



Open Access Journal Available Online

# An exploration of ICT Usage on the Management of COVID-19 and Human Resources in China

**Celestine Chijioke Onah**

Social Sciences Unit, School of General Studies  
 University of Nigeria, Nsukka  
 celestine.onah@unn.edu.ng, [onahchijioke@gmail.com](mailto:onahchijioke@gmail.com)

**Okechukwu Eme**

Department of Public Administration and Local Government  
 University of Nigeria, Nsukka  
[okechukwu.eme@unn.edu.ng](mailto:okechukwu.eme@unn.edu.ng)

**Benjamin Amujiri**

Department of Public Administration and Local Government  
 University of Nigeria, Nsukka  
[benjamin.amujiri@unn.edu.ng](mailto:benjamin.amujiri@unn.edu.ng)

Received: 23.09.2020 Accepted: 25.07.21

Date of Publication: September, 2021

**Abstract:** Due to the proficiency and application of ICT, COVID-19 pandemic was effectively managed and mitigated to prevent the absolute destruction of human lives which the volatile nature of the corona virus threatened to attain; this is because the potency of ICT was leveraged on to cushion the effects of the disease. Hence, ICT and its tools are identified as the strategic hope of mankind for providing suitable tools in keeping humanity close, informed, united, interact, knowledgeable, protected, etc in time of danger that forbids mankind from socio-economic activities such as evident in COVID-19. The nexus between COVID-19 and ICT is traced within the context of health and safety (Human Resources) of people, and the socio-economic impacts. Data was derived from secondary sources and analyzed. COVID-19 is identified as a paradigm shift that dislocated normal human life activities thereby introducing new norms that altered the sequence of human resource activities, as measures to contain the spread. The concept of “e-everything” was proposed and underscored as the strategic hope of mankind to explore opportunities and navigate uncertainties in time of crisis, as evident in strategic contingency theory that is leveraged on through ICT to navigate COVID-19 in the analysis.

**Keywords:** COVID-19, ICT, “e-everything”, human resources (HR), strategy

URL: <http://journals.covenantuniversity.edu.ng/index.php/cujpia>

## Introduction

The outbreak of COVID-19 pandemic that originated from Wuhan, China, in December 2019 (Huang, Wang, Li, Ren, Zhao, Hu, et al., 2019) no doubt has ranked China high as a country with chronicle records of outbreak of deadly infectious diseases of pandemic proportion. Early and several studies on Severe Acute Respiratory Syndrome (SARS) pointed that the world was hit in 2002 by SARS sudden occurrence traced to SARS CoV that originated from Guangdong, China (Zhong, Zheng, Li, Poon, Xie, Chan, et al, 2003; Holmes, 2003; Huang, 2004; Pirc, Berkhout, & Van, 2007; Cui, Li, & Shi, 2019; Muhammad, Suliman, Abeer, Nadia, & Rabeea, 2020). This is part of why the USA president – Donald Trump argued that COVID-19 pandemic should be properly named by linking the disease to its place of origin, thus he suggested that the disease should be named “Chinese virus” (The Conversation, 2020). Be that as it may, within a short space of time, COVID-19 pandemic spread to 180 countries in the world, affected 6.5 million persons, and killed 383, 000 people across the globe as of 3<sup>rd</sup> June, 2020 (United Nations Department of Economic and Social Affairs, 2020).

The speedy rate of human to human transmission of COVID-19 is alarming (World Health Organization (WHO), 2020a; Riou & Althaus, 2019) and the epidemiological status of COVID-19 qualified it to be ranked as a pandemic by WHO on 11<sup>th</sup> March, 2020 (Callaway, 2020; WHO, 2020a). Henceforth, in the bid to contain the spread of COVID-19 menace across the globe, national

governments sequel to the advice given by the WHO implemented lockdown policies that abruptly shut down all non-essential socio-economic activities as a measure to curtail the spread of the disease. With this unanticipated, unplanned and forceful closure of all non-essential socio-economic activities, people were forced to stay indoors, and work from homes where possible, which according to Akkermans, Julia, & Maria (2020) made COVID-19 pandemic a ‘career shock’ to the global workforce. Career shock is described as “a disruptive and extraordinary event that is, at least to some degree, caused by factors outside the focal individual's control and that triggers a deliberate thought process concerning one's career” (Akkermans, Seibert, & Mol, 2018).

Sequel to the obvious challenges associated with COVID-19 career shock is the near impossibility of working from home and staying at home with its boring issues identified by Kopp (2020) and Robinson (2020) as alienation of workers and social exclusion of people from socio-economic gatherings, which is anti-human and contravenes the social nature of humans. Some argued that compulsory restriction of movements by national governments without providing adequate palliatives is an infringement on the fundamental human rights of the people to move around and fend for themselves, especially in the Third World countries where people depend largely on daily earnings for survival. Thus the magnitude of COVID-19 pandemic disruptions on normal human activities subjected human resources, that is, the people to various plights. Henceforth, work-life balance

*Onah et al*

was shattered, people were dying en masse daily thereby shrinking the national and global workforce, fear grips humanity, job losses, earnings plummeted drastically and/or totally stopped, hunger, idleness, and emotional trauma became rampant. Tucker (2020), and Naveen & Anders (2020) noted that national economies are shut down, leading to many industries/organizations closing and many speedily going into moribund as consumers of popular products remain indoors without buying goods due to disruptions in production and supply chains. All these culminated in health hazards which according to WHO (2020b) affected the mental well-being and the general health conditions of people in negative ways. The consequent of COVID-19 lockdown policy generated fear, anxieties, stress, psychological trauma and danger that negatively affected the whole society (Brooks, Webster, Smith, Woodland, Wessely, Greenberg, et al., 2020; Ahorsu, Lin, Imani, Saffari, Griffiths, & Pakpour, 2020; Schimmenti, Billieux, & Starcevic, 2020).

With COVID-19 pandemic that forcefully ejected people (HR) out of public space, and the staying at home policy measures in vogue as new norms, issues of battling and mitigating COVID-19 scourge arouse with paramount exigencies. The issues generally revolve around doing what at home and with what means has become big question? Invariably, here comes Information and Communication Technology (ICT), serving as the answer to the question of what and how ICT is deployed in the management of the ugly new norms

imposed on human resources by COVID-19. This is what this research investigates within the context of tracing, identifying and analyzing COVID-19 as a paradigm shift that finally popularized the global revolution going on through ICT, thereby empowering human resources and repositioning them to leverage on ICT as the future hope of mankind both in times of certainties and uncertainties.

### **The nexus between COVID-19 pandemic and ICT**

The health and safety of the people especially in the workplace and the socio-economic sphere of the wider Society are the major causalities of COVID-19 pandemic (WHO, 2020b). Thus, the need to properly identify the nexus between COVID-19 and ICT is better interrogated from the worst-hit spheres of the society, as pointed out by the WHO. Therefore, the links between COVID-19 and ICT revolve on how humanity has leveraged on the uses of ICT and its accessories to navigate and/or cushion the effects of COVID-19 on human resources while staying at home working or in idleness as part of the measures to contain the spread of the infectious disease. Hence, how has ICT been used in the areas of promoting workplace health and safety needs imposed by COVID-19? How has ICT been deployed to sustain socio-economic activities without contradicting COVID-19 containment measures? How has ICT been strategically adopted as a tool for connecting and keeping humanity knowledgeable in time of social disruption like COVID-19? Within the context of these questions are embedded clearly identified nodes of the interplay between COVID-19 and ICT as captured in this very section of the paper.

URL: <http://journals.covenantuniversity.edu.ng/index.php/cujpia>

## How ICT is promoting workplace health and safety needs in COVID-19

Prior to COVID-19 crisis, industries with cutting edge technologies in the use of ICT in the management of diverse workforce had strategically deployed and automated human resource functions (HR - Fs) and activities that cut across all employees, departments and units in organizations. This is achieved

through Strategic Human Resource Management (SHRM) which is futuristic oriented, leading to the popular concept of e-HRM that leverages on the larger scope of e-administration as a prerequisite response to globalization. The purpose is to administer the workforce and deliver effective, efficient, affordable, trustworthy, and timely-responsive goods and services from distant places across the globe without necessarily coming together in offices, to render such services that are now done remotely by simply logging into organizations' database/server to perform certain duties which, Eze (2005) described as a simple click of the mouse that solves problems of workplace drudgery in modern times. This is why Kathleen, Sandra, and Connelly (2017) argued that the e-HRM system is one of the best-adopted workforce management strategies in an organization, whereas Strohmeier & Kabst (2014) identified two perspectives about e-HRM strategic systems based on 'automational and informational' roles using the computer

system.

COVID-19 pandemic has suddenly created more innovative perspectives on the HRM roles in managing the health and safety of the workforce as critical in building a successful organization (Paula, Helen, Dana, Alain, & Angelika, 2020). Therefore, e-HRM and e-administration are perfect models of workforce administration and management that enhance working from distant places as solutions to curtailing chaos and uncertainties such as evident in COVID-19 lockdown regulatory policy, which Hickson, Hinings, Lee, Schneck, & Pennings (1971) described in their strategic contingency theory as a tool for gaining power, authority and relevance in managing intraorganizational relationships in times of uncertainties.

Life both at individual and corporate levels is generally full of uncertainties. Hence managing chaos is not new to organizations' managers as postulated by Van Tulder, Verbeke, & Jankowska (2019) who identified social disruptions affecting organizations and their workforce to be characterized with the concepts of Volatile, Uncertain, Complex, and Ambiguous (VUCA) turbulent situations for managers. To prepare for VUCA situations, strategic human resource must be developed and deployed at all levels. Notably, the achievement of effective and efficient strategic HR in this modern time is deeply rooted in ICT. Thus, with the aid of ICT driven technologies, group or team works done jointly in offices are now witnessing individual high performances from distant places, as a result of the powers of

*Onah et al*

ICT and its tools that are demystifying the mandatory physical closeness required before works are performed and result delivered.

### **How ICT has been deployed to sustain socio-economic activities without contradicting COVID-19 containment measures**

Production of goods and services begin from the mobilization of physical resources, hiring of workforce, training/instructing employees, and the actual performance of jobs. In the time of COVID-19, online transactions surged as industries and individuals relied heavily on online banking (ICT driven tools and processes) to mobilize funds for different uses while maintaining COVID-19 containment guidelines by staying indoors to mobilize resources, organize, and coordinate industrial activities with the aid of ICT tools. Naveen & Anders (2020) pointed out that COVID-19 pandemic is leading to businesses like hospitality and tourism going moribund while Internet or online (ICT driven) businesses like online education, online shipping, online communication, online marketing, and online entertainment are booming. This no doubt is a result of ICT deployment in these areas.

Generally, recruitment of workforce took a dramatic shift to total e-recruitment process – where candidates go to organizations’ websites to look up job vacancies, apply for jobs and equally receive relevant job updates through

websites, emails, phone calls, etc and consequently be interviewed through ICT electronics software applications like Zoom, Skype, video conferencing etc. without people moving from home to elsewhere as constrained by COVID-19. Traditional recruitment, selection, and training that are done using face-to-face method have been shattered and changed to the virtual method because of COVID-19 (Maurer, 2020). All these have economic advantages in helping organizations and nations to build a competitive edge which Rapoza (2020) identified that China is the most outstanding country that is utilizing the economic opportunities in COVID-19 by buying up European built and stationed technology and infrastructure.

### **How ICT has been strategically adopted as a tool for connecting and keeping humanity knowledgeable in time of social disruption like COVID-19**

Past research showed that people who are socially excluded often rely heavily on the use of Internet and social media, and the present COVID-19 situation of the world has positioned social media as the main tool for socializing and communicating among humans (Naveen & Anders, 2020), whereas certain socially excluded individuals prefer social media to physical interaction (Nowland, Necka, & Cacioppo, 2018). Many professions, especially in the service-oriented organizations are leveraging on COVID-19 to change their approaches to work thereby shifting emphasis to aggressive adoption of ICT

URL: <http://journals.covenantuniversity.edu.ng/index.php/cujpia>

*Onah et al*

technologies in other to remain competitive, safeguard HR, maintain or attract large market shares in their industry and generally remain relevant in business. For example, academics who disliked the online method of teaching students before COVID-19 now subscribe to holding classes virtually (Kilgour, Reynaud, Northcote, McLoughlin, & Gosselin, 2019; McKinsey & Company, 2020).

Through the applications of ICT tools and its accessories, using the windows of Internet, social media platforms, satellites TV stations, phones, digital radio stations with high frequencies (Hi-Fi) and megawatts etc the global community was speedily alerted on the outbreak of COVID-19 and measures to contain the scourge, without which the index cases, death tolls, and the general destructive impacts across the globe would have been catastrophic and unimaginable. ICT is the greatest weapon in the fight against COVID-19. Imagine what would have befallen humanity without ICT, considering the United Nations Department of Economic and Social Affairs (2020) report that COVID-19 pandemic as of 3<sup>rd</sup> June 2020, has hit 180 countries, infected 6.5 million people, and killed 383, 000 people across the globe. Globalization through the windows of ICT is supplying adequate information and knowledge to the world on COVID-19's origin, patterns of transmission, preventive measures, and

treatments, thereby curtailing the spread, and consequently saving lives of people that would have died due to ignorance of the realities of COVID-19. Massive and effective communications that provided knowledge and information in the lockdown period is basically traced to ICT, thus socializing humanity despite COVID-19 imposed social exclusion of people. Alon-Barkat (2020) in a survey study noted that communications with the aid of symbols increase trust and policy decisions, despite the fact that the policy may be deficient and unreasonably related to the anticipated outcome.

The WHO declared COVID-19 as a pandemic on 11<sup>th</sup> March 2020 based on the epidemiological status of the disease (Callaway, 2020; WHO, 2020a). In the history of outbreak of pandemic disease, mankind has leveraged mainly on 'knowledge and information sharing' as the greatest tool for combating disease. In today's 21<sup>st</sup> century known as the era of 'information explosion superhighways' that made the world a global village that operates on 'knowledge economy', is conspicuously anchors squarely on ICT. Henceforth, ICT and its accessories are providing a plethora of opportunities in educating humans in times of certainties and uncertainties, serving as a useful tool to navigate COVID-19 and enhance social closeness without contravening lockdown policy. Abel (2020) in a research paper pointed out an error by faulting the concept of 'social distancing' as a measure to contain COVID-19. Thus he argued that the use of ICT has changed COVID-19 scene to a supposedly call for

URL: <http://journals.covenantuniversity.edu.ng/index.php/cujpia>

*Onah et al*

the concept of ‘spatial distancing and social closeness’, not social distancing.

Forbes (2020), for example, reported that the number of people enrolled in LinkedIn Learning courses tripled due to the use of the Internet (ICT tool) during COVID-19 stay at home policy. Evidence from research conducted by (OrsolyaKirály, Potenza, Stein, Hodgins, Saunders, Griffiths, BiljanaGjoneska, JoëlBillieux et al., (2020) indicated a massive surge in the use of Internet and social media during COVID-19 lockdown, leading to downtime that increased the problematic use of Internet.

### **Methodology**

The method of data collection implicit in the study is secondary means. The data were sourced through books, online materials, WHO reports and survey on COVID-19, double-blind articles published by reputable journals sourced from the Google Scholar platform etc written by experts on ICT and COVID-19 pandemic. Consequently, the data collected were subjected to content analysis as their results were descriptively presented; leveraging on how ICT and its accessories are providing leeway for human resources in China, thereby serving as navigators and for cushioning the impacts of COVID-19 on human resources.

### **COVID-19 as a paradigm shift**

Prior to COVID-19 pandemic, life progressed orderly and uninterrupted. However, the advent of COVID-19 has significantly altered the normal sequence of socio-economic activities of man across the globe, beyond restoration.

COVID-19 pandemic redefined life by confining people to compulsorily stay at home and working from home where necessary. Thus, life became drudgery and disinterested to a huge extent simply due to the inhuman and anti-social perspectives of COVID-19 imposed lockdown policy measures. (See Figure 1: Life cycle of man prior to COVID-19).

Life before the era of COVID-19 cyclically revolves around four major activities as depicted in Figure 1 above. But the outbreak of COVID-19 drastically brought disruption to life sequence.

The life activities of man as sequentially depicted above (Figure: 1) revolves around 5 cardinal socio-economic activities in every society. Sadly, COVID-19 abruptly shattered the life activities to a standstill, thereby cutting off the public nature and the economic earnings of man located at the left angle points 4 (work) and 5 (cash) which make humans relevant by providing humans with means of engaging one another. The right angle with points 2 (eat) and 3 (health) which represent life in COVID-19 are the major backbones of life; hence life during COVID-19 lockdown is reduced to half.

However, COVID-19 pandemic has violently disrupted the above cycle of the socio-economic sequence of human activities. It reduced human life and activities to eating and averagely keeping healthy where possible while at home, thereby jettisoning work and making earnings (cash) which eating and keeping

healthy are anchored on in the long run. In this regard, Claude (1981) noted that the economy is the primary need of man, upon which other needs are actualized. He went further to attest that man cannot exist unless he meets his economic needs. This is because first and foremost, humans get to work in order to eat and consequently stay healthy through making or earning money with which to buy food, other basic necessities of life, foot medical bills and other issues of life. Invariably, work itself promotes health by virtue of mental and physical exercise inherent in work. The link between work and health is epitomized in theory X and Y (McGregor, 1960). Thus without doing work, staying alive becomes burdensome, because humans would not earn cash to buy food and other essentials. Even when there is food, humans would not enjoy eating and staying idle, because it harms humans' health and brings a sense of uselessness and lack of accomplishment to mankind. Ile (1999) affirmed that the development of a sense of n/ACH (achievement) according to McClelland needs theory is what drive and equip people with the desire to work, whereas Koontz et al. (1980) pointed that n/ACH is needed both at individual and organizational levels to ensure success. So COVID-19 bastardized and confined life to mainly eating thereby disrupting other life exigencies such as health, work, and earning cash upon which life revolves.

As COVID-19 disorganized the sequence of human life and confined human to indoors in compliance to the lockdown policy decisions, human therefore, leveraged on ICT driven tools and their

accessories to keep busy, to do certain jobs that are online oriented, connect to family and friends through social media platforms, watch digital movies, listen to local and global news to know and remain afloat in the scheme of things, engage in e-learning, etc are the vivid roles that the utilization of ICT facilities are playing in HR towards abridging the social disconnect that COVID-19 imposed on mankind across space. Ali (2020) noted that COVID-19 has made online and remote learning mandatory in higher institutions of learning.

COVID-19 disruption in education is a wake-up call for the world to adopt ICT implementation in education (UNESCO, 2020), and this is a pointer for all to support the UNESCO position on *Education 2030 Incheon Declaration and Framework for Action*, which states that countries should ensure availability of alternative means of acquiring knowledge and provide education for both children and adults who are not in former education sectors, and provide an arrangement for equivalent education and supplementary programmes, accepted and approved by state. They further stated that this is to enhance smooth and easy learning both in formal and informal institutions, such as in emergency circumstances (Huang, Liu, Tlili, Yang, & Wang, 2020). The implementation of this agenda invariably hinges on ICT.

### **Theoretical framework of analysis**

Strategic contingency theory is leveraged on in the analysis of the work. The theory is propounded by Hickson, Hinings, Lee, Schneck, & Pennings (1971) as an explanation of how power and authority



*Onah et al*

are gotten by individuals, subunits, and organizations by undertaking certain roles in times of certainties and uncertainties. These roles help them gain an advantage over others and help others navigate certain unpleasant challenges thereby making others depend on them. Hickson et al (1971) pointed out that developing capabilities to handle contingency is based on “centrality, uncertainty, and substitutability” in managing the strategic or futuristic exigencies of others. This is achieved through the strategic roles performed by the subunit that makes others rely on ‘specific entity’ controlling strategic contingency designed to take care of uncertainties. Obviously, COVID-19 no doubts created unimaginable uncertainties (WHO, 2020b). In order to overcome these uncertainties, people leveraged on ICT that have now empowered and equipped individuals, organizations, and governments with strategic ability and disposition to manage the contingencies (uncertainties) through the applications of ICT and its accessories in diverse areas of life.

With the aid of ICT individuals, organizations, and governments developed strategic contingency approaches to navigate COVID-19 thereby making ICT acquire power over other social norms, units, infrastructure etc that rely on ICT and its accessories for managing their activities, workforce, updating people with information about COVID-19, entrenching public relations, and conducting business social responsibilities (BSR). Generally, ICT leveraged on COVID-19 pandemic to

redesign approaches to human activities. This invariably is consolidating the use of ICT and Internet practices in all sphere of society and human life like the world has never seen before. The concept of volatile, uncertain, complex, and ambiguous (VUCA) which is not new to management (Van Tulder, Verbeke, & Jankowska, 2019) is a perfect description of COVID-19 as a crisis-ridden situation. However, the application and the resultant efficacy in the use of ICT to navigate over COVID-19 issues has demonstrated ICT to be a strategic contingency tool in managing uncertainties, risks, and chaotic times. This is evident in the results of deploying ICT in the fight against COVID-19 disruption.

The use of ICT techniques in all areas of life will pave way for strategic sustainability and substitutability in times of future crisis that could lead to shutdown of workplaces like COVID-19 pandemic or any other similar socio-economic disruption. Hence ICT strategically positioned individuals to safeguard themselves and also powered organizations and governments more than any other unit or department in organizations and society at large during COVID-19 pandemic. This has provided more insights on the imperatives to develop and deploy more ICT techniques to cut across all human endeavors to preempt similar future crisis in the society.

Hence ICT is contingency oriented and very responsive to human resources needs at all times which Armstrong (2009) noted that contingency theory is

*Onah et al*

only relevant if the HR strategies adopted to address the situation empower HR. He further posits that the theory is related to the concept of fit – the need to gain congruence in all aspects of HR practice within the framework of the internal and external environment.

The 3 cardinal factors of strategic contingency like “centrality, uncertainties, and substitutability” according to (Hickson et al, 1971) are analytically within the framework of ICT. Therefore, the functions of ICT are ‘central’ to humanity in the society as seen during COVID-19 lockdown, whereas the outbreak of COVID-19 and its consequences in the society is full of ‘uncertainties’ which ICT is at the centre of managing the implications in the society, thereby making ICT the most flexible and suitable infrastructure in the society to navigate COVID-19 due to its ‘substitutability’ in mitigating COVID-19 pandemic. Therefore, ICT is a strong link to every part of the society, thus strategically placed to tackle uncertainties thereby acquiring more roles and powers than any other infrastructure in managing contingencies in organizations and the entire society during COVID-19. In the entire social system, ICT stands taller because other subsystems or subunits relied on its tools to make life meaningful and navigate COVID-19. COVID-19 made ICT to gain more roles and powers as ICT is being used in many aspects of human life, both in public and private concerns.

### **COVID-19 and human future**

Evidently, ICT is COVID-19 social balancer and shock absorber. COVID-19

as a crisis laden with career shock (Akkermans, Julia, & Maria, 2020) has disrupted life and placed a big question mark on workplace health and safety measures. All encumbrances imposed on man by COVID-19 that socially excluded mankind physically from one another were not allowed to have full weights to destroy socio-economic functionalities of man because of the leeway provided by ICT. The outbreak of COVID-19 is an exposition of the fact that the human future depends on mankind's ability and capacity to develop ICT to the point of cutting across every human activity and functions, thereby launching mankind to the concept of “e-everything”, a situation where all socio-economic activities are ICT responsive and driven. However, we are already having a lot of ICT driven “es” such as e-learning, e-marketing, e-dating, e-administration, e-voting, e-booking, e-HR, e-governance, e-society etc through the use of computer and information science technologies that promote the creations of artificial intelligence (AI), drone, robot, big data, cloud computing, software application and hardware development, data analytics, machine learning and language, etc. ICT according to Hilbert & López (2011) is one of the most outstanding innovations that are changing the world. Therefore, without mincing words, evidence from COVID-19 pandemic and research based on the uses of ICT to navigate the impacts of the pandemic depicts that the human future both in times of certainties and uncertainties are anchored on ICT.

COVID-19 has exposed the human future as embedded in strategic thinking.

URL: <http://journals.covenantuniversity.edu.ng/index.php/cujpia>

Onah et al

Strategic thinking is based on analyses of the present innovative technologies and projecting what could happen in medium or long term range (Varum, Melo,

Alvarenga, & Soeiro de Carvalho, 2011). Human future hinges on innovative technological methods on how to develop and present current findings (Gobble, 2014) and making them seamless, user-friendly, and compatible with the environment based on human needs. Here comes the need for environmental impact assessment (EIA), eco-friendly activities of man and inventions that capture the entire spectrum of the ecosystem which led the World Commission on Environment and Development (WCED) (1987) to formulate the concept of sustainable development, upon which the millennium development and the ongoing sustainable development goals (SDGs) sprout from. To achieve this, design thinking in ICT is paramount. Hughes & Moscardo (2019), describe design thinking as probing into the future based on analyses of the present in order to forecast innovative possibilities of what will happen in the future. The overall purpose of strategic and design thinking is to take advantage of the future. It has to do with preempting or at least managing uncertainties like COVID-19 without much casualties or disastrous consequences.

Assuredly, the human future as revealed by COVID-19 is strategically dependent on technology from the perspective of ICT. In this regard, ICT is strategically deployed massively by China in fighting COVID-19 thereby showing what the future holds for mankind both in time of

certainties and uncertainties. China first started the use of AI in response to COVID-19 by deploying AI facial recognition cameras to track infected persons and trace their contacts, using drones to disinfect public spaces and utilities, to make surveillance, and robots for delivery of food and drugs (Ruiz, 2020). According to Nguyen, Waurin, & Campus (2020), researchers are using AI to find the cure, and medicines for the disease (COVID-19), whereas computer scientists are bent on using the medical image to detecting infected person through x-ray and CT scans. Through ICT driven technologies, medical AI equipment is manufactured and used in assisting human resources in treating COVID-19 sickness in Chinese hospitals in order to reduce human contacts, serving as a medium for reducing physical contact in compliance with social distancing policy. In fact, through COVID-19, we are gradually coming into the future of "e-everything" which is a strategically systematized adoption of ICT into ALL human socio-economic activities, functions and responsibilities.

The use of robots, AI, and drones are speedily replacing certain categories of human jobs, and workplace automation using ICT tools is making certain human jobs like e-HRM seamlessly performed, remotely. China has repositioned her educational system. This is in response to the use of ICT tools in navigating COVID-19 through the implementation of an educational program called *Disrupted Classes, Undisrupted Learning* that provides flexible online learning and educational instruction to

*Onah et al*

millions of students from their homes (Huang, et al., 2020). In the same vein, through the policy of *suspending classes, without stopping learning*, attending school stopped in China but learning did not stop because of this policy that encouraged online teaching and learning activities without gathering students in school as formerly done, due to COVID-19 (Zhang, Wang, Yang, & Wang, 2020). Here is the human future – ICT and its accessories.

Human future now depends on ICT and it is accomplished when any socio-economic function or activity of man can be performed remotely through ICT tools, and online without necessarily congregating people in a particular place, and yet getting the same or even better results. A study on the impact of ICT on students' academic performance conducted in Saudi Universities by Wael, Jehan Alandejani, & Feras Almadani (2018) indicated that higher institutions that have invested heavily in the adoption of ICT in school administration, teaching and learning are having huge benefits and improvements on students performance, as the outcome of the implementation of ICT tools and accessories. Similarly, an improvement in the standard of education in any country depends on the quality of implementation of ICT policies and regulations at all levels of education (Gallego, Gutiérrez, & Lee, 2019).

In governance and business, ICT has been largely leveraged on to provide effective, efficient, reliable, convenient, and affordable services, communications, and interactions between government and the citizens, between organizations and

stakeholders, and between citizen to citizen relationships. The wide acceptance of the use of ICT in these areas has led to the concepts such as e-governance, e-society, e-administration, e-business, e-service, e-citizen, etc upon which

ICT and its accessories are used for value generation and enhancement of human life in China. Naveen & Anders (2020) on the impact of COVID-19 on business and research exposed that how business and research faired dependent on the ICT responsiveness status of each prior to COVID-19 and deployed ICT innovation during COVID-19. Therefore, ICT responsiveness of any sector of human life determines the future of the sector. Hence, many sectors of the Chinese economy have strategically started retooling and repositioning themselves for success in line with modern-day globalization realities that are ICT based. A good example is China leading 5G and its global politics. ICT and its accessories tap from Internet which is powered by data. We are in the era of data economy. Even the future global economy of Society will be powered by data. For example, China is the 3<sup>rd</sup> largest country in data generation after the US and the UK came first and second, respectively (Bhaskar, Ajay, & Ravi, 2019). Also, in the area of artificial intelligence, it is noted that "China's huge economic resource base and power in international trade which made it the fastest growing economy in the world thereby making it possible for China to pump in US\$1 billion in robotic engineering as she envisioned being the number-1 leader in the world by 2030 in developing and

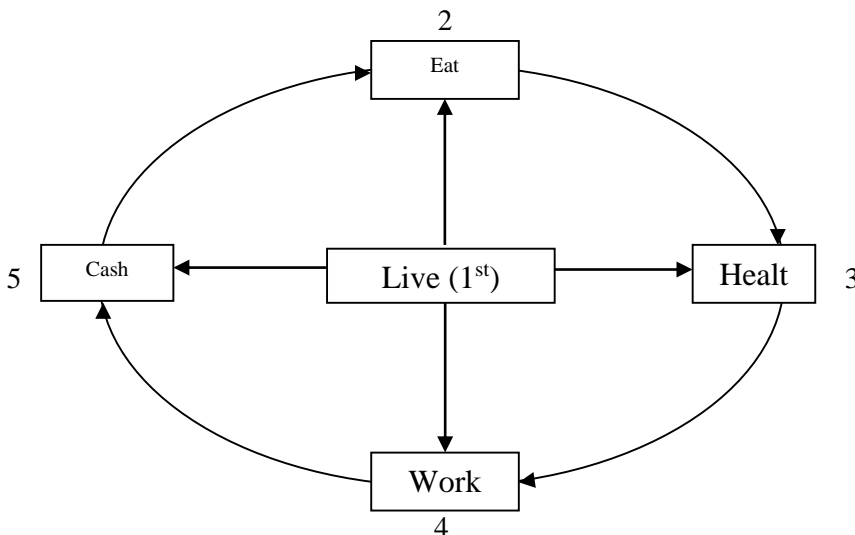
marketing Artificial Intelligence (AI)” (Onah, Aduma, & Obi, 2021).

**Conclusion**

COVID-19 pandemic exposed mankind to chaos and uncertainties associated with the disruption of the cycle of activities of humanity. However, ICT was leveraged on to cushion the destructive effects of COVID-19 on human resources. Therefore, more studies are recommended based on the proposed concept of “e-everything” that is strategically aimed at launching all human socio-economic activities and functions to ICT driven platforms, as the future hope of mankind both in times of peace and disruption.

Henceforth, COVID-19 as a crisis with uncertainties that shattered individuals and workplaces by throwing employees and employers out of organizations and total disruption of normal life routine is handled better via the use and advancement of ICT across every length and breadth of human life as evident in Chinese approaches to managing the disease. ICT guarantees large scale and distant management of resources (men, materials, finances, and machine) at all times, thus making it strategically suitable to provide solutions for mankind in all aspect of human endeavour.

**Figure 1:** Life cycle of man prior to COVID-19



**Source:** Authors’ observation (2020)

## References

- Abel, D. M. (2020). The COVID-19 pandemic calls for spatial distancing and social closeness: Not for social distancing! *Int. J. Public Health*. [10.1007/s00038-020-01366-7](https://doi.org/10.1007/s00038-020-01366-7)
- Ahorsu, D.K., Lin, C-Y., Imani, V., Saffari, M., Griffiths, M.D., & Pakpour, A.H. (2020). The fear of COVID-19 scale: Development and initial validation. *Int. J. Mental Health Addiction*. [10.1007/s11469-020-00270-8](https://doi.org/10.1007/s11469-020-00270-8)
- Akkermans, J., Julia, R., & Maria, L. (2020). The Covid-19 crisis as a career shock: Implications for careers and vocational behaviour. *Journal of Vocational Behavior* 119. 103434. <https://doi.org/10.1016/j.jvb.2020.103434>.
- Akkermans, J., Seibert, S. E., & Mol, S. T. (2018). Tales of the unexpected: Integrating career shocks in contemporary careers literature. *SA Journal of Industrial Psychology*, 44.e1503. <https://doi.org/10.4102/sajip.v44i0.1503>.
- Ali, W. (2020). Online and remote learning in higher education institutes: A necessity in light of COVID-19 Pandemic. *Higher Education Studies*, 10(3). doi:10.5539/hes.v10n3p16.
- Alon-Barkat, S. (2020). Can government public communications elicit undue trust? Exploring the interaction between symbols and substantive information in communications. *Journal of Public Administration Research and Theory*, 30(1): 77–95. <https://doi.org/10.1093/jopart/muz013>.
- Armstrong, M. (2009). *Armstrong's handbook of human resource management practice* (11<sup>th</sup> ed). London: Kogan Page.
- Bhaskar, C., Ajay, B., & Ravi, SC. (2019). Which countries are leading the data economy? *Harvard Business Review*. <https://hbr.org/2019/01/which-countries-are-leading-the-data-economy> (Accessed on 26-2-2021).
- Brooks, S.K., Webster, R.K., Smith, L.E., Woodland, L., Wessely, S., Greenberg, N. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet*, 395 (10227), pp. 912-920, [10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Callaway, E. (2020). Time to use the p-word? Coronavirus enters a dangerous new phase. *Nature*. 579.
- Claude, A. (1981). *A Political Economy of Africa*. Nigeria: Longman Nigeria PLC.
- Cui J., Li F., & Shi Z.L. (2019). Origin and evolution of pathogenic coronaviruses. *Nat Rev Microbiol*. 17(3):181–92.
- Eze, F.O. (2005). *Human resource management: Strategy, theory and applications*. Enugu: Ogbu Printers and Publishers.
- Forbes. (May 7, 2020). Pandemic spike in AI learning – and what it means for schools. Forbes.com.

Onah et al

- Accessed May 13 2020.  
Retrieved from:  
<https://www.forbes.com/sites/mvanderark/2020/05/07/pandemic-spike-in-ai-learning-and-what-it-means-for-schools/#771cf7df5079>.
- Gallego, J. M., Gutiérrez, L. H., & Lee, S. H. (2019). A firm-level analysis of ICT adoption in an emerging economy: Evidence from the Colombian manufacturing industries. *Industrial and Corporate Change*, 24(9):191–221.
- Gobble, M. (2014). Design thinking. *Research-Technology Management*, 57 (3), 59-62.
- Hickson, D.J., Hinings, C.R., Lee, C.A., Schneck, R.E., & J.M. Pennings (1971). A strategic contingencies theory of intraorganizational power. *Administrative Science Quarterly*, 16 (2): 216 – 229. DOI 10.2307/2391831.
- Hilbert, M., & López, P., (2011). The world's technological capacity to store, communicate and compute information. *Science*, 332 (6025), 60–65.
- Holmes, K.V. (2003). SARS coronavirus: A new challenge for prevention and therapy. *J Clin Investig*. 111(11):1605–9.  
<https://studiousguy.com/strategic-contingency-theory/>
- Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y. (2019). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. Doi: 10.1016/S0140-6736(20)30183-5.
- Huang, Y. (2004). The SARS epidemic and its aftermath in China: A political perspective. Learning from SARS: Preparing for the next disease outbreak. 116–36.
- Huang, R. H., Liu, D. J., Tlili, A., Yang, J. F., & Wang, H. (2020). Handbook on facilitating flexible learning during educational disruption: The Chinese experience in maintaining undisturbed learning in COVID-19 outbreak. Retrieved from: <https://iite.unesco.org/wp-content/uploads/2020/03/Handbook-on-Facilitating-Flexible-Learning-in-COVID-19-Outbreak-SLIBNU-V1.2-20200315.pdf>
- [Hughes, K.](#) & [Moscardo, G.](#) (2019). ICT and the future of tourist management. *Journal of Tourism Futures*, 5 (3), 228-240. <https://doi.org/10.1108/JTF-12-2018-0072>.
- Ile, N. (1999). *Management and Organizational Theory and Practice*. Enugu: Vougasen Ltd.
- Kathleen, M., Sandra F., & Catherine, E. (2017). e-HRM systems in support of “Smart” workforce management: An exploratory case study of system success. In: *Electronic HRM in the Smart Era*. Published online: 15 Aug 2017; 87-108. <https://doi.org/10.1108/978-1-78714-315-920161004>.
- Kilgour, P., Reynaud, D., Northcote, M., McLoughlin, C., & Gosselin, K. P. (2019). Threshold concepts about online pedagogy for novice online teachers in higher education. *Higher Education*

URL: <http://journals.covenantuniversity.edu.ng/index.php/cujpia>

Onah et al

- Research & Development, 38(7), 1417–1431.  
<https://doi.org/10.1080/07294360.2018.1450360>.
- Koontz, et al (1980). *Management: International Student Edition*. Tokyo: McGraw-Hill Inc.
- Kopp, D. (March 22, 2020). Opinion: Loneliness Is a Health Hazard, Too. Retrieved April 4, 2020, from <https://www.wsj.com/articles/loneliness-is-a-health-hazard-too-11584906625>
- Maurer, R. (2020). Job interviews go virtual in response to COVID-19. *Society for Human Resources Management*, March 17.
- McKinsey & Company (2020). Coronavirus: How should US higher education plan for an uncertain future? Retrieved 20-05-2020 from <https://www.mckinsey.com/industries/public-sector/our-insights/coronavirus-how-should-us-higher-education-plan-for-an-uncertain-future>.
- McGregor, Douglas (1960). *The Human Side of Enterprise*. New York: McGraw–Hill Book Company.
- Muhammad, A., Suliman, K., Abeer, K., Nadia, B. & Rabeea, S. (2020). COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses. *Journal of Advanced Research*. 24 (2020) 91-98.
- Naveen, D. & Anders, G. (2020). Effects of COVID-19 on business and research. *Journal of Business Research* 117 (2020) 284–289. doi: [10.1016/j.jbusres.2020.06.008](https://doi.org/10.1016/j.jbusres.2020.06.008).
- Nguyen, T., Waurin, G., & Campus, P. (2020). Artificial intelligence in the battle against coronavirus (COVID-19): A survey and future research directions. <https://doi.org/10.13140/RG.2.2.36491.23846>.
- Nowland, R., Necka, E. A., & Cacioppo, J. (2018). Loneliness and social internet use: Pathways to reconnection in a digital world? *Perspectives on Psychological Science*, 13(1), 70–87.
- Onah, C.C., Aduma, A., & Obi, D. (2021). Mercantilism in perspective. A historic review. *Global Economy Journal*. DOI: 10.1142/S2194565921500019.
- Orsolya Király, Potenza, Stein, Hodgins, Saunders, Griffiths, Biljana Gjoneska, Joël Billieux et al., (2020). Preventing problematic internet use during the COVID-19 pandemic: Consensus guidance. <https://doi.org/10.1016/j.comppsych.2020.152180> [Get rights and content](#)
- Paula, C., Helen, D., Dana, M., Alain, V., & Angelika, Z. (2020). International HRM insights for navigating the COVID-19 pandemic: Implications for future research and practice. *Journal of International Business Studies*. <https://doi.org/10.1057/s41267-020-00335-9>.
- Pyrck, K., Berkhout B., & Van D.H.L. (2007). Identification of new human coronaviruses. *Expert Review of Anti-infective Therapy*. 5(2): 245–53.

URL: <http://journals.covenantuniversity.edu.ng/index.php/cujpia>



Onah et al

- Rapoza, K. (2020). Watch out for china buying spree, NATO warns. Forbes <https://www.forbes.com/sites/kenrapoza/2020/04/18/watch-out-for-china-buying-spreen-atowarns/#623eada31758>.
- Riou, J. & Althaus CL. (2019). Pattern of early human-to-human transmission of Wuhan 2019 novel coronavirus (2019-nCoV), December 2019 to January 2020. *Eurosurveillance*, 25 (4).
- Ruiz, E.M.A. (2020). The uses of drones in case of massive Epidemics contagious diseases relief humanitarian aid: Wuhan-COVID-19 crisis. SSRN Electron J. <https://doi.org/10.2139/ssrn.3546547>.
- Schimmenti, A., Billieux, J., & Starcevic, V., (2020). The four horsemen of fear: An integrated model of understanding fear experiences during the COVID-19 pandemic. *Clin Neuropsychiatry*, 17 (2), 41-45.
- Strohmeier, S., & Kabst, R. (2014). Configurations of e-HRM: An empirical exploration. *Employee Relations*, 36(4), 333-353.
- The Conversation (21<sup>st</sup> April, 2020) Donald Trump's 'Chinese virus': The politics of naming. Retrieved from: <https://theconversation.com/donald-trumps-chinese-virus-the-politics-of-naming-136796>
- Tucker, H. (2020). Coronavirus bankruptcy tracker: These major companies are failing amid the shutdown. Forbes <https://www.forbes.com/sites/hanktucker/2020/05/03/coronavirus-bankruptcy-tracker-these-major-companies-are-failingamidtheshutdown/#5649f95d3425>.
- UNESCO. (2020). COVID-19 Educational Disruption and Response. Retrieved from: <https://en.unesco.org/covid19/educationresponse/>
- United Nations Department of Economic and Social Affairs (2020). UN/DESA Policy Brief #79: The role of public service and public servants during the COVID-19 pandemic. <https://www.un.org/development/desa/dpad/publication/un-desapolicy-brief-79-the-role-of-public-service-and-public-servants-during-the-covid-19-pandemic/> (Accessed on 14/7/2020).
- Varum, A., Melo, C., Alvarenga, A. & Soeiro de Carvalho, P. (2011). Scenarios and possible futures for hospitality and tourism. *Foresight*, 13(1),19-35.
- Wael, B., Jehan, A. A, & Feras, M. A. (2018). ICT adoption impact on students' academic performance: Evidence from Saudi universities. *Education Research International*, <https://doi.org/10.1155/2018/1240197>
- World Commission on Environment and Development (1987). *Our Common Future*. London: Oxford University Press.
- World Health Organization (WHO) (2020a). Coronavirus. WHO; 2020. <https://www.who.int/health-topics/coronavirus>

Onah et al

- (Accessed 14 July, 2020).
- World Health Organization (2020b). Physical and mental health key to resilience during COVID-19 pandemic. <http://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/statements/statement-physical-and-mental-health-key-to-resilience-during-covid-19-pandemic>. [Accessed May 12 2020].
- Van Tulder, R., Verbeke, A. & Jankowska, B. (2019). International business in a VUCA world: The changing role of states and firms. Bingley: Emerald Publishing Limited.
- Zhang, W., Wang, Y., Yang, L., & Wang, C. (2020). Suspending classes, without stopping learning: China's education emergency management policy in the COVID-19 outbreak. *Journal of Risk and Financial Management*, 13(55), 1-6. <https://doi.org/10.3390/jrfm13030055>.
- Zhong, N., Zheng, B., Li, Y., Poon, L., Xie, Z., Chan, K. (2003). Epidemiology and cause of severe acute respiratory syndrome (SARS) in Guangdong, People's Republic of China, in February 2003. *The Lancet* 2003; 362 (9393):1353–8.