The correlation between telecommuting and work life balance in oil and gas industry

Nik Nur Qamarina Mohd Khairudin\textsuperscript{3,} *, Nurulnadwan Aziz\textsuperscript{1,2}
\textsuperscript{1}Department of Research and Industrial Linkages, Universiti Teknologi MARA, Terengganu Malaysia
\textsuperscript{2}Faculty of Business and Management, Universiti Teknologi MARA, Terengganu Malaysia
\textsuperscript{3}IT Engineer, Petronas ICT Sdn Bhd, Terengganu, Malaysia.

* nuruln746@uitm.edu.my

Abstract. In line with the industrial revolution 4.0, telecommuting becomes more robust and relevant to be implemented in Malaysia even though this working arrangement is not widely accepted by most of Malaysia's companies due to some hindering factors. There is a limited encouragement from the management and awareness of the benefit of telecommuting shared to the employer, employees, and organisation. For this reason, the researcher aims to determine the relationship of telecommuting among employees in the East Coast Region of oil and gas industry which is consisted of Kelantan, Pahang, and Terengganu with work-life balance. Employee acceptance with regards to telecommuting is the independent variable, and work-life balance was evaluated using a component of each dependent variables, which are: (i) more family time (ii) and increased productivity. The items in questionnaires are a closed-ended type using a five-point Likert scale and the sample of 70 respondents being selected from the oil and gas industry in the East Coast Region. The researcher distributed 70 sets of questionnaires and returned 60 questionnaires, with a return rate of 86%. Correlation was applied in analysing and interpreting the collected data. The findings of correlation between telecommuting and work-life balance generally support the hypotheses in this study and eventually had answered the objectives for this study. As a conclusion, there is a significant correlation between telecommuting and work-life balance which is associated with the acceptance of telecommuting among oil and gas industry in the East Coast Region, Malaysia.

Keywords: Human computer interaction, interaction design, telecommuting, virtual office system, work life balance.

1. Introduction

Contemporarily, new technologies such as data analytics and social networks have vitally altered the way people live, communicate, collaborate and work. This is because from the first until the fourth revolution, the industry has shifted from industrial-based economy to an information-based one. Although, the industrial revolution is specifically related to manufacturing and production, yet information and communication technologies (ICTs) is no exception an undergoing revolution in line with the current revolution change. However, the technology revolutionary has impacted the way people are working, as it made work significantly more flexible and such options are very important to employee’s attraction and retention [1]. In addition, the millennials who are born between early 1980s to 1990s are ambitious as well as hardworking but their personal life and families are also valuable.
Therefore, work-life balance and flexibility in a work is truly important and crucial for the current workforce.

According to [2], there are few programs offered under a Flexible Working Arrangement (FWA) such as flexible working hours, telecommuting, part-time employment, increased maternity and paternity leave, career breaks, flexible leave options, and job sharing. However, the present research only focuses and discusses on telecommuting. Telecommuting is a form of work organisation in which the work is partly or completely carried out away from the conventional workplace with the help of information and telecommunication services [3]. Nowadays, the rapid change of ICTs such as mobile computers, reliable broadband communication, and cloud computing provides workers with the options to work from a remote location such as home, café, or any public area in a common and synchronous manner. Few researchers such as [4] [3] and [5] have labelled the type of work empowered by ICTs as telecommuting, which has been long famous for its capacity to cultivate work-family equilibrium and job satisfaction. As such, employer need to seek out a new way of working arrangement to provide an employee with a greater work-life balance and create a great place to work environment, while helping to improve the retention rates. This style of work arrangement is distinctive than a conventional one in a number of ways and possess a great advantage for employer as well as employees if the arrangement is carefully crafted to meet the need and implementation objectives.

Generally as an employee, integration between work and personal matters plays a very important role in achieving a life satisfaction. [6] described work-life balance as when an individual able to balance the spatial, mental and behavioural requirements of both job and family responsibilities simultaneously. Therefore, the assistance of technology and innovation could help in obscuring the line between personal and work-life. This innovation could assist employees to work remotely and thus able to save an employee's significant time to permit them to discover a better way of balancing between work and personal life. Furthermore, it could reduce stress, improve health, and subsequently decrease employee's wellbeing protection cost. Therefore, Malaysia was chosen to ease the research flow in this present study. Additionally, Malaysia is a developing country where the telecommuting is being practised by more than 60 companies, ranging from public listed companies, government-linked companies, government sectors, financial institutions and many more since 2013 [2].

Employees are the most important assets of an organisation. Therefore, their satisfaction and preference are needed and crucial in dealing with the day to day task, thus should be the concern of any organisation. According to [7], the foundation of a competitive organization is happy worker who is loyal, satisfied, and highly motivated. Furthermore, satisfied employee reduces turnover, increases productivity, increases satisfaction, less absence, and promotes loyalty. In view of this, the technology advancement has made work considerably more flexible and eventually meet the expectation of the employee, especially millennials. Therefore, by offering a Flexible Working Agreement (FWA) it is assisted the employee to reach a work-life balance, boost productivity and promote loyalty. This strategy also help to maintain a talent employee, decrease tardiness and absenteeism while keeping cost manage. The benefits of telecommuting have been shared and proved analytically from a previous study conducted by local and international researcher. The study conducted by [8] [9] [10] [11] [12] has been tested in a different industry such as manufacturing, information technology, financial institutions, and educational sector. However, a study related to telecommuting conducted in oil and gas industry is hardly to be found.

In Malaysia, more than 60 companies including Public Listed companies, Government-Linked companies, Government Sector, and financial institutions have implemented FWAs since 2013 [2]. However, many companies still doubting the value of telecommuting especially when it is related with performance and monetary value [12]. Therefore, the main aim of this study is to investigate and determine the correlation of telecommuting between work-life balance for one of Government-Linked Company in the East Coast Region. This organization is related with Oil and Gas (O&G) industry based in Malaysia. It is one of the Government-Linked Company (GLC), which is actively participate in offering their employees...
with a flexible working arrangement programs. The offering programs are flexible working hours, compressed work week (CWW), increase paternity and optional maternity leave, as well as career breaks. Therefore, the hypotheses of this study is work-life balance related to telecommuting.

2. Materials and methods
This study involves one phase procedure in its data collection, which is a purposely to gather information and prove the research objective. With the permission to conduct a survey from the studied organization, 70 questionnaires were distributed to the oil and gas employees who are based in the East Coast Region (Pahang, Terengganu, and Kelantan). The questionnaires were answered by the respondent based on their permission and willingness. The minimum sample for 70 respondents was 59 sample and this study managed to achieve the minimum sample target, thus the questionnaire data can be used for analysis. The overview of population is as illustrated in Table 1.

| Table 1. Quantity of sample size and population |
|-----------------------------------------------|
| PETRONAS ICT East Coast | Population | Sample Size |
| Female | 27 | 27 |
| Male | 43 | 43 |
| Total | 70 | 70 |

2.1. Sampling technique
Purposive sampling was utilized to measure the finding of the study. All the 70 staff from the oil and gas industry were selected as a sample with specific judgment to participate in the study. Specifically, this study uses total population sampling because it is a small group employee (N=70) who has similarities in demographic and job category. According [13] to Sekaran (2010), purposive sampling is a non-probability sampling method and it occurs when elements selected for the sample are chosen by the judgment of the researcher. Moreover, purposive sampling technique is one of the most cost-effective and time-effective sampling methods available. This type of sampling technique is also known as judgmental, selective or subjective sampling.

3. Result analysis
This section outlines the findings related to the demographic characteristics of the participants sampled in the study. Moreover, the descriptive analysis of the construct identified in the study has been highlighted. Furthermore, regression analysis has been employed to examine the relationship between telecommuting and work life balance.

3.1. Demographic profile of respondent
The demographic characteristics of the sampled population were analyzed and the result has been summarized in Table 2.

| Table 2. Descriptive analysis respondents (N=60) |
|-----------------------------------------------|
| No. | Demographic variable | n | % |
| 1 | Gender | | |
| Male | 33 | 55.0 |
| Female | 27 | 45.0 |
3.2. General information of respondent

Information pertaining to general information of the participants regarding telecommuting was analyzed and the findings have been indicated in Table 3. The results indicate that 54 (90%) of the participants know about telecommuting while 6 (10%) do not know. Moreover, 51 (85%) of the respondents offers its employees telecommuting as an alternative work arrangement at their organization; however, 9 (15%) indicated the company does not offer telecommuting as an alternative work. Coherently, 9 (100%) of the sampled population who responded that their organization is not offering to telecommute shown they are interested to telecommute. Similarly, 45 (88.2%) of the participants indicate that their job function well while using telecommuting, however 6 (11.8%) of the respondents state no. From the result it can be observed that 11 (18.3%) of the participants was to telecommute about once every behaviour weeks while 16 (26.7%) and 19 (31.7%) states that they want to telecommute once a week and two days a week respectively. Similarly, 13 (21.7%) of the respondents would want to telecommute three days a week while 17 (28.3%) would want to telecommute occasionally for a special project, and 12 (20%) of the sampled population would want to telecommute other times. This section has uses dichotomous scale therefore, there is a limitation in order to analyse the data to get an accurate and precise finding. The study should use a five-point Likert scale rather than dichotomous scale to get a better analysis and findings.

Table 3. General information

| No. | General Information                        | n  | %   |
|-----|------------------------------------------|----|-----|
| 1   | Do you know about telecommuting?         |    |     |
|     | Yes                                      | 54 | 90.0|
|     | No                                       | 6  | 10.0|
Is your organisation offer employees telecommuting as an alternative work arrangement?

|        | Yes | No |
|--------|-----|----|
| Count  | 51  | 9  |
| Percentage | 85.0 | 15.0 |

If no, are you interested to telecommute?

|        | Yes | No |
|--------|-----|----|
| Count  | 9   | 0  |
| Percentage | 100.0 | 0.0 |

Are you think telecommuting will be the new ways of working?

|        | Yes | No |
|--------|-----|----|
| Count  | 9   | 0  |
| Percentage | 100.0 | 0.0 |

Is your job well function while using the telecommuting?

|        | Yes | No |
|--------|-----|----|
| Count  | 45  | 6  |
| Percentage | 88.2 | 11.8 |

Considering the nature of your job, how much would you want to telecommute?

|                      | Count | Percentage |
|----------------------|-------|------------|
| About once every 2 weeks | 11    | 18.3       |
| About once a week     | 16    | 26.7       |
| Two days a week       | 19    | 31.7       |
| Three days a week     | 13    | 21.7       |
| Occasionally for a special project | 17    | 28.3       |
| Other                 | 12    | 20.0       |

3.3. Work life balance

The responses of the participants relating to the construct work-life balance have been descriptively analysed and the results have been indicated in Table 4 and Figure 1. The overall mean attained for the construct is 3.92±0.59 thus implying that an average number of the participants were undecided. The results indicate that most of the participants agree with statement B1 (4.15±0.80). However, an average number of the sampled population are undecided in respect to statement B2 (3.48±0.97) as evident in the findings. Moreover, it can be noted that most of the participants agree with statements B3 (4.07±0.84), B4 (4.03±0.78), and B5 (4.20±0.78) as evident by the above average mean attained. In contrast, the average number of participants were undecided in regards to statement B6 (3.60±1.00).
| No. | Statement                                                                 | SD | D  | UD | A   | SA | Mean | SD  |
|-----|---------------------------------------------------------------------------|----|----|----|-----|----|------|-----|
| B1  | My organisation values a balance between personal life and career         | 0  | 1  | 12 | 24  | 23 | 4.15 | 0.80|
|     |                                                                           | (0.0)| (1.7)| (20.0)| (40.0)| (38.3)|      |      |
| B2  | Managers in my organisation fully support and encourage telecommuting     | 0  | 12 | 15 | 25  | 8  | 3.48 | 0.97|
|     |                                                                           | (0.0)| (20.0)| (25.0)| (41.7)| (13.3)|      |      |
| B3  | Is telecommuting positively impacts your work-life balance?                | 1  | 0  | 13 | 26  | 20 | 4.07 | 0.84|
|     |                                                                           | (1.7)| (0.0)| (21.7)| (43.3)| (33.3)|      |      |
| B4  | Telecommuting gives me the opportunity to participate in household         | 1  | 2  | 9  | 30  | 18 | 4.03 | 0.86|
|     | responsibilities and activities.                                          | (1.7)| (3.3)| (15.0)| (50.0)| (30.0)|      |      |
| B5  | Telecommuting reduces my travel costs and lowers my living costs          | 0  | 1  | 10 | 25  | 24 | 4.20 | 0.78|
|     |                                                                           | (0.0)| (1.7)| (16.7)| (41.7)| (40.0)|      |      |
| B6  | I am more productive when working away from the office                    | 1  | 8  | 16 | 24  | 11 | 3.60 | 1.00|
|     |                                                                           | (1.7)| (13.3)| (26.7)| (40.0)| (18.3)|      |      |
|     | **Overall**                                                                | 3.92| 0.59|    |     |    |      |      |
3.4. Pearson correlation
The correlation analysis is a statistical method that used to evaluate or determine the nature of relationship between two variables (e.g. dependent variable and independent variable). When the correlation is found between the tested variables, therefore if one of the variables has a systematic change, the one other will also have a systematic change over a certain period of time. The relationship is depending on the numerical measured value which are either positive or negative. Therefore, for this study the correlation has been measure based on the correlation rule of thumb which are correlation 0 means there is a relationship, correlation 1 represent a strongest positive relationship and correlation -1 represent a strongest negative relationship. Table 5 shown the measured result for variables work-life balance and telecommuting by using Pearson Correlation method. As can be seen, the independent variables and dependent variables have a positive relationship because there is no correlation r value in a negative value. However, the correlation independent variables and dependent variables for measure telecommuting among oil and gas employees are low correlation and almost no correlation. There is a positive correlation between work-life balance and telecommuting however the correlation is moderate positive correlation (.319). It is mean, work-life balance gives impact in influencing telecommuting among oil and gas East Coast employees.

| Table 5. Pearson Correlation between Variables |
|-----------------------------------------------|
| Work-life balance | Value | Empowerment | Tele Accept |
|-------------------|-------|-------------|-------------|
| Work-life balance | Pearson Correlation | 1 | .616 | .763 | .319 |
| Sig. (2-tailed) | | | | .000 | .000 | .013 |
| N | 60 | 60 | 60 | 60 |
| Tele Accept | Pearson Correlation | 1 | | |
| N | 60 |

This section has successfully presented the finding from the data collected. The constructs were descriptively analysed based on the responses attained from the participants. The results of the correlational analysis demonstrated that only work-life balance have sig correlation with
telecommuting with the reasons of sig. less than 0.05. Therefore, the hypotheses have been supported in this study.

Table 6. Summary of The Hypotheses

| No. | Hypotheses Statement                                      | Results |
|-----|---------------------------------------------------------|---------|
| H1  | Work-life balance related to telecommuting             | Supported |

4. Conclusion

The objective of this study is to determine the correlation between telecommuting towards work-life balance among employees in oil and gas East Coast staffs. Furthermore, the researcher decided to use quantitative studies that involved a survey of 70 oil and gas employees in Terengganu, Kelantan, and Pahang which comprised of various ages and different department. Thus, the results of this study which is the correlation between reception of telecommuting towards work-life balance among oil and gas employees East Coast employee has been identified.

References

[1] Coenen M and Kok RAW 2014. Workplace flexibility and new product development performance: The role of telework and flexible work schedules. European Management Journal, 32(4), 564–576. https://doi.org/10.1016/j.emj.2013.12.003
[2] TalentCorp 2018. Visioning Malaysia’s Future Of Work: A Framework for Action. Retrieved from www.telentcorp.com.my
[3] Bilanovic V 2017. Of the people, by the people, for the people: A Study of Teleworking and BYOD in the Netherlands (University of Amsterdam, Netherlands). Retrieved from https://hdl.handle.net/11245.1/4788957d-56ca-433d-a535-5d01b1171e1b
[4] Weinert C Maier C Laumer S and Weitzel T 2014. Does teleworking negatively influence IT professionals?: An empirical analysis of IT personnel’s telework-enabled stress. Proceedings of the 52nd ACM Conference on Computers and People Research, SIGSIM-CPR ’14, 139–147. https://doi.org/10.1145/2599990.2600011
[5] Kesselman M 2016 Current CITE-ings from the Popular and Trade Computing Press: Telework and Telecommuting. Library Hi Tech News, 33(1), 21–22. https://doi.org/10.1108/LHTN-01-2016-0001
[6] Noctor C 2015. Mobile Technology : The Effects of Technology on Work-Life Balance (National College of Ireland). Retrieved from http://trap.ncirl.ie/2027/1/ciaranoctor.pdf
[7] Gabčanová I 2011. The Employees – The Most Important Asset in The Organisations. Human Resources Management & Ergonomics, V, 1–12.
[8] Munusamy T 2016. Influence of Teleworking Acceptance on Employee’s Work Life in Malaysia’s ICT Sector. International Journal of Accounting and Business Management,4(2),146–158. https://doi.org/10.24924/ijabm/2016.11/v4.iss2/146.158
[9] O’Keefe P Caulfield B Brazil W and White P 2016. The impacts of telecommuting in Dublin. Research in Transportation Economics, 57, 13–20. https://doi.org/10.1016/j.retrec.2016.06.010
[10] Wong M 2013. Telework and Human Resources Goals : Examining the Relationship between Telecommuting, Employee Engagement, Job Satisfaction, and Productivity. University of Adler, Illinois.
[11] Zia A and Bilal H 2017. Impact of Telecommuting on the Financial and Social Life of Telecommuters in Pakistan. Pakistan Economic and Social Review, 55(1), 185–199. Retrieved from http://pu.edu.pk/images/journal/pesr/PDF-FILES/9-v55_1_17.pdf
[12] Saludin NA Karia N and Hassan H 2013. Working from Home (WFH): Is Malaysia Ready for Digital Society? Entrepreneurship Vision 2020: Innovation, Development Sustainability, and Economic Growth, (January 2013). Retrieved from
https://www.researchgate.net/publication/312148047%0AWorking

[13] Sekaran U 2010. *Research methods for business: A skill building approach* (5th Ed.). West Sussex, United Kingdom: John Wiley & Sons Inc.