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USING INSTITUTIONAL POLICY TO PREPARE FOR THE FOURTH INDUSTRIAL REVOLUTION IN UGANDA

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ABSTRACT
This article contends that institutional policy is an essential element of the fourth industrial revolution, and should be entrenched in the municipal governance structure. The study underscores present industrial revolution in parts of the world being motivated by the continued advance in science and technology. Earlier energies aimed to enhance technology of things in Uganda have been limited to managerial processes, discounting the other aspects of the small-scale sector on the side. For now, obtainable literature has acknowledged the need to focus on institutional policy as a central element, and chose urban centres such as Hoima municipality. To prepare for the 4IR in Uganda, a deliberate institutional policy needs to be applied crossways the sectors of the council. For instance, Hoima municipality can embrace a policy encouraging small-scale entrepreneurs and medium-scale entrepreneurs to increase readiness and availability of basics reflecting the 4IR, and encourage entrepreneurs to yearn for it. To achieve this, Hoima municipality should create awareness among stakeholders and inspire them to adapt modern science and technology that can enable entrepreneurs to achieve superior output, save time and cost as well as attaining higher returns today and tomorrow.

1. INTRODUCTION

Over the past three decades, a number of changes have occurred in every aspect of human life world-wide. Obtainable studies reveal how societies have evolved countless scientific evolutions that have and continue to have both direct and indirect impact on the ways humans treat diseases, move from one point to another, conduct their routine business, acquire foodstuffs, respond to disasters, have access to clean water, public health, communication, knowledge, to mention just a few (Oatley, 2019:76; Sreenan, 2019:77; Tolbert et al., 2019:710; Simon, 2018:928; Machado et al., 2019:258). These evidences denote that almost every discipline recognises that things are not static at all and it is projected that more robust changes will take (and continue to) place in the next tomorrow. However, this is not to say that all human societies have experienced uniform changes since levels of human civilisation are not uniform either. While a few societies especially those in the more developed countries of North America, Western Europe, East Asia, parts of Latin America and south Africa, have registered great changes as a result of advanced science and technology, their counterparts in the third world countries continue to grapple with the trio challenges of disease, ignorance and disease impacting on every aspect of their lives and they are as a result vulnerable to

exploitation by the first world nations (Nwonwu, 2016). A study by Melkas et al (2019:26) reveals that the more developed nations take advantage of the frugal technology available to them to exploit their counterparts in the less developing countries in the name of offering assistance.

A number of first world countries in North America such as the United States and Canada; Europe such As United Kingdom, Germany and France; and parts of Asia such as China and Japan, spend enormous resources on seeking for and consolidating means through which their citizens can live happier and longer lives. Their counterparts in the third world especially Sub-Saharan African (SSA) nations continue grappling with diseases otherwise less-thinkable to human civilisation such as cholera, dysentery, diarrhoea, malaria and dearth of basic human needs such as basic housing, basic healthcare, basic diet, basic housing, and basic education (see Adetokunboh et al, 2019; Hamid et al 2019:169; Xie et al 2018:796; Antia, 2018). In their study, Kahan et al (2018:1940) reveal that for the third world, basic mechanisation which is essential to make life easier is still a challenge due to the high cost involved both to procure and to maintain them. As a consequence, agricultural which is believed to be the backbone for many economies on the African continent remains less productive. On one hand, some observers (such as Doumbia, 2019:1762) indicate that a number of third world countries have achieved great milestones in improving the general quality of life of their citizens though the number of citizens that are unable to afford basic needs grows each day. On the other hand, it can be noted that millions of citizens in the third world live in absolute scarcity of almost every human need and conditions are expected to worsen as the middle-class that have close political connections with the regimes in power advances (Ukwandu, 2018:63). A case in point, a study by NguyenHuu and Schwiebert (2019) reveals that Africa is home to 30% of the world's poor, the world's hungry and it is the most unequalled society in the world.

The trio-challenge of poverty, hunger and inequality should not be construed to be natural for Africa in the least. We should note from the very beginning that these challenges have roots in colonialism and or continued imperialism engineered by the West and America, corrupt ruler-ship which thronged the continent since days of pre-independence with a number of African rulers robbing their own countries and keeping their loot in international banks located in the west (Pillay, 2018:34). Any home-grown African innovation has been suffocated with the pretext that they do not match international and national standards as well as applying public policies to discourage liberal minds as long as such individuals are not from the west, America and nowadays prevailing East Asian tigers of China, Japan and India (Chika-Urama et al 2010:9). As a consequence, the continent has been crowded by the maxim limitless poverty in all form.

The issue of hunger cannot be qualified as an African value especially when much of the continent is blessed with organic fertile soils and a conducive climate. For instance, Democratic Republic of Congo (DRC) has massive fertile lands and a conducive equatorial climate but has continued to produce countless numbers of refugees (Kandemiri, 2019:1045). Much of western Uganda, spinning from north-western parts of west Nile to south-western parts of Kasese are today home to tens of thousands of refugees from DRC. The same country (DRC) is home to immeasurable mineral wealth such as gold, oil and diamond, but a number of Congolese live in absolute hunger and poverty (Badibanga & Ulimwengu, 2020: 137). In 2019, DRC was badly infected by Ebola virus killed over a thousand Congolese and was declared, by the World Health Organisation (WHO), an emergency situation. A number of people from both the neighbouring countries to DRC and from far have made gains from the Congolese wealth including timber while its own citizens remain impoverished.

The third issue of inequality is very pronounced in Africa (NguyenHuu & Schwiebert, 2019). From

South Africa to North Africa and from West Africa to East Africa, millions of citizens suffer as a result of superimposed inequality in several ways, such as education and health. To date, South Africa is the most unequalled nation with less than 10percent of its population owning more than 80percent of its wealth. A similar pattern has emerged in Uganda; as the gap between the rich and the poor widens, the rich no longer take their children to the schools claimed to be offering universal education (Mukunya, 2020). Instead, they educate their children either in the expensive international schools within the country or in oversea schools located in South Africa, North America, East Asia or Western Europe. The situation is widely pronounced in healthcare too; as the poor have to endure poor healthcare, the rich and the political class receive first class treatment from international hospitals in the country or fly their loved ones abroad for all manner of healthcare including normal child birth (Ladu, 2014).

With current global unemployment, children of the poor not only endure hardships to receive education but they are discriminated in the job market to the advantage of the rich and the politically-connected. In recent days, government emphasises that it is focusing more attention to scientific academic programmes at Universities. The poor who go through poor primary and post-primary education cannot have the requisite scores to be admitted to the much needed university academic programmes such as medicine and engineering (Katungulu, 2018). Instead, the poor pre-university background not only lead the poor Ugandan to less demanded university academic programmes such as social work and social administration, gender and women studies, conflict resolution, to mention but consolidates the level of inequality as graduates either remain on the street searching for employment or get absorbed in unrelated sectors where they are paid less than the minimum subsistence (Nabaho et al 2019:103). A study by Pitan (2016:1) affirms that the high proportion of joblessness suffered by university graduates in Nigeria is not only reminiscent of the absence of employment opportunities but a shortage of applicants with relevant abilities that companies are seeking. This is the situation in much of Africa. As the first world evolved technologies aimed to mitigate such occurrences, the third world has to wait on for more decades; both as a spectator and as a consumer of technologies originating from the first world. For example, almost every government agency and local governments adopted the integrated finance management system (IFMS) and integrated personnel payment system (IPPS) even if a number of them lack essential infrastructure and dearth of requisite personnel.

Thus far, the first world developed a sphere where citizens are capable of moving between fields that are digitally connected and offline certainty using advanced technology so as to facilitate as well as accomplish their life (see Kujur, 2019:554; Bistline et al., 2019; Sharpe et al., 2019:21). The first world has been able to evolve through four industrial revolutions (IRs): the first IR transformed human lives as well as trade and industry from an agricultural economy to one led by manufacturing and combustion engines. The second IR was enabled by more discoveries in both petroleum energy and electrical energy supported by strong capital markets which gave rise to production of large quantities (Bonhourse & Le Bris, 2019:3). The third IR was mapped by forward-thinking in terms of information science technologies (ISTs) called digital acumen and renewable energy, which was applied to enhance mass production, quality production and faster production (Güney, 2019:389). Now, the fourth IR constitutes a dispersed system in which the authority in every associated point is indistinguishable to others within the system (Uleanya & Ke, 2019). According to Xu et al (2018:90), while for each IR it can be observed as a distinct era, they should be analysed as a sequence of developments connecting on advances of the earlier development and resulting into better systems of production. This is what the first world nations have evolved through.

Scholars (such as Ayentimi & Burgess, 2019:641) note that the fourth IR has the potential of becoming a dynamic potency for worldwide socioeconomic progress. The newest revolution is described in terms of an intellectual period of manufacturing disrupted by constant short-range improvements with changing intensities of swiftness, range, and complexity such as the one witnessed in China (Wen & Fortier, 2019:9). In short, the first and second IRs involved a centralised system of doing things; the third IR involved a devolved system in which dominant centres were disseminated from the central point to achieve efficiency and effectiveness; and the fourth IR consists of extensive changes in production as well as the social order that are affected by disruptive scientific changes in the three aspects, namely artificial intelligence, automation, and hyper-connectivity. Lee et al (2019) describe the fourth IR as a stage of development which applies a number of expertise including 3D printing, internet of things, artificial intelligence, smart cars, big data, and on-demand economy.

While not much has been witnessed in much of Africa and while it is true that much of the continent is yet to advance from the first industrial revolution to the fourth IR (hereafter termed 4IR), there are spots of evidence revealing that the continent is experiencing industrial revolution *albeit* behind a number of first world nations. In addition, a number of African cities are well located to deliver public services to their residents, something which is advantageous to them and for the 4IR (Kithatu-Kiwekete, 2018:17). Also, ICT-led governance has been adopted as a trend of delivering public services such as education, healthcare, and agricultural extension, in a number of African countries notwithstanding several challenges (Nzimakwe, 2018:126). While questions have been put forth regarding whether the 4IR is relevant for Africa, obtainable literature reveals that the 4IR has the potential to bring with it an opportunity required to attain socio-economic growth to SSA (Ayentimi & Burgess, 2019:641). That is why Africa in general and Uganda in particular is witnessing a wave of expansion regarding industrial revolution in aspects of digital, physical and ecology (De Falco, 2019). As a consequence, a study into preparedness for the 4IR is timely in Uganda and is likely to propel the nation to a different level of industrial revolution, hence this article.

1.1 Contextualising the 4IR

The 4IR came as a blend of knowledges which cloud the space among the three domains *viz.*; physical, digital as well as biological thus denoting the cyber-physical structures (Rossit et al, 2019:385). It is characterised by evolution of high-tech innovations in a number of aspects such as engineering, simulated intelligence, nanotechnology, biotechnology, the internet, wireless tools, 3D production and self-directed automobiles. Thus, the 4IR suggests significant advances in a number of facets since humans are ever inventing forward. While it is expected that humans are inventing forwards, it should be noted that differences in civilisation influence the degree invention among different humans. For example, Israel unveiled an experimental electric-powered plane (Shemer, 2019)), Liberia reportedly struggles to meet the neuro-surgery needs of five million citizens using only one doctor (Charles, 2019). As a consequence, advance in human civilisations are expected to progress at difference epochs. The 4IR advancement is the synthesis of conventional and contemporary improvements aimed to produce modern transformation in every part of human life (Rainnie & Dean, 2019:1). In the 4IR, nanotechnologies are a step forward and so is 3D production. Modern invention means reunion of separate inventions and constituents to realise better-quality in terms of pace and output. A good example of IR include smart freezers which supply data, internal warmth, quality of stored items, data and formulae on human diet. Additional characteristics are a webcam that is useful in scanning and tracking what is stored in the freezer. Also, it saves energy by half the level of old model freezers. Smart freezers stack-up current freezers work and has an inbuilt camera. In their study, Uleanya and

Ke (2019:1) reveal that a number of nations are preparing for the 4IR in terms of education system, which they believe to be the most durable stimulant. These are elements of the first world nations and a few second world countries but that does not exonerate Uganda from taking a glimpse into what it is to be in the 4IR and how best the country can prepare for the transformation. A study by Lee et al (2019: 282) suggest that emergent technologies have greater likelihood to transform the conditions of several people across the globe. Hence, this study is well-timed.

1.2 A glimpse at Hoima municipality

Hoima municipality is one of the two municipalities in mid-western Uganda together with Masindi municipality. It gained municipal status in 2007 when the government of Uganda decided to elevate Hoima town council (Akwetereiho, 2007). Currently, Hoima municipality is made of four municipal divisions, namely; Kahoora (this serves as the central business area), Bujumbura, Busiisi and Mparo. For each of the four divisions, there are wards (known as parishes) and cells, each having a ten-member elected committee overseen by a chairperson. At the end of 2017/18 financial year, Hoima municipality had a total population size of 100,009 (47,632 males and 52,467 females), spread across 24,894 households (Uganda Bureau of statistics, 2017:29-38). Also, the number of internet users (aged 10 to 30 years) is 35,466). The municipality is located approximately 150 Kilometres west of Kampala. It borders Buliisa district to the north-west, Masindi district to the north, Kiboga to the east, Kikuube to the south-east, Kagadi to the south and Lake Albert (also known as mwitanzige) to the west. The main socio-economic activities are small-scale and medium-scale agri-businesses, merchandise, small-scale industries, services such as schools, restaurants and hotels, clinics and drug shops, bars, to mention a few. The dominant community are Banyoro followed by several other internal migrants from all over Uganda as well as refugees from DRC, Rwanda, Burundi, and South Sudan.

Hoima municipality is headed by both the political wing and the technical wing. The political wing is headed by an elected mayor, a council whose membership (the councillors) are elected from the different electoral areas making up the municipality along with the four division mayors. The technical wing is headed by a town clerk who is appointed by the public service commission (a central government agency as opposed to the municipal service commission) along with such heads of departments including health, environment, works and engineering, education, water and sanitation, and community development. Apart from the two wings mentioned, the government of Uganda along with its development partners organised the creation of municipal development forums (MDFs) in selected Municipalities, including Hoima, upon the initiation of the Uganda National Urban Forum (UNUF) in 2010 (Bogere, 2015). MDFs are an avenue for every interested party in a Municipality to exchange their opinions, discuss concerns and decide on joint actions regarding a number of issues affecting a Municipality. An MDF brings representatives from key sectors of the municipality including business community, transport community, small-scale and medium-scale industries, sports community, religious leaders, and the professionals' community. The MDF is expected to identify key issues affecting each of the respective communities which may not receive adequate attention from elected councillors and bring them to the attention of the Municipal council. While the MDF of Hoima municipality is yet to identify the 4IR as one of the essential components for its development, this study suggests that industrial revolution is a precondition of current and future progress. A study by Uleanya and Ke (2019) reviewed the preparedness of rural African communities in terms of formal education in the 4IR but did not cover Uganda nor institutional policy. What else is necessary than to prepare a municipality for the 4IR even if it sounds more of a day dream than a reality of the current

decade.

1.3 The 4IR in Hoima Municipality

Scholars (such as He, 2019:3) have listed four phases of human civilisation, *viz*. the hunter and gatherer phase, the agrarian phase, the manufacturing phase, and the evolving phase of intelligence. While in the first three phases, labour-intensive personnel produced goods as well as services with their physical body, in the last phase, information-based personnel applies intelligence to produce much of the goods and services (Dias et al., 2019:22). Information-based personnel are key to effective delivery in Hoima municipality. For example, information communication technologies are indispensable with service delivery in terms of financial management and accountability, payroll systems, municipal contracts and procurement system as well as physical planning. This is because; information-based personnel gives focus, innovation, and influence in efficient use of public resources to accomplish the goals of a municipality. Put different, information is an essential element of the overall functions of an organisation. Consequently, the key strength and principal initiatives of the industrial phase were engines and wealth which were necessary to propel macro-development. The personnel were needed but often disposable. The style of managing the industrial phase in Hoima municipality does not fit in the information phase. Municipal managers concentrate on inspiring personnel to accomplish the manual effort required to deliver community services such as healthcare, sanitation, and education. In the 4IR, the challenge is how municipalities can stimulate the information-based personnel to release their social wealth. While there are a number of pathways through which the 4IR can be stimulated such as entrepreneurship, education, social resilience and creativity, and institutional policy, this study examined means by which institutional policy can be used to prepare for the 4IR in Hoima municipality.

2. THE PROBLEM

The 4IR is changing things regarding every expectation of development which were thought about or made in the past. With artificial intelligence and robots, the professions that college students have long fancied are fading. Overall production and ways of life are becoming out-of-date by the hour. For example, textile business; the industry is making better and more clothes using machines with reduced human involvement. When leaders in government anticipated that Uganda would be the next centre of industry, it is, instead, becoming less likely that industrialisation will move to the country with the estimated employments. This innovation is making few individuals very rich and masses (particularly the youths) unfortunate as a result of jobless growth. Consequently, there is more to consume in the marketplace but more people have less money at their disposal. This is condition is rendering many able people starved, annoyed and impatient. While there could be a number of ways through a nation can get prepared for the 4IR such as through education and training, this study examines means by which Hoima municipality is preparing (or can get prepared) for the 4IR using the institutional policy.

3. OBJECTIVE OF THE STUDY

This purpose of this study was to examine the means by which institutional policy can be used to prepare for the 4IR Hoima municipality. In order to achieve this objective, three questions were answered, *viz*.: (a) what are the services embracing 4IR in Hoima municipality? (b) What is the degree of effectiveness of the institutional policy in preparing for the 4IR in Hoima municipality? And, (c) what contribution does Institutional policy bring towards preparation for the 4IR in Hoima municipality?

4. PROCEDURES AND METHODS

Approval for carrying this investigation was requested from, and granted by, the municipal town clerk

(MTC). In examining the means by which Hoima municipality is prepared for the 4IR, participants for the study were key informants who involved elected councillors, technical staff, professionals, and managers of medium-scale manufacturing industries in Hoima municipality. A qualitative method giving emphasis to personal interviews was adopted and the number of participants had to conform to the standards of sampling. At the end of all interviews, four elected councillors, three technical staff, four professionals, three owners and or managers of medium-scale manufacturing industries, and six members from the general business community, were reached. The annual work plans and or priorities for Hoima municipality do not comprise any strategic objectives nor commitment to the 4IR. The preparedness of the municipality was evaluated through appraisal of policy statements in the areas of primary and post-primary education, youth livelihood programme (YLP), women entrepreneurship programme (WEP), and industrial growth as these programmes are suggestive of the preparedness of the municipality towards the 4IR. These programmes are laid out in the five-year municipal development plan (MDP) as necessary areas for development.

As shown, preparation for the 4IR is not a distinct intervention but the municipal policies and strategic programmes should imply this. During individual interviews, four main questions involving, whenever necessary, follow-up questions regarding preparedness for the 4IR were raised. Participants were allowed to think on their involvements and intentions of the plans concerning the 4IR and decide levels of consciousness. This enabled instant explanation of vague issues since the response of a participant to the question could be noticed. Obedience to ethical values of research, in which human beings are involved as participants demands permission before the interview is conducted. This was upheld.

5. RESULTS: USING THE INSTITUTIONAL POLICY TO PREPARE FOR THE 4IR in HOIMA MUNICIPALITY

Using the Institutional policy to prepare for the 4IR was approached using three objectives, namely: to explore the services embracing 4IR in Hoima municipality, to explore the degree of effectiveness of the institutional policy in preparing for the 4IR in Hoima municipality, and to explore the contribution of Institutional policy towards preparation for the 4IR in Hoima municipality. The results are organised on the same premise

5.1 The services embracing 4IR in Hoima municipality

Table 1 shows selected aspects that are embracing 4IR in the study area. The findings indicate that all the selected services, ranging from catering, transport, funeral, barbershop, laundry, plumbing, to electrical have registered remarkable growth over the past five years and are unlikely to plummet. This finding is not surprising as the number of inhabitants in Hoima municipality and its overlying areas is growing faster as a result of activities related to oil exploration, airport construction, business speculators migrating from other areas and rising number of refugees from neighbouring DRC. The dominant item is finance management; this is government policy through the IFMS which every local government and urban authority is obliged to implement.

However, the low number of both service providers and clients to funeral services was due to the view that a good number of people regard funerals as a community responsibility which should not be offered by the market. Yet, the middle-class and those whose relatives die from outside the country are taking up the trend of private funeral services albeit at a slow pace.

Table 1: Descriptive statistics showing frequency (F) and percentage (%) on the services embracing 4IR in Hoima municipality

Item	Monthly capacity	F	%
Finance management	Less than 100 clients	00	00
	100 to 200 clients	02	10
	200 to 300 clients	01	5
	More than 300 clients	17	85
Catering services	Less than 100 clients	05	25
	100 to 200 clients	03	15
	200 to 300 clients	08	40
	More than 300 clients	04	20
Transport services	Less than 100 clients	00	00
	100 to 200 clients	01	5
	200 to 300 clients	03	15
	More than 300 clients	16	80
Funeral services	Less than 100 clients	02	100
	100 to 200 clients	00	00
	200 to 300 clients	00	00
	More than 300 clients	00	00
Barbershop services	Less than 100 clients	00	00
	100 to 200 clients	00	00
	200 to 300 clients	08	40
	More than 300 clients	12	60
Laundry services	Less than 100 clients	04	20
	100 to 200 clients	09	45
	200 to 300 clients	07	35
	More than 300 clients	00	00
Plumbing services	Less than 100 clients	15	75
	100 to 200 clients	05	25
	200 to 300 clients	00	00
	More than 300 clients	00	00
Electrical services	Less than 100 clients	08	40
	100 to 200 clients	10	50
	200 to 300 clients	02	10
	More than 300 clients	00	00

5.2 The degree of effectiveness of the institutional policy in preparing for the 4IR in Hoima municipality

Objective two explored the degree of effectiveness of the institutional policy in preparing Hoima municipality for the 4IR. A number of variables were investigated and analysed using means and standard deviations. The results indicate that all the aspects yielded moderate except the aspect regarding 'the municipal council and the civil society collaborate and plan together', which yielded 'very high' (μ=4.21 and SD=0.74). This is not surprising seeing that the civil society has been

instrumental in a number of nations as regards pushing for development models that have the potential to meet the growing demands of the world's growing human population such as green growth, clean energy, to mention a few.

Table 2: Descriptive statistics showing mean (μ) and standard deviation (SD) on the degree of effectiveness of the institutional policy in preparing for the 4IR in Hoima municipality

Item	μ	SD	Interpretation
The entrepreneurial role of the municipality has been strengthened	2.84	1.25	Moderate
There is an open design in the municipality's economic policy	2.95	1.04	Moderate
The innovation policy of the municipality is designed with transparency	3.18	1.40	Moderate
The municipality has become more creative and resilient	3.28	1.21	Moderate
The municipality ensures continuity in change	2.95	1.47	Moderate
The municipality is dedicated and responsible	2.86	0.82	Moderate
The municipal management flexible and focussed	3.28	1.26	Moderate
The municipal thrives to transform time, space and human in real world	3.86	1.12	High
The municipality encourages new expansion in labour resources	3.15	1.01	Moderate
The municipality has secured trust between science and the public	3.87	1.12	High
The municipal council and the civil society collaborate and plan together	4.21	0.74	Very High
The municipal council cooperated with accessible tertiary institutions and local firms to design a strategic plan	3.40	0.52	Moderate

Scale & interpretation: 4.21-5.00 (very high); 3.41-4.20 (high); 2.61-3.40 (moderate); 1.81-2.60 (low); 1.00-1.80 (very low)

From table 2, two aspects rated 'high' namely: the municipal thrives to transform time, space and human in real world (μ=3.86 and SD=1.12) and the municipality has secured trust between science and the public (μ=3.87 and SD=1.12). Again these results are less shocking seeing that time and space remain limited and at the centre of a number of human conflicts around the world; therefore, any efforts aimed at transforming the two in harmony with humans is a positive move in the right direction. The notion of trust, whether at institutional level or individual level, is key. This view suggests that stakeholders in Hoima municipality are becoming cognisant of the 4IR, which seems to be less avoidable in the world.

5.3 Contribution of Institutional policy towards preparation for the 4IR in Hoima municipality

The third objective explored the contribution of Institutional policy towards preparation for the 4IR in Hoima municipality. It was analysed using multi-regression analysis and the results are summarised on table 3.

Table 3: Contribution of Institutional policy towards preparation for the 4IR in Hoima municipality

Predictor variables	Unstandardized coefficients	Standardised coefficients	Sig.
	B	Beta	
(Constant)	23.497		0.000
Finance management	0.912	0.102	0.110
Catering services	1.829	0.113**	0.000
Transport services	- 0.989	0.353**	0.000
Funeral services	-0.654	-0.113	0.283
Barbershop services	0.979	0.176**	0.000
Laundry services	1.928	0.103	0.114
Plumbing services	1.831	0.162	0.382
Electrical services	-0.747	-0.048	0.096

***significant at 0.05 level, $R^2=0.243$, Adjusted $R^2=0.189$*

From table 3, the results suggest that Institutional policy has a significant contribution towards preparation for the 4IR in Hoima municipality (B=0.113, p=0.000; B=0.353, p=0.000 & B=0.176, p=0.000 respectively) in terms of catering services, transport services and barbershop services. The other factors in the model, that is, funeral services (B=-0.113, p=0.283), laundry services (B=0.103, p=0.114), plumbing services (B=0.162, p=0.382), and electrical services (B=-0.048, p=0.096) do not generate significant contribution towards preparation for the 4IR. The standardised coefficients suggest that catering services, transport services and barbershop services contribute an overall Beta of 0.642, which is 64.2% towards preparation for the 4IR of the respondents in the study area. On the plus, this result suggests that a number of factors needed to be combined towards preparation for the 4IR.

While it is true that SSA is a late-comer in the 4IR, Uganda does not have the potential to rush so as to catch up with other nations. The country continues to contend with inadequate essential needs such as healthcare, road network, energy, elementary education, to mention a few. Hence, focussing on the Institutional policy in terms of preparing for the 4IR cannot attract significant attention. As par the results in table 3, the p-value is 0.000, which is less than 0.05 level of significance, gives credence to the supposition that Institutional policy has a positive significant contribution towards preparation for the 4IR.

DISCUSSION – USING THE INSTITUTIONAL POLICY TO PREPARE FOR THE 4IR IN HOIMA MUNICIPALITY

This study set out to achieve three objectives, namely: to explore the services embracing 4IR in Hoima municipality, to explore the degree of effectiveness of the institutional policy in preparing for the 4IR in Hoima municipality, and to explore the contribution of Institutional policy towards preparation for the 4IR in Hoima municipality. The services embracing 4IR were: finance management, Catering, Transport, Funeral, Barbershop, Laundry, Plumbing, and Electrical. Twelve aspects were used to explore the degree of effectiveness of institutional policy in preparing for the 4IR in Hoima and the results indicated that only one were rated very high, two high while nine items were rated moderate. Regarding the contribution of Institutional policy towards preparation for the 4IR, results indicated that Institutional policy has a significant contribution towards preparation for the 4IR in Hoima municipality.

From the results, while Hoima municipality is not just a latecomer but a great beneficiary rather than a contributor to the 4IR, there is evidence that a number of services are embracing the trend (Sutherland, 2019). However, the biggest mischief is that the municipality lacks essential technologies to become an effective player. For example, all the services that were identified as embracing the 4IR such as catering, transport, funeral, barbershop, laundry, plumbing, and electrical installation continue relying on either out-of-date technologies the existing technologies from the west, North America, South America, Australia or Asia. As a consequence, the evolving phase of intelligence coined by He (2019:3) will take long to become a reality. Instead, it seems evident that continued reliance on labour-intensive personnel to produce as well as deliver goods and services. The idea that information-based personnel can use intelligence to produce much of the goods and services in the municipality will remain an illusion in the longer future; this is in disagreement with Dias et al. (2019:22) regarding information-based workforces. This is because there was noticeable lack of focus, innovation, and influence in efficient use of resources available to the municipality with a view of achieving the goals of the municipality. This suggests that availability of institutional policy alone cannot achieve much.

Regarding the effectiveness of the institutional policy, collaboration and joint planning between the municipal council and the civil society, which yielded 'very high' (μ=4.21 and SD=0.74), suggests the dynamic potency that is coming with 4IR at a global scale as a means of enhancing socioeconomic progress (Ayentimi & Burgess, 2019:641). This results supports earlier studies in that the civil society continues to express to the municipality to embrace improvements at both short-term and medium-term that are aimed at changing intensities of speed, range complexity in key aspects as contended by Wen and Fortier (2019:9). The high rating on the aspect of the municipal thriving to transform time, space and human in real world (μ=3.86 and SD=1.12) is supportive of the extensive changes advocated for under 4IR in areas of production as well as the social order that are affected by the disruptive scientific changes. While all the three aspects namely artificial intelligence, automation, and hyper-connectivity are not present in Hoima municipality, with an effective institutional policy agenda, the authority has the potential to attract social capital from outside to invest in each of the aspects in the near future.

Looking back at what Lee et al (2019)'s description of 4IR as a stage of development which applies a number of expertise including 3D printing, internet of things, artificial intelligence, smart cars, big data, and on-demand economy. This is supportive of the finding that the municipality has secured trust between science and the public (μ=3.87 and SD=1.12) for attracting and consolidating the basic infrastructure which can enable 4IR to take course in future. This also suggests that with trust Hoima municipality will tap into available opportunities required to attain socio-economic growth as established by Ayentimi and Burgess (2019:641). With Hoima poised to become the country's oil city by 2021, trust between science and the public bring a wave of expansion for industrial revolution in aspects of digital, physical and ecology identified by De Falco (2019). There are already key spots of high-tech innovations in aspects such as engineering, biotechnology, the internet, wireless tools, and self-directed automobiles in a few industries within the municipality. However, the institutional policy suggests limited advances in a number of 4IR aspects since a number of local scientists are committed to inventing forward in aspects of waste management, street parking and catering services as observed

from other similar frameworks such as sexuality education (Ninsiima et al 2020).

To end with, the study has revealed that Institutional policy has a significant contribution towards preparation for the 4IR in Hoima municipality (B=0.113, p=0.000; B=0.353, p=0.000 & B=0.176, p=0.000 respectively) in terms of catering services, transport services and barbershop services. This finding suggests that the 4IR is capable of changing things regarding every expectation of development which were thought about and or made in the past. With an effective institutional policy, college students will change course to taking professions that have long been given a lower profile in spite of the high value they hold. Since production and ways of life are becoming out-of-date by the hour, a prudent institutional policy can help prepare the industry with the aim of making better and more using machines with reduced human involvement. While pessimists anticipate 4IR to make few individuals very rich and masses unfortunate as a result of jobless growth, the trickle-down effect will cause wealth to reach even those that are excluded by technology and there will be optimum consumption in the marketplace even if more people have less money at their disposal. Consequently, none of able people will starve, be annoyed and remain impatient since Hoima municipality will prepare to stimulate the information-based personnel to release their social wealth using an effective and deliberate institutional policy agenda.

6. CONCLUSION

This study has put forth a single view in support of preparation for the 4IR as an alternative to waiting for it to work out in a third world Countries. The central purpose of this proposition is the significance of knowledge-based development over traditional development approaches under the present unacceptable routine of semi-digital in until now as academics are puzzled, as well as the persistent necessity for growth that meets the fast-growing human needs in the third-world. In consequence, industrial revolution is what majority of the obtainable studies have been underscoring (such as Lee et al., 2019). As indicated before, the fourth IR consists of extensive changes in production as well as the social order that are affected by the disruptive scientific changes in aspects of artificial intelligence, automation, and hyper-connectivity. But what does application of expertise including 3D printing, internet of things, artificial intelligence, smart cars, big data, and on-demand economy contribute to the country? Or can we state that the 4IR is grounded on muddle regarding its socioeconomic contributions and on a deliberate disrespect of the appropriate and honest proof in the first world countries? The 4IR is a possible pursuit compared to excesses such as those by the supporters of green growth agenda or those upholding that sustainable development goals impact on economic progress, and might decrease the ecological value.

One closing idea that desires to be put across to support the institutional policy in contrast to other policies is that the latter might be depoliticised instead of adding to the pursuit of new innovation in soft knowledge. Jung (2019) notes that the search for industrial revolution translates into technical improvement and reliance on information. Or what a number of optimists (such as South African President Cyril Ramaphosa) believe that the 4IR cuts down the per capita cost on workforce, saves time along with ensuring more efficiency and better quality compared traditional methods of work (Sutherland, 2019:1). Certainly, a number of multinational companies are willing to bear the price on 4IR so that it becomes available for their companies. Setting apart the collective issues echoed by selected pessimists regarding the view the 4IR will worsen current human unemployment as more human resources will become irrelevant as much of the work is done by machines and computers, the full structure of the 4IR is not far from reach if municipalities in the less-developing world such as Hoima can maximize their effort. Using an enabling institutional policy framework, Hoima

municipality has greater prospects to achieve more than what municipalities in the more-developed nations took longer to attain.

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