

Contours of Emerging Technology on Work Life Balance and Economic Well-Being

Anam Saif¹, Talat Rehman² and Sadaf Alam³

Abstract

Diversity of the emerging technologies in the contemporary era is revolutionizing the world. It has overblown the salience of technology for marketers, social scientists, policy makers and new settlers. These are creating formidable new challenges in which business leaders can anticipate and plan for the effects of these new technologies on their organizations. In the prevailing environment, high growth, emerging markets, emotional intelligence, geo-economic orders and strategic use of technology indicate how vast the chasm between global investments is crucial to maintain sustainable competitive advantage. Consecutively, drawing research endeavor towards finding out gap through gathering information, making decisions, trying inferences and finally making predictions in the ambit of technology and economic well-being. Resultantly, this study aims in bridging the gap between these two variables particularly when linked with HR practices. The gap identified continues with the exploration of how technology interweaves economic well-being as well as work life balance with profound changes that are being driven by digital environment. Data collection has been carried out by using the instrument of survey questionnaire with further analysis through SPSS. The research under taken is quantitative in nature. The qualitative data has been acquired from the secondary sources. However, the primary data has also been used through applying Survey technique as mentioned. This study provided the empirical confirmation thereby supporting the framework of the technological utilization with its impact on work life balance and economic wellbeing. More specifically technology had positive effects on work life balance and economic wellbeing which are in line with the findings of the research.

Keywords: Technology, work life balance, economic wellbeing, productivity, workplace.

1. Introduction

1.1 Contextual background

In a rapidly evolving world, organizations are experiencing multiple challenges, fundamentally altered by new phenomenon such as big data, digitalization, information distribution and the extensive possibilities as a consequence of technological revolution (Zhou, Y., 2020). Technology remains a constant and indeed is the catalyst for bringing about drastic changes in the diverse environments we live and work in (Kim & Hollenbeck, 2018). Society has embraced technology like never and, with the advent of online connectivity, every household, classroom, business; public place has been virtually transformed where social media has played a key role in mobilizing people for any given cause; it can be fundraising, political campaigns or social activism, consequently setting the global landscape into fluid motion (Khemaja, M., & Khalfallah, S., 2019). With these countless benefits of technology, old rules simply don't apply it has transformed everyday life; the PC's on your desk, the cell phones next to your bed, technology-based appliances at home, Wi-Fi router etc. have revolutionized the lifestyle. In this backdrop, one comes up to the cardinal argument rather main hunch that none of the modern business society can achieve its projected targets without applying latest methodological and technological tools.

The story of the global rise of technological adaptation is a nice example for illustrating economic impact of emerging technologies and the magnitude of changes that are going to trigger in the near future (Hecht & Allen, 2009). Mohr, J. J. and Sarin, S., (2009) broadly declared Ducker's insights on management that management has to recognize that there is no one technology that pertains to any industry, on the contrary, all technologies are capable to have an impact on any industry. Most of the organizations are dependent on information technology for gaining the competitive advantage. They provide a perspective in which IT improves the decision making process particularly helping individuals as well as groupware to be more collaborative in terms of videoconferencing, emails, language translation groupware, communications, news bulletins and vice-versa. This IT revolution created an impact on digital economy and a pertinent source of increased productivity. Furthermore, their research examined the impact of technology on work life balance. It stated that work life balance is a state of equilibrium with the individual's position with the employment and personal lifestyle which indicates that both these should not

¹Scholar, Bahria University Islamabad Campus, anumsaifmalik@gmail.com

² Senior Assistant Professor, Bahria University Islamabad Campus. trehman.buic@bahria.edu.pk

³ Senior Assistant Professor, Bahria University Islamabad Campus, salam.buic@bahria.edu.pk

overwhelm. Since decisions particularly in businesses are taken by human beings in everyday life. It affects an organization's capability to communicate within the business environment. First and foremost are the technological infrastructure and its relationship in a business. This infrastructure may affect firm's culture, its strategies, its efficiency and stakeholder's demands.

The vitality of emerging technology on business is well under way and impacting the parameters across large scale organisations. The digital revolution of the developed economies are entering into a new market place of smart phones, robotics and artificial intelligence. Whereas, less developed countries are quickly adopting these digital technologies. So, now it is critical for such countries to reorganize their economies around the digital transformation.

Nevertheless, despite the bright prospects of IT resolution in the digital economy, the flip side of it reveals some serious dilemmas i.e. it is expensive to invest in advanced technologies and to set up the required digital infrastructure. Additionally, the rise in fraudulent activities through such platforms require experts and trained professionals. Since, the process gets more automated, which means it requires less human resource, hence, its advancement may lead to more unemployment. Take the example of online banking itself.

In a nutshell, technology has reformed the way we work, communicate and play. This booming impact of technology on business is directly proportional to the profitability and future of rapid growth (Harris, Marett & Harris, 2011). Predictions of Ayyagari, Grover and Purvis, (2011) reveal that the development of robotics and Artificial Intelligence will be the most interruptive technological movement in the foreseeable future. New ways of thinking proactively have developed. In a retrospect, more modernized and dynamic ways of research are evolving in the market, which demonstrates the positive impact of IT along with the proven researches of Pitt-Catsoupes, Matz-Costa, & Macdermid, (2015) with the positive relationship between technology and economic wellbeing.

1.2 Problem Statement

This research endeavor towards finding out gap that how technology mingles with our work life balance and economic wellbeing through gathering information, making decisions, drawing inferences and finally making predictions with profound changes that help promoting digital environment. The fast impact of digital economy with its profound impact on IT has transformed the lives of individuals, governments and markets. Nevertheless, a cardinal argument rather question is raised that how the policy makers are swiftly and carefully devising policies to boost the productivity vis a vis digitalization while mitigating the risk of inequality and privacy concerns.

1.3 Gap Analysis:

The next wave of technological change has been emerged with the advent of big data, cloud computing and artificial intelligence (Holland & Bardoel, 2016). Researches of Holland, Cooper, and Hecker, (2015) have bridged the gap between technology and work life balance. This research endeavor towards finding out gap through gathering information, making decisions, trying inferences and finally making predictions in technology and economic well-being, that's why this study aims in bridging the gap between these two variables particularly when linked with HR practices. This identified gap continues the exploration of how technology interweaves economic well-being as well as our work life balance with profound changes that are being driven by digital environment. Becker and Huselid's, (2011) investigates the "Smart & Favorable" side of technology how it has impacted individuals inside and outside of an organization, how it has conceptualized electronic monitoring and surveillance of work particularly when linked with HR practices of organizations of high commitment trusting relationships.

From the existing literature, it has been found that technology has a positive implications on organizational performance whereas some findings of International Journal of Human Resource Management also states that IT alone have not build, sustain and extend competitive advantage, there are some "dark" sides also which needs to be addressed.

1.4 Research Objectives

RO1: To study the impact of technology on Work Life Balance

RO2: To examine the impact of technology on an Individual's economic wellbeing

RO3: To investigate how economic wellbeing mediates the relationship between technology and work life balance

1.5 Research Questions

- RQ1:** Does technology impacts Work Life Balance?
RQ2: What is the impact of technology on an economic well-being?
RQ3: How economic wellbeing mediates the relationship with work life balance?

1.6 Significance of the Study

Within the recent years, work life balance has been the most popular topic among employees and employers alike. Concerns of Holland, P., Bardoel and A., (2016) have been developed between the imbalance of these two spheres i.e. technological advancement and work life balance. It has shaped individuals in different situations and today's individuals make more pragmatic decisions and technological advancements have made this possible to strengthen their roles. Our current era, technology breathed life into stagnating businesses causing individuals to beat with the pulse defined by disruptions aspiring business professionals and entrepreneurs and leaders from every discipline (Holland, Cooper, & Hecker, 2015). The insights from the study of Howcroft and Taylor, (2014) shed light that the increasing pace of life and exponentially increasing volume of data; it analyses the fact that technology significantly helps in boosting productivity and finding solutions to social queries in a constantly shifting global landscape.

2. Literature Review

The existing body of literature on the subject matter is quite extended in nature due to the limitation of the study; relevant literature published in impact factor research journals has been reviewed. Excerpts rather essential aspects of the literature cited is given in the succeeding paragraphs.

2.1 Technology

Ratna, R., Kaur and T., (2016) emphasized on the importance of Information Technology, being the back-bone of industrial growth and businesses in the present era. The authors trigger the significance of business and economy while developing a direct linkage with IT. Their research work focus on the standing of IT Knowledge being base of technological advancement. The same also ponder upon learning of industrial factors, acquiring, adapting and changing the mind-set. The way things are done- regarding the workplace environment and industrial relations are considered to be the regular basis for the improvement of employment relations. With the changing pace of technology, investments associated with IT have a significant impact on any organization for maintaining a sustainable competitive advantage. Decision making simplifies the way decisions are made using IT tools. Some of the key tools include DSS (Decision Support System), AI (Artificial intelligence), OLAP (Online Analytical Process) etc. All these tools facilitate decision making process by giving you the ability to access massive amounts of data and information.

Constantly, such technologies lead an industry to manage its relationship with the modern society. As Mohr, J. J. and Sarin, S., (2018) broadly declared Ducker's insights on management to recognize that there is no single technology that pertains to any industry, on the contrary, all technologies are capable to have an impact on any industry. Most of the organizations are dependent on information technology for gaining the competitive advantage. They provide a perspective in which IT improves the decision making process particularly helping individuals as well as groupware to be more collaborative in terms of videoconferencing, emails, language translation groupware, communications, news bulletins and vice-versa. This IT revolution created an impact on digital economy and a pertinent source of increased productivity. Furthermore, their research examined the impact of technology on work life balance. It stated that work life balance is a state of equilibrium with the individual's position with the employment and personal lifestyle as both should not overwhelm. Moreover, decisions particularly in businesses are taken by human beings in everyday life. It affects an organization's capability to communicate within the business environment.

2.2 Technological Innovations

Bakker, A. B., Demerouti, and E., (2017) provide an overview of their research having impact on Job-Demands resources and increased technological innovations. They focus on some key aspects of the subject matter. However, it is pointed out that the technological devices complicate or facilitate our working life. These technological devices have somehow destroyed the relationships as the entire internet is on

fingertip, seriously affecting relationships. Now, unmeasured time is spent on texting rather than utilizing this to your direct relations. These social media apps have turned friends into foes and vice versa. Over the last few decades, devices were hard to repair but now it's easily managed. Social media apps like Facebook, WhatsApp, Instagram, snapchat and YouTube etc are just scrolling things repeatedly, which is actually keeping us away from actual life. These emergent technological innovations have made people not only lethargic but also vulnerable to multiple health risks even at the cost of life. Not realizing the fact that it has made tasks easier not lives easier. Consider an example where while sitting in a restaurant with your family you keep taking pictures of the food and then uploading it on social media to get maximum likes has not only destroyed the relationship but also it has negative consequences on individual's health. Thus, such improper way of using technology has influenced people to stop communicating. Talking about the divorce rates via Facebook, the percentage has dramatically increased from 2.18 % to 4.32 %. The conflicts particularly with your direct relations are easy to solve face to face rather it can be made more complicated through using technology. This resulted in reduction of the quality human interaction. The waves we are getting from such gadgets are creating cancerous waves that are harming individuals. This is one of the reasons of 5G cellular radiations used currently by cell phones and other similar devices becoming more saturated. The Federal Communication's Commissions (FCC) head Tom Wheeler in his press conference in June 2016 in USA identified key harmful 5G health effects with the real time dangers of such technological advancements. This is creating massive disruption on an individual's health. Plenty of studies enlists strong biological effects including DNA single and double strand breaks, generation of stress proteins, disruption to brain glucose metabolism, melatonin reduction, increased blood brain barrier permeability, disruption of cell metabolism and oxidative damage etc. In 2011, World Health Organization (WHO) classified such radiations as a possible 2B carcinogen. The most recent study of National Toxicology program concluded that \$25 million radiations are produced by the cellular devices which can cause cancer.

2.3 Work Life Balance:

Today lives are more complicated one cannot even imagine living indecently without using the technology. However, internet and mobile technologies influences flexibility, permeability, autonomy, interference, segmentation, job satisfaction, job stress of work life balance. It shapes an individual's perspective of flexibility regarding work and life balance. The technology driven connectedness have challenged the strong ideology of work and life. Whereas, some individuals wanted to do more work during their personal time while some are reluctant to do their personal work at workplace. Both these are two different dimensions to look upon the spheres of work and life. The boundary of separability and permeability exists between these two separate role domains. One role may affect the other role or behaviour in this sphere. While writing about the conceptual framework of work and life, it is evident that internet and mobile technology has created awareness among individuals at work place i.e. the smart and the dark side of these technological innovations. In these revolutionary days, technology has proved to be crucial factor that influences work life balance particularly virtual technologies. The web based communications such as emails; video-conferencing have pertinently influenced the flexibility and permeability of work and life. Individuals at work place may take advantage of this flexibility and permeability where they can complete their work at any time or anywhere regardless of any boundary via flexible working practices. It reveals another fact that work and life transform geographical locations too through both integration and segmentation of work and life. Moreover, older generations are of view that they are reluctant to use new technologies and found a threat in their jobs that these emergent technologies may take their jobs. Thus, it has reduced the likelihood of adopting new technologies.

2.4 Economic Wellbeing:

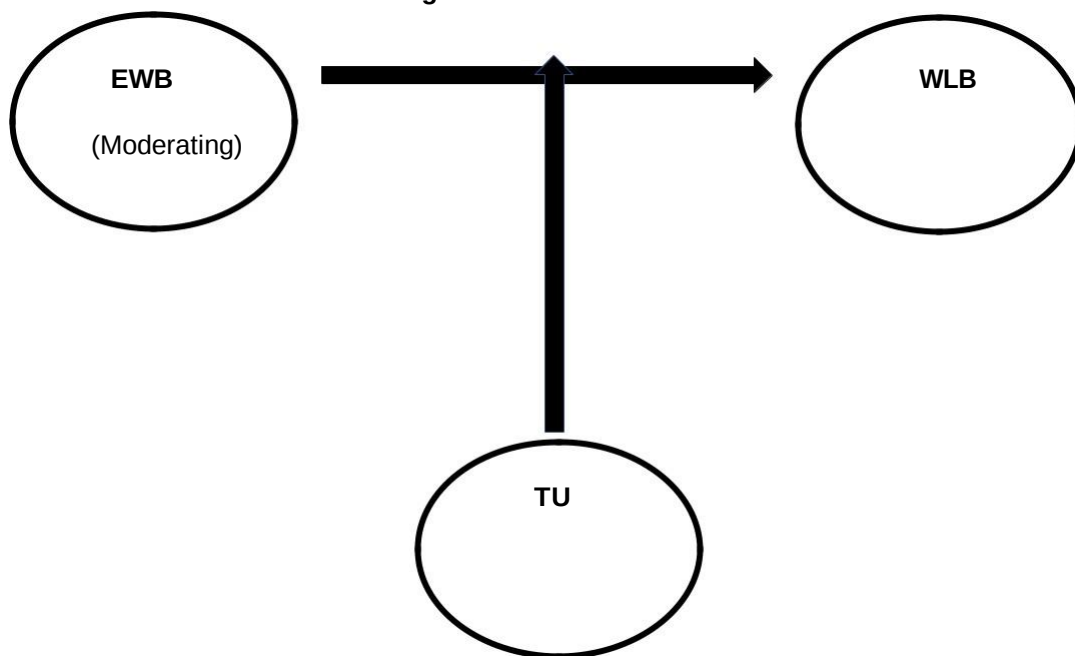
Global economy has a direct linkage with the technology and marketplace. An international trade, improved standards of living, transformation has virtually transformed the global economic culture. So, economics and financial analysts are of view that economic metrics such as GDP, GNP, productivity and corporate benefits are great areas of concern in a foreseen future. The technological advances have significantly influenced plenty of innovations and improved operational effectiveness whereas minimized the cost. Consider an example where an individual mainly a technician can easily control manufacturing plant, computer industry, robotic systems etc. This shows that the technological advancements have made individual independent in his decision making process. Now, the physical barriers can be overcome with the advent of internet and other technological advancements. Thus, online links have been developed by many of the manufacturing plants where all the demand and supply of the consumer goods have online

data base that what is required in what region and within what time frame or what product is in shortage and vice-versa. These suppliers are keeping track of production line. Since, automated systems has fast paced emergence of disruptive products and business models. Within this new context, digital technologies and transformative powers has capability of reduced costs with efficient operational business models. The term as “technology economy” is detecting the economic impact on business, society and future of individuals. According to the world economic forum whenever the companies tried to reduce the technological investments aiming to boost up the profits, the results is opposite where profits were badly slinked. This shows that technology investments is the back-bone of innovations and advancements that starts with high profits and productivity after years. As a matter of fact of large organizations, patience in technological investments is the key to success.

The research work of Dittmar, J. E., (2017) suggested that merging of work and life has been made possible with the advent of technology via internet. The concept of work life balance has changed drastically with work and life is no separate entities. With the advent of technology, now we can maintain a contact with our home lives even we are away regardless of the time and location resulting in a consistent flexibility to accommodate work and personal life. According to the research of Hill et al., (1996); Hill et al., (2001); Towers et al., (2006); and Middleton, (2008) explores the major phenomena that, greater the productivity, greater will be the efficiency by using the technology it offers.

2.5 Theoretical Framework:

Figure 1: Theoretical Framework



2.6 Hypothesis

- H1:** Technology has significant positive impact on Work Life Balance.
- H2:** Technology has significant positive impact on Economic wellbeing.
- H3:** Economic wellbeing has significant positive impact on work life balance.
- H4:** Economic wellbeing significantly positively mediates the relationship between technologies and work and life balance.

3. Research Methodology

In order to gather and generalize results, purposive sampling technique based upon quantitative research was used to collect data. This study used survey questionnaire to collect data to determine technological utilization with its impact on work life balance and economic wellbeing. Thus, the instrument

measured technological impact with its relationship with work life balance and economic wellbeing. The qualitative data has been acquired from the secondary sources i.e. already published literature (research articles published in impact factor Journals, books and relevant websites) etc. However the primary data has also been used through applying Survey technique as mentioned.

3.1 Population

This study was conducted in Islamabad, Capital Territory of Pakistan. Data was collected from the employees of Semi Government/ Private Organizations. These organizations include Pakistan Tele Communication Limited (PTCL), TCS Courier Company, Ufone, Swiss One Aviation Private Limited, Prestige International, Finca Micro Finance Bank, First Women Bank Limited. (FWBL) etc.

3.2 Sample Size

The sample size includes 205 questionnaires which were distributed among employees of private organizations. Among these questionnaires 180 were collected whereas, 25 questionnaires were not returned by the respondents.

3.3 Instrumentations

The instrument used in this research was adapted from earlier researches because this method is convenient to both respondents and researcher. It is also inexpensive and able to reduce bias. The Scale comprising of fourteen developed by Duque, R. B., Ynalvez, M., Sooryamoorthy, R., Mbatia, P., Dzorgbo, D. B. S., & Shrum, W. (2005) was used to assess technological utilization in daily life. Whereas, the second scale comprising of sixteen items developed by Pearce, P. L., & Gretzel, U. (2012) was used to measure the impact of technology on individual's economic wellbeing and work life.

The five points Likert Scale was used in the research having labels of strongly disagree, disagree, neutral, agree and strongly agree respectively. "1" represents strongly disagree, "2" represents disagree, "3" for neutral, "4" represents agree and "5" for strongly agree.

3.4 Data Analysis

Upon completion of the data collection, the collected data was entered for normality test to ascertain its normality. Subsequently, data analysis was conducted using Statistical Package for the Social Sciences (SPSS 23 version) for the data capturing and analysis. Guided by practical considerations the preference was given to SPSS software to analyze the data. Since, it is extensively used and recognized within the business, social sciences and economics. Moreover SPSS satisfied the data analysis requirement of the researcher. Among the analysis which was conducted was the validity and reliability analysis to examine the connection between the variables. Finally, multiple regression analysis was also performed to examine between dependent and independent variables.

4. Results

4.1 Reliability of Tools

Table No 1: Reliability of Tools (N=180)

Dimension	No of Items	A
Technology Utilization	14	.734
Work Life Balance	11	.688
Economic Well Being	5	.281

For data analysis, reliability of scales was tested using linear regression analysis to test the hypothesis using sample size (N=180). The table above shows reliability of Tools. The combined Cronbach's alpha value comes out to be as .693 which shows the reliability of tools. Whereas,

The table below shows correlation between all the variables. Economic Wellbeing has significant positive correlation with technological utilization i.e. ($r=.000$) as well as technological utilization has positive correlation with work life balance as described. Therefore, the means of these three variables have a positive correlation which supports our research objectives i.e. RO1,RO2 and RO3.

4.2 Correlation Table:

Table No 2: Descriptive Statistics for study variables (N=180)

Variables	Technology	Economic well being	Work Life Balance
TU	1		
EWB	.303**	1	
WLB	.636**	.367**	1

** : Correlation is significant at the 0.01 level (2-tailed), Note: TU=Technological utilization, EWB: Economic well-being, WLB: Work life balance

In regression analysis we discuss the strength of the relationship between dependent and Independent variable. From the analysis we take key important values from the overall Regression analysis. First we take which measure the variability. Then we have β standardize Coefficient compares the relative strength of different variables. Then we have significance Statistics showing the reliability. The descriptive table shows that technology was found significantly positively related with work life balance and economic wellbeing. Therefore, these results supports our RO1 and RO2.

4.3 Regression Table:

Table No 3: Linear regression analysis reflecting the impact of technology on work life (N= 180)

Variable	R ²	B	Sig
Technology	.404	.636	.000

*Dependent Variable: Work Life
Independent variable: Technology

In regression analysis we discuss the strength of the relationship between dependent and Independent variable. From the analysis we take key important values from the overall Regression analysis. First we take which measure the variability. Then we have β standardize Coefficient compares the relative strength of different variables. Then we have significance Statistics showing the reliability. The table 1 shows that technology was found significantly positively related with work life.

For Technological Utilization value r square is .404 which means that independent variable (technology) account for 40.4% of the variation in dependent variable (Work life). Beta coefficient is 0.636 which mean the regression beta coefficient is positive, also for each unit increase in the independent variable; the dependent variable will increase by 40.4%. Therefore hypothesis H1 was accepted. Furthermore, these results provide support for our RO1 and RO2.

Table No: 4: Linear regression analysis reflecting the impact of technology on economic wellbeing (N= 180)

Variable	R ²	B	Sig
Technology	.092	.303	.000

*Dependent Variable: Economic Well Being
Independent Variable: Technology

The table 4 discusses key important values from the overall regression analysis between dependent variable (Economic wellbeing) and Independent variable (Technology). The β standardize coefficient compares the relative strength of different variables. Then we have significance Statistics showing the reliability. The result shows that technology was found significantly positively related with economic wellbeing.

For Technological Utilization value of r square is .092 which means that independent variable (technology) account for 92.0% of the variation in dependent variable (Economic Wellbeing). Beta coefficient is 0.303 which mean the regression beta coefficient is positive, also for each unit increase in the independent variable; the dependent variable will increase by 92.0%.

Table No: 5: Moderated Regression Analysis reflecting the moderating impact of economic wellbeing on work life (N= 180)

Variable	R ²	B	Sig
Economic Well Being	.134	.367	.000

*dependent variable: work life

Independent variable: Economic wellbeing

The table 5 discusses key important values from the overall regression analysis between dependent variable (work life) and Independent variable (Economic wellbeing). The β standardize coefficient compares the relative strength of different variables. Then we have significance Statistics showing the reliability. The result shows that work life balance was found significantly positively related with economic wellbeing.

For economic wellbeing, value of r square is .134 which means that independent variable (Economic wellbeing) account for 36.7% of the variation in dependent variable (Work Life). Beta coefficient is 0.367 which mean the regression beta coefficient is positive, also for each unit increase in the independent variable; the dependent variable will increase by 36.7%. Therefore hypothesis H3 was accepted.

Table No 6: Descriptive Statistics for study variables (N=180)

Variables	Technology	Economic well being	Work Life Balance
TU	1		
EWB	.303**	1	
WLB	.636**	.367**	1

Hence, it is evident from the given descriptive table which shows an overall summary of the data. Here, the economic wellbeing significantly positively mediates the relationship between technology and work life balance. Therefore, hypothesis H4 was accepted.

Table No: 6 Summary of Hypotheses

Hypotheses	Results
H1: Technology has significant positive impact on Work Life Balance	Supported
H2: Technology has significant positive impact on Economic wellbeing	Supported
H3: Economic wellbeing has significant positive impact on work life balance	Supported
H4: Economic wellbeing significantly positively mediates the relationship between technology and work life balance	Supported

Table No: 7 Summary of Research Objectives

Research Objectives	Results
RO1: To study the impact of technology on Work Life Balance	Supported
RO2: To examine the impact of technology on an Individual's economic wellbeing	Supported
RO3: To examine the impact of technology on an Individual's economic wellbeing	Supported

5. Discussion and Conclusion

5.1 Conclusion

This study provides the empirical confirmation hence supports the framework of technological utilization and its impact on work life balance as well on the economic wellbeing. More specifically technology has positive effects on work life balance and economic wellbeing which are in line with the findings of previous literature. Gruber, H., and Koutroumpis, P., (2017) shed light on the magnitudes of changings that have been extensively studied of what is referred to as general purpose technology. The new modes of technology linked with the business models is directly proportional to the worthiness and has significant network externalities. Moreover, the economics literature suggests to the value of the technology usage with the implications of additional benefits coming from the IT infrastructure. This study Koutroumpis,

P., (2009) finds out IT growth of high income developed countries which is 50% higher than the low income countries. Comparing these growth countries econometric specifications, the empirical work suggests a mechanized framework that collaborates over long distances and exchange information when accessing its economic impact. More precisely Barge-Gil, A., and Modrego, A. ,(2011), firm's competitiveness has grown impressively making technology an important priority that had generous utilization for policy makers, universities technological organization, research centers and Technology institutes. Addressing the sophistication of technology, a more evidence based research Kim, S., and Hollensbe, E., (2018) suggests that professional employees always seek equilibrium between work and life

The constant access to the world via wireless technology has changed the way we connect with the world. Wireless technologies are more trending in the world even to the life which we can't even imagine. Those individuals who are utilizing this wireless technology well are exploring new dimensions and are educating themselves better for social, business and professional connections. Altogether, the research suggests that these fruitful technological advancements are a step towards fast communications contributing towards socio-economic growth. While talking towards some technologies in this category, one cannot deny the fact about Google which is simple and the renowned search engine used around the world. When it comes to downloading or exploring no other search engine can beat google in its interactive and fast-way. However, an elaborative analysis contributes well towards wireless technologies impacts our lives. It has not only simplified lifestyles well but also sorted out glitches. Some of the major contribution of wireless technologies is in spreading help during natural calamities. Food, medicine and other guidance are in reach prior short notice. Since, it had turned the world into a global village where every information is speeded within seconds without the barriers of time and distance. It is one of the major contributions or success with what is happening in the world where every news is accessible or within the reach even if you are travelling. Another major contribution of wireless technologies is the invention of smart phones. These smart phones had multiple roles from communication purpose to entertainment, education, business and profession. Moreover, it synchronizes and organizes making use of wireless technology in a more manageable way than ever. So, one can come up with a strong analysis that wireless technologies has revamped our life totally in a both good and bad manner. We cannot deny the remarkable presence of wireless technologies in growth and other sectors but with the fact that its use in a right way will lead towards business enhancements and professional activities where you can channelize them in a better way leading towards some simpler, easier and faster activities.

In a nutshell, everything we do has not only changed, but keeps changing as technology progresses further. It follows that, to keep abreast of these changes, especially through conventional mediums, is a daunting task.

5.2 Discussion of Results

The results of the current study indicates that, among individuals, technology is positively related to economic wellbeing whereas work life balance is positively related to the technology via individuals perception on person work fit. Our findings are in line with the evidence of previous researcher's Dittmar, J. E., (2011) findings that that effective utilization of latest technologies ensures economic wellbeing and have proved cost-effective outcomes. This research endeavor towards finding out gap through existing literature that technology mingles with our work life balance and economic wellbeing with profound changes that help promoting digital environment. All the four Hypothesis that are tested supports our research objectives i.e. technology has a positive implications on organizational performance and it has transformed the lives of individuals, governments and markets. These findings also discusses that IT alone have not build, sustain and extend competitive advantage, there are some "dark" sides also which needs to be addressed.

5.3 Managerial Implications

This study contributed to literature on the role of technology in economic wellbeing and work life balance. As per the knowledge of researcher the economic wellbeing model has not been previously tested whereas, some evidences of research are there in terms of work life balance, thus filling the gap that existed in the literature. The result of this study is valuable for managers in general and top management in specific. It is suggested that organizations should focus on employees work life to reduce stress and other discomforts that ultimate reduces an employee's productivity. Moreover, economic wellbeing allows employees to be good performers and exponentially decrease the volume of distress level. Employees are one of the most important assets for an organization. Thus, treating them well will make significant

changings related to employees' emotions intentions as well as will be the reason for the success of an organization. The top notch need to understand the "Smart & Favorable" side of technology that how it has impacted individuals inside and outside of an organization.

It is important for all the tiers of management to enhance the employees work life balance in the development and evolution of technology that has showed greater efficiency in the quest of business environment and find solutions to social queries in a constantly shifting global landscape.

5.4 Limitations and Future Research Directions:

The data collected for the purpose of this study Information is only cross-sectional in nature which resulted in our inability to draw strong causal deductions concerning the generality of the identified linkage. Further research with longitudinal design is required to be conducted to further validate the facts. Another limitation was the limited sample size because targeted population was limited. However, the limited resources generalization of findings is associated with this research. Only few organizations were surveyed and respondents were limited to workers of public and private sector of Islamabad region of Pakistan. Respondents of different localities may share diverse observation about the variables under consideration. Time shortage was also the limitation of this research whereas few information provided by the respondents was biased which resulted in not deducing the strong results which was evident by the existing literature.

Lastly, the researcher only explored the impact of only few mediating variables with the relationship of technology. The present findings can be expanded in number of ways. Further research is required on this subject by employing longitudinal research designs to further validate the findings. Since relationship of technology with other variables must be elaborated at macro-economic level. Future research should test the assumptions of technology at group level as well as organizational level to study the effects on individual's behavior. Lastly, it should also be conducted where samples are drawn through probabilistic sampling technique to generalize the results. Finally, the impact of other mediators like flexibility can be investigated for better employees' performance.

Reference

- Adegoke Oke, Fred Walumbwa, Tingting Yan, Moronke Idiagbon-Oke, Lucy A. Ojode, (2014) "Linking economic status with technology adoption in three emerging economies of Sub-Saharan Africa", *Journal of Manufacturing Technology Management*, Vol. 25 Issue: 1, pp.49-68, <https://doi.org/10.1108/JMTM-02-2012-0013>
- Aker, J. C., & Mbiti, I. M. (2010). Mobile phones and economic development in Africa. *Journal of Economic Perspectives*, 24(3), 207-32.
- Anvari, R. D., & Norouzi, D. (2016). The impact of e-commerce and R&D on economic development in some selected countries. *Procedia-Social and Behavioral Sciences*, 229, 354-362.
- Anvari, R. D., & Norouzi, D. (2016). The impact of e-commerce and R&D on economic development in some selected countries. *Procedia-Social and Behavioral Sciences*, 229, 354-362.
- Ayyagari, R. (2012, March). Impact of information overload and task-technology fit on technostress. In *Proceedings of the southern association for information systems conference* (pp. 18-22).
- Ayyagari, R., Grover, V., & Purvis, R. (2011). Technostress: technological antecedents and implications. *MIS quarterly*, 35(4), 831-858.
- Barge-Gil, A., & Modrego, A. (2011). The impact of research and technology organizations on firm competitiveness. Measurement and determinants. *The Journal of Technology Transfer*, 36(1), 61-83.
- Baten, J., & Van Zanden, J. L. (2008). Book production and the onset of modern economic growth. *Journal of Economic Growth*, 13(3), 217-235.
- Bates, A. T. (2005). *Technology, e-learning and distance education*. Routledge.
- Berkowsky, R. W. (2013). When you just cannot get away: Exploring the use of information and communication technologies in facilitating negative work/home spillover. *Information, Communication & Society*, 16(4), 519-541.
- Boreham, P., Povey, J., & Tomaszewski, W. (2016). Work and social well-being: the impact of employment conditions on quality of life. *The International Journal of Human Resource Management*, 27(6), 593-611.
- Casey, C. (2013). *Work, self and society: After industrialism*. Routledge.
- Chesley, N. (2005). Blurring boundaries? Linking technology use, spillover, individual distress, and family satisfaction. *Journal of Marriage and Family*, 67(5), 1237-1248.

- Coggins, T. P., Ammond, J. E., & Moran Jr, J. P. (2013). *U.S. Patent No. 8,607,426*. Washington, DC: U.S. Patent and Trademark Office.
- Dedrick, J., Gurbaxani, V., & Kraemer, K. L. (2003). Information technology and economic performance: A critical review of the empirical evidence. *ACM Computing Surveys (CSUR)*, 35(1), 1-28.
- Demerouti, E., Derks, D., Lieke, L., & Bakker, A. B. (2014). New ways of working: Impact on working conditions, work–family balance, and well-being. In *The impact of ICT on quality of working life* (pp. 123-141). Springer, Dordrecht.
- Diaz, I., Chiaburu, D. S., Zimmerman, R. D., & Boswell, W. R. (2012). Communication technology: Pros and cons of constant connection to work. *Journal of Vocational Behavior*, 80(2), 500-508.
- Diaz, I., Chiaburu, D. S., Zimmerman, R. D., & Boswell, W. R. (2012). Communication technology: Pros and cons of constant connection to work. *Journal of Vocational Behavior*, 80(2), 500-508.
- Diaz, I., Chiaburu, D. S., Zimmerman, R. D., & Boswell, W. R. (2012). Communication technology: Pros and cons of constant connection to work. *Journal of Vocational Behavior*, 80(2), 500-508.
- Diaz, I., Chiaburu, D. S., Zimmerman, R. D., & Boswell, W. R. (2012). Communication technology: Pros and cons of constant connection to work. *Journal of Vocational Behavior*, 80(2), 500-508.
- Dittmar, J. E. (2011). Information technology and economic change: the impact of the printing press. *The Quarterly Journal of Economics*, 126(3), 1133-1172.
- Dittmar, J. E. (2011). Information technology and economic change: the impact of the printing press. *The Quarterly Journal of Economics*, 126(3), 1133-1172.
- Dittmar, J. E. (2011). Information technology and economic change: the impact of the printing press. *The Quarterly Journal of Economics*, 126(3), 1133-1172.
- Dobb, M., & Dobb, M. H. (1975). *Theories of value and distribution since Adam Smith: Ideology and economic theory*. Cambridge University Press.
- Drolet, G. G., Middleton, E. M., Huemmerich, K. F., Hall, F. G., Amiro, B. D., Barr, A. G., ... & Margolis, H. A. (2008). Regional mapping of gross light-use efficiency using MODIS spectral indices. *Remote Sensing of Environment*, 112(6), 3064-3078.
- Duque, R. B., Ynalvez, M., Sooryamoorthy, R., Mbatia, P., Dzorgbo, D. B. S., & Shrum, W. (2005). Collaboration paradox: Scientific productivity, the Internet, and problems of research in developing areas. *Social studies of science*, 35(5), 755-785.
- Economides, N., & Himmelberg, C. P. (1995). Critical mass and network size with application to the US fax market. *NYU Stern School of Business EC-95-11*.
- Feldstein, M. (2017). Underestimating the real growth of GDP, personal income, and productivity. *Journal of Economic Perspectives*, 31(2), 145-64.
- Giannias, D. A., Liargovas, P., & Alexandrovich, C. Y. (2003). Economic growth and the environment: The European Union case. *The Journal of Developing Areas*, 1-
- Gregory, A., & Milner, S. (2009). Work–life balance: A matter of choice?. *Gender, Work & Organization*, 16(1), 1-13.
- Gregory, A., Milner, S., & Windebank, J. (2013). Work-life balance in times of economic crisis and austerity. *International journal of sociology and social policy*, 33(9/10), 528-541.
- Gregory, A., Milner, S., & Windebank, J. (2013). Work-life balance in times of economic crisis and austerity. *International journal of sociology and social policy*, 33(9/10), 528-541.
- Gruber, H., & Koutroumpis, P. (2011). Mobile telecommunications and the impact on economic development. *Economic Policy*, 26(67), 387-426.
- Hall, B. H., & Khan, B. (2003). *Adoption of new technology*(No. w9730). National bureau of economic research.
- Hanson, G. C., Hammer, L. B., & Colton, C. L. (2006). Development and validation of a multidimensional scale of perceived work-family positive spillover. *Journal of occupational health psychology*, 11(3), 249.
- Harris, K. J., Lambert, A., & Harris, R. B. (2013). HRM effectiveness as a moderator of the relationships between abusive supervision and technology work overload and job outcomes for technology end users. *Journal of Applied Social Psychology*, 43(8), 1686-1695.
- Harris, K. J., Marett, K., & Harris, R. B. (2011). Technology-related pressure and work–family conflict: Main effects and an examination of moderating variables. *Journal of Applied Social Psychology*, 41(9), 2077-2103.

- Hecht, T. D., & Allen, N. J. (2009). A longitudinal examination of the work–nonwork boundary strength construct. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 30(7), 839-862.
- Heid, A. (2013). Analysis of the Cryptocurrency Marketplace. Retrieved February, 15, 2014.
- Hofäcker, D., & König, S. (2013). Flexibility and work-life conflict in times of crisis: a gender perspective. *International Journal of Sociology and Social Policy*, 33(9/10), 613-635.
- Holland, P. J., Cooper, B., & Hecker, R. (2015). Electronic monitoring and surveillance in the workplace: The effects on trust in management, and the moderating role of occupational type. *Personnel Review*, 44(1), 161-175.
- Holland, P. J., Cooper, B., & Hecker, R. (2015). Electronic monitoring and surveillance in the workplace: The effects on trust in management, and the moderating role of occupational type. *Personnel Review*, 44(1), 161-175.
- Holland, P., & Bardoel, A. (2016). The impact of technology on work in the twenty-first century: Exploring the smart and dark side.
- Holland, P., & Bardoel, A. (2016). The impact of technology on work in the twenty-first century: Exploring the smart and dark side.
- Howcroft, D., & Taylor, P. (2014). 'Plus ça change, plus la meme chose': researching and theorising the new, new technologies. *New Technology, Work and Employment*, 29(1), 1-8.
- Huselid, M. A., & Becker, B. E. (2011). Bridging micro and macro domains: Workforce differentiation and strategic human resource management.
- Indjikian, R., & Siegel, D. S. (2005). The impact of investment in IT on economic performance: Implications for developing countries. *World Development*, 33(5), 681-700.
- Khemaja, M., & Khalfallah, S. (2019). Towards a Knapsack Model for optimizing e-Training services delivery: Application to Hybrid Intelligent Tutoring Systems. *Procedia Computer Science*, 164, 257-264.
- Kim, S., & Hollensbe, E. (2018). When work comes home: technology-related pressure and home support. *Human Resource Development International*, 21(2), 91-106.
- Kim, S., & Hollensbe, E. (2018). When work comes home: technology-related pressure and home support. *Human Resource Development International*, 21(2), 91-106.
- Kleemann, L., & Abdulai, A. (2013). The impact of trade and economic growth on the environment: Revisiting the environmental Kuznets curve and the role of institutions. Journal of International Development, 23(2), 189-205.
- Koutroumpis, P. (2009). The economic impact of broadband on growth: A simultaneous approach. *Telecommunications policy*, 33(9), 471-485.
- Koutroumpis, P. (2009). The economic impact of broadband on growth: A simultaneous approach. *Telecommunications policy*, 33(9), 471-485.
- Leighton, D., & Gregory, T. (2011). *Reinventing the workplace*. London: Demos.
- Lund, M. J., & McGuire, S. (2005). Institutions and development: Electronic commerce and economic growth. *Organization Studies*, 26(12), 1743-1763.
- Mack, S. J., Cano, P., Hollenbach, J. A., He, J., Hurley, C. K., Middleton, D., ... & Setterholm, M. (2013). Common and well-documented HLA alleles: 2012 update to the CWD catalogue. *Tissue antigens*, 81(4), 194-203.
- Mohr, J. J., & Sarin, S. (2009). Drucker's insights on market orientation and innovation: implications for emerging areas in high-technology marketing. *Journal of the Academy of Marketing Science*, 37(1), 85.
- Morishima, M. (1995). Union loyalty among white-collar workers in Japan. *Journal of Organizational Behavior*, 16(6), 609-625.
- Morris, M. L., & Madsen, S. R. (2007). Advancing work—Life integration in individuals, organizations, and communities. *Advances in developing human resources*, 9(4), 439-454.
- OECD, Development, Economic Analysis, & Statistics Division. (2003). *OECD Science, Technology and Industry Scoreboard 2003*. Canongate US.
- Park, Y., & Jex, S. M. (2011). Work-home boundary management using communication and information technology. *International Journal of Stress Management*, 18(2), 133.
- Pearce, P. L., & Gretzel, U. (2012). Tourism in technology dead zones: Documenting experiential dimensions. *International Journal of Tourism Sciences*, 12(2), 1-20

- Pedregosa, F., Varoquaux, G., Gramfort, A., Michel, V., Thirion, B., Grisel, O., ... & Vanderplas, J. (2011). Scikit-learn: Machine learning in Python. *Journal of machine learning research*, 12(Oct), 2825-2830.
- Rafnsdottir, G. L., & Gudmundsdottir, M. L. (2004). New technology and its impact on well being. *Work*, 22(1), 31-39.
- Ratna, R., & Kaur, T. (2016). The impact of Information Technology on Job Related Factors like Health and Safety, Job Satisfaction, Performance, Productivity and Work Life Balance. *J Bus Fin Aff*, 5(171), 2167-0234.
- Ratna, R., & Kaur, T. (2016). The impact of Information Technology on Job Related Factors like Health and Safety, Job Satisfaction, Performance, Productivity and Work Life Balance. *J Bus Fin Aff*, 5(171), 2167-0234.
- Robbins, S. P., & Judge, T. A. (2007). Organizational culture. *Organizational behavior*, 28-50.
- Roller, L. H., & Waverman, L. (2001). Telecommunications infrastructure and economic development: A simultaneous approach. *American economic review*, 91(4), 909-923.
- Schmorrow, D., Cohn, J., & Nicholson, D. (2008). The PSI Handbook of Virtual Environments for Training and Education [Three Volumes]: Developments for the Military and Beyond.
- Schumpeter, J. A. (2017). *Theory of economic development*. Routledge.
- Straub, E. T. (2009). Understanding technology adoption: Theory and future directions for informal learning. *Review of educational research*, 79(2), 625-649.
- Sungdoo Kim & Elaine Hollensbe (2018) When work comes home: technology related pressure and home support, *Human Resource Development International*, 21:2, 91-106, DOI: 10.1080/13678868.2017.1366177
- Tahir, S., Yusoff, R., Azam, K., Khan, A., & Kaleem, S. (2012). The Effects of Work Overload on the Employees' Performance in relation to Customer Satisfaction: A Case of Water & Power Development Authority, Attock, Pakistan. *World Journal of Social Sciences*, 2(1), 174-181.
- Terzi, N. (2011). The impact of e-commerce on international trade and employment. *Procedia-Social and Behavioral Sciences*, 24, 745-753.
- The impact of research and technology organizations on firm competitiveness. Measurement and determinants. *The Journal of Technology Transfer*, 36(1), 61-83.
- The impact of technology on work in the twenty-first century: Exploring the smart and dark side. *The relationship between work-life conflict/work-life balance and operational effectiveness in the Canadian Forces* (No. DRDC-TR-2006-243). DEFENCE RESEARCH AND DEVELOPMENT TORONTO (CANADA).
- Veenhoven, R. (2008). Sociological theories of subjective well-being. *The science of subjective well-being*, 9, 44-61.
- Vogelsang, I. (2010). Incentive regulation, investments and technological change.
- Zhou, Y. (2020). Impact of Technology on Employee Performance, case study: Freska Oy, Finland.

ACRONYMS

AI	Artificial Intelligence
DNA	Deoxyribose nuclei Acid
DSS	Decision Support System
EWB	Economic wellbeing
FCC	Federal Communications Commissions
FWBL	First Women Bank Limited
GDMS	Group Decision making Support
GDP	Gross Domestic Product
ICTSD	International Centre for Trade and Sustainable Development
IT	Information Technology
JDR	Job Demand Resource
OECD	Organization for Economic Corporation and Development
OLAP	Online Analytical Process
ROI	Return on Investment
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization
WLB	Work Life Balance