

can offer incentives of some sort to organisations that are interested in building digital enterprises.

Commitment to Investment

It is imperative that the governments of African nations as well as organisations in the region invest amply towards Industry 4.0 as its early adoption is important to allow for the ability to compete in today’s digital climate. Failure to invest can prove detrimental not just to businesses in the region but also to the economies of nations in the region and possibly the region as a whole.

The area of focus with respect to investment would mostly be in digital technologies including sensors, software and connectivity devices among others. However, investing in people is of great importance as skilled individuals would be needed in order to ensure the full potential of Industry 4.0 is achieved in the region. Organisations would have to invest in training employees as well as invest in the necessary organisational changes that would present itself as a prerequisite when implementing Industry 4.0. Change management would be necessary at this stage.

Finally, it is of great importance that the governments of nations within the region focus on educating and training their youth population in digitalisation as their training and development would prove vital.

Trust in Digital Technologies

The introduction of novel digital technologies as well as the expansion of digital ecosystems has presented itself at a great cost of digital susceptibility. This is often the case when the appropriate security measures are not put in place. Therefore, organisations must take a meticulous and proactive approach towards data security and other matters that pertain to cyber security. Ample digital security is necessary when building a digital enterprise. In essence, there has to be trust in digital technologies in order for the full potential of Industry 4.0 to be achieved in Africa.

Increase in Awareness

The level of awareness of industry 4.0 and its numerous benefits at organisational, national and regional level seem to be quite low among African manufacturers at the moment. Ample efforts need to be made to educate and support organisations within the region to achieve a level of digitalisation that can contribute towards economic growth and diversification. African manufacturers need to be aware of the ramifications of Industry 4.0, as negligence would come at a cost of being left behind in the digital race. It would pose a strong argument that the effects of being left behind in the digital race can prove detrimental to the economy of the region.

Change Management

The attitude of organisations as well as that of the governments of African nations does not seem to reflect that there is ample awareness of the necessity for the early implementation of advance manufacturing in organisations within the region in order to compete at a high level. It seems that the inevitability of a global shift to Industry 4.0 is yet to

be embedded in the mind-set of African manufacturers and governments. Adopting and adapting to Industry 4.0 early is important as organisations that adopt and adapt the quickest would have a competitive edge. Change management would play a pivotal transitional role in the adoption and adaptation process.

Potential Risks and Mitigating Strategies

Although the industry 4.0 forecasts are very promising, there are potential risks associated with its implementation in Africa. Therefore, it is rational that one investigates these risks and put forward mitigating strategies.

The table below pin points some potential risks and mitigating strategies with respect to the implementation of Industry 4.0 in African nations

Potential Risks	Mitigating Strategy
<p>1. <u>Not an Avenue for Significant Job Creation</u> The introduction of Industry 4.0 eliminates the prospect of significant job creation in manufacturing, as IT would be at the fore front of things. Therefore, Industry 4.0 is not seen as an avenue for significant job creation in the region.</p>	<p>1. The region would have look to developing other sectors and industries to create jobs.</p>
<p>2. <u>Socio Economic Impact</u> Advanced manufacturing requires educated and high level skilled workers to make it a possibility in the region. These individuals would earn significantly higher and have significantly better opportunities in comparison to the unskilled workers in the region. This would in turn contribute to the level of disparity that exists between skilled and unskilled workers in the region.</p>	<p>2. There will be the need to train and upskill workers within the region, so as to depend less on expatriates from other parts of the world. This would allow for more indigenous people to become skilled and grant them access to certain opportunities available to skilled individuals</p>

CONCLUSION

Several nations in Africa including Nigeria, Angola, Ghana, Mali, Congo and Cameroon have failed to diversify their economies, thereby stifling the growth of their economies. According to The Economist (2014), there has been in recent

times an emerging boom in the manufacturing sector in Africa. Therefore, it is logical for nations within the region to capitalise on this development to diversify and grow their economies.

Industry 4.0 has transcended beyond being a future trend, as organisations are starting to benefit from the implementation of Industry 4.0 strategies and technologies. Global statistics on Industry 4.0 are quite promising, as more organisations around the world are beginning to harness the power of digitalisation to bring about significant transformation in their businesses.

Findings by PWC (2016) states that nations that have so far made the most progress with regards to digitalisation across their internal operations and digitalisation with regards to partnering across their horizontal value chain are Germany and Japan. Meanwhile many companies in the United States are focusing on investing in disruptive business models as they are looking to digitise their products and service portfolio. Organisations in the United States are more focused on revenue growth. In addition, based on findings by PWC (2016), one can argue that China would stand to gain the most from implementing industry 4.0 once labour intensive manufacturing processes have been automated and digitalised. Further statistics by PWC (2016) based on regions show that Americas seem to be leading in terms of anticipated growth in digitalisation by 2020 at 42% growth, followed by a combined Europe, Middle East and Africa at 41%, while Asia Pacific is anticipating 31% growth in digitalisation.

Given the promising forecasts of industry 4.0 around the world, one can strongly argue that Industry 4.0 has the prospect of contributing towards economic diversification and development in African nations. Prerequisites for the implementation of Industry 4.0 in Africa include government support, commitment to invest, trust in digital technologies, increase in awareness and change management among others. Early investment in industry 4.0 is necessary if the region wants to compete in today's digital climate. It is necessary that the governments of nations within the region play a more active role in providing an ideal environment for organisations to quickly adopt digital technologies. Change management would be pivotal in the implementation of Industry 4.0 in organisations in Africa as it would help in the transitioning process.

Although the benefits of Industry 4.0 are promising, there are potential risks associated with its implementation in the region including the fact that it is not an avenue for significant job creation in the manufacturing sector, as Industry 4.0 requires skilled individuals. In light of this, the region would have to look towards developing other industries to create jobs. There is also the risk of the socio economic impact associated with the implementation of Industry 4.0 in Africa, as its implementation would contribute to the disparity that exist between skilled and unskilled workers in the region.

Potential Future Work

- ❖ Carry out a broad study using primary data from organisations within Africa to assess the level of digitalisation of organisations within the region.

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