

Teleworking in Portuguese public administration during the COVID-19 pandemic

Advantages, disadvantages, work-life balance and motivation

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ABSTRACT

This article seeks to characterise teleworking in public administration during the COVID-19 pandemic. It draws on a study that aimed to collect the perceptions of Portuguese public servants about this phenomenon. Findings show that, in general, perceptions of workers and managers about teleworking are more positive than negative. It seems that teleworking in public administration has succeeded despite perceptions of insufficient equipment supply and some stigmatisation of teleworkers. The article also sought to investigate whether the perception of the potential advantages and disadvantages of teleworking, with special emphasis on work-life balance, varies according to the workers' gender and number of dependents. The study found that this was indeed the case. However, there were also differences relating to workers' motivation. The study found that a significant proportion of Portuguese public servants felt more motivated when performing their activities as teleworkers.

KEY WORDS

Teleworking, public administration, bureaucratic culture, work-life balance, advantages and disadvantages, motivation.

Introduction

With the emergence of the COVID-19 pandemic, and in parallel with what happened in all areas of social and economic activity, public administration sought to adapt to new models of work organisation in order to counter a set of new challenges that arose with unprecedented speed and demanded a response (Belzunegui-Eraso & Erro-Garcés, 2020; Vadkerti, 2020; Raisiene et al., 2020). In this way, teleworking was widely implemented in the Portuguese public administration. Although provided for in articles 68° and 69° of the General Law on Work in Public Functions (approved by Law no. 35/2014, of 20 June), until 2020 teleworking in public administration had a very residual character.

The policy context had already been set. The XXII Constitutional Government's Programme, in the 4th Strategic Challenge: 'Digital Society, Creativity and Innovation – the future now: building a digital society', foresaw the encouragement of remote working, based on information and communication technologies (Governo de Portugal, 2019). The government considered that the use of this modality of work could also be a way to create secure jobs in less populated regions, particularly in the countryside. It considered that, in addition to the benefits associated with worker comfort, there were others such as greater proximity to a preferred community, not travelling and the consequent elimination of costs and prevention of pollution through emissions. It also identified in teleworking, an opportunity to promote the gradual decentralisation of public administration, following the logic that the State must set an example.

With the start of lockdown in March 2020, teleworking was extended to a large number of public servants, with very precarious (or even non-existent) planning, as an immediate solution. This was a response to the impossibility of keeping workers in their physical workplaces, ensuring the safety of workers and their families and reducing the impact of the lockdown on the productivity of public bodies (Madureira et al., 2021b).

It is in this context that this article aims to assess the adoption of teleworking in the Portuguese Central Public Administration during the COVID-19 pandemic and highlight the main advantages and disadvantages identified in teleworking. To this end, public servants'/workers' perceptions about the strengths and weaknesses of teleworking, its potential benefits and possible threats that may have resulted from its implementation were collected.

Theoretical framework and research questions

Teleworking: the beginning of a new organisational era

Over the past few decades, the need to reduce costs, the search for increased efficiency and effectiveness, as well as the deepening of transparency and democracy have been some of the greatest challenges for public administrations worldwide (Pollitt & Bouckaert, 2017; Faria, 2009; Osborne & Gaebler, 1992; Hood, 1991; Pollitt, 1990; Madureira, 2015, 2020, 2021a). However, information technology brought flexibility to the models of work organisation and management of processes. The private sector was the first to use teleworking to promote greater efficiency and productivity

(Boonen, 2008; Mogale & Sutherland, 2010). Indeed, the use of teleworking as a way of organising work is not new in the organisational context worldwide. Facilitated and favoured by the development of new technologies, carrying out professional activities remotely has, especially in the business world, been substantially affirmed since the beginning of the 21st century (Raisiene et al., 2020).

In the public sector, the use of teleworking was slower. The dimension of the sector, the type of activities performed, the need for face-to-face contact with citizens, as well as the mechanistic bureaucracy in the way many public entities operate, created major obstacles to the development of teleworking in public administration. Although authors such as Cailler (2012), Dahlstrom (2013) and, more recently, De Vries et al. (2019) have produced several publications (some theoretical and others as a result of empirical studies) on the role of teleworking in public administration; academic studies on this subject are still scarce and are gradually emerging (Filardi et al., 2020; Vadkerti, 2020; Paskov, 2020).

There are numerous conceptual definitions of teleworking (also commonly referred to as telecommuting), but we can highlight the definition by Baruch (2001), which despite its apparent simplicity, is apt. According to the author, it is 'a form of flexible work in which employees perform all or part of the work physically away from the employers' workplace, using information technologies to prepare their work and to communicate' (Baruch, 2001:114).

This definition is in line with the one proposed by the International Labour Organization (ILO). The ILO defines 'telework' as the 'use of information and communication technologies, such as smartphones, tablets and fixed or portable computers, in the development of work outside the employer's premises' (Eurofound & ILO, 2017; Belzunegui-Eraso & Erro-Garcés, 2020). Indeed, although initially some authors have associated teleworking with the performance of work at home, this concept has been demystified since telework only presupposes the use of Information and Communication Technologies (ICT) and the physical distance of employers' facilities, but does not specify the location where it should be carried out, so it is not specifically to carry out work at home (Belzunegui-Eraso & Erro-Garcés, 2020).

This study aimed to build on previous research to study the phenomenon. Although there is considerable earlier literature on teleworking dating back to the early 1980s, it took as its starting point the work of Baruch and Nicholson (1997) who identified, in a systematic way, the main factors influencing teleworking. These were: the technology (the nature of the activities that were more or less likely to be performed using telework); individual factors (personality characteristics and behavioural profile); organisational culture and strategy (telework may imply a severe reduction in rigid hierarchical relationships); and finally, family factors (family composition and age of persons and their dependents). Baruch & Nicholson's (1997) model would be complemented by the addition of further determining factors for the study of teleworking and its professional and social impact. These factors include environmental concerns, which have been mentioned earlier in the discussion about teleworking, for example, its contribution to reducing pollution and helping companies in their attempts to reduce costs. Another factor is safety. In this regard, studies are still being carried out on the safety of teleworkers and how they should be treated. An additional factor is a

legal framework for teleworking. Despite having existed for several decades in the legislation of many countries, teleworking continues in most cases to lack a more detailed and rigorous regulation) (Belzunegui-Eraso & Erro-Garcés, 2020).

Advantages, disadvantages and work-life balance

Filardi et al. (2020) recently carried out a study in the Brazilian public administration which concluded that, despite the potential of teleworking to reduce costs, increase productivity and give workers the possibility of better managing their time, we are still far from knowing its full potential. The increase in the use of teleworking in public administration, to date, has been more the result of a pressing need to respond to the specific circumstances of the pandemic than a conscious desire to reconfigure and diversify organisational models. Even so, the study by Filardi et al. (2020), carried out before the beginning of COVID-19, identifies the most significant advantages of teleworking mentioned by teleworkers in the Brazilian public administration, which are: a reduction in food and travel/transport expenses, less exposure to pollution, privacy, greater interaction with family and the possibility for workers to focus on the pursuit of quality of life and their individual needs. Confirming the results of previous studies (Costa, 2013; Mello et al., 2014), Filardi et al. (2020) also conclude that, in terms of the professional activity of public workers, aspects such as autonomy, motivation, productivity, flexible hours and fewer interruptions are considered positive aspects of telework.

Regarding the disadvantages of teleworking, also corroborating the results of previous studies (De Vries et al., 2019; Caillier, 2012), the research by Filardi et al. (2020) identified factors such as loss of motivation, social and professional isolation and a lower organisational commitment (especially when there is no longer any face-to-face contact). Technological problems (lack of training or adequate equipment); the lack of adaptation of some people to a new professional reality; the loss of contact with colleagues, hierarchies and with the organisation as a whole; the lack of face-to-face communication and the loss of status, as well as the fear of a prejudiced performance evaluation and a negative effect on the professional development and career were also presented as disadvantages by workers.

Before the COVID-19 pandemic, Pyoria (2011) highlighted the importance of confidence, mutual respect and a good relationship between leaders and subordinates in determining the success of telework. Williamson et al., (2018) also emphasised the importance of these aspects in the public administration context and denounced a certain resistance to telework essentially from public sector middle managers. As mentioned by Clear and Dickson (2005), Taskin and Edwards (2007) and Fernando et al. (2017), bureaucratisation in public administration tends to hamper the development of organisational models such as teleworking. According to De Vries et al. (2019), teleworking is incompatible with excessively formal and bureaucratic leadership, requiring managers who know how to privilege empathy, mutual trust and relationship quality and, consequently, do not share the stigma that still exists in relation to teleworkers. Although this study concluded that teleworking did not affect the degree of commitment of workers to the performance of their activities, it referred to the negative effects of isolation caused by working from home.

The literature includes several studies that emphasise the importance of the flexibility conferred by teleworking on motivation (Lupton & Haynes, 2000) since it can help people to carry out their work activities in a more friendly and pleasant environment (Hoorweg et al., 2016). Ganhão et al. (2021) further argue that public administration employees are generally strongly motivated by the possibilities offered by teleworking to improve work-life balance. However, according to Palumbo (2020) and Palumbo et al. (2021), there are also doubts about whether teleworkers are capable of managing this alternative form of work organisation to improve their lives effectively. As Olson-Buchanan and Boswell (2006) point out, teleworkers may find it challenging to manage the overlaps between their work and daily living responsibilities, which may even lead to a worsening of stress and role conflict (Tietze & Musson, 2005; Russell et al., 2009). Furthermore, social and professional isolation and the drastic decrease in interpersonal contacts are a risk of teleworking, which can contribute to feelings of personal frustration, loneliness and organisational alienation (Dahlstrom, 2013; Palumbo et al., 2021).

These negative feelings have repercussions on the quality of professional performances and can generate conflicts in work-life balance (Allen et al., 2015; Amponsah-Tawiah et al., 2016).

Teleworking in the COVID-19 pandemic: main perceptions in public administrations

At the beginning of the 21st century, early studies pointed to a significant difference in perceptions of teleworking according to gender (Tremblay, 2002; Raisiené et al., 2020). According to Tremblay (2002), men and women only agreed on the fact that teleworking brings advantages in managing timetables and in reducing the hours spent in traffic when commuting to the workplace. Troup and Rose (2012) found that satisfaction with teleworking differs between men and women and that this model of work organisation was associated with an unequal distribution of tasks within family life to the detriment of women.

During the COVID-19 pandemic, a study by Raisiené et al., (2020) pointed to variables such as gender and age as determinants of workers' differing perceptions of telework, and whether it was viewed positively or negatively. They found that women perceive this type of work as more positive and conducive to a 'healthier lifestyle', while men tend to regard teleworking as an obstacle to career development and the demonstration of their skills. Indeed, according to Raisiené et al., (2020), men perceive face-to-face work as the only way to succeed professionally. In relation to age, this study concluded that older generations mainly emphasise the disadvantages of teleworking, while younger generations tend to stress its advantages (Raisiené et al., 2020).

Two other interesting findings from this study were: first, workers with higher qualifications tended to have a higher degree of self-confidence and satisfaction with teleworking compared with those with lower formal education qualifications; second, part-time teleworkers (those who divided their working time between teleworking and face-to-face work) were more likely to see advantages in this model of work organisation than those who teleworked full-time (Raisiené et al., 2020).

According to the results of another very recent international investigation carried out by Vadkerti (2020) and Paskov (2020) in the central administrations of several European countries, for now, and as a balance of the last few months, at a global level, it can be said that the COVID-19 pandemic demonstrated that in most countries, public sector organisations have adapted and implemented telework with adequate levels of efficiency and effectiveness. It was also demonstrated that this 'forced exercise' of using teleworking caused by the pandemic contributed to the creation of foundations capable of giving rise to more modernised models of work organisation in the public sector. However, to develop teleworking in public administration in times of normality, a change in the organisational culture still prevalent in most European countries will be necessary (Vadkerti, 2020).

In other words, regardless of the teleworking experiences over the 24 months, since the COVID-19 outbreak, the pandemic cannot and should not be seen as the catalyst for a cultural change that contributes to the integration of telework into public administrations as a lasting model of 'natural' work. For this to happen, the intervention of political decision-makers at the highest level of policy determination will be required to help mitigate resistance to what Vadkerti (2020) calls the 'new normal'.

All the research carried out by the authors over the last few months suggests a remarkable diversity in the acceptance of teleworking both in different countries and in the different administrative cultures that may co-exist within the same country. Aspects such as the types of leadership, human resources, technical and behavioural skills, the financial and technological resources available and the weight and awareness of public opinion about the phenomenon will be determining factors in the extent to which the structural implementation of teleworking in public administrations succeeds.

From the literature produced so far, it can be noted that there is no consensus regarding perceptions about telework, its advantages and disadvantages. The results of the recent cross-sectional study by Vadkerti (2020) reinforce this.

In an extensive document recently published entitled 'Teleworking during the COVID-19 pandemic and beyond. A Practical Guide', the ILO asserts that teleworking is a reality that will probably last for some time. Since its extension to a very large number of workers around the world is likely, it is extremely important to ensure the well-being of teleworkers and, consequently, the continuity of their productivity levels (ILO, 2020). To this end, the ILO advises public and private organisations to rethink their entire employment strategy. First, they must carry out a deep reflection on aspects such as working hours and work organisation models, performance management models, the challenges of digitisation, the forms of communication to be privileged, health and safety at work, the implications and legal and contractual changes, professional training as well as the management of workers' expectations (which will inevitably lead to changes to work-life balance affected by the variables resulting from a new work situation).

Regardless of the evolution of the pandemic, it seems quite likely that the concept of teleworking will no longer have only a theoretical and legal character, with a marginal application, but will become an alternative work organisation model, thus enriching the range of public administration options on how to manage human resources. Going

forward, teleworking rates are likely to remain significantly higher than they were before the start of the pandemic (Eurofound, 2020).

Research questions

Given the potential of this new reality, our study sought to answer this main research question: What were the main characteristics of teleworking in public administration in the context of the COVID-19 pandemic? In particular, we sought to answer the following specific questions:

RQ1 – What are the perceptions of Portuguese public servants (workers and managers) about teleworking?

RQ2 – Does the perception of work-life balance during teleworking vary according to gender and the number of dependents?

RQ3 – What is the level of motivation of Portuguese public servants when teleworking compared to the level of motivation when they perform their duties in the workplace?

RQ4 – What variables are related to the Portuguese public servants' motivation during teleworking?

Criteria, methods and data

Criteria for site selection

Since it was not feasible to survey all Central Public Administration bodies in Portugal, 29 Central Public Administration bodies were contacted to participate in the study. These bodies were chosen based on three criteria: first, the inclusion of all government spheres of activity; second, achieving a balance between the number of responding bodies belonging to the direct administration (general-directorates and general-inspectorates) and the indirect administration (public, institutes, agencies and commissions), so that we could adopt the most global view possible of the perceptions of workers in the Central Public Administration as a whole; and third, favouring organisations with a larger number of workers.

Instrument and measures

Based on our literature review on teleworking in public organisations, a questionnaire was drawn up to collect responses from the largest possible number of intermediate managers and public servants working in the 29 participating bodies, to gather their perceptions about their experiences of teleworking. This questionnaire consisted essentially of closed questions to facilitate the analysis of information.

Sample

The survey was carried out online between 5 and 22 November 2021.

The sample was composed of 4,391 workers from 42,810 public servants. Although it was not possible to use a probabilistic sampling method to collect the data, this corresponds with a sample size obtained with a 95% confidence level and 1.4% margin of error.

From the total respondents, only 3,781 had worked as teleworkers during the first pandemic-imposed confinement and/or were working as teleworkers when the survey was carried out. The results presented here are based on these respondents.

In this sample, women represent 75% of surveyed public servants and men 25% (from a universe of 65% of women and 35% of men in the Portuguese public administration). Regarding age structure, 45.2% of workers were aged between 46 and 55 years, 26.2% between 56 and 65 years old and 24.3% between 31 and 45 years old (it should be noted that currently, the average age in public administration in Portugal is 48 years old). About half had no dependents (under-age children, elderly person, person with disability, etc.), 29% had one, 21.1% had two and 3.4% had three dependents.

In terms of qualifications and career path, half of the surveyed public servants belonged to the Professional Career¹, 18.8% to Administrative Staff, 9.9% to the Inspection career and the remaining 21.2% belonged to other careers. Only 14.2% performed management functions, all of them with middle management positions.

With respect to seniority in public administration, around 25% of respondents had been working between 10 and 20 years as public servants and 64.1% for more than 20 years. Also, 63.1% of the respondents had been employed in their current public body for more than ten years, while only 5.6% had done so for less than a year (5.6%).

Findings

General findings

At the time of the survey, 15.3% of the respondents were performing their duties in the workplace, 16.4% were rotating teleworking², 25.7% were teleworking with regular displacements to the workplace, 20.6% were teleworking with occasional displacements to the workplace, 20.1% were teleworking full time and 2% were working in an unspecified way. However, before the pandemic, only 5.9% of these respondents had worked in teleworking.

Advantages and disadvantages of teleworking

Unsurprisingly, given the way the question was posed, for about half the respondents (49%) teleworking was reported as having both positive and negative aspects. However, it is noteworthy that 45.9% of the respondents reported more positive aspects than negative ones, with only 5.1% citing more negative aspects.

In relation to this issue, respondents were asked to choose three positive and three negative aspects of teleworking from a list, in descending order. As can be seen in Table 1, from the offered list of potential advantages of teleworking, 'saving time by avoiding travel' was the most frequently chosen, identified as an advantage by 72.9% of the respondents. Over half also selected 'creating a positive effect on work-life balance' and 'contribution to structurally rethinking organisational models in public administration'. By contrast, at 30.2%, 'contribution to reduce pollution' was the aspect least valued by the respondents (30.2%).

1 Civil servants with an academic degree.

2 One week working remotely and one week working in the workplace.

Table 1: Positive aspects that can arise from teleworking. Percentage of respondents who selected each aspect as first, second or third choice

Positive aspects	1st choice%	2nd choice%	3rd choice%	Total%
Saving time by avoiding travel	45.5	27.4	—	72.9
Creating a positive effect on work-life balance	—	23.6	33	56.5
Contribution to structurally rethinking organisational models in public administration	—	—	53.9	53.9
Greater freedom in the management and performance of professional tasks	44.1	—	—	44.1
Savings on travel expenses	5.8	29.7	5.7	41.2
Contribution to reduce pollution	—	13.4	16.7	30.2

Note: Since in this question the respondents were asked to choose 'the three most relevant positive aspects' and not just one answer, the totals in the table do not make up 100%.

In analysing the order of selection of those potential advantages, it is interesting to note that public servants who selected 'greater freedom in management and performance of professional tasks' always put it first in their order of preference, while 'contribution to structurally rethinking organisational models in public administration' was always placed in the third place when selected.

Regarding the disadvantages of teleworking shown in Table 2, 79.5% of respondents identified 'less face-to-face contact with colleagues' as the most negative aspect of teleworking. Around two-thirds (67.5% and 67%) also viewed 'working longer hours without realising it' and the 'expenses associated with teleworking' as negative aspects. The least mentioned negative aspects for respondents were 'less transparency in communication with management' (16.34%) and 'the generation of a negative effect on work-life balance' (14.3%).

Again, it is important to note that respondents who selected 'less face-to-face with colleagues' as a negative aspect of teleworking always put this in the first place. By contrast, public servants who indicated that teleworking generates a negative effect on work-life balance placed it third.

In a direct question about work-life balance, 74.3% of surveyed public servants said that they thought that teleworking helps to achieve such a balance, 15.3% disagreed and 10.4% said they did not know³. Perceptions of work-life balance were significantly related to the gender and number of dependents of respondents, as shown in Table 3. Women with one or two dependents were more likely to think that teleworking

³ Chi-Square tests of independence for a three-way table crossing gender, number of dependents and perception of work-life balance revealed a relation between these three variables ($\chi^2(6)=34.171, p<.001$).

Table 2: Negative aspects that can arise from teleworking. Percentage of respondents who selected each aspect as first, second or third choice

Negative aspects	1st choice%	2nd choice%	3rd choice%	Total%
Less face-to-face with colleagues	79.5	—	—	79.5
Increased expenses with internet, energy, computers or other tools needed to work from home	6.2	43.5	17.3	67
Working longer hours without realising that we are doing it	—	7.3	60.2	67.5
Danger of greater social isolation	14	41.4	—	55.4
Less transparency in communication with the managers	0.3	7.8	8.2	16.3
Generating a negative effect on work-life balance	—	—	14.3	14.3

Note: Since in this question the respondents were asked to choose 'the three most relevant negative aspects' and not just one answer, the total of the table does not make up 100%.

Table 3: Three-way table with gender, number of dependants and perception of work-life balance

Gender	Number of dependants	No, teleworking doesn't promote better WL balance (%)	Yes, teleworking promotes better WL balance (%)	Don't know (%)
Women	Without dependants	53.1	45.3	59.1
	One dependent	27.1	29.2	23.8
	Two dependants	15.8	22.3	14.6
	Three dependants	4.0	3.1	2.5
Men	Without dependants	45.4	39.8	53.2
	One dependent	31.6	31.2	27.5
	Two dependants	20.1	24.0	17.4
	Three dependants	2.9	4.9	1.8
Total	Without dependants	50.8	44.1	57.4
	One dependent	28.4	29.7	24.9
	Two dependants	17.1	22.7	15.4
	Three dependants	3.7	3.5	2.3

contributes positively to achieving such a balance, but this showed a slight decrease among those with three or more dependents. By contrast, among men, there were no statistically significant differences according to the number of dependents.

We also asked respondents about the availability of equipment to enable them to work as teleworkers. Here, 37.1% stated that the employer did not provide any essential tools/technology (hardware and software) for carrying out professional activities in the telework mode, 34.8% stated that tools and equipment were available and 28.1% admitted they were partially provided with the appropriate devices. The findings also revealed that employers were more likely to provide technological tools to managers compared to other workers ($\chi^2(2) = 166.318, p < .001$), with 59.6% of managers saying they had been provided with the equipment they need and only 15.9% not having received it. In contrast, 31.2% of workers had been supplied with the equipment while 40.2% stated they had not received any device. So, a significant number of public employees had to use their personal computers to perform their duties.

Perceptions of managers' attitudes to telework

One striking finding from the research was that there was a strongly held view that teleworking was perceived negatively by managers, with half of all respondents (50%) saying that they believed there was a stigma attached to teleworkers in the eyes of their superiors with only around a third (34%) saying there was no stigma, while 16% had no view on this matter.

Motivation

Respondents were also asked to compare their motivation to work when teleworking, in comparison to their motivation when duties are performed in the workplace, 15.7% said they felt 'much more motivated', 26% 'more motivated' and 47.7% felt 'no difference', while 8.4% and 2.1%, respectively, felt 'more' and 'much more' demotivated.

When asked about their communication with managers, more than 93% of the surveyed attached importance or very much importance to communication with their immediate superior when teleworking as a means of remaining part of their team (35.1% and 58%, respectively). The majority considered that communication with their immediate superior was 'very good' (48.3%) or 'good' (30.6%) during the period they were teleworking.

Finally, 91.1% of respondents considered that they could telework at home in future, 19.4% thought co-working places would be adequate to perform their duties⁴.

From the managers' point of view, 10.8% of surveyed managers found no difficulties in coordinating workers remotely; 58.7% admitted that remote coordination was viable, with adjustments but without any major constraints, 25.8% felt the coordination was difficult but viable and 4.8% affirmed it was very difficult.

In relation to the quality of work, 60.2% of managers stated that the quality was the same whether work was carried out in the workplace or from home. Only 11% and 1.2% of managers said the work was 'worse' or 'much worse', respectively. Of the

4 In this question, surveyed were allowed to name more than one option.

remainder, 22.1% thought the quality of work was 'better' and 5.5% that it was 'much better'.

When asked if teleworking should be integrated into the working practices of Portuguese public administration, 81.8% of managers answered in the affirmative, 10.4% said 'No' and 7.8% did not know. Furthermore, 86.9% of managers agreed that it was time to rethink the structure of the organisational models of work in Portuguese public administration.

Categorical Regression Analysis (CATREG)

A Categorical Regression Analysis (CATREG) was performed using the IBM SPSS statistics 27 to find a model to explain and predict workers' motivation when they perform their duties as teleworkers.

CATREG is a non-parametric multiple regression analysis that can be used when the dependent variable is categorical and independent variables are both categorical and numeric. CATREG quantifies categorical variables by using optimal scaling and uses the transformed variables to obtain a regression model (Guerra et al., 2019; Simsek, Bagdatli & Kirisci, 2019).

Workers' motivation was measured through the question: 'Comparing the motivation you feel when you perform your functions in the workplace, does teleworking make you feel: Much more unmotivated (1), More unmotivated (2), Neither unmotivated nor motivated (3), More motivated (4), Much more motivated (5)?'.

First, the analysis was carried out considering fifteen independent variables. Three variables were excluded from the analysis because of multicollinearity, as predictors in regression analysis must not contain redundant information. To address this, the following variables were removed: employee seniority in public administration, opinion about performing the duties outside of the workplace and age. These variables were excluded one at a time and in this sequence, considering the tolerance value associated with each variable. Tolerance values must be high since tolerance represents the proportion of the variability of each predictor variable which is not explained by the other independent variables in the model.

Thereafter, five variables were removed because the parameter associated with each variable was not statistically significant. This happened with the following variables: number of dependents, entity provision of devices needed to perform functions in teleworking, employee seniority in the current public body, gender and performing management functions. These variables were excluded from the analysis one at a time and in this sequence, starting with the variable with a higher p-value.

The final model was composed of seven variables, namely the career, way of working, level of importance attached to the communication with immediate superior in teleworking as a bridge to be part of the teamwork, perception of quality of communication with an immediate superior when teleworking, perception of strengths and weaknesses of teleworking, the role of teleworking in work-life balance, and perception of stigmatisation of teleworkers by leaders.

Statistics of quality and validation of the final model are shown in Tables 4 to 6. The adjusted R Square represents the proportion of the variability of workers' motivation explained by the model, without the influence of the number of predictor variables

Table 4: Model summary. Model goodness-of-fit

Multiple R	R Square	Adjusted R Square
.649	.422	.418

Table 5: ANOVA test for global validation of the model

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1580.121	21	75.244	129.349	<.001
Residual	2166.879	3725	.582		
Total	3747.000	3746			

Table 6: F tests for each regression coefficient

Coefficients					
	Standardised Coefficients		df	F	Sig.
	Beta	Bootstrap (1000) Estimate of Std. Error			
Career	.046	.012	6	14.265	<.001
Current way of working	.044	.013	5	12.393	<.001
Level of importance attached to the communication with immediate superior in teleworking as a bridge to being part of the team	-.035	.014	2	6.485	.002
Perception about the quality of communication with an immediate superior when teleworking	.086	.015	2	31.930	<.001
Perception of strengths and weaknesses of teleworking	.490	.020	2	584.517	<.001
Perception about work-life balance when teleworking	.188	.018	2	111.540	<.001
Perception of stigmatisation of teleworkers by managers	.078	.014	2	31.069	<.001

included in the analysis. The ANOVA test assesses the global validation of the model. Rejection of the null hypothesis means that at least one of the regression coefficients is statistically different from zero. In other words, it means that the model contributes significantly to explaining variation in workers' motivation. Additionally, the

significance of each regression coefficient is shown. Rejection of the null hypothesis for the F test means that a given predictor variable contributes to explaining workers' motivation.

According to standardised coefficients, the perception of strengths and weaknesses of teleworking is the most relevant variable in the model, followed by the role of teleworking in work-life balance. The other variables are of minor importance. The less relevant variable is the level of importance attached to communication with the immediate superior in teleworking as a bridge to be part of the team. This is the only variable with a negative association with workers' motivation. This means that workers' motivation decreases when such a level of importance increases. Despite this variable being less important in predicting workers' motivation when they perform their duties as teleworkers, one possible explanation for this negative association is that the superior is seen as a necessary link to being part of the teamwork as opposed to feeling directly linked to the team.

Computing quantifications of predictor variables and workers' motivation, when workers perform their functions as teleworkers, makes it possible to estimate motivation when characteristics of predictor variables are given. Table 7 shows these for each variable.

$$Q_y = \sum_{j=1}^k \left(\beta_j \times Q_j \right)$$

where Q_y is the quantification of the Y dependent variable, β_j is the regression coefficient of the j independent variable and Q_j is the quantification of the j independent variable.

Aiming to test the model in Table 7, we decided to estimate the motivation of a public servant with the following profile: a professional career worker in full-time teleworking when he/she was surveyed. This professional attaches little importance to communication with his or her immediate superior as a bridge to being part of the team, assesses communication with the superior as very good, thinks that teleworking brings more positive than negative aspects, considers that telework contributes to work-life balance and also feels that managers do not stigmatise workers who perform their functions as teleworkers. The profile was established according to the general findings and according to the regression model obtained (including the plus or minus sign of the regression coefficients). Regarding the career, we opted to select a professional career because it was the most frequent in the sample. For computing workers' motivation with that profile, we used quantifications related to those characteristics (see Table 8) and we applied the formula above. The Q_y value obtained for workers' motivation was 0.637, which is close to the quantification of the category: 'more motivated'. So, the categorical regression model estimates higher motivation for an employee with such characteristics.

Discussion

The purpose of this article was to characterise teleworking in public administration during and after the first pandemic confinement, in Portugal. In particular, it aimed to

Table 7: Quantifications of workers' motivation and predictor variables

Variables	Categories	Frequency	Quantification
Workers' motivation Comparing the motivation you feel when you perform your functions in the workplace, teleworking makes you feel:	(1) Much more unmotivated	76	-4.193
	(2) More unmotivated	314	-1.847
	(3) Neither unmotivated nor motivated	1783	-.253
	(4) More motivated	81	.697
	(5) Much more motivated	593	1.124
Career⁵ Your career is:	(1) Support Staff	20	-3.192
	(2) Administrative Staff	672	1.173
	(3) Professional career	1910	-.549
	(4) IT career	69	3.531
	(5) Inspection career	374	.027
	(6) Scientific Research career	51	-4.522
	(7) Other careers	651	.462
Current way of teleworking (when a survey was carried out) Currently, how do you perform your duties?	(1) In workplace	570	-1.873
	(2) Teleworking with occasional displacement to the workplace	778	.090
	(3) Teleworking with regular displacements to the workplace	972	-.430
	(4) Rotation system	610	.637
	(5) Full-time teleworking	755	1.306
	(6) Another way of working	62	.656
Level of importance attached to the communication with immediate superior in teleworking as a bridge to being part of the team	(1) Not at all important	0	-
	(2) A little important	260	-2.538
	(3) Important	1315	-.771
	(4) Very important	2172	.771
Perception about quality of communication with an immediate superior when teleworking.	(1) Insufficient	221	-3.376
	(2) Sufficient	567	-.355
	(3) Good	1148	-.355
	(4) Very good	1811	.748

(Continued)

5 According to OECD terminology.

(Continued)

Variables	Categories	Frequency	Quantification
Perception of strengths and weaknesses of teleworking In your opinion telework brings:	(1) More negative than positive points	190	-3.432
	(2) As many negative as positive points	1831	-.423
	(3) More positive than negative points	1726	.827
Perception about work-life balance when teleworking Do you think that teleworking contributes to work-life balance?	(1) No, I don't	573	-2.135
	(2) I don't know	378	-.859
	(3) Yes, I do	2796	.554
Perception of stigmatisation of teleworkers by managers Do you feel that managers still stigmatise workers who perform their duties through teleworking?	(1) Yes, I do	1877	.970
	(2) I don't know	593	-1.463
	(3) No, I don't	1277	-.746

uncover the perceptions of Portuguese public servants (workers and managers) about teleworking. We also sought to understand whether the perception of the potential advantages and disadvantages of teleworking, with a special emphasis on work-life balance, is related to socio-demographic variables, especially the worker's gender and the number of dependents. Lastly, we aimed to investigate workers' motivation and the variables related to this when they work as teleworkers.

In relation to our first research question, RQ1: What are the perceptions of Portuguese public servants about teleworking? our research results seem to confirm those that Vadkerti (2020) and Paskov (2020) highlighted in their studies, carried out in the central administrations of several European countries and performed during the pandemic. Indeed, our findings confirm that Portuguese public servants generally consider that there are more positive than negative aspects in teleworking. Despite all the constraints, teleworking was implemented with adequate levels of efficiency and effectiveness in Portuguese public administration with no significant variations. Nevertheless, two main weaknesses were uncovered. First, the lack of adequate technology (hardware and software) provided by public employers, as identified in the research by Filardi et al. (2020) represents a structural obstacle to teleworking. Second, the fact that half of the respondents believed that managers still stigmatise teleworkers points to the presence of a bureaucratic culture that continues to privilege the physical presence of workers, creating a barrier to the healthy development of teleworking as an

alternative organisational work model, confirming the findings of Clear & Dickson (2005), Taskin & Edwards (2007) and Fernando et al. (2017). According to De Vries et al. (2019), teleworking cannot thrive under excessively formal and bureaucratic leadership, requiring leaders who know how to privilege empathy, mutual trust and relationship quality and, consequently, who do not contribute to the stigmatisation that still exists in relation to teleworkers.

However, despite these constraints, almost half of the respondents attributed more positives than negatives aspects to teleworking and the other half perceived teleworking as a blend of advantages and disadvantages. Likewise, the majority of respondents considered that teleworking helps to improve work-life balance. The positive aspects of teleworking included time-saving on travel and the freedom to manage tasks. These two were the most likely to be selected first.

Among the negative aspects, the most consistently selected was the loss of face-to-face contact with colleagues. This was followed, but only as secondary choices, by the increased expense of working from home and the danger of isolation. Regarding the advantages and disadvantages, in essence, the results of our research seem to be in line with others already identified in previous research by Caillier (2012); Costa (2013); Mello et al. (2014); De Vries et al. (2019) and Filardi et al. (2020) who mentioned as the main advantages of teleworking, among others, the reduction of travel time, the decrease in food and travel/transport expenses, the greater possibility of work-life balance, as well as greater autonomy/freedom in performing work. On the other hand, the main disadvantages identified by our research, such as social and professional isolation and the lack or reduction of face-to-face contact with colleagues, are also in line with those cited by the aforementioned authors.

It is also quite significant that almost all respondents considered that they would be capable of teleworking in a near future.

From the managers' perspective, the majority acknowledged that they were able to coordinate workers remotely and considered that the quality of their work was equal to or superior to work carried out in an office setting. Likewise, the majority assumed that teleworking should be integrated into the practices of the Portuguese public administration and agreed that it is time to rethink the structure of work organisation models.

In summary, workers' and managers' perceptions seem to be more positive than negative.

When asked about work-life balance and addressing our second research question, RQ2: Does the perception of work-life balance during teleworking vary as a function of gender and as a function of the number of dependents? we found that, in general, both workers' gender and the number of dependents were related to perceptions of work-life balance when teleworking. It is interesting to note that men's perception of a work-life balance was independent of the number of dependents they have. However, we found a different result among women. Women with one or two dependents tend to think more frequently that teleworking contributes to improving work-life balance, but women without dependents or who have more than two dependents are less likely to do so.

These results seem to suggest that women still have a prominent role in families. Furthermore, the results are consistent with the findings of Tremblay (2002) and, more

recently, Troup and Rose (2012) and Raisiené (2020). All studies emphasise that satisfaction with teleworking is different between men and women, confirming that this new model of work organisation may contribute to an increasingly unequal distribution of tasks within a family, with more tasks being performed by women. It is important to remember that during the COVID-19 lockdown, children and perhaps other dependents (for example, elderly people) were at home, and teleworkers had to find a balance between work and personal life in that context. It seems likely that women with more dependents had greater difficulties in balancing work and personal life while teleworking because of the conditions of lockdown. In contrast, women without dependents are likely to have had a different lifestyle. So, their experience of work-life balance during the lockdown will probably have been different too. Nevertheless, when asked about work-life balance, 74.3% of the public servants in our survey considered that teleworking helps to achieve work-life balance. The results presented in Table 3 are aligned with the argument that teleworking does not necessarily improve the lives of those who telework, as described by Palumbo (2020; 2021), that teleworking-private life management can create new stressors (Olson-Buchanan & Boswell, 2006; Tietze & Musson, 2005; Russell et al., 2009) and that social isolation and the decrease in interpersonal contacts can bring new dangers (Dahlstrom, 2013; Palumbo et al., 2021).

In the context of our third research question, RQ3, regarding workers' motivation, our results support the theses of Lupton & Haynes (2000); Hoorweg et al. (2016) and Ganhão et al. (2021) that generally workers are more motivated when teleworking, with most of the respondents stating they had the same or more motivation while teleworking. Indeed, only a minority felt more demotivated in comparison to performing their duties in the workplace. It was important to understand which variables were related to teleworkers' motivation in our study, as expressed in our fourth research question, RQ4. Concerning this, we were able to identify a set of variables that better explain teleworkers' motivation and that can help to predict it. According to this model, workers' motivation varies depending on the career, the model/way of working, the perception of communication quality with the immediate superior when teleworking, the perception of strengths and weaknesses of teleworking, the perception of work-life balance in teleworking and the perception of stigmatisation of teleworkers by leaders. If teleworkers feel they can communicate well with managers, that teleworking brings advantages, such as an improved work-life balance, and that managers do not stigmatise them, then it can be assumed that teleworking is an adequate working model that will bring a good level of workers' motivation.

Conclusion

The research findings lead us to confirm that the perceptions of public servants in Portugal about certain dimensions of teleworking are essentially similar to what has been recently described in the international scientific literature. Considering only the research questions that we studied in greater detail, we can say that the advantages and disadvantages of teleworking felt by Portuguese public servants coincide more or less with those defined in the literature review. However, two significant problems were identified: the perception of insufficient supply of adequate equipment by employers and the perception that a considerable number of managers still stigmatise teleworkers.

These problems appear not only to be perceptions but also to be related to real structural problems, revealing the strong persistence of a bureaucratic culture that continues to privilege the physical presence of employees in the workplace.

The findings also suggest that variables like gender and number of dependents are related to perceptions about work-life balance when teleworking. This is particularly relevant in the case of women. Women with one or two dependents tend to think more frequently that teleworking contributes to improving work-life balance, but women without dependents or who have more than two dependents state less frequently that teleworking helps to achieve such balance. Therefore, it is important to consider teleworkers' family duties, particularly among women with dependents, since they still seem to have a prominent role in family responsibilities.

It is also clear that for most respondents, teleworking is positively associated with motivation. However, the motivation level depends on variables like the career, the perception of communication quality with the managers, the perception of strengths and weaknesses of teleworking, the perception of work-life balance in teleworking and the perception of stigmatisation of teleworkers by leaders. Special attention must be paid to these variables that explain and help to predict public servants' motivation in teleworking. From now on, these variables should be considered by public sector decision-makers when deciding on the work organisation models that should be adopted by Portuguese public administration.

To conclude, it seems that teleworking in public administration has succeeded despite some aforementioned weaknesses. It works well in general and is better for workers with certain characteristics. Also, maintaining communication quality, providing adequate devices, giving greater freedom in the management and performance of professional tasks and investing in managers' awareness to avoid stigmatising teleworkers contributes to making teleworking an appropriate working model.

Finally, bearing in mind all the findings above, teleworking could be regarded as an alternative to the on-site work model, since it is clear that a good number of public servants may accept teleworking as a 'new normal' model of work organisation.

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REFERENCES

- Allen, T. D., T.D. Golden & K.M. Schockley (2015) 'How effective is telecommuting? Assessing the status of our scientific findings', *Psychological Science in the Public Interest*, 16 (2): 40–68.
- Amponsah-Tawiah, K., F. Annor & B.G. Arthur (2016) 'Linking commuting stress to job satisfaction and turnover intention: the mediating role of burnout', *Journal of Workplace Behavioral Health*, 31 (2): 104–123.
- Baruch, Y. (2001) 'The status of research on teleworking and an agenda for future research', *International Journal of Management Review*, 3: 113–129.
- Baruch, Y. N. Nicholson (1997) 'Home, sweet work: requirements for effective home working', *Journal of General Management*, 23: 15–30.
- Belzunegui-Eraso, A. & A. Erro-Garcés (2020) 'Teleworking in the Context of the Covid-19' Crisis, *Sustainability*, 12: 36–62.
- Boonen, E. M. (2008) 'As várias faces do teletrabalho'. *Revista Economia e Gestão*, 2 (4): 106–127.
- Caillier, J. G. (2012) 'The impact of teleworking on work motivation in a U.S. federal government agency', *The American Review of Public Administration*, 42: 461–480.

- Clear, F. & K. Dickson (2005) 'Teleworking Practice in Small and Medium-Sized Firms: Management Style and Worker Autonomy', *New Technology, Work and Employment*, 20 (3): 218–223.
- Costa, I. S. (2013) 'Controle em novas formas de trabalho: teletrabalhadores e o discurso do empreendedorismo de si'. *Cadernos EBAP.BR*, 11(3): 462–474.
- Dahlstrom, T. R. (2013) 'Telecommuting and leadership style', *Public Personnel Management*, 42 (3): 438–451.
- De Vries, H. L. Tummers & V. Bekkers. (2019) 'The Benefits of Teleworking in the Public Sector: Reality or Rhetoric?' *Review of Public Personnel Administration*, 39 (4): 570–593.
- Eurofound (2020) *COVID-19 Could Permanently Change Teleworking in Europe*, Dublin: Eurofound.
- Eurofound and the International Labour Organization (2017) *Working Anytime, Anywhere: The Effects on the World of Work*. Geneva: Publications Office of the European Union.
- Faria, L.J. (2009) 'Nova administração pública: o processo de inovação na administração pública federal brasileira visto pela experiência do 'Concurso Inovação na Gestão Pública Federal' in *Anais do Encontro da Associação Nacional de pós-graduação e pesquisa em administração*, São Paulo: Anpad:33
- Fernando, A., R. Mercedes & P. de Castro. (2017) *Análise dos resultados da implantação do teletrabalho na Administração Pública: Estudo dos casos de SERPRO e da Receita Federal*. Mestrado Profissional em Administração/IBMEC-RJ- ENANPAD Faculdades IBMEC Rio de Janeiro.
- Filardi, F., R. De Castro & M. Zanini (2020) Advantages and disadvantages of teleworking in Brazilian public administration: analysis of SERPRO and Federal Revenue experiences. *Cadernos EBAP.BR*, 18 (1): 28–46.
- Ganhão, T., C. Fernandes & T. Santos (2021) *Public Employee Motivation in EU Central and Federal Public Administration: an exploratory approach*, Directorate General for Public Administration and Public Employment.
- George, J.M & G. R. Jones (2008) *Understanding and Managing Organizational Behavior* (5th ed.). Upper Saddle River: Pearson Prentice-Hall.
- Governo de Portugal. (2019) *Programa do XXII Governo Constitucional*, Portugal.
- Guerra, W., M. Herrera, L. Hernández & N.R. Álvarez (2019) 'Categorical regression model for the analysis and interpretation statistical power', *Cuban Journal of Agricultural Science*, 53(1): 13–20.
- Hood, C. (1991) 'A Public Administration for all Seasons?' *Public Administration*, 69 (1): 3–19.
- Hoorweg, N., P. Peters & B. van der Heijden (2016) 'Finding the optimal mix about telework and office hours to enhance employee productivity: a study into the relationship between telework intensity and individual productivity, with mediation of intrinsic motivation and moderation of office hours', *New Ways of Working Practices*, 16: 1–28.
- ILO. (2020) *Teleworking during the COVID-19 pandemic and beyond A Practical Guide*, Geneva, International Labour Office, July.
- Lupton, P. & B. Haynes (2000) 'Teleworking – the perception-reality gap', *Facilities*, 18 (7/8): 323–337.
- Madureira, C., B. Rando & D. Ferraz (2021a) 'The Public Administration Performance Appraisal Integrated System (SIADAP) and the Portuguese civil servants perceptions', *International Journal of Public Administration*, 44 (4): 300–310.
- Madureira, C. et al. (2021b) *A adaptação dos modelos de organização do trabalho na Administração Pública Central durante a pandemia COVID-19: dificuldades e oportunidades*. Departamento de Desenvolvimento de Modelos Organizacionais (DDMO). Lisboa. DGAEP.
- Madureira, C. (2020) A reforma da administração pública e a evolução do estado- providência em Portugal: história recente, *Ler História*, 76: 179–202.
- Madureira, C. (2015) A Reforma da Administração Pública Central no Portugal democrático: do período pós-revolucionário à intervenção da Troika, *Revista de Administração Pública*, 49 (3): 547–562.

- Mello, A. et al. (2014) 'Teletrabalho como fator de inclusão social e digital em empresas de call center/contact center', *Revista de Administração da Universidade Federal de Santa Maria*, 7 (3): 373–388.
- Mogale, L. & M. Sutherland (2010) 'Managing virtual teams in multinational companies', *South African Journal of Labour Relations*, 34: 7–24.
- Olson-Buchanan, J. B. & W.R Boswell (2006) 'Blurring boundaries: correlates of integration and segmentation between work and non-work', *Journal of Vocational Behavior*, 68 (3): 432–445.
- Osborne, D & T. Gaebler (1992) *Reinventing Government*. Boston, MA: Addison Wesley Publishers Company.
- Palumbo, R., G. Flamini, L. Gnan, M.M. Pellegrini, D. Petrolo & M.F. Manesh (2021) 'Disentangling the implications of teleworking on work-life balance: a serial mediation analysis through motivation and satisfaction', *Journal of Organizational Effectiveness: People and Performance*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JOEPP-08-2020-0156>
- Palumbo, R. (2020) 'Let me go to the office! An investigation into the side effects of working from home on work-life balance', *International Journal of Public Sector Management*, 33 (6/7): 771–790.
- Paskov, V. (2020) Home-based work in the public sector: 8 immediate recommendations, World Bank Blogs, available at: <https://blogs.worldbank.org/governance/worldbank-sector-8-immediate-recommendations>
- Pollitt, C. & G. Bouckaert. (2017) *Public Management Reform: a Comparative Analysis – into the Age of Austerity*. Oxford: Oxford University Press.
- Pollitt, Christopher (1990) *Managerialism and the Public Services: The Anglo-American Experience*. Oxford: Basil Blackwell.
- Pyoria, P. (2011) 'Managing telework: risks, fears and rules', *Management Research Review*, 34 (4): 386–399.
- Raisiene, A. G., V. Rapuano, K. Varkuleviciute & K. Stachová (2020) 'Working from home – Who is happy? A Survey of Lithuania's Employees during the COVID-19 Quarantine Periods', *Sustainability*, 12: 5332.
- Russell, H., P.J. O'Connell & F. McGinnity (2009) 'The impact of flexible working arrangements on work-life conflict and work pressure in Ireland', *Gender, Work and Organization*, 16 (1): 73–97.
- Simsek, N., S. Bagdatli, & M. Kirisci (2019) 'Categorical regression analysis with medical application'. *JP Journal of Biostatistics*, 16(2): 121–138. <http://dx.doi.org/10.17654/BS016020121>
- Taskin, L. & P. Edwards (2007) 'The possibilities and limits of telework in a bureaucratic environment: lessons from the public sector', *New Technology, Work and Employment*, 22 (3): 195–207.
- Tietze, S. & G. Musson (2005) 'Recasting the home-work relationship: a case of mutual adjustment?' *Organization Studies*, 26 (9): 1331–1352.
- Tremblay, D. G. (2002) 'Organização e satisfação no contexto do teletrabalho'. *Revista de Administração de Empresas*, 42 (3): 54–65.
- Troup, C. & J. Rose (2012) 'Working from home: do formal or informal telework arrangements provide better work-family outcomes?' *Community, Work & Family*, 15 (4): 471–486.
- Vadkert, Z. (2020) 'Will teleworking become the new normal in European central government administrations after the COVID-19 pandemic?' *Revista da Administração e do Emprego Público*, 6: 137–156.
- Williamson, S., L. Colley, M. Foley & R. Cooper (2018) *The Role of Middle Managers in Progressing Gender Equity in the Public Sector*, Canberra: UNSW Canberra.