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The Output of Digital Transformation on Human Resource Development in Developing Countries: Case of Rwanda

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The purpose of this study was to explore the output of digital transformation on human resource development, using the Rwanda Federation of Transportation Cooperatives as a case study, based on their newly adopted cashless payment system for public transportation. Interviews with 30 selected informants from different areas and levels of work, experience, gender and age ranges were conducted. The research results indicated that digital transformation has substantial output in relation to human resource development including but not limited to new opportunities for training and development programs, improvement of creativity and innovation, harnessing of customer experience, support in career development, availability of new technologies, and change in organisation systems and culture. However, the results showed that digital transformation can be a challenge for human resource development based on resilience to change of employees or employers, and also a lack of infrastructure. The researchers recommended the use and adoption of digital transformation wherever it is possible and available to improve organisational performance through their human resources.

Keywords: *Technology, Digital Transformation, Human Resource Development, Performance.*

Introduction

⁴ In the contemporary business environment, the ability to be a genuinely agile company, and one that is native to the digitally empowered world that we live in and operate has become not



1

only a driver of competitive advantage and success, but critical for business survival (Perkin & Abraham, 2017). Digital-native organisations may have originated more naturally from the technology sector, but they now stretch across the widest range of industries from retail, to logistics, to marketing, to automotive. Yet what they hold in common is a natural, an inherent ability to take a different view on the world and the competitive markets in which they operate, to take an often contrasting approach to traditional ways of solving problems, and even to have a different 'feel' to the values and organisational culture that they embrace (Rogers, 2016).

In organisations, there are many sectors, many units and many departments which are always linked by technology-based gadgets, systems and/or processes. In most cases, digital transformation helps many organisations to go forward in terms of income generation through the support of their human resources development. We can ask in which way can HR succour the performance of a business experiencing digital transformation? HR professionals mainly have to guarantee that they are able to channel significant resources into training and development to acquire new skills and knowledge. This knowledge construction exertion has to be an 'always turned on' function, to make sure that current staff members develop a 'digital mindset'.

Over the past few years, HR has taken a number of steps forward in technology. While HR has gained more respect for its ability to drive business results, other functions have begun to master advancing technologies. Marketing has begun to take advantage of consumer analytics via social media and manufacturing has begun to master automation, bringing back facilities in high wage countries, whereas e-commerce has emerged as a strategic weapon with aligned supply chains (Hewitt, 2017).

Some of the organisations do not get enough resources to stay on the same path with the speed of technology development and they experience difficulties in improving their competitive advantage as well as customer satisfaction. To the best of knowledge of authors, there is very few if not any research that have shown how human resource development benefits from technology, instead, they talk about organisations in general. The question can be: how can organisations use digital transformation to accelerate their human resource development in order not to be left behind in the business race all around the world?

Thus, the purpose of this study is to make a clear understanding of digital transformation and human resource development with theories and concepts as well as research results and show how digital transformation succours human resource development in organisations to the extent that organisations that will go through digital transformation will be sure to have competitive advantage over their rivals that will not. Through human resource development, customer satisfaction and profitability increment, they will then be able to give recommendations to



organisations for the betterment of their digital and human resource development-related acceleration.

Literature Review

Digital Transformation

Digital transformation is an extreme transfiguration of business and organisational exercises, procedures and models to completely grasp the changes, preferences and chances of a blend of advanced technologies and their quickening sway across society in a key and organised manner, in view of present and future movements. While digital transformation is most importantly utilised in business settings, it additionally impacts other organisational entities, which are engaged with handling societal difficulties (Bounfour, 2016). Singular disciplinary approaches are not sufficient to describe and explain digital transformation. Indeed, we believe digital transformation to be the latest instantiation of system science (Nadeem et al., 2018).

It is noted that digital business strategy requires the development of new organisational capabilities that are developed and reconfigured on a continuous basis. Many of the fundamental rules and assumptions that governed and grew their businesses in the pre-digital era no longer hold. The good news is that change is possible. Pre-digital businesses are not dinosaurs doomed to vanishing and their disturbance is not unavoidable. Businesses can be self-transformed to thrive in the digital technology era (Rogers, 2016).

Digital transformation isn't the domain of the IT Department, yet rather the duty of all business capacities cooperating (Gudergan & Mugge, 2017). From a digital era's perspectives, Digital transformation stresses the essential change in our reality because of the unavoidable nature and expansion of computerised advances. Moreover, the novel idea of a round or sharing economy is moving the straight take–make–arrange model of assets to a model where streams of materials, vitality, work and new data collaborate and advance a helpful, regenerative and progressively beneficial monetary framework (Ismail et al., 2017).

Human Resource Development

In every organisation, institution, society or community, human resource development is a backbone of the overall development of that entity. Human resource development as a process of improving and maximising performance of human resources, it requires a bunch of elements or factors to be successful. At the first stage, human resource programs as an organisational function was made to improve how managers responded to unions in organisations (Grieves, 2003). In this digital age, human resources are expected to develop digitally to have a meaningful and significant impact in the daily lives of the organisations.



According to Maheshwari (2017), HR ought to have a significant role in digital strategies and give their contribution to the institution's computerised procedures to guarantee that the firm has digital abilities and they ought to be a key accomplice in the general plan of managing changes, culture arrangement and by and large digital transformation. Human resource development advances a progressively illuminated, moral and ability-centred change management that returns HR where they have a place at the cutting edge of the change motivations (Grieves, 2000).

HRD as a subject is concerned with scientific theory and professional practice, it brings change in organisations and it increases customer satisfaction and smoothness of organisational culture. Hence, if people are turned off HRD and do not participate or if they suffer in sullen complicity where they have to join in but feel time and energy is wasted tough on them; the consumers need to change and HRD, producers are ready to level blame everywhere for the problems that exist, for the difficulties, gaps, resistances and failures of HRD (Gibb, 2006).

Human resource development as the coordinated utilisation of coaching, organisations, and profession advancement endeavours to improve individual, team and organisational adequacy. It builds up the key skills that empower people in institutions to perform present and future roles effectively, through arranged learning exercises and groups inside organisations use HRD to start and oversee change. Furthermore, HRD guarantees a match among individual and organisational needs (Solutions, 2017).

Digital Transformation in Rwanda

Rwanda has been named East Africa's main ICT country at the United Nations Conference on Trade and Development (Rwanda Development Board, 2013). A healthy, skilled and talented workforce is imperative to impel Rwanda to a creative services and information-based society imagined in Vision 2050. Rwanda has accomplished practically general enrolment in grade schools and albeit not exactly 33% of auxiliary school-matured kids are in school, the nation has accomplished gender equality at both levels. Access to TVET and tertiary education is constrained and slanted towards men and there are worries about quality and the importance of instruction that the legislature is endeavoring to address (Brief, 2020).

In developing countries like Rwanda, there are still challenges for organisations and their human resources to cope with digital transformation in this fast-paced technology environment which turns them to experience failure or bankruptcy. Digital transformation in Rwanda began developing quickly a few years ago. Various E-solutions made the increment of government effectiveness, invigorated good governance and supported the sense responsibility and straightforwardness. A genuine model, the cashless payment system for public transportation buses implemented in 2015, allows passengers to pay their fares without cash but by using



cards. This made the service efficient, fast and effective whilst it also helped employees to develop their skills and knowledge on their daily responsibilities (Rwanda Development Board, 2013).

Additionally, in 2016, the Government of Rwanda presented an employee enrolment platform in the public sector, named e-recruitment, which was completely supported by lawful instruments and requirement systems. The framework accompanied a progression of advancements and has commonly changed the recruitment process in the country. The new system processes jobseekers' application documents online, facilitates an effective recruitment and selection process, is timely and effective, offers a transparent selection of public servants and eases the reporting process for relevant authorities plus many other technology-related projects that are being implemented so far (Rwanda Development Board, 2013). The above digital transformation examples, along with others that are not mentioned, are expected to leverage the performance of Rwandan human resources to be competitive in the global employment market.

Digital Transformation and Human Resources Development

Currently, we are living in what is usually alluded to as a digital age. Digital technologies are transforming not just one aspect of business management but virtually every aspect. They are rewriting the rules of customers, competition, data, innovation and value (Bouwman et al., 2019). Responding to these changes requires more than a piecemeal approach; it calls for a total integrated effort, a process of holistic digital transformation within the firm. Fortunately, this process is clearly achievable because human resources as the core element of every organisation are integrated and linked to every single technological change.

By acing these exercises and by figuring out how to apply this digital transformation, any business can adjust and develop in the computerised age (Rogers, 2016). Digital transformation is inevitable, and change is happening whether you like it or not. You can either choose to respond or get left in its wake. Research on technological disruption often yields results about the types of technology leading the way and how technology will be the trigger to change everything. However, this may be missing the point.

Focusing on the more holistic picture, technology change requires leadership. As the foundation for technology continues to advance, there must be a foundation of digital leadership to help support that change. This trend highlights that the digital advance of HR is dependent on both leadership and infrastructure. Regardless of the specific technology, ultimately people are the ones interacting with these systems and should be the focus of change (Hewitt, 2017).



Research Methods

This is a qualitative case study research which is primarily exploratory research and the case study model provides an in-depth look at one test subject. The subject can be an individual or family, business or association, or a town or city (Stake, 2010). This was a case study-based research, and it was carried out on the cashless payment system launched in Rwanda in 2015, by the Rwanda Federation of Transport Cooperatives known as RFTC, which controls all the public transportation activities.

When the general meaning of the case has been set up, different explanations now and again called jumping the case become significant and if the unit of examination is a small team, for example, the people to be incorporated inside the group must be recognised from the individuals who are outside of that group (Yin, 2014). Qualitative case study methods come up with tools for researchers to study complex events within their contexts, it is an approach to research that facilitates exploration of a phenomenon within its context using a variety of data sources (Baxter Pamela & Jack, 1990).

Therefore, this study was intended to find out or to explore the very meaning of the so-called digital transformation towards human resources development, to know its output to human resource development in organisations with the case of Rwandan cashless payment system in public transportation. The cash payment system was retarding the transports, as indicated by Kigali Bus Services, one of the capital's biggest transport organisations that has begun utilising the AC Group system.

First and foremost, informants were selected purposively from top ranking individuals such as CEOs, directors and managers. The research also collected data from middle-level management individuals, as well as low-level management individuals and casual employees who played a big role also in this research. The researchers also considered age, education, experiences and occupations to select informants to harness diversity of data. The researchers tried to penetrate and get information from many areas and fields of work in order to get diverse and rich data about digital transformation towards human resources development, that's the reason of selecting informants from all the above levels of work. The table below shows the dispersion of informants' categories.

Table 1: Categories and number of informants

Category	Number
Top Level Management Informants	6
Middle-Level Management Informants	13
Low-Level Management and Casual Employees	11
Total	30



In order to get to final findings, qualitative data analysis methods was used to analyse data and come up with conclusions and recommendations based on the research results. In order to have a clear and concise data analysis which resulted in reliable and accurate data and research results, Maxqda software as a qualitative research data analysis software or tool was used. There are different qualitative data analysis procedures and techniques which were used in this research. After collecting raw data from interviews, the researchers did data transcription from audios to text, translation from Kinyarwanda to English was the next step as many of the informants had answered in their native language Kinyarwanda. The next steps were then done using Maxqda software, such as data coding, data cleaning and content analysis of the data.

Results and Discussion

It is indisputable to say that digital transformation is one of the main and pure factors that has a positive output on to human resources development in this current digital era, not forgetting that it might also bring some challenges based on different circumstances. In order to come to the final research findings, all the informants who participated in this research were employees from different subsidy companies of the RFTC, who were working from many different areas with different qualifications and levels. Thirty (30) informants who participated in this research were characterised by age, religion, education, occupation and work experience and those characteristics are summarised in the table below:



Table 2: Characteristics of informants

		Frequency	Percent	Valid Percent	Cumulative Percent
Age	≤ 25 Years	8	26.7	26.7	26.7
	26-35 Years	13	43.3	43.3	70.0
	36-45 Years	5	16.7	16.7	86.7
	46-55 Years	3	10.0	10.0	96.7
	≥ 56 Years	1	3.3	3.3	100.0
	Total	30	100.0	100.0	
		Frequency	Percent	Valid Percent	Cumulative Percent
Education	High School	3	10.0	10.0	10.0
	Bachelor's	9	30.0	30.0	40.0
	Master's	12	40.0	40.0	80.0
	PhD/Doctorate	4	13.3	13.3	93.3
	Others	2	6.7	6.7	100.0
	Total	30	100.0	100.0	
		Frequency	Percent	Valid Percent	Cumulative Percent
Occupation	Human Resources	8	26.7	26.7	26.7
	Manager/CEO	4	13.3	13.3	40.0
	Accounts	6	20.0	20.0	60.0
	IT	9	30.0	30.0	90.0
	Customer Relations	3	10.0	10.0	100.0
	Total	30	100.0	100.0	
		Frequency	Percent	Valid Percent	Cumulative Percent
Experience	≤ 5 years	12	40.0	40.0	40.0
	6 – 10 years	11	36.7	36.7	76.7
	11 – 15 years	5	16.7	16.7	93.3
	≥ 16 Years	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

As shown in Table 2 above, research informants had different characteristics which allowed and made easy for the researchers to get information from various sources and from people with different ways and levels of thinking. This improved the success of the diversity in data collection and analysis which harnessed the richness of the data collected and analysed for reliable findings.



The research results have shown that the cashless payment system as one of digital transformation events had positively impacted human resource development in the Rwandan public transportation sector.

Through this system, human resources are advantageous because it helps to foster the jobs done by human resources. We can agree that this system is paramount for human resource development as well as economic development. The researchers had tried to find out the way this system changed lives of human resources or employees in terms of jobs, performance, careers and customer satisfaction and they affirmed that this system came in the right time because it brought many and advantageous aspects to human resources.

“Previously, I was thinking that this is a system for reach people. I couldn’t imagine how I can travel and use a card to pay! But this card changed my life. You know there is a time you can get broke to the extent that you can’t afford this little money for transportation, but when you have already loaded enough on the card, it is a kind of savings. It helps a lot. You know sometimes we used to quarrel with drivers and those ones called convoyeur, because they forgot that we already paid and they need us to pay twice, sometimes because they don’t have balance when we give them big money and they make us waste time by waiting for them to get balance and so on! But now as you can hear by its name, it just tap and go! No queuing, no balance inquiry, no waiting for the person in charge! Life has become so easy with this card.” CC1 said.

Digital transformation changes and improves lives of the public through the service quality from human resources. Service delivered through a digital system is always fast, reliable, convenient and timely. Through the use of a cashless payment system in public transportation in Rwanda, as it was stated by many informants, service quality was increased, the speed of service delivery increased, and customer satisfaction has gone to a higher level. This comes from the increase in human resources’ quality of skills, attitudes and behaviours towards the customer needs and the organisations’ mission, vision, and objective additionally to the government vision and economic development target.

“To my point of view, digital transformation is an event that brings the high level of technology use in the organisation or in the country. For example, from analogue system to digital system of operation or this cashless payment system we are talking about.” TL1 said. And LL4 added that *“digital transformation is all about having and using new technologies in order to perform any given task! It may be business production processes, systems, equipments and so on!”*

This confirms that informants know about digital transformation and supports what Kolbe (2015) and Vial (2019) said, that digital transformation includes utilising advanced technology innovations to empower significant business enhancements, for example, improving client experience or making new plans of action or business models. DT involves the ways technology



was used and the way it will be used in the next future or next generation. It encompasses the working systems, organisational systems, organisational culture, individual participation and much more. It is all about going from one point to another more developed point in terms of technology as it was said below that:

Many informants have affirmed that DT is great and wide in all corners while it touches on all the segments and departments of the organisation from the top to the low levels of employment. It is said that Digital Work Environment (DWE) helps in assisting the workforce users in carrying out various tasks, thereby eliminating some of the current and future expected problems (Meyyappan et al., 2001) to enhance and maintain performance and profitability of the organisation in business.

“Digital transformation is a process of improving the way things are done in line with advanced technologies. That’s why when we are in a digital economy or digital era, and we use it, everything either product or service is done in a developed way and it makes it ready and qualified to compete on the market with others from the other business rivals.” TL2 stated.

Digital transformation is defined by two words which are technology and advanced, meaning that it is all about using advanced digital technologies in business, education, politics and daily life in order to make it harmonious, fast, successful and effective in its use, consumption and production either for service or goods. When digital transformation users understand what is going on and how it should be done, it allows for an easier process, system and steps in reaching the final destination or intended goal. This is why the researchers asked the informants about their knowledge concerning digital transformation in order to know that what happened in the implementation of the cashless payment system in Rwandan transportation industry and if it was perceived well and welcomed by stakeholders or if they were not aware of what was going around them.

It is now unquestionable that when individuals, organisations, governments and their stakeholders know about digital transformation, that it makes it easy and fast to implement it and upholds its success with a long-lasting profitability. Digital transformation brings changes that may encompass essential changes for built-up plans of action or business models, organisational rebuilding, product advancement or development differentiation and digital development and innovation (Kolbe, 2015). Digital experts have conquered the troubles that challenge their rivals and they know how and where to contribute, and their pioneers are focused on directing the company powerfully into the digital future (Westerman et al., 2014).

“I believe that digital transformation can bring changes in all sectors of work. Look for example if we have already implemented and using this cashless payment in our public transport industry. Customers are happy and enjoying this service because it has significantly decreased



the time they were spending looking for money, waiting for change where applicable, they could even forget the money at home and they became forced to borrow from friends or other passengers but now, it is only carrying the card fully loaded with transport money as they carry their National IDs. That is an example. If things can change in a short time like that because of DT in transport industry, why not we can expect more in other industries?" LL3 stated.

The above expectations and beliefs about DT from one informant and many more others which are not written here, show that when employees are aware of the advancement of technology, they can easily use it or make it useful to accelerate their performance, career development, personal development, economic development and more through different activities and actions that might be supported by technology.

Human resource development as an integrated system and pattern of using activities like training, learning, career development, personal development and individual performance improvement to foster the effectiveness of the employees and organisations as well, is likely expected to gain from digital transformation of or advanced technology, whilst it will have opportunities to merge what technology brings with what current human resources need and have so as to fully develop human resources and make compatible with technology related issues.

⁶ Technology in business is a growing necessity. As the years go on, the business world is inclining increasingly more toward it, making it practically difficult to isolate the two from one another. Development breeds business, and since digital innovation prepares for it, it tends to be assembled here that business needs technology to be supported. It has been shown and confirmed that digital transformation is paramount for human resource development in many cases and areas whereby DT brings many opportunities and chances for human resource development at work and in real life.

Many and varying advantages of DT towards human resources have been mentioned in this research and the significance is of a high level which confirms that human resource practitioners are expected to be vigilant and up to date with the advancement of technology so that it will help the process of human resource development in organisations, which will be a rudimentary way of individual and organisational performance improvement.

"....It (digital transformation) brings new equipments, environment, systems, processes and ideas. And it fastens personal development through training and development programs, up to date information and access to the digital world becomes easy for human resources, and this in the ends broadens human resources capacity, and awareness about the trending technology which brings immense help to their daily work" Said TL4.



It is undoubtedly affirmed that DT is crucial to human resource development while it brings many new opportunities and new strategies for human resources to make a change in organisations through knowledge and skill sharing, learning processes, performance development and individual plus organisational development strategies.

Training and development programs as the main aspects in HRD, are harnessed by digital transformation because as long as new technologies are welcomed in the organisation, training and development programs will be implemented to manipulate and cope with the advancement of technology so that organisations stay competent and are able to perform in the business race all around the world, compete with business adversaries and satisfy customers who are the main reason for doing business.

“Digital transformation as a process is not done itself, it all starts from developers, engineers, manufacturers and so on, all of them are human resources or employees. And those here who are going to use those technologies are human resources and to make it successful all of them need their skills, knowledge, ability to be improved which comes from human resource development processes and It changes the performance, organisational culture, personality, speed of working, attitudes, it increases confidence for employees, it brings innovation, creativity too. Digital transformation is very much helpful for human resources development because it boosts all the processes for working, it brings innovation opportunities as I said, it creates the climate of sharing ideas easily, it makes human resource more productive, it makes HRD more efficient and effective. ML3 added.

Based on the research results and from the studied literature, we couldn't agree more that digital transformation is paramount to human resource development, and to the fact that from digital transformation we can find many opportunities for human resource development processes and implementation, namely new skills. From the development of technology, human resources gain skills about how things can be done better, faster and more effectively which enhances employees performance.

From digital transformation, human resources also gain knowledge about the environmental issues which might hinder their work and they will know how to handle the issues. New tools for performance improvement are also adapted and used for individual and organisational improved performance and new ways for personal development are perceived and followed to make human resources more developed. Space for creativity and space for innovation are embedded with new technologies, new systems and operations. Employees get a chance to enhance their training and development in order to support them with new equipment, new systems, new gadgets and many more which improves their level and intention of creativity and innovation, and it is through creativity and innovation that personal development is boosted.



This research has figured out that even though digital transformation is crucial and meaningful to the development of human resources in organisations, it can also be a challenge to the other side, where many informants stated that it can be from human resources' side or from the nature of digital transformation even from external factors including but not limited to government policies, climate and environmental factors, economic situation, not forgetting historic and background of the surrounding community. As long as digital transformation is about change that is brought and implemented in the organisation, some employees might be resistant and reluctant to change, which makes it hard for it to be successfully run.

Creativity and innovation are needed in economic development, in order to have fast and reliable processes and ways to make things happen or produce goods and services. As innovation is all about change that brings new ways, new processes and new products, it requires transformation which might be digital or non-digital. Therefore, when people are reluctant and resistant to change, there will be no or less innovation which will also inhibit the fast growth and development of human resources as well as organisational development.

"If employees don't want to shift to new digital technologies, and it is meant to be implemented, it will be a challenge. It can also be challenge if we cannot manage it and also if there are no enough infrastructure and resources to support it!" ML2 stated.

Digital transformation would be a challenge to human resources even to the whole organisation if there are still hesitations about how, when and what is to be done with this transformation. Human resources first need to understand why the change is needed and how it will be important to them, to the organisation and even to the country. This brings a great opportunity for human resources where they will be trained for the upcoming changes, for daily work, for awareness and even for the betterment of their future career prospects. But why and when should human resources or employees get scared or afraid of welcoming changes?

Infrastructure and environmental factors also have been mentioned as some of the reasons that might cause digital transformation to become a challenge to the lives of organisations which in turn will hinder the wellness of human resources\ development. Sometimes people see things they need but because they cannot afford it they will let it go. This is what will happen if we need to upgrade but we don't have the tools, systems, infrastructures and so on to make it happen. This will cause people to get confused in relation to what to do, and it will mislead them to go back to the old track with the old means or techniques.

Table 2 below summarises the findings from the research interviews and shows the main output resulting from digital transformation for human resource development. It is undoubtable that digital transformation is paramount for human resource development, especially in the era of industrial revolution 4.0. This is because as technology develops, human resources also need to



have updated skills and knowledge to cope with the trending advancement of technology. This correlation and combination of smart technology and smart human resources makes organisations effectively achieve their objectives and goals which also supports the economic development for people, communities, organisations and countries as well.

Human resource development as an integrated pattern or a combination of activities like training, learning, organising and career development efforts for current and future individual and organisational effectiveness, needs up to date factors and tools to build it powerfully so that it won't fail. Digital transformation as one of the processes of change that comes up with new systems, operations, processes and platforms is very crucial to human resource development through many different ways including but not limited to: increasing training and development opportunities for human resources; disseminating new skills and knowledge about new technologies to people in the organisation and; helping in career development for current and future employment through knowledge sharing.



Table 2: Summary of research findings indicators from interviews

Indicator	Supporting statement	Number of mentions
Training and development	Digital transformation brings opportunities for training and development programs that help the human resource development process to be successful.	25
Creativity and innovation	Digital transformation is one of the main sources and supporters of creativity and innovation and the latter are the pillars of human resource development while they succour the development of skills and knowledge development together with improved service and goods delivered to customers.	24
New skills and knowledge	Through digital transformation, HR gets new skills and knowledge that help in improvement of performance.	23
Organisational systems	Digital transformation enables or bears new and effective organisational systems that make human resource development more successful.	23
New technologies	Digital transformation brings new technologies that foster the development of human resources and improves efficiency and effectiveness of their jobs.	22
Customer experience and feedback	Digital transformation helps customers to have fast access to the organisations' products and services and enables them to give feedback which shows HR what is really needed to be done, improved or corrected in a short time.	20
Change in organisational culture	Digital transformation brings and flourishes culture change in organisations and this helps to have a new and improved organisational culture that make human resources more effective.	20
Career development	Digital transformation is crucial to the future careers of employees because it helps to know and anticipate what skills and knowledge might be needed in the future, and to start training and development programs for preparation.	20

Conclusion and Recommendations

The quintessence of the high importance of digital transformation towards human resource development is unquestionable. Based on the research findings, it is very important to keep in mind that digital transformation as a phenomenal and enduring event that makes changes in strategic operations of organisations, is also likely to bring many opportunities for innovation, creativity, learning and development, and it is needed to tackle any problem that might arise,



especially in the current digital technology advancement which is massively improving and shaking the whole world in every field.

Thus, based on this research, many organisations can use these findings for many purposes to harness and handle the issues of technology and human resource development controversies. It is pre-eminently advised to explore and divulge the output that digital transformation can have on human resource development so that organisations, governments and other entities are aware of what is waiting for them to develop and nurture their organisational culture and systems to hit the upfront point in the business race against their rivals through human resource development.

In the modus operandi to the crescendo of the research, the researchers affirm that they didn't cover every single angle of business that can or that needs to adapt use of digital transformation to strengthen their daily businesses. Last but not least, it is confirmed that digital transformation is paramount and has a huge output to human resources through many ways and tools in every organisation without ignorance that it can be a challenge for human resources and organisations.

By using more research models, future researchers are recommended to do deeper and expanded research on this tremendous topic in order to get a deeper understanding of digital transformation and human resources and find out their relationships, differences and uniqueness for each and show their interconnectivity in the development of human resources as well as organisational development. Future research can be done in manufacturing companies, information and technology companies, artificial intelligence organisations as well as robotics engineering organisations.



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PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11

PAGE 12

PAGE 13

PAGE 14

PAGE 15

PAGE 16

PAGE 17

PAGE 18