionals" (including video game developers and IT workers).

In fact, respondents blame studios for what they describe as the planned part of crunch, the part that can be predicted from the onset because it is based on the conditions of the contract between the studio and the publisher (who funds, markets and distributes the game). Studios negotiate unrealistic contracts with publishers and immediately transfer the burden of such a risk to developers who will necessarily have to crunch and suffer the consequences in their private life, or lower their ambitions[52].

The HR practice of *flextime*, as defined above, is put forward as a managerial innovation that empowers the workers and allows for control

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[51] Burger, 2015, op. cit., p. 11.
[52] Legault, M.-J., 2013, op. cit.

over working hours. However, workers are rarely able to exercise the full autonomy that the flextime system suggests. In the project-based environment the loyalty deal of being rewarded for putting in the hours frequently ends in disruptive bargains because in a project-based environment, longer hours at the end of a project are rarely matched with shorter hours during lull periods[53]. There are many reasons for this that stem from the project-based nature of the work.

First, there is a fixed deadline, but no designed process. Because of the innovative nature of the product, the pace and direction of any individual's labour process is undetermined[54]. There is no planned procedure to create innovation and uncertainty is part and parcel of the process. Nevertheless, the three conditions of (limited) budget, (limited) timeline and (high) desires/needs of the client or order need to be respected. Production time frames are based on the needs of clients instead of work process requirements per se. The only way to accommodate deadlines that are too short and accede to the publically legitimated *market time* of the client is by adding to the working day[55]. As such, overtime is used as a "the classic flexibility instrument" and is rarely compensated because of a normative void.

Second, permanent workers are attached to many projects or immediately allocated to a new project when theirs ends. This means that lost time is limited and intensity is increased[56]. Multitasking ensures that workers always have something to do that can fit between two bigger tasks[57]. Therefore, workers are never really on their own schedule. As well, in some cases employees are laid off at the end of a project and therefore do not recoup any rewards from the loyalty deal.

Third, there is an ethos of peer-to-peer helping, because workers are interconnected in a complex network of coordinated tasks and depend on each other for micro-decisions, training and problem solving[58]. This

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[53] O'Carroll, 2015, op. cit., p. 54.
[54] O'Carroll, 2015, op. cit., p. 127.
[55] O'Carroll, 2015, op. cit., p. 44.
[56] O'Carroll, 2015, op. cit., p. 128.
[57] O'Carroll, 2015, op. cit., p. 63.
[58] Causer, G. & C. Jones, *Management and the control of technical labour*, *Work, Employment and Society*, 1996, vol. 10, no 1, 105-123; Huws, U. *Expression and expropriation: The dialectics of autonomy and control in creative labour*, *Ephemera: Theory and Politics in organizations*, 2011, vol.10, no 3-4, 1-18; McGovern, P., *Trust, discretion and responsibility: The division of technical labour*, *Work, Employment and Society*, 1996, vol. 10, no 1, 85-103; O'Carroll, 2015, op. cit.; Thompson, P. & C. Warhurst, *Hands, hearts and minds: Changing work and workers at the end*

connectivity is both an asset and a plight in the workplace; the ideal "flow" of uninterrupted creation is juxtaposed against the expectation of instant help that keeps individuals moving on in their tasks. As a result, control over time is mostly a fiction[59].

Fourth, in every emergency context, managers ask for solidarity and commitment to the loyalty deal. This mobilizes the project teams such that peers will in turn ask solidarity from less committed peers. The pressure to stay at work is made obvious with interpersonal cues such as reactions and gazes. At best, workers are left with a "constrained autonomy"[60].

Last but not least, the employer's part of the "loyalty deal" that is said to include a right to claim back extra hours or to balance past long hours when the workload lightens is more of a legend. On the contrary, employee demands for the consummation of this deal may give the bad impression of an uncommitted worker and be held against him/her[61].

The inherent pressures the iron triangle imposes on production largely contribute to explain this 24/7/365 model of flexibility in such a context:

-    Each project is directly tied to a contract with a precise client that is constantly connected to project managers and is given a say in many HR decision making processes. Project teams are held accountable to clients and investors in a highly competitive environment. The length of the working day will vary depending on project manager's estimation of the risk of delay in a given project. There is a pervasive sense of crisis, real or artificial, when a project falls behind and even when it is on schedule, due to regular planning meetings with the client.

-    The desires of the client/customer/external stakeholder are subject to frequent changes as the constraints of reality unfold.

-    In the VG industry, a majority of projects end up as commercial failures and the high level of risk leads to funding by venture capital. This funding, in return, leads to very tight control of the iron triangle which is transferred to developers, through the project manager, as intensive use of time.

-    Workers have to plan their moves from one project to another, as appointments are short-term. As a result, projects cannot always count on

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of the century, in P. Thompson & C. Warhurst, *Workplaces of the future*, Macmillan, London, 1999, 1-24.

[59] O'Carroll, 2015, op. cit.

[60] Perrons, D., C. Fagan, L. McDowell, K. Ray & K. Ward, *Work, life and time in the new economy: An introduction*, *Time and Society*, 2005, vol. 14, no 1, 51-64.

[61] O'Carroll, 2015, op. cit., p. 77.

the precise human resources that are required, either because one has left or none could be hired.

From this, we argue that O'Carroll's model of unpredictable working time can be generalized to the group of workers who experience project-based work organisation in creative environments. However, we would not generalize this model to all "knowledge work", as she does, because much knowledge work takes place in bureaucratic or industrial environments with repeated daily operations that do not share the same constraints as PM. For instance, in his meta-analysis of working time trends Burger[62] puts forth a number of contributing factors to extreme, polarised and flexible hours:

- Looser labor regulation allows employers to lower their total compensation costs by pressuring their full-time employees to put in unpaid overwork.

- Countries and/or sectors with a high degree of global production show higher ratios of extreme hours, because global value chains and internationally traded services call for an increased flexibility in terms of contract types, assignments, and working hours, as a consequence of international competition. This affects knowledge work more than low skilled work.

- Free trade and globalized competition favor employers; faced with highly mobile capital, less mobile workers are more likely to accept compromises on employment practices such as working hour norms.

These contributory factors are highly salient in many project-based environments; however, their impact is lessened in bureaucratic knowledge work environments such as teaching or health which do not face the same pressures of the private international product market. As well, these factors cannot have the same effect in environments that rely on domestic labor markets, operate in the public sector and/or have union representation. Therefore, when knowledge work takes place in large bureaucratic environments, more research is required to determine the trends in work hours and the applicable contributory factors.

We have shown that O'Carroll's flexibility model based on the IT case can easily be generalized to the VGD case. We have also argued, based on these two cases that this rising trend in the 24/7/365 model of flexibility stems from the rise of project-based work environments and is based on its inherent conditions, but is not necessarily tied to all forms of knowledge work. Let us now see how the inherent pressures that projects

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[62] Burger, 2015, op. cit., p. 17-26.

impose on production contribute to create environments in which the 24/7/365 model and its associated challenges will likely endure.

7. The Importance of Reputation

Why do game developers seem to accept unpredictable extra hours given their associated challenges with work/life balance and health? Project management is used in contexts where the commitment towards the success of the project and the client are paramount to get a good performance assessment and advantageous placement in subsequent career moves.

One particularly salient feature of this regime is the high mobility context due to the discrete and short-termed nature of the project itself. At the end of each project the team breaks up and the experts are free to work on other projects, either with the same employer or a competitor[63]. Within these nomadic careers a strong portfolio, a solid professional network and a safe reputation (as determined through good performance reviews and positive peer regard) drive career success. These in turn hinge upon client satisfaction and project success and reinforce a commitment to the project where its demands must be fulfilled. This has been observed in Canada's IT sector[64].

Game developers negotiate their working conditions individually, and their individual negotiating power is based on their reputation. This reputational system is built on a trade-off (or "loyalty deal") between a propensity to work in crunch time and benefits that foster good conditions for mobility and contribute to career progress (i.e., training opportunities, attending important events, good evaluation, enhanced remuneration, promotion or assignment to high-profile projects)[65]. Refusing when the rest of the team works overtime is not a negligible fact in a project-based organisation because it violates the demands of the project and breaks the assumption of commitment. Managers reward those who accept "loyalty deals" and play by the rules, but so does the peer group. Exclusion from the peer group can hinder professional mobility, as networking is a critical vector of placement. Caught in the net of job hopping and reputation building, no doubt developers fall prey to an encompassing working time culture and commit themselves to extra working time in the name of the project.

[63] O'Riain, 2000, op. cit.
[64] Chasserio, S. & M.-J. Legault, 2010, op. cit.; Legault, M.-J. & K. Ouellet, 2012, op. cit.
[65] Legault, M.-J. & K. Ouellet, 2012, op. cit.

Moreover, in this trade-off system, refusing overtime can mean that a developer is denied those benefits through informal sanctioning processes[66]. In some studios, the benefit to engage in crunch is nothing more than the privilege to save your job, instead of being sacked.

> That's why they did not keep me […]. At [studio], when the project ended up, they sacked nearly everybody. We were around 30, they kept around 12 who stayed on board [...] He told me : "the 12 I keep, I know there will be overtime, so I have to make sure I'll have people to work overtime. So if you never want to work overtime I can't keep you on board". (M-06-19-16-M-R-18-09-13-13-19-15-MSO)

Some even refer to the "dark side" of the industry, a rampant threat of exclusion for those who consider refusing crunch time work. Some studios are quite blatant in sending the message that there is an obligation to stay:

> First trick I did at [studio] was saving an email that says: "Goddam, it's midnight and we don't even see you, where the f… are you…" "If you don't take your job seriously, we're gonna find someone else". I kept it and always swear to myself, if ever that guy's looking for me, I'll send it to [game media] or else. This studio's policy is: "work you into the ground". (M-13-01-03-M-U-30-10-13-13-15-19-MSO)

According to our international survey data, respondents in 2014 were more likely to feel that the time they spent with family lessened their chances of promotion or advancement than respondents to the same question in 2009[67]. As well, Canadian interviewees discussed the threat of firing or another form of reprisal, all of which reinforce the work ethos of the ideal autonomous creative worker, or the "honour code" of the trade that prompts respondents to accept "loyalty deals". These observations are wrapped up in an ongoing coercive storytelling that is powerful enough to become normative[68]. The omnipresent demands of the project arouse self-discipline and makes managerial discipline superfluous.

This is not to say that there is no collective agency; indeed we have documented forms of individual and collective resistance[69]. However, they are isolated and have not had a systematic effect.

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[66] Legault, M.-J. & K. Ouellet, 2012, op. cit.
[67] Weststar, J. & M.-J. Legault, 2014, op. cit.
[68] Peticca-Harris, A., J. Weststar & S. McKenna, 2015, op. cit.
[69] Legault, M.-J. & J. Weststar,, 2015, op. cit.

Overall, the system of (informally and indirectly) rewarding the propensity to crunch and punishing the reverse, under the guide of project demands, appears to be a very effective and enduring means of driving employees to put in a lot of overtime, because most developers go along with it.

8. Conclusion

This paper has contributed to the discussion of the evolution of working time regimes and their drivers.

First, we have shown that O'Carroll's 24/7/365 model of flexibility and unpredictable working time among IT workers can generalize to and account for most of the key features in the work environments of videogame developers (VGDs), a cognate sector. VGDs still suffer from long hours, but we can see a downward trend in many key measures: weekly hours in regular and crunch schedule, number of weeks in crunch, number of weeks in a row. More prevalent, as in the IT sector, are unpredictable work hours, which can be long, that are built into project-managed work environments. If we go back to the title of this paper, we must observe that death marches are not over, but spread over the course of a project and subjected to the project manager's control.

Any flexibility in time management that is claimed as a managerial innovation is in fact a downloaded responsibility towards the project and the client's satisfaction. This responsibility relies on the commitment to use leisure time as emergency work time and ends up in a loss of control over private time.

Second, we attempted to clarify the scope of O'Carroll's model by presenting the most salient features of the project-based environment. Though the 24/7/365 model can appear to fit the reality of knowledge work in general, we argue that the still amorphous concept of knowledge work is too large for this attribution. Specifically, we should avoid confusing knowledge work with project-based work, because the former takes place in bureaucratic, industrial as well as project-based environments and the latter, in some instances, can involve work not typically included in discussions of the knowledge economy (i.e., construction). Indeed, we require studies of the contemporary constraints of health professionals, teachers and professors, scientists and technicians in industry or bureaucracy, managers, finance analysts and so forth who may not share the pressure of constant mobility and need of a reputation at the same level. Though project-based environments clearly experience unpredictability and delusionary control over working time, it is not clear that knowledge workers in general do.

Third, we articulated the enduring ability of project-based regimes to regulate working time pointing specifically to the reputation system of job placement. The reputation system is an astonishingly powerful tool in creative project-based work which is wielded in the name of the project to achieve compliance with unpredictable hours. Though *flextime* is claimed as part of good HRM practices, we must argue that managerial control over time allocation is impossible in the context of projects, so what looks like employee empowerment is merely a shift of the burden to the employees to reckon with[70] coupled with a heavy penalty for non-compliance. However, and returning to the second argument, the same cannot be said of the knowledge work universe a priori. Future research on the existence and efficiency of working time patterns and their drivers in other industries, project-based and knowledge-based, is required.
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[70] Peticca-Harris, A., J. Weststar & S. McKenna, 2015, op. cit.

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