The Future of Learning in Africa

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Based on our research the future of learning in Africa should be built around

Vertically-integrated

shared-value

learning pathways

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Preamble

Africa is rising - for the moment - but it may not last long.

African economies and businesses cannot fulfil their full potential without skilled and engaged people. But sustained skills growth in Africa is at risk. Fluctuating education spend (as a % of GDP) and a burgeoning youth population is driving a fall in education spend per capita in many African countries. This presents a significant challenge for those stakeholders that are counting on an emerging educated workforce to drive output and consumer demand. In fact, this trend may easily foreshadow an approaching skills crisis that could cap development and lead to falling productivity; falling real income; disappointed hopes and the social unrest that that may then herald. As powerfully described by Renaissance Capital, for African economies there can be '*No Take-off without Education*'[1].

But the issue is not just the availability of education. The quality of learning is also critical. In the 2018 World Development Report the World Bank defined the learning trap in Africa as it impacts the majority of learners in the region[2]. The speed of the expansion in primary and secondary education has been impressive and, in many countries in the region, without historical precedent. However, whilst access to education has greatly improved, the quality of the learning experience remains weak. In much of Africa students experience a learning deficit relative to their progress against defined international standards and relative to their international peers. This deficit endures into adult life and has a huge impact on their levels of economic inclusion.

This learning trap is now coinciding with a worrying new global trend. The liberal world order is under threat[3]. The post-cold war free market expansion lifted millions out of poverty (esp in Asia). But whilst the global economy has continued to grow social mobility and economic inclusion have stagnated. Rooted in an ever-greater concentration of corporate profits, a self-protecting global elite has emerged and is now well entrenched. Social mobility in both developed and developing economies has slowed as this new glass ceiling has made itself felt across geographies and communities. This has provoked a counter-reaction that is witnessing the resurgence of populist politics and a re-emergence of protective national agendas[4]. This in turn signals a shift in international economic relations away from integrated dialogue towards zero-sum trade deals and bilateral negotiations.

As the two mega-trends outlined above converge our concern is that we will see yet another lost generation in Africa. A generation that, despite their best efforts, remain marginalised both by the lacklustre pace of their own skills growth as well as by the constraints placed around their economic inclusion by the very business and political elites that they look to for learning, jobs and opportunity.

The implication for companies operating or investing in Africa is severe. On the one hand they face a persistent productivity gap in their workforce that will constrain margins and inhibit growth. On the other, they face an international trading environment that is becoming more hostile to liberal trade relations and is likely to increase the costs of local operations as well as international trade and transactions.

CEOs and Boards are aware of these issues, and emerging market strength and changes in business tariffs, taxes, labour and migration regulations are all top of mind for them[5]. However, they seem less focused on their own role and the considerable influence that they could wield in combatting these issues.

So how should those companies committed to operating in Africa now respond? If the strategy is to maximise near term profit and quarterly returns, then batten down the hatches and wait for conditions to improve. But if the intention is to de-risk growth, gain market share and build sustainable long-term value, then investing in local capability is the key and that will demand a much more intelligent combination of education provision and technology.

In terms of education, accepted wisdom agrees that sound primary and secondary education is critical, and that tertiary education augmented by solid on-the-job training is then the springboard to economic engagement and inclusion. The on-going emergence of well-meaning education initiatives across Africa; the growing availability of global virtual learning platforms for traditional university courses; and a continued focus on new schools and universities across the region by global non-state actors all testify to this accepted wisdom.

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[1] Renaissance Capital. *No Take-Off without Education,* October 2017.

[2] The World Bank Group. World Development Report 2018, Learning to Realize Education's Promise.

[3] The Economist, Sept 13th 2018. '*The Economist at 175; Reinventing Liberalism for the 21st Century'*

[4] Niall Ferguson and Fareed Zakaria. *The End of the Liberal Order?*

[5] Mercer. Global Talent Trends, 2018 Study.

But to pursue this strategy as a solution to the approaching educational challenge may be to misunderstand both how the youth of Africa best learn, as well as the social and economic reality of their lives. African youth are already experiencing a profound learning deficit relative to their international peers [6]. With the accelerating rate of change and disruption in the global economy, and with an accelerated pace of learning in other regions, this learning deficit will be further amplified over time.

Could this mean that a traditional approach to improved education in Africa may itself ensure African talent remains outside the mainstream and unable to fulfil its full potential in either local or world economies…! Could it be that the earnest pursuit of better education for African youth may itself exacerbate the degree to which they remain *uneducated relative to their global peers*? If so, might the emerging threat be that as the 4th Industrial Revolution becomes the norm and the pace of learning accelerates for young Europeans, Americans and Asians, that young Africans are once more "*standing at the touchlines to witness a game that they should be playing*"[7]?

The scale of this potential trap is formidable and must not to be underestimated. Yet, the opportunity is here, not to continue to stifle the potential of the people of Africa, but to unleash it. The question is, how can this best be done, quickly, effectively, at the right costs, and in such a way that both business and society prosper.

This paper explores some of the options that may help resolve this paradox, with an intention both to help inform policy and also stimulate ideas for learning initiatives in both corporate and non-state actors.

We invite all stakeholders invested in education in Africa to consider, utilise or further develop the ideas presented here and engage with us to make a difference in the region.

[6] *The World Bank Group. Ibid.*

[7] Steve Biko, anti-Apartheid activist, circa 1975.

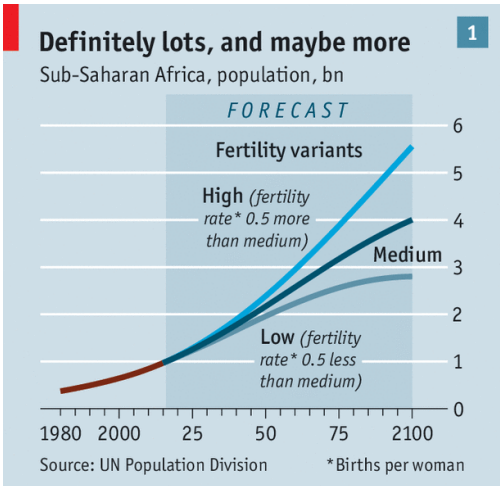
Executive summary

The learning deficit across Africa is daunting and the interplay of factors that inhibit skills and knowledge growth in the region is complex. It includes under-performing education systems; inefficient political and regulatory structures; tired out-of-date curricula; poor teaching methods; and socio-economic environments at home and in the community that can significantly impede learning.

In 1950 sub-Saharan Africa had just 180m people, a third of Europe's population. By 2050 it will have 2.2bn - three times as many as Europe. If UN forecasts are right, sub-Saharan Africa will have 4bn people in 2100[8].

If the learning deficit in Africa continues unchecked, then by 2050 one child in three in Africa will not be able to complete basic secondary education. By then, Korea, Japan, and Taiwan will be delivering higher educational opportunity for 80 percent or more of their school graduates, while the Central African Republic, Democratic Republic of the Congo, and Niger will, at best, struggle to reach 5 percent[9].

On the current trend more than 1.5 billion adults globally will have no education beyond primary school in 2030 - and most of these adults will be Africans. If education fails to keep up with the rapidly changing demand for skills then the skills gap in Africa will widen and economic growth will be stunted, with far-reaching social and political repercussions around the world [10].



The scale of the challenge was recently outlined by the World Economic Forum in a comprehensive analysis into the quality of education delivery and the capacity that African countries have to update their curricula and teaching capability. This research showed that the capacity that African countries have to adapt their education systems to the rapidly changing needs of the future jobs market is a major cause for concern[11].

If we stick with these projections the frightening implication is that Africa ***may never catch up*** with developed market levels of skill, innovation and economic inclusion..!

By way of contrast, in the last two generations both Korea and Vietnam have made extraordinary transformations in their education systems. The growth in the skills and capabilities of their populations has been dramatic and the impact of this on the GDP and the innovative output of these economies is demonstrable. If African countries can engineer similar growth paths then the exciting possibility is that the region absolutely can catch up and the full talent of Africa can step with confidence and dignity onto the world stage.

The challenge in Africa is to work out how to radically accelerate the learning uptake per student, across hugely diverse cultures and base education levels, whilst also offsetting the risk of falling education spend per capita.

In answer to this The World Bank advocate that the route to solving the learning crisis and bridging the skills gap in Africa must be rooted in strengthening the education systems in the region in order to ensure solid foundational skills in all learners[12]. They emphasise the importance of closing the gap between evidence and practice, gathering the right data and then acting on that to create interventions that make a powerful difference to learning outcomes within the current education systems.

However, economic inclusion also requires relevant work place skills. The complicating factor - and the key difference to prior stages in economic development - is that the work place is evolving so fast that a rapid, frequent and meaningful link between evidence gathering and changes to curricula or teaching practice that encourage economic inclusion may not be practical.

[8] The Economist. Africa's high birth rate is keeping the continent poor. Sept 2018.
[9] The International Commission on Financing Global Education Opportunity. The Learning Generation; investing in education for a changing world. 2019.
[10] The Education Commission. Achieving a Learning Generation; The Role of Business. 2018.
[11] World Economic Forum. The Future of Jobs and Skills in Africa. 2017.
[12] The World Bank Group, Ibid

The World Bank also emphasises the importance of using incentives and metrics to build guiding coalitions of diverse actors - governments, private sector, NGOs etc. Again, whilst this an important step, our concern is that it may be both too slow and incorporate too much execution risk to be a reliable strategy to solving this urgent challenge.

So, whilst we agree that better performing education systems are vital, we disagree that that would be sufficient. Our view is that for many countries in Africa there simply isn't the time to walk the path taken by Vietnam and Korea.

In our view what's required is a super charged primary foundation in core skills that feeds into an educational ecosystem that unleashes the full learning potential in child and adult learners. These ecosystems must ensure that students '*learn how to learn'*, are equipped with the ability to accelerate their own skills growth and have the means to chart their own learning journey to up-skill and then re-skill as needed and as opportunities emerge.

'The illiterate of the twenty-first century will not be those who can't read and write, but those who cannot learn, unlearn and relearn.'

Alvin Toffler, author of Future Shock and Third Wave

The time is ripe for such a shift. In many parts of Africa today the growing demand for educated labour is increasing the financial returns to getting an education and opportunities are emerging across the region for individuals and companies to thrive in the 21st Century, including on the world stage.

The Global Challenger concept from BCG has shown how emerging Africa could become a hotbed of competitive companies that could challenge the status quo on the world stage[13]. They point out that the ability of emerging market companies to creatively solve the challenging business hurdles encountered across these markets leads to innovative new models for creating value for customers, and a competitive advantage that developed world corporates find hard to replicate. A step change in the rate of skills growth in Africa would accelerate this trend and we would see many more '*Unicorns'* emerging from Africa[14].

However, the current pace of skills growth is disappointing and the result of this for most employers is a persistent productivity gap across their employee groups and the stubborn resilience of the expat model (cost and more cost).

IDM therefore believes that The Future of Learning in Africa should be based on vertically integrated, shared value learning pathways, each of which should be assembled around a strong business case where there are clear returns for skills development. In our view part of the problem is that learners are still seen as passive recipients of knowledge. The approach that we want to explore in this paper is that vertically integrated learning pathways will strengthen the agency of African learners and empower them to navigate clearer pathways to employment.

As such, African learners - from secondary education level to the work-place - have to be placed in a position where they themselves are increasingly enabled to architect their own learning journey and 'self-define'.

So instead of a reliance on education systems our suggested roadmap includes 3 complimentary principles,

1. **Place the individual at the centre** - place the individual at the centre of the learning journey and de-link '*learning'* from '*schooling'*;

2. **Converge around delivery** - incentivise all actors (and especially the private sector) to assemble vertically integrated learning pathways that link primary education with the workplace;

3. **Master leapfrog** - create a solid foundation and build the accountability in individuals to architect their own learning pathway to success.

As eloquently stated by The World Bank, '*waiting out the learning crisis is not a winning strategy*'. The rate of learning in Africa is terrifyingly slow and there are clear business, moral and social imperatives for taking action. The time to act is now.

[13] BCG; 2018 BCG Global Challengers – Digital Leapfrogs, page 9. African Global Challengers include MTN, Aspen Pharmaceutical, Dangote Cement, Discovery, Elsewedy Electric, OCP Group, Safaricom and Sasol.
[14] BCG, ibid.

Place the individual at the centre

How can we develop a versatile learning approach that places the individual at the centre of the solution and that allows us to accelerate the rate of learning in Africa?

Learning is about changing, responding, growing and integrating our experiences in terms of how we show up in the world and seek to influence it. It is a process that involves making sense of what we see and translating that into worldviews that best serve us and that best enable us to navigate and prosper in our world.

Learning can only occur when we start with where the learner is at, guide them to a new perspective, and support them in integrating new knowledge and skills with their current knowledge base. If that process is disconnected from the learner in terms of individual needs, context, current skills levels, meaning or pace, then the learning process is compromised, and the learner begins to fall behind. This has epitomised the experience of most Africans going through formal, Eurocentric and out-dated education systems that fail to take into account the daily realities of learners on the continent.

The prevailing educational paradigm - where teachers deliver classes of standardized content with little space to adjust to the learning needs of students - has now dominated education delivery for several centuries. This system is based on an 19th Century worldview rooted in European values and aligned to the needs of the industrial age. But societies and economies have rapidly evolved from the 1st Industrial Revolution of mass production through to the 4th Industrial Revolution (4IR) of mass customization[15]. The prevailing learning model was designed to equip young people for a world that no longer exists, it has been outdated for decades. It should therefore come as little surprise that this model has failed the vast majority of Africans in terms of their access to economic opportunities and their ability to thrive and prosper. Today *'large-scale change is being asked of education systems the world over as we are forced to navigate the complexity of our 21st century landscape'*[16].

"The secret message communicated to most young people today by the society around them is that they are not needed, that the society will run itself quite nicely until they - at some distant point in the future - will take over the reins. Yet the fact is that the society is not running itself nicely... because the rest of us need all the energy, brains, imagination and talent that young people can bring to bear down on our difficulties. For society to attempt to solve its desperate problems without the full participation of even very young people is imbecile."

Alvin Toffler, author of Future Shock and Third Wave

Three factors need to be in place in order to put the individual at the centre of their own learning journey. These are, the ability to mitigate the social and economic stumbling blocks that inhibit learning; the ability to better utilise the natural strengths of African learners and develop these as advantages and differentiators; and the ability to deploy versatile principles that can be applied and/or adapted to local contexts, such that the individual is at the centre of a powerful set of new learning experiences across the region.

ALLEVIATE THE STUMBLING BLOCKS THAT INHIBIT LEARNING

Beyond the education system itself the learning challenges experienced by many young Africans are complex. Our interviewees described a range of challenges rooted in linguistic, cultural and historical contexts that need to be

[15] The Education World Forum. Combining High-Tech and High-Touch to Personalize Learning for Every Child, Jan 2018; "*In addition to digital technologies, artificial intelligence (AI) technologies are now creating disruptive change in markets for products and services by calculating optimal solutions for everyone in the digital space, combining big data and cloud computing, and providing them cheaply in the physical space with 3D printers or digital devices. This approach is being applied to address some of the world's most intractable problems, such as the preservation of natural capital. The Global Forest Watch, for example, is using billions of satellite data points and cloud computing to monitor and manage forests around the world, call out unsustainable activities, defend the land and resources, and fight climate change*"

[16] The Education World Forum, ibid.

addressed to fully transform the learner experience in Africa (see Appendix A for an outline of the IDM research method).

Whilst not exhaustive, some of the key challenges highlighted include;

Building a sense of self-worth: One of our interviewees highlighted that the quality of self-belief may be particularly fragile for many African learners. As described in detail by Carol Dweck[17], a growth mindset is essential to a healthy intrinsic motivation and is central to how individuals experiment, fail and learn. Yet the opposite - a fixed mindset - can be rapidly and deeply instilled in any learner through exposure to judgement based on perceived fixed traits or qualities. When the experience of young people instils fixed beliefs regarding their IQ, race, status in society or the opportunities that they are able to shape for themselves, then their self-esteem and drive to learn can become very fragile. Furthermore, the societal and cultural comparators that learners experience via social media often act to further undermine a sense of self (an issue that is also being increasingly discussed in advanced economies). Careful consideration needs to be given to how to prevent African learners from developing the impression that they and their cultures are somehow deficient compared with what they are exposed to online - the perception of '*West is best*'.

Taking account of social and economic realities: A deep understanding of the significant socio-economic challenges that inhibit effective learning in African is key to improving the quality of learning delivery. Access to clean water, sufficient nutrition and a safe environment can often trap people in survival mode and prevent leaning from occurring. Similarly, social norms such as the role children may play in fetching water for the family or differences in the perceived importance of education between the genders, may also inhibit learning. European education practices are not typically structured around these daily realities in life. This may further exacerbate the learning deficit, especially for the poorest. Additionally, the large rural contingent of African learners means that access to schools and learning institutions can be either prohibitively expensive and/or logistically difficult, which in turn contributes to high drop-out rates early in life.

Flipping differences in language and culture into strengths: Lessons and key concepts are often learnt in a second or third language in schools in Africa. The sense of pride that learners from the North often experience when learning via their local medium; the confidence they gain from constructing meaning about culturally relevant examples and comparators; the sense of self-worth they gain from a sequence of educational achievements; and the sense of dignity they experience in stepping into a welcoming workplace of their own culture are all a far cry for the experience of the majority of African learners. Yet with the tremendous diversity of the region the opportunity is there to utilise cultural difference to deepen Cultural Intelligence (CQ). Drawing on culturally diversity could potentially deepen a student's ability to make unexpected connections and construct different meanings. It could allow a learner to deepen their ability to appreciate and work alongside others from diverse backgrounds without imposing judgement and without having to sacrifice their own authenticity as they learn Western content and theories[18].

Overcoming mental health issues: Several interviewees spoke about the rise of mental health challenges, especially anxiety and depression. There is a huge need to manage both the cognitive and the psycho-social aspects of learning in the region. In addition, many young people in the region have experienced trauma. A fact that is widely understood and a full description of which is beyond the scope of this paper. A number of interviewees pointed out that trauma and the social-psychological conditioning incurred has to be dealt with in the learning environment in order for effective learning to happen.

Mitigating '*learned helplessness*': Learned helplessness as described by Christopher Peterson[19] occurs when individuals have been conditioned to expect pain, suffering, or discomfort without a way to escape it. At a societal level the case of South Africa is pertinent. When entire sections of society come to understand that no matter what they do they cannot significantly alter their lived reality, then learned helplessness becomes pervasive across communities. But the condition is not simply a result of political regimes. The social and economic reality of the lives of many Africans has led to learned helplessness at scale, as witnessed in the levels of depression, low self-esteem and the cultures of dependency that can result[20]. One interviewee pointed out that when the aspirations of learners become detached from educational outcomes - aspirations to do with fame or becoming a DJ or a pop star - then issues of self-esteem and learned helplessness are likely to be at play (a trend also seen in developed countries - witness the growth of reality TV). In terms of achieving educational outcomes learned helplessness is a vicious cycle. Those who feel they are unable

[17] Carol Dweck. Mindset, Changing the way you think to fulfil your potential. 2012.
[18] Vonai Chirasha. A Theoretical Perspective of Cultural Intelligence for African Organizations in a Global Market: Leveling the Terrain for Firm Performance. Frontiers in Cognitive Psychology. Vol. 2, No. 3, 2017.
[19] Christopher Peterson. Learned Helplessness: A Theory for the Age of Personal Control. 1995.
[20] H.J. Nenty, B. Moeti and K. Kgosidialwa. Motivation, gender-typing, learned helplessness and performance in 2015 JSCE mathematics by JC students in Gaborone. Gender & Behaviour, Vol 15, 2017.

to succeed in learning are unlikely to put much effort into it; which leads to even less success; leading to even less motivation and effort; a self-perpetuating cycle that exacerbates a deep sense of lack of agency.

Isolation versus exposure: Due to the economic and political realities faced on the continent, many African learners lack exposure to the experiences, resources and information that would broaden their world-views and feed their critical and creative thinking. This can act to further alienate learners from the curriculum and learning experience and inhibit their entry the workforce.

Quite apart from the effectiveness of the education system itself, the stumbling blocks above can have a huge impact on the day-to-day learning experience of students. To counteract these challenges and to create the environment that supports the person to learn, a deep and empathetic understanding of the individual learner has to be at the very heart of the learning process.

HARNESSING NATURAL STRENGTHS TO ACCELERATE LEARNING

As a counterpoint to the stumbling blocks above, placing the African learner at the centre of the learning challenge may mean that we are placing them at the heart of the solution to skills needed in the future global workplace.

The irony is that the myriad of challenges that face learners in Africa - and that have traditionally held them back from full and successful participation in the world economy - may themselves have the potential to provide young Africans with exactly the types of skills and competencies that will be in demand as we enter the 4th IR.

Our interviewees described several opportunities rooted in the African context that could be leveraged to help unlock the learning experience. Again, whilst not exhaustive these included;

Resourcefulness: The pace of change in the global economy will demand the ability to re-skill ever more rapidly. When students come from under-resourced and socio-economically challenged environments, then they become naturally resourceful and practiced at solving problems and developing solutions '*on fumes*'[21]. The learning process may therefore present opportunities to use the natural springs of resourcefulness to super-charge creativity, problem solving, risk evaluation and critical thinking around practical challenges.

Desire & commitment: One of our interviewees who ran recruitment processes in East African markets noted that East African candidates compared far more favourably than candidates from developed markets. Candidates from developed countries are seen as '*having too much choice*' and so don't commit, or don't commit fully. Individuals from East African backgrounds arrived for interviews better prepared, better informed and hungry for the opportunity. Compared to young adults from developed markets, nothing was taken for granted. When opportunities emerged, they are seized with both hands. In the words of another of our interviewees;

"I see a commitment to making personal sacrifices. There's a need to stand up for yourself and do what's needed in order to progress. A personal commitment to one's own learning in terms of how you become relevant."

[21] One of our interviewees observed "What I've seen in Nigeria and elsewhere is that people have very creative ways of getting things done and they do it on fumes. So one of the principles is that we have to work with what works on the ground. I saw a tech hub in Nairobi developing coders on 1% of the resources that you might expect to see in Europe or South Africa."

Resilience: The ability to not only survive but thrive through adversity is central to the experience of many successful Africans. When challenges are encountered (and there are plenty on offer) they are embraced and used as opportunities to learn. The ability to meet adversity, persevere and flip it into an opportunity is a critical skill, not only for young Africans, but for anyone entering the workplace in the 21st Century.

Sense of service: Many of our respondents described a drive around community support and a sense of feeling responsible to give back. These same respondents described this as *'the black tax'*, the obligation to help educate or support others in one's wider family or community. To quote another of our interviewees, *"The need to lift others as you rise is sometimes lost in the journey. But people do feel this at an inclusive level. If you were a child of 6 and made it good in your community, there is a greater sense of responsibility to give back. So, this sense of responsibility is a potential lever to pull, it's a muscle that could be strengthened and utilised in the workplace."* This is a feature of a wide diversity of African societies. In Southern Africa the strong sense of obligation to community is described as 'Ubuntu'. In terms of thinking about the future workplace could it perhaps be re-framed as 'a *sense of service and responsibility towards colleagues*. If developed and leveraged through education could this deep and authentic duty of care that African colleagues and leaders feel for each other become a differentiator when set against their peers from Europe, America or Asia?

THE ADVANTAGE OF BEING DISADVANTAGED

To recap, there are challenges to alleviate in order to accelerate learning, but there also strengths that can become advantages. So, what does this mean and where might the opportunities lie?

Well, between now and 2030 approx. 14% of the global workforce (375 million workers - including many mid-career and middle-aged workers in advanced economies) are expected to need to switch occupational categories as AI, automation and digitisation disrupt established industries.

When US and European companies of greater-than $100m annual revenue were surveyed in regard to this upcoming disruption, more than 76% of respondents stated that *"addressing potential skills gaps related to automation & digitization"* within their workforces is at least a *"top-ten priority."* However, for companies ex-US and Europe this figure drops to 66%[22].

If workers in advanced economies are having to up-skill and transition roles in those sorts of numbers, then young Africans - more resilient in the face of adversity; more averse at seizing new opportunities; practiced at achieving results with few resources; and with lower wage expectations - may find themselves better able to compete than they may have expected...!

Africa has rich opportunities for the development of the very skills needed in the future. The irony that we alluded to earlier in this section is - in our opinion - at the very heart of The Future of Learning in Africa. It has been most eloquently explored by Malcolm Gladwell in his book David & Goliath[23] in which the author shows how perceived disadvantages become the fuel for extraordinary achievement. To echo Gladwell, we would frame this important principle as *'the advantage of being disadvantaged*' and see it as a very powerful principle to bring into education across the region;

'the advantage of being disadvantaged'

To the stumbling blocks and potential advantages outlined above the reader may well respond ***'OK, but what does this mean for learning in the region?'***.

Well, our position is that not only African educators, but that any actor - corporates, NGOs, entrepreneurs, individuals - engaging with Africa and with African learners (including adult and mid-career learners) must make an important choice.

[22] McKinsey Global Institute: Re-training & re-skilling workers in the age of automation. Jan 2018.
[23] Malcolm Gladwell. David & Goliath. Oct 2013.

1. Either continue to follow their current educational trajectory and emulate disappointing learning pathways that we described earlier and that have yet to release the full potential of their students. A route we would ascribe as low risk / low return.
2. Or re-focus on how the learning context offers opportunities to develop the very skills, capabilities and attitudes that will be asked for in the workplace of the future. A route that points the way to higher levels of growth and productivity and that we would ascribe as low risk / high return.

Evidently, if you're interested in sustainable communities and businesses then there's only one option.

SHAPING NEW PRINCIPLES FOR THE FUTURE OF LEARNING IN AFRICA.

Pedagogy is traditionally understood as the theory and methods of teaching and imparting knowledge to children. Whilst much of pedagogy has tended to re-enforce the primacy of the teacher, more recent thinking has placed an increasing emphasis on the agency of the learner. However, across Africa the norm is for the teacher to be in the traditional role of the imparter of knowledge and the student as the recipient of knowledge - a dynamic that in the 4IR is well beyond its sell-by date.

Our view is that the agency of learners in Africa (both children and young adults) should be rapidly strengthened throughout their learning journey and that the dynamic curation of personalised learning experiences should become the norm for all learners across the region.

What is needed therefore is a more holistic approach to learning in which agency is both assumed in the learner at an early stage and then steadily developed as they progress over time. In this frame any actor fulfilling a teaching role (teacher, parent, mentor, employer, peer - whether acting digitally, virtually or face-2-face) aims to facilitate and curate a powerful and transformative learning experience.

Whilst many readers familiar with the scale of the skills and knowledge gap in African students may agree with us in principle, they are likely to dismiss our suggestion as simply impractical. They will rightly point out that we are blending pedagogy with andragogy (the theory and practice of learning in adults) and will cite the urgent need to build core literacy and numeracy, along with the numerous barriers to realising such an aspiration. Furthermore - and as has been described in detail in the World Development Report 2018 - the current teacher echelon in Africa simply does not have the reach and depth of skill to endow an entire generation of young learners with the agency necessary to enable such a shift. Instead, many would argue (as does the World Bank) that the emphasis must instead be placed on building the skills and the capabilities of that same teacher echelon, in order to enable them to teach more effectively within current education systems.

IDM doesn't disagree that building teacher capability is vital. But in itself it simply won't be sufficient. We need a learning experience that is able to drive a significant uptick in learning outcomes, at speed, within the social and cultural context of the learner, and in such a way that they are effectively prepared for an economically active adulthood. However, as far as education in the region is concerned, one size does not fit all, *"there are no global solutions in education"*[24].

Therefore, based on our research we offer 10 principles that we see as central to accelerating a personalised learner experience and that could be blended in a wide diversity of ways depending on the context.

These 10 principles are not offered as an alternative to the established pedagogical focus on the teacher / student interaction. Rather we seek to build on established methods and offer a set of variables that can be combined in creative ways to meet the needs of learners.

We ask all interested stakeholders to consider these principles and either utilise or further develop and adapt them as appropriate.

They are as follows;

1. **High calibre teaching interactions** - The job of teachers should be to instil a desire to learn, grow curiosity and make learning applicable and desired. Tried and tested pedagogies describe the best learning as a process of joint productive activity (JPA) between teacher and student and as rooted in rich dialogue and the sharing and

[24] The World Bank Group. Ibid.

questioning of ideas and experience. To accelerate learning in Africa the skills required of teachers are a powerful blend of transformative facilitator / counsellor / mentor / coach. There is an urgent need to upskill teachers across the region, move beyond the recitational instructive techniques and reinstate the autonomy and creativity in how they build early responsibility and bolster confidence and self-worth in their students.

2. **High touch / high tech** - Artificial Intelligence and adaptive learning algorithms adapt content to the students learning needs, delivering learning in easy-to-digest micro-learning packets and mitigating the risk of a mismatch between the classroom instruction and the educational level of the student. These high-tech platforms provide a cost-effective way of learning at the right pace and level for students in resource constrained environments. They free up the teacher to focus on high-touch interventions and highlight a potential route that may enable low-income countries to leapfrog some of the constraints in the delivery of education.

3. **Families & community** - one of our respondents highlighted that "*the one institution that has been badly neglected in the education space in Africa is 'the family'*". The family has been largely overlooked and is being failed by corporates and by educators. Many economies in Africa encourage family break up with distant work opportunities demanding migrant labour. Going forward decisions regarding investment and change in education systems, not to mention recruitment decisions in corporates, should be made with reference to supporting and nurturing families.

4. **A deep appreciation of context** - the acceleration of learning requires that the teaching process is locally contextualised and utilises and builds on the learner's own fund of skills and practical experience and knowledge as a platform for further learning. When done well this process fosters pride and confidence and leads to better outcomes. However, across much of Africa, the teaching process does not adequately adjust to account for nuances of language; local community or family experience; local subject matter; or the domestic imperatives for students. Africans need to develop a respect toward, and love of, what they have to offer the world. Failure to do this will further restrict the development of the agency, initiative and accountability that many organisations report to be lacking in the African workforce.

5. **Evidence based** - regular and accurate data is needed to target the important variables and interactions that determine the quality of learning within each social context. For example, the quality of the teacher-student interaction; the nutritional regime of the student group; the number of hours access a student may have to an internet learning platform; the quality of the peer-2-peer interactions. With digital and on-line tools becoming increasingly available there is an opportunity to ramp up on the frequency and accuracy of the insights that better measurement can offer.

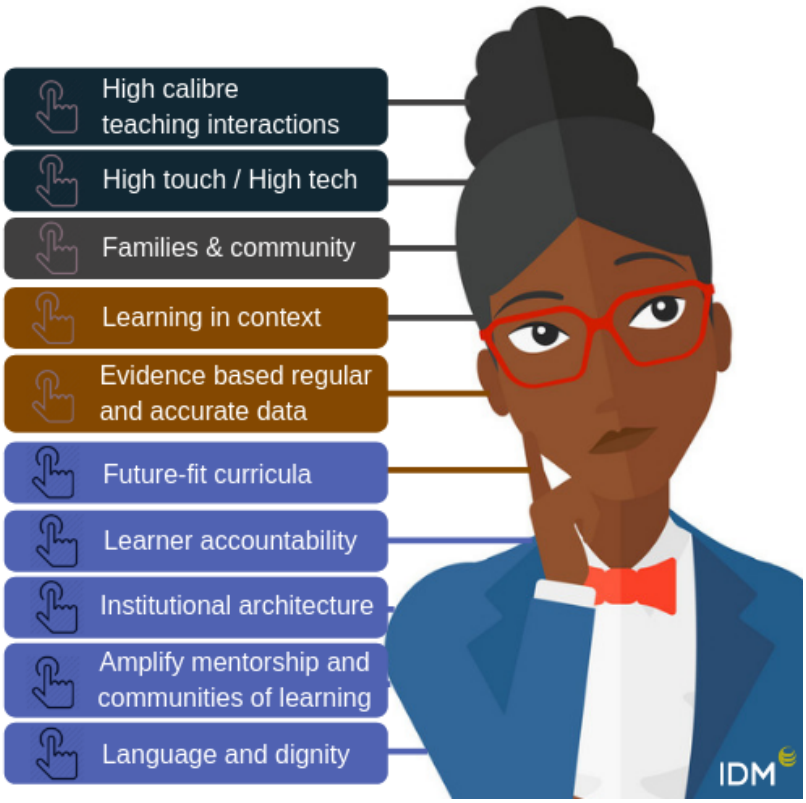
6. **Future-fit curricula** - in terms of those components of the learning experience that give parents, students and young adult learners the greatest confidence in the economic returns to education, a future fit curriculum is perhaps the most important. The right content, skills and qualifications can open the way to economic inclusion. However, whilst there are encouraging examples of curricula being updated across the region a more extensive modernisation of curricula is needed in order to fully align them to the skills and knowledge necessary in the 4IR.

7. **Learner accountability** - the hunger that many young people in African have for learning has been eloquently described by a number of our interviewees. But across the region the picture is patchy. Some individuals or student groups will seize every opportunity and tirelessly pursue education as the best way to improve their circumstances. In other communities learned helplessness or (worse) a victim mentality may prevail and strip individuals of the agency that they need to progress. All stakeholders should act to unleash agency in every learner and at every

opportunity. Building a clear sense of responsibility and a growth mindset is critical to developing in each individual the meta-skill of learning how to learn.

8. **Institutional architecture** - accelerating learning at scale in Africa will demand an effective institutional architecture across public, private and 3rd sector actors. The components of this for national governments have been described in detail by The World Bank[25]. The elements include professionalising school governance and management; building teacher skills; ensuring effective content development and distribution; regular data capture; effective measurement of learning outcomes; and aligning actors around agreed outcomes. These principles should be picked up and applied by every stakeholder operating in skills development in the region.

9. **Amplify mentorship and communities of learning** - Mentoring offers a safe space for personalised support, trouble shooting and building of new skills and strategies to use at work or in life. A successful mentor relationship is one where the authority of the mentor does not inhibit the learning process, but rather where the experience and knowledge of the mentor is shared with a curious recipient in a self-development path-way that accelerates the learning process. Mentors can be highly effective at using instructional conversation methods to rapidly build skills and capabilities in others. Many developed markets have seen the traditional sources of mentoring relationships deteriorate as communities' fragment. However, the rich community life of much of Africa may offer mentoring opportunities in relationships with teachers, parents, siblings, peers and many authority figures in the community. The roles that they play could be hugely significant.



10. **Language and dignity** - One of the key barriers to learning in Africa, and one that remains a challenge for many organisations operating on the continent, is that of language. Many resources and opportunities across the globe are available only to English speakers. However, many learners in the region face the challenge of learning in their mother tongue until a certain age and then are required to switch to English, French or Portuguese for the reminder of their schooling. This exacerbates gaps in understanding which have nothing to do with ability or motivation but are simply due to a lack of proficiency in the language of instruction. The emotional impact on learners of being required to undertake learning in a language and often a culture that is not their own - and indeed which may have strong connotations of colonisation and oppression - can be immense. Inherent in the experience is the perception that their own language and culture is somehow deficient or lacking and this can then play out in issues of self-esteem and self-worth.

As powerfully described by Nobel Peace Prize Winner Wangari Maathai *'…everyone at St Cecilia's had spoken only Kikyuy until (we arrived at school). But the system worked in promoting English. Even when we went home or met children from school in the village, we tended to speak English. The use of the monitor continues even today in Kenyan schools to ensure that the students use only English. Now, as then, this contributes to the trivialization of anything African and lays the foundation for a deep sense of self-doubt and an inferiority complex.'*[26]

No more eloquent an author could have described this critical point, that language is an absolutely essential consideration to the pace and impact of learning in Africa.

[25] The World Bank. Ibid.
[26] Wangari Maathai. 'Unbowed, One Woman's Story'. 2007

Our view is that by blending the 10 principles outlined above it would be possible to curate a wide diversity of powerful new learning experiences that hold the needs of the individual learner at their heart and that are both robust and adaptable to the local context.

In order to achieve this, we invite all interested stakeholders to build on the suggestions above in order to develop new approaches that both strengthen the teacher/student interaction and reach beyond it; that empower the learner; that emphasise the importance of learning how to learn; that develop a more holistic view of the learning environment; and that are rooted in the principle of empathy for the learner.

Converge round delivery

Can we deliver learning within an ecosystem that offsets the social and economic factors that are antagonistic to effective learning?

"Education is the most powerful weapon we can use to change the world."

Nelson Mandela, 2003

As discussed in the previous section, effective learning has to place the individual learner at the centre of the learning experience and take account of their social and economic reality. But more than this - and especially from the point of view of African parents - the return on education has to be clear.

African parents are well known for placing a high premium on education. However, their best intentions are often undermined by the daily realities of life - the need to generate an income; seek security in areas of social unrest; or access clean water. These very practical cost/benefit considerations can derail even the most committed parent.

The World Bank notes that the ultimate barrier to learning is no-schooling at all and suggests that the solution to escaping the '*low-learning trap*' is to strengthen struggling education systems[27]. They cite the remarkable progress of countries such as Korea and Vietnam, both of which upgraded their education systems and transitioned within a few generations from war-damaged societies with partial enrolment and low literacy rates to full enrolment and student performance equivalent to that of advanced developed markets. They therefore advocate that the best route to accelerating learning outcomes is to rapidly strengthen education systems.

We don't disagree that properly functioning education systems are essential cornerstones for bridging the skills gap in Africa, but we do disagree that that alone would be sufficient. Our view is that a strategy that places primary emphasis on strengthening education systems has two shortcomings. Firstly, it does not take full account of the social and economic context within which learning happens. Secondly it will ultimately prove too slow because the scale of the challenge in upgrading entire education systems is simply too large to do effectively in the time available[28].

The rate of learning for Millennials and Gen Z is accelerating. The nature of jobs and work is changing and will change ever more rapidly going forward. The risk that the skills gap in Africa will widen rather than narrow is therefore extremely pressing.

From our research what was notable is that many of the individuals that we spoke to in the region gained their skills and education fastest by going around the education system, not through it..! So instead of a sole reliance on education systems we see three other factors as equally critical. Firstly, is the subject matter itself, **'what'** it is that learners are actually learning. The second is the '**how'**, how should learning content be distributed and how could we fully leverage the habits and behaviours of how Millennials and Gen Z actually learn in order to accelerate their learning. The third addresses a much under-appreciated component of every informal teaching process and is a principle that can powerfully augment both the '*what'* and the '*how'* - '**exposure',** especially to global content and influential mentors.

WHAT

In terms of the **'what'**, school curricula across Africa are dangerously outdated. In The Future of Jobs Report, 2018 The World Economic Forum (WEF) points out that the great majority of employers expect that the skills needed to perform most jobs will change significantly by 2022.

The WEF highlights the tension that companies are seeing between two competing imperatives. On the one hand, 59% of the global businesses surveyed expect to change their production and distribution systems, including the nature of their value chains and the geographical spread of their operations. Within this study the availability of skilled talent is cited as a key factor in job location decisions - which is a potential concern for an under-skilled African labour market.

[27] The World Bank Group. ibid

[28] In Somalia for example, even if every single student that completes tertiary education becomes a teacher there will still not be enough teachers to service the needs of Somalia's children.

But on the other hand, 64% of those same companies cite labour costs as their main concern - a possible cause for hope amongst well-priced African talent that job opportunities will emerge - provided they are able to maintain and update their skill sets[29].

In an African context the WEF highlighted that employers in the region already identify inadequately skilled workforce as a major constraint in their businesses. They also note that with the average ICT intensity of jobs rapidly increasing a significant percentage of all work activities in the region are vulnerable to automation in the 4IR. Examples included 46% of jobs in Nigeria, 52% of jobs in Kenya and 44% of jobs in Ethiopia. The ability of individual countries to adapt to these changes is cited as a real concern[30].

The World Bank highlights the importance of measuring learning outcomes and acting on the identified shortfalls. We agree that this is a key principle for strengthening any educational system, including the learning systems within companies. However, even the most effective interventions to support under-performing schools and teachers will do little to promote economic inclusion if - by the time students reach the workplace - the nature of the knowledge and skills that have been imparted are out-dated and the skills now needed have shifted so radically that the individual is once more excluded from opportunity.

So, the challenge for learners in Africa is to equip themselves with skills relevant for their context. But even more importantly, the imperative for every individual is to learn how to learn, and to have the skill to re-learn and re-tool, rapidly and repeatedly during their working life.

It's universally understood that foundational maths, literacy and cognitive & socio-emotional skills are the critical and necessary foundation for a well skilled individual. These skills are best established in primary school. As the World Bank described '*Children's early years offer a rare window for societies to make investments in their children with extremely high returns… early gaps in learning and skills trap them in lower developmental trajectories from which it becomes increasingly difficult to escape'*[31]. (This topic is explored on page 27, see Build a Solid Foundation).

However, once beyond primary education there are four components that must be included in every curriculum in order for it to be future-fit. These four topics should all be addressed in a non-siloed interdisciplinary way and will be key to promoting employability and individual performance once in the workforce.

The first is based on IDM's own experience of skills building in Africa. Thereafter 2, 3 and 4 are highlighted by the WEF[32];

1. Foundational skills for navigating the workplace - e.g. Foundational understanding of accounting principles, presentation skills, problem solving and planning, time management, managing a meeting, giving and receiving feedback, managing mentors, managing expectations.
2. Skills for those future jobs that will be enhanced by technology - e.g. Data Analysts, and Scientists, Software and Applications Developers, and Ecommerce and Social Media Specialists.
3. Skills for those future jobs that will require distinctively 'human' skills - e.g. Customer Service Workers, Sales and Marketing, Professionals, Training and Development, People and Culture, and Organizational Development Specialists as well as Innovation Managers.
4. Skills for those future jobs that will embody new specialist roles related to understanding and leveraging the latest emerging technologies - e.g. AI and Machine Learning Specialists, Big Data Specialists, Process Automation Experts, Information Security Analysts, User Experience and Human-Machine Interaction Designers, Robotics Engineers, and Blockchain Specialists.

This implies a radically different curriculum from most of those currently on offer in the region and we urge all public, private and third sector organisations to gear their initiatives to align with these learning imperatives.

HOW

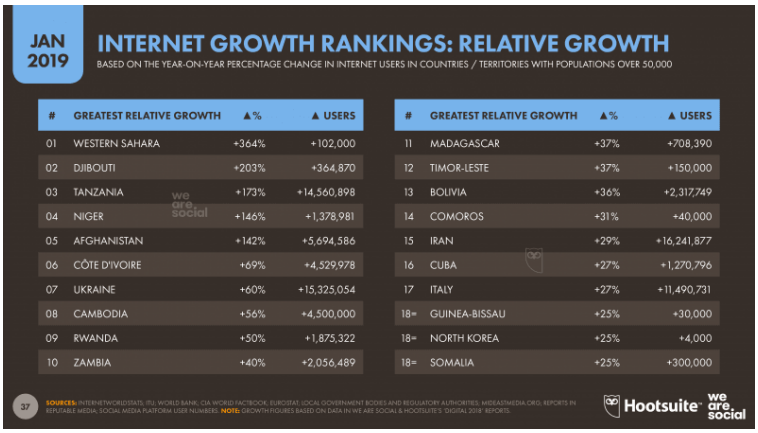
Regarding the '**how'**, recent work by Niall Ferguson has highlighted the impact that the interplay between hierarchies and networks has had on human development [33]. Hierarchy has been the dominant form of human organisation for

[29] World Economic Forum. The Future of Jobs Report, 2018.
[30] World Economic Forum. The Future of Jobs and Skills in Africa. 2017.
[31] The World Bank. Ibid.
[32] World Economic Forum. Ibid
[33] Niall Ferguson. The Square and the Tower. (Penguin Books, 2018)

centuries - governments, businesses, legal institutions, universities, international organisations - the list is endless. But radical change in human relations often happen through networks. The European Enlightenment, The American Revolution and the Civil Rights Movement were all examples of networks in action, and it is precisely a radical change - indeed a revolution - of this type that we need in order to bridge the skills gap in Africa.

However, in the field of education the interplay between hierarchy and network is an exchange that hierarchy has - to all intents and purposes - '*won*'. Education Departments, Education Ministers, Schools, the seniority of teachers and the school grading system itself are all elements in the enduring hierarchical structure of education systems.

And yet, it is not through hierarchies that people best learn (just think about those moments in your own life when you experienced the fastest and most exciting skills growth..! It was most likely not in a school setting…?). Learning is a networked experience. In school learners have access to teachers and peers. But out of school there is a wider peer group, access to family members and mentors, access to social, print and broadcast media, increasing access to the internet (see Hootsuite figures) and exposure to diverse services, businesses and the wider market place.



Learning is most effective when it is viral and distributed through a network. The most cutting edge and most avidly consumed learning is already viral. TEDx and Twitter are reaching ever wider audiences and are becoming regular source material for a huge array of learning interventions[34]. Another example is Well Told Story, a media company that uses a traditional comic, Shujaaz, as a channel for reaching disadvantaged young adults in East Africa. The content in Shujaaz offers engaging and locally relevant story lines that educate readers on key social and economic topics. The comics and their content are widely passed around and are an example of networked learning at scale that is having a significant impact with young adults across Kenya and Tanzania.

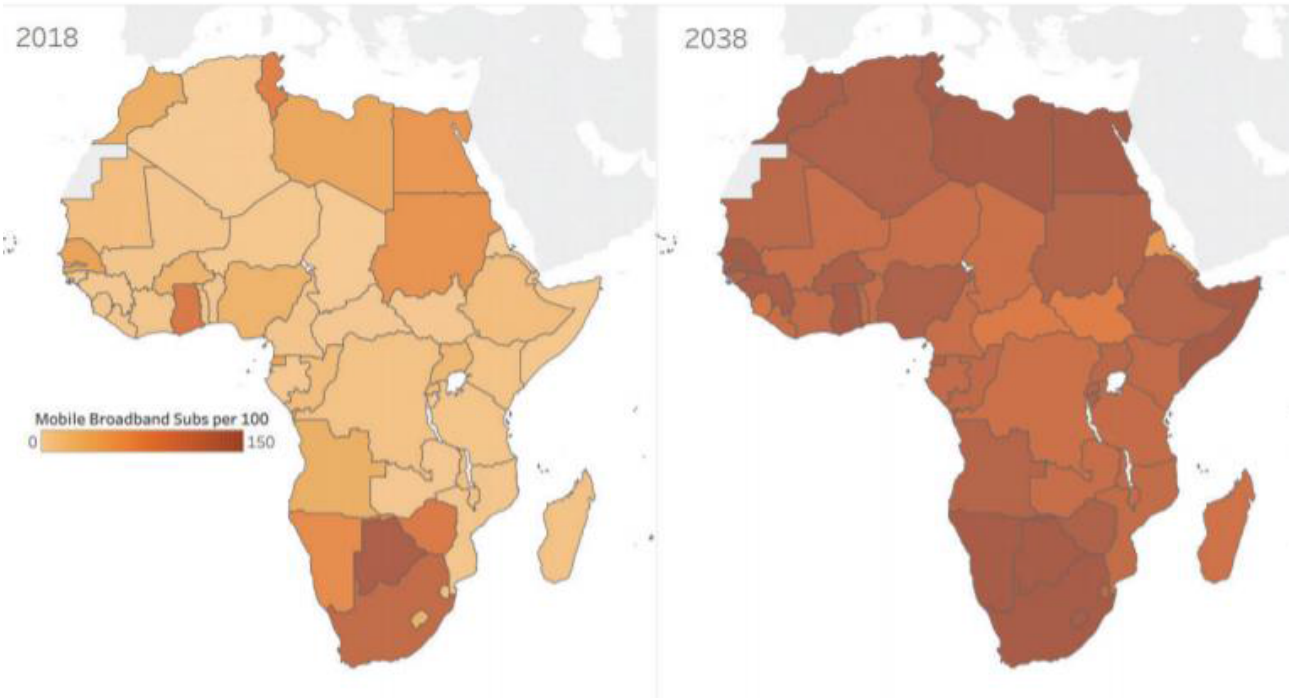
In her well viewed TED Talk Amel Karboul, the former Education Minister of Tunisia, highlights how networks, curricula and exposure are combined in the case of The Media Centre Solution initiative in Amazonas in Brazil. This learning strategy reformed the operating model for post-primary education delivery and extended access to high quality teaching across the huge state of Amazonas[35]. This case showed how technology can give children in remote areas access to '*celebrity*' teachers across multiple subjects and drive improvement in learning outcomes. In this case, technology compliments teachers and amplifies their impact, it does not substitute for teachers.

Whilst The Media Centre Solution utilises virtual learning to broaden the impact of high grade teachers and distribute high quality content, TEDx and Shujaaz both show how social networks and the intrinsic motivation of learners to be entertained are powerful motivators for content distribution. TEDx videos can go viral within hours and Shujaaz readers physically hand on the comic to those in their peer group. But all three examples utilise networks in order to teach.

However, the fastest shift in learning outcomes in a networked environment is likely to come from game-based learning (GBL) fuelled by the rapidly growing rates of mobile broadband and internet penetration in Africa (see figure below). In 2018 the gaming industry analyst firm Metaari highlighted that the global GBL market is expected to reach $17Bn in revenue by 2023. They also expect Africa to have the highest growth rate (60.1% annual growth) in GBL of any region in the 5 years between 2018 - 2023. How GBL can accelerate learning for African learners - especially in those skills

[34] Pearson. Beyond Millennials, The Next Generation of Leaners. August 2018. *(*Page 11) '*Youtube is king, especially among Gen Z, who also use more modern versions of social media - Instagram and Snapchat versus Facebook*; *(Page 13) GenZ is more often using these sites to share pictures, videos or music with others. While Millennials largely stick to using social media to stay connected with their friends.*

[35] Ted@BCG October 2017, Amel Karboul. The global learning crisis - and what to do about it.



necessary for the 4IR - is perhaps **the** critical shift in understanding that is needed of educators and businesses across the region[36].

So, from the point of view of The Future of Learning in Africa, the call to action is to create highly networked new learning pathways. These should both broaden access to mobile and digital learning channels as well as leverage local family and community support networks. They should facilitate a personalised and curated learning experience for the individual whilst maintaining an effective alignment to local education structures and the potential opportunities for future economic inclusion.

In our view these initiatives should be private sector led. Private sector executives - irrespective of region - see themselves as having the closest understanding of the skills needed in business and believe that corporates not governments should take the lead in closing the skills gap[37]. Furthermore, the incentives around private sector involvement in learning can be rapidly adapted to the local context. One example is The Social Mobility Pledge, a cross-party initiative in the UK. This initiative shows how major businesses can be encouraged to build skills and develop employment opportunities for young people from disadvantaged backgrounds. The initiative offers recognition to employers through an accreditation process and has attracted involvement from over 250 companies, including FTSE 100 corporations[38].

There is an important principle emerging here that is key to the acceleration of learning in Africa, the principle is;

'Feed the network, starve the silo'

Every decision regarding learning delivery - irrespective of the actor - should build connections that can be easily utilised by individual learners and should reduce or minimise hierarchical, isolated or siloed learning interactions.

We urge all public, private and third sector actors to adopt this principle as part of their decision making in regard to learning in Africa.

[36] Metaari, Advanced Learning Technology Research. The 2018-2023 Global Games Based Learning Market.
[37] McKinsey Global Institute, ibid.
[38] The Social Mobility Pledge. Socialmobilitypledge.org.

EXPOSURE

Closely allied to both the 'what' and the 'how' of learning in Africa is the important principle of '**exposure'** to global experiences and influential mentors**.** By way of illustration, one of our interviewees highlighted the research done by Rohit Deshpande into the events at the Taj Mahal Palace Hotel in Mumbai on Nov 26th 2008[39]. As now famously known, during the 2 nights and 3 days of this terrible attack the employees of The Taj remained at their posts to help the guests. In one case the telephone operator repeatedly called rooms advising guests on what to do and how to act; in another case a young 23-year-old stepped into the role of leader and shepherded people to safety. Deshpande identified several factors that were important in this, but key was the exposure that new hires had to customer ambassadors and the obsessive customer centric culture that they embodied.

In a second example another interviewee highlighted the sense of urgency and pace visible on the trading floors of many banks across Africa. These are globally networked environments where viral information sharing and exposure to the intensely competitive world of securities traders is an hour to hour experience. This example contrasts sharply with the '*tomorrow's another day'* attitude that pervades employee groups across many businesses in the region. The view shared was that the difference between these two is in large part due to exposure. If you have not been exposed to mentors that role-model a sense of urgency and pace, then how would you develop those behaviours and attitudes?

An additional example of using 'exposure' as a learning principle are the P-TECH colleges initiated by IBM. Growing from one college in 2011 to over 100 across 4 different countries in 2017 these colleges combine elements of high school, college and careers to accelerate STEM learning. IBM worked with educators, policymakers, elected officials and over 500 business partners to help curate a work-ready curriculum. As part of the learning delivery the business partner organisations provide mentoring from their staff as well as exposure to the workplace through site visits and paid internships[40] [41].

Another approach to the challenge of building exposure to mentors may be to identify, super-charge, nurture and then clone a small number of bright stars. Vietnam implemented such a strategy by selecting key individuals who were taken to Silicon Valley and then brought back to act as mentors to up-grade other students through peer-2-peer learning[42]. Notably Vietnam also took a holistic approach to skills building, integrating multiple initiatives at once. It increased its education budget from 7% to 20% of the national budget over 2 decades and also rigorously monitored and made public student and teacher performance. In so doing Vietnam now outperforms many developed markets, including the USA, in terms of PISA results[43].

In advocating how education systems can be strengthened The World Bank places a clear emphasis on making teachers more effective[44]. But learning happens in a social context where skills and understanding are increasingly gained through multiple interactions with a diverse range of agents, not just teachers. IDM would advocate that the emphasis could be re-stated as '*make mentors more effective'* and then adopt a mindset that extends the role of '*mentor'* - and the mentoring skill set - to every teacher, parent, peer, sibling and business and community role model across the ecosystem.

VERTICALLY INTEGRATED SHARED VALUE LEARNING PATHWAYS

So, in light of the 'how' and the 'what', and with reference to the key principle of exposure, we advocate that all actors think of '*learning'* and '*schooling'* as de-coupled. School systems should certainly be rapidly developed to provide more effective education. But in the coming 20 - 40 years the most effective learning for most African students is likely to happen outside of the traditional schooling system.

In support of this, and in recognition of both the tremendous challenge and the practical realities of skills building on the continent, we therefore advocate that all stakeholders should act to assemble vertically integrated learning ecosystems that are rooted in local economic opportunities; that are fully networked; that extend access to diverse mentors; that rapidly disseminates the knowledge and skills most relevant to local businesses; and that enable and

[39] Harvard Business Review. The Ordinary Heroes of The Taj, December 2011.
[40] http://www.ptech.org/about/
[41] Forbes. When Public and Private Sectors Join Forces to Create Opportunity. July 19th 2018.
[42] TED@BCG, ibid.
[43] TED@BCG, ibid.
[44] The World Bank, ibid.

empower African learners to not only up-skill, but then re-skill, at an ever greater pace and in such a way that they experience increasing access to job opportunities.

What would be the elements of a vertically integrated shared-value learning pathway and what international models might we look at to guide us?

At a country level the German model is perhaps the most famous. The dual education system in Germany sees over 50% of German students enter dual vocational and educational training from the age of 16 onwards, choosing from a wide diversity of 326 professional trades and gaining valuable skills and experience as a highly effective route to employment.

As described by Ralf Hermann, head of the German Office for International Cooperation in Vocational Education and Training (GOVET) "*The basic idea is duality. That means integrating school-based learning with work-based practice.*"

As such, the key to the dual education system has been the involvement of the private sector. Companies across Germany contribute alongside government through a diversity of joint funding models. They help set curricula, employ apprentices and ensure that the TVET skills and experience developed meet stringent national standards. The benefits to the companies are numerous and include generating net income from the apprenticeship system, reduced hiring costs, better retention rates and lower reskilling costs[45].

The dual education system in Germany has been credited both for the country's economic stability and for supporting some of the lowest levels of youth unemployment in the EU. As a result, a number of countries have tried to replicate the German experience. Recently the South Korea Prime Minister Park Geun-hye studied and implemented the dual education system as a way of combatting high levels of youth unemployment in South Korea. This is noteworthy given the on-going competitiveness of South Korean businesses and the speed with which South Korea previously climbed the PISA rankings. More recently again Ivanka Trump visited Germany, described the apprenticeship system as a *'trailblazer'* and expressed interest in bringing dual vocational training schemes to the US.

However, the German system is not easily replicated. The dual education system is rooted in centuries of history that has created a comfort and familiarity with apprenticeships and that sees vocational training as equally prestigious as university education.

Our view is that a country-wide change of the sort adopted by South Korea - whilst very desirable - may be impractical and beyond the reach of most African governments to orchestrate, given the scale of the challenge and ever shortening time-lines. So, whilst Germany offers some hugely helpful principles to apply, IDM believes that the experience of the local government in Chicago may offer a more practical counterpoint to the German approach.

In the US the skyrocketing price of higher education (fees for a 4-year college degree now cost between $80,000 - $300,000, against a median household income of $61,000 pa) correlates with the growth in university dropout rates and a stubbornly high 'precariat' of semi-skilled and underemployed Americans[46].

The Chicago example is note-worthy because it shares some common features with the local context in parts of Africa. Budgets are constrained. The African American communities in the most deprived areas of Chicago have experienced decades of exclusion. And local education systems are weak and underperforming.

Initiated by Chicago Mayor Rahm Emanuel in the autumn of 2015, Chicago is leading the way in the US by revamping the antiquated system of community and technical colleges. Traditionally these colleges were the equivalent of Germany's vocational colleges. Emanuel's strategy has been to integrate local employers into curricula design in these

45 Prof. Dr. Dieter Euler. Germany's dual vocational training system: a model for other countries? A study commissioned by the Bertelsmann Stiftung.2013.

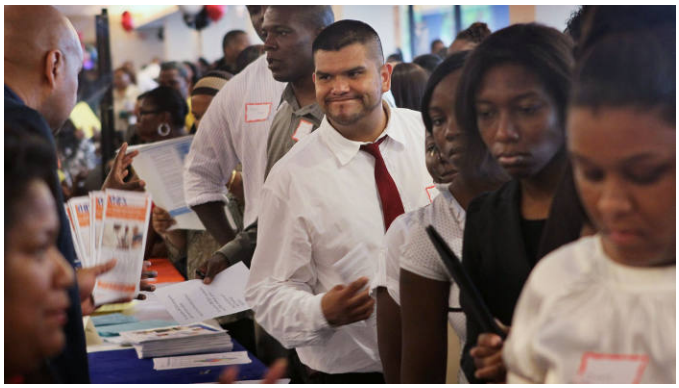
46 The Financial Times. US higher education crisis: lessons from the Chicago schools. Edward Luce. March 17 2019.

colleges in order to drive the development of marketable skills for the job market. One of the outcomes of the approach is that it has dramatically illuminated the tremendous pent-up demand that exists among young disadvantaged Americans for good quality technical education.

Through this approach vocational training in Chicago is made freely available to any high school student that achieves the necessary grades. The results are impressive. Students qualify for a fully-funded Star Scholarship if they achieve a 3.0 grade-point average (i.e. around 55-59%) with completion rates for these 'Star Scholars' at 3 times the national US average.

However, Chicago has not limited the reforms to these 'Star Scholars'. High school students are also able to pick up vocational credits through Chicago's 'dual-credit dual-enrolment' system. This system is being credited with the dramatic rise in Chicago high school completion rates from 51% to 78% over the period 2011 - 2018.

Crucially, the vocational skills that are developed are rooted in local opportunities, with colleges partnering with the businesses that are local to their areas. For example, The Malcolm X College is located near Chicago's medical district and has an emphasis on skills for healthcare, which it delivers in partnership with the next-door Rush Presbyterian Hospital. Malcolm X also recently opened one of America's largest simulated hospitals as an augmented training facility. Similarly, The Richard J Daley college focuses on links with local manufacturing with its training facility including skills in laser machines, robotic simulators and vinyl cutters.



Larger companies are also getting in on the game. Accenture and the Chicago-based insurance company Aon are examples of two companies sponsoring vocational training in students, both paying student tuition and employing the apprentice at the same time. The shift in the perspective of major companies has, in some cases, been very profound. Although Aon was initially sceptical of the strategy Bridget Gainer, a senior executive at Aon, points out "*When we started to look closely we realised we had plenty of jobs that did not actually require a four-year degree. With the automation of HR, a four-year college degree had become a proxy of safety - a way of screening people out. Today I can honestly say I would far prefer the drive of someone who doesn't have a college degree who has shown the drive to be hired by us.*" [47]

But the benefits of the changes in the Chicago example are not limited to local businesses and colleges. They are beginning to extend more broadly across the educational ecosystem. For example, using a principle of '*transferability*' students that successfully gain vocational credits in a community college now find those credits recognised by The University of Illinois and the University of Chicago.

In a wonderful parallel to the conversations that IDM has had with its interviewees in Africa, the Chicago universities are finding that students from tougher backgrounds are more resilient than those from the other end of the spectrum, the children of so-called helicopter parents, whose entire lives seem to be one long - and expensive - university prep session. "*As a society we have forgotten about the trades - we have abandoned technical education,*" says Kevin Browne, vice-provost at the University of Illinois. "*We can measure students' academic grades. But we have no metric for grit.*"[48] IDM would like to think that Vice-Provost Browne would agree with us in our findings in this paper in regard to *'the advantage of being disadvantaged'* (page 11).

The key element in both the Chicago and the German experience is in how employers link with educators. In a broader study on this point The McKinsey Centre for Government found that tertiary level students were most effective at transitioning into jobs when tertiary education providers and employers actively stepped into each other's worlds. Educators supported students attending more placements and internships, whilst employers donated staff as faculty and advised on curricula[49].

So, in terms of developing vertically integrated learning pathways, we advocate strongly that learning should be business-led and that the process of linking businesses and educators should form the backbone of education in the

[47] The FT. Ibid.
[48] The FT. Ibid

[49] McKinsey Centre for Government. Education to Employment: Designing a System that Works. Nov 2012

region. However, neither the German nor the Chicago examples are sufficient, and we do not advocate a direct lift-and-drop. Instead, our view is that the principle and practices of connecting educators and employers should be amplified across all secondary and tertiary learning in Africa. It should be extended beyond a few public sector educators and employers to include all educators (public and private), all employers and all 3rd sector actors. The principle should be applied to stimulate the involvement of stakeholders from both the local and global economies; it should reach down into communities and pre-prep educators; and it should be applied between employers - including employers from different sectors - to promote a diverse range of creative skills building initiatives.

In an encouraging example of this philosophy beginning to work in Africa, Microsoft launched the Africa Development Centre (ADC) in May 2019, spanning both Lagos and Nairobi. This facility aims to recruit 500 of the best engineers in the region by 2023, both to create and globally scale innovative new products and services from Africa, as well as develop world-class African talent.

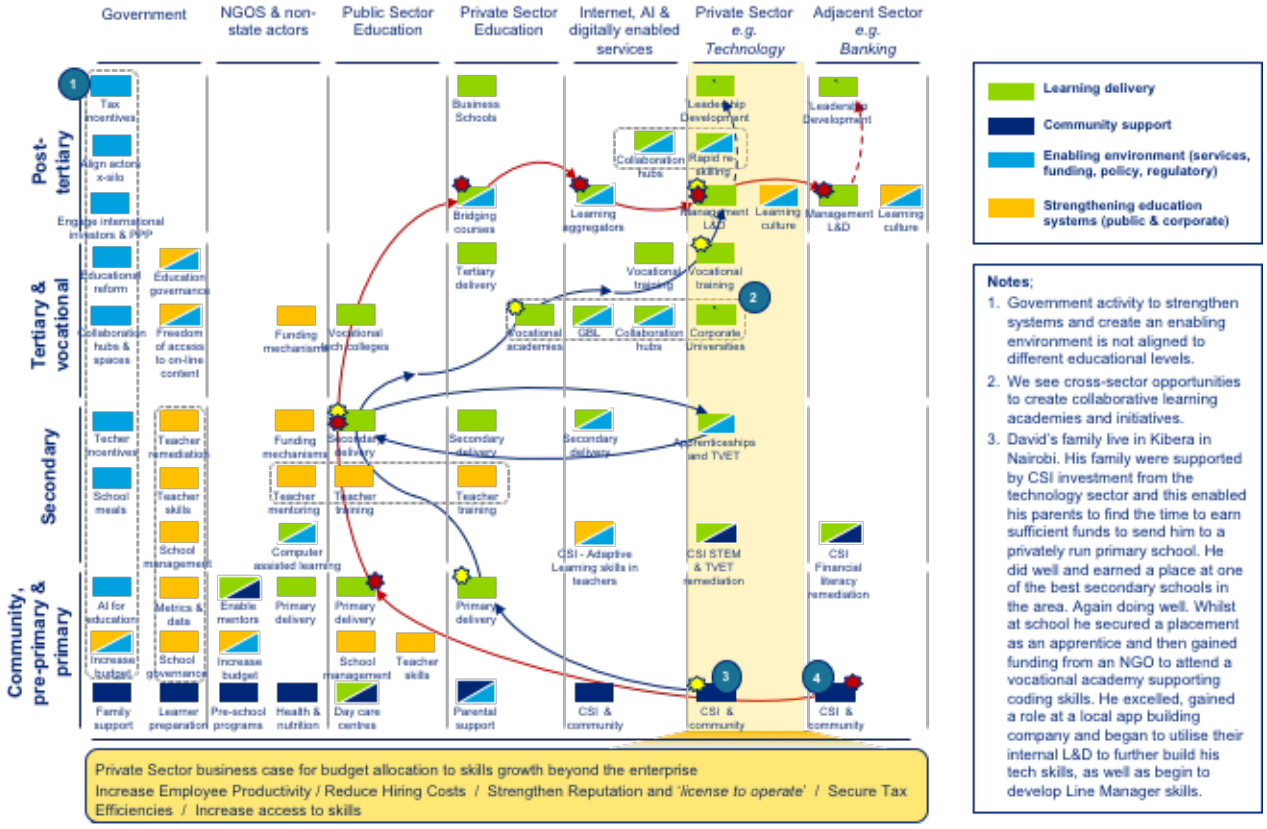
Microsoft describe the links of the ADC as follows, *'to build our talent pipeline, we're also partnering with local universities to create a modern intelligent edge and cloud curriculum, totally unique to Africa. Graduates will have access to the ADC to build a relevant and meaningful career in data science, AI, mixed reality, application development and many more.'*[50]

In an eloquent description of their approach to (what IDM would describe as) their shared-value philosophy, Phil Spencer the executive sponsor of the ADC and executive vice president at Microsoft, describes the ADC as follows, *'The ADC will be unlike any other existing investment on the continent. It will help us better listen to our customers, develop locally and scale for global impact. Beyond that, it's an opportunity to engage further with partners, academia, governments and developers – driving impact in sectors important to the continent, such as FinTech, AgriTech and OffGrid energy'*[51].

[50] https://news.microsoft.com/en-xm/features/furthering-our-investment-in-africa-microsoft-opens-first-africa-development-centre-in-kenya-and-nigeria/.
[51] Microsoft. Ibid

To illustrate the concept of vertically-integrated shared value learning pathways, IDM offers the framework below as an initial high-level model that policy makers and private and 3rd sector actors can develop to align the ingredients of powerful new learning ecosystems in Africa.

Illustrative Example; a vertically integrated shared value learning activity map and pathway – Technology Sector, East Africa



Notes;

1. Government activity to strengthen systems and create an enabling environment is not aligned to different educational levels.
2. We see cross-sector opportunities to create collaborative learning academies and initiatives.
3. David's family live in Kibera in Nairobi. His family were supported by CSI investment from the technology sector and this enabled his parents to find the time to earn sufficient funds to send him to a privately run primary school. He did well and earned a place at one of the best secondary schools in the area. Again doing well. Whilst at school he secured a placement as an apprentice and then gained funding from an NGO to attend a vocational academy supporting coding skills. He excelled, gained a role at a local app building company and began to utilise their internal L&D to further build his tech skills, as well as begin to develop Line Manager skills.

Notes;

4. Lucy's parents also live in Kibera. Her family were supported by CSI investment from M-PESA and this helped them develop Lucy's pre-primary cognitive and EQ skills, so that when she went to primary school she was excellently prepared. She did well and went to a very good local secondary school in the area. She again did very well at school and, rather than go to University, she secured funding for a bridging program that taught workplace skills. She saw the opportunities ahead and rapidly rolled through several on-line programs provided by an aggregator offering access to US qualifications. She used that learning to secure a place on a graduate program at a tech company. She quickly saw that tech was not a field she wanted and within 18 months had transitioned again to Financial Services, where she was identified as a candidate for managerial and leadership development.

As Africa's working age population increases from 370 million in 2010 to 600 million in 2030 - and with between 15 - 20 million young adults joining the workforce every year for the next several decades[52] - encouraging diverse ecosystems of high-quality jobs that include embedded learning pathways able to generate the future skills to match these opportunities will be key to unlocking the continent's demographic dividend.

[52] World Economic Forum. The Future of Jobs and Skills in Africa. 2017.

To help shape these ecosystems IDM offers the following actions for discussion, debate and further development, in order to guide policy and align action across public, private and 3rd sector stakeholders.

SUGGESTED POLICY RECOMMENDATIONS

African governments (including state education) should;

1. Minimize misuse of funds. As has been described in detail by The World Bank, inefficiency of budgetary spend must be brought to a halt.
2. Radically increase education budgets, aiming for 20% of annual budget on education as a minimum benchmark.
3. Increase spend on education data capture and transparency initiatives.
4. Lead in the delivery of pre-primary and primary education.
5. Gear a disproportionate percentage of education budget towards literacy, EQ and STEM skills at primary and secondary level, including the enabling technical infrastructure.
6. Lead a greater coordination and integration between state pre-primary, primary and secondary institutions and private sector technical, vocational and adult learning providers.
7. Set clear policy direction for all stakeholders and align incentivisation for their involvement. For example, radical tax subsidies for tech infrastructure and on-line education providers; tax incentives for private sector involvement in secondary and tertiary education - but only on demonstrable achievement of skills growth and economic inclusion.
8. Allow greater influence of the private sector and international actors on curriculum design.
9. Follow the principle of 'ruthless follow-up', strengthening the oversight, transparency and monitoring of policy implementation.

NGOs and non-state actors should;

10. Step in where government or the private sector fear to tread, creating innovative funding and delivery mechanisms to reach the under-privileged.
11. Fund allocation should be geared towards the development of work-ready STEM skills, including the use of micro-learning platforms.
12. Advise on and guide the development of locally relevant adaptive learning algorithms.

Private Sector should;

13. Be in it for the long term.
14. Create local partnerships with governments, schools, universities and foundations, inserting staff members into teaching faculty and exchanging ideas on the future demand for skills.
15. Take the lead - set curricula, learning objectives and learning standards - for all post-secondary skills building.
16. Radically extend corporate training budgets and invest in local talent.
17. Facilitate apprenticeships, work placements and stretch assignments for secondary students and college students.
18. Gear all CSI initiatives to primary or secondary education.

Mastering leapfrog

How could an individual learner target and accelerate the learning that they need in order to maximise their opportunities?

The BCG analysis of 'Global Challengers' highlights the emergence of world beating companies from emerging market countries, about 8% of which are African companies[53]. BCG notes the statistic that one-third of companies achieving 'unicorn status' (>$1Bn in market value based on private and public investment) are from emerging markets and also notes the trend in emerging market companies steadily taking more of the global market share, particularly in internet software and services.

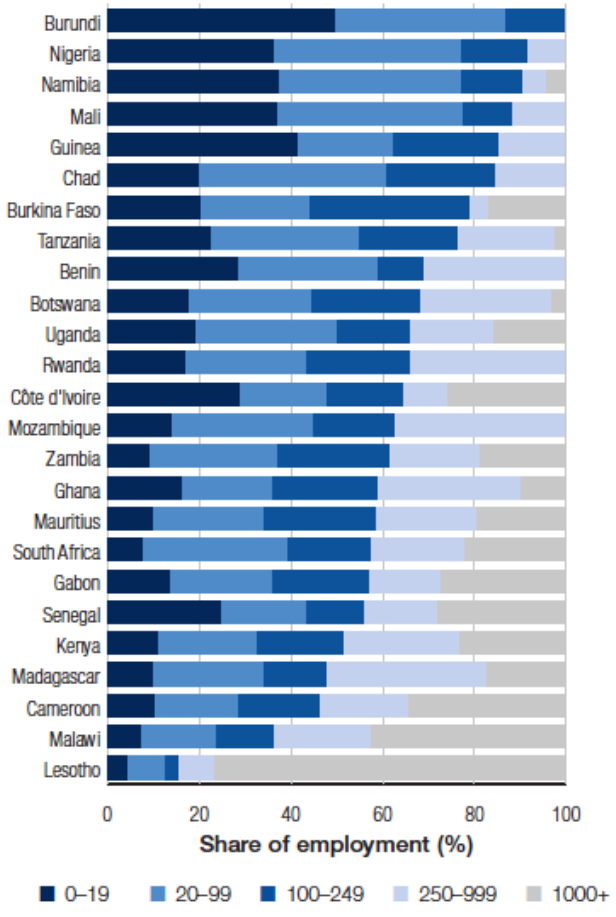
Whilst at the moment these trends are skewed heavily towards unicorns emerging from China, they are never-the-less lead indicators that herald the emergence of potential future African companies that will demand a ready supply of local talent.

In addition, the rate of change in the operating models of these companies is accelerating. In 2018 over 60% of BCGs 'Global Challengers' had significant digital strategies, up from only 17% found by a similar BCG study in 2012. This shift gives a clear indication of the speed at which jobs and the nature of work will be changing going forward.

The opportunity to create innovative and globally competitive companies is certainly here for emerging market entrepreneurs and leaders. Adverse local conditions tend to stimulate innovative solutions to, for example, the disproportionately high capex requirements for set up; the inefficiencies in local IT and transport infrastructure; the extreme diversity of local customer groups; or the skills gaps in local labour pools. Solutions to these issues, once tried and tested, then emerge as innovative new business models that have strong competitive advantage when scaled on the world stage. Both M-PESA and Discovery are examples of African companies that have used local adversity as a catalyst for international innovation and growth.

But is there a parallel to this form of evolution at the level of individual skills? What might an aspiring young African actually experience in terms of adversity that would demand an acceleration in skills growth and provoke new and innovative strategies to employment?

The onset of large-scale workplace disruption and the need to acquire future-fit skills was described in an earlier section (Converge around delivery, page 16). But the urgent need for an individual to be able to master leapfrog is further illustrated by the figure on the right. This shows Africa's employment distribution by firm size with the majority of formal employment in the region in companies of less than 99 employees. These are small firms where employment may be more precarious and where resources to invest in re-skilling are limited. It is also noteworthy that formal job creation in Africa is not keeping up with the growth in the working age population[54]. Together these two trends indicate that individuals joining the workplace in the 2020's and 2030's will experience a reduced number of formal employment opportunities and an increasing emphasis on career agility and entrepreneurial skills.



Source: World Bank Database.

[53] BCG; 2018 BCG Global Challengers – Digital Leapfrogs, page 9. African Global Challengers include MTN, Aspen Pharmaceutical, Dangote Cement, Discovery, Elsewedy Electric, OCP Group, Safaricom and Sasol.
[54] World Economic Forum. Ibid.

So, whilst it's clear that companies can leapfrog their developed market competitors, how could young Africans leapfrog the usual linear learning journey of human development in order to broaden their access to opportunities, whether in local businesses, as entrepreneurs or as players in the gig economy? Would it be possible for African learners to rapidly download new skills and knowledge in a more non-linear way and steal a march on their peers in Europe, US or Asia?

A MANIFESTO FOR LEAPFROG

To parallel our suggestions for institutional actors across the ecosystem (page 25), we see 3 essential foundational building blocks that each individual learner should master in order to accelerate their own development and broaden their access to jobs.

For every learner in the region - and to be taught and/or enabled by every actor interacting with students in Africa - these 3 components can be described as;

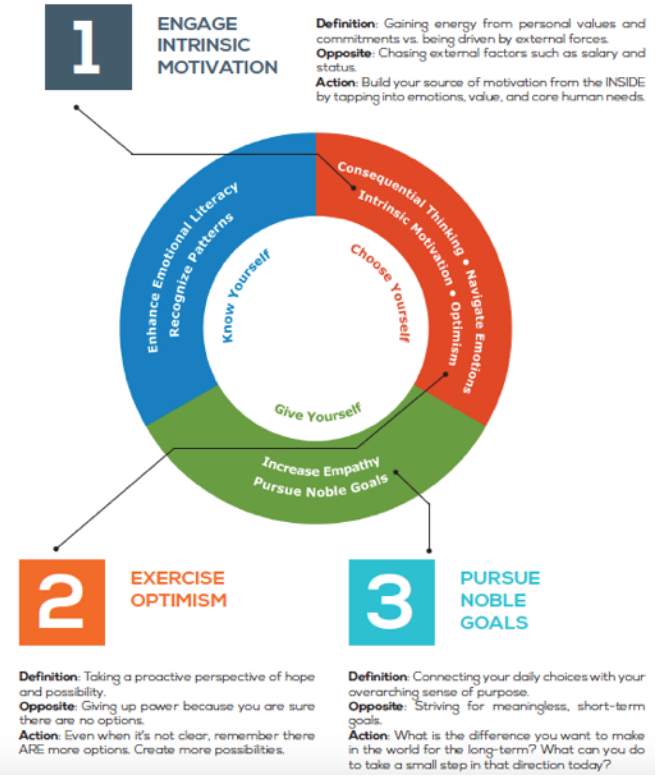
- **Build a solid foundation** - the Holy Trinity of core EQ, literacy and STEM skills as a platform for personal growth;
- **Embrace your own accountability to learn** - ensure that the individual retains accountability for their own learning and that the learning journey is owned and architected by the student.
- **Learn fast / adapt fast -** use adaptive learning platforms and micro-learning content to accelerate learning and leapfrog identified skills gaps;

BUILD A SOLID FOUNDATION - THE HOLY TRINITY IN CORE SKILLS

For most big jumps in life you need a solid platform from which to launch. As a basis for accelerated learning and broadening access to job opportunities that platform consists of a solid foundation in Emotional Intelligence (EQ), literacy and STEM skills. Students cannot leapfrog these foundational skills. Just as BCG's Global Challengers still need the core capabilities to design, produce a service or product, market and sell it and effectively manage finances, so the core foundational skill set for an individual also needs to be established as a platform to accelerate learning and bridge identified skills gaps.

Emotional Intelligence.

Numerous sources agree on the critical importance of EQ. Whilst a full review of this important topic is beyond the scope of this paper two skill sets are worthy of note. IDM believes that individual skills in self-awareness and self-leadership are disproportionately more important in Africa than in developed markets. These are critical to sustaining a sense of self-worth and for establishing the essential meta skill of learning how to learn. Without these skills the important steps in the proactive navigation of jobs and careers become impeded and the seductive traps of learned helplessness and a fixed mindset can be difficult to avoid (as previously discussed in this paper, page 9).



Self-awareness allows individuals to develop behavioural strategies that may seem counter-cultural (for example, when a young woman from a more traditional background challenges a senior male colleague in open forum), which in turn creates new avenues and opportunities for how he or she shows up in the workplace.

In terms of self-leadership EQ skills underpin the personal courage to be vulnerable. This endows the individual with the ability to really interrogate personal

strengths and skills gaps and to then work through these in a methodical way, rather than sit with a residual sense of shame and succumb in to a denial and avoidance fuelled inertia[55].

In their annual State of the Heart report 2018, Six Seconds (The Emotional Intelligence Network) gave a detailed breakdown of their assessment of EQ trends in Africa[56]. This research showed that individuals assessed as high in EQ are 8.1 x more likely to achieve better life outcomes (measured in terms of effectiveness, quality of life, relationships and wellbeing) than those with low EQ skills. The research further identified Intrinsic Motivation, Optimism and the Pursuit of Noble Goals as the top 3 EQ competencies that correlate with achieving better outcomes (see figure on page 27). This finding means that for the average person in Africa these 3 competencies that are most indicative of overall life success.

In a commercial context EQ will underpin many new roles in the 4IR that cannot be automated or outsourced to bots or AI, roles involving customer services and management skills; adapting to styles of customer engagement; and sales and marketing roles.

Whilst in their research Six Seconds have shown that EQ levels in Africa compare favourably to other regions, the disproportionate impact of EQ on life chances indicate that EQ skills should be a priority for investment in pre-primary, primary and secondary education and should be a key focus for further development for any young adult seeking to navigate a challenging market.

In his book Raising an Emotionally Intelligent Child John Gottman suggested 8 practical steps every parent or mentor can take to help build EQ across the 5 core EQ competencies. These steps are;

1. Set an example
2. Create a safe space to speak about emotions
3. Listen and reflect
4. Help children name their feelings
5. Help children process their feelings
6. Validate their emotions
7. Don't demand rationality
8. Use conflicts to teach resolution

In terms of our research for this paper, Gottman's suggestions appeal because they are easy to train, replicable across cultures and within the gift of most adults to manage in their interactions with students.

Our position is that the strengthening of EQ should be a pre-requisite for any and all decisions pertaining to skills growth in Africa going forward and that the consideration of EQ should thread through all the recommended steps that we offered to actors on page 25.

Literacy.

'Without basic literacy there is little chance that a child can escape the intergenerational cycle of poverty'[57]

The UN Educational, Scientific and Cultural Organization (UNESCO) statistics show that the literacy rate of those in sub-Saharan Africa aged 15 and above has increased from 49% in 1984 to 65 % in 2017.

That having been said, a number of countries in the region seem to be using enrolment data as a proxy for literacy. This means that the 35% of people identified by UNESCO as unable to read and write is only a best-case scenario. Recent

[55] Brene Brown. Daring Greatly, How the courage to be vulnerable transforms the way we live, love, parent and lead.
[56] Sixseconds. www.6seconds.org. Global Trends in Emotional Intelligence, Africa 2018.
[57] EarlyGradeReadingBarometer.org

literacy assessments in Malawi and Ghana found that 80% of Grade 3 students were unable to read a single familiar word, such as '*the*' or '*cat*'. Research in Zambia showed that for grade 2 students instructed in Chitonga, 88 percent were unable to read a single word of connected text, whilst 94% could not answer a single reading comprehension question[58]. These are alarming findings that further highlight the scale of the learning deficit in the region.

Continued poor literacy rates will amplify exclusion from economic opportunity and embed inequality. As the reality of the 4IR makes itself felt across Africa and access to on-line resources becomes the norm literacy will become an ever more critical gateway skill for the development of critical thinking, creativity, effective communication and cooperating with others.

The consensus is that a rapid acceleration in literacy is vital to overcome the skills gap in Africa. But how best could this be achieved?

The private sector is already playing a major role in primary education in the region and that market will continue to grow as parents continue to invest in the education of their children. However, the relatively high cost of these services acts to further privilege students of families with the necessary disposable income. Those that are left behind by the market therefore also need urgent support.

As we have advocated earlier in this document, our view is that African governments must urgently expand their budget allocation on education to at least 20% of their national budget, with the overwhelming emphasis of spend on pre-primary and primary education, followed by secondary level education as the second priority. But this scale of investment has yet to materialise and budgetary inefficiencies remain the norm.

Recognising the scale of this challenge the 3rd Sector has been contributing widely in this space. One example is Help-2-Read, a UK charity operating across South Africa. The organisation develops networks of volunteers and community tutors and links them with disadvantaged young learners as a way of both building fluency in English as well as building literacy skills. Whilst tutor-led and therefore harder to scale, this approach is never-the-less highly effective and has taught over 17,500 students to read since its inception in 2006.

At least some of the challenges to deepening literacy rates in the region do lie in the language and cultural issues highlighted earlier in this paper (Alleviate the Stumbling Blocks that inhibit learning, page 9). Many African societies have their roots in an oral tradition where recitation and listening are key skills. In contrast the teacher-led approach of traditional classes is somewhat counter-cultural and can act to slow down the rate of learning.

Another example, and one that is achieving greater reach than Help-2-Read, is Literacy Boost. This is an initiative by World Vision International that focuses on reading skills in young children. The initiative is deployed across 9 countries in Africa and builds literacy by curating the development of reading and writing skills across schools, parents and communities. The approach uses peer-to-peer mentoring and reading camps as safe and focused spaces within which literacy can be developed and accelerated. Notably, Literacy Boost has also developed reading material in local languages and utilises both computer aided and group based learning to build literacy, all of which is having a significant impact.

In order to overcome the literacy challenge in the region the future must include the ramp up of government spending on primary education; the design of large-scale initiatives that utilise material in local languages; and initiatives that combine peer-2-peer learning, high quality tutors and computer aided and community learning.

[58] EarlyGradeReadingBarometer.org.

STEM skills.

In regard to the more technical skills needed in the 4IR, STEM skills will be critical to being able to master leapfrog. STEM skills form the basis of the fastest-growing job categories globally and digital literacy will be vital as the ICT quotient of jobs across Africa continues to intensify. However, as of 2017 only 2% of graduates in the region majored in STEM degrees, at a time when employers expect the majority of new jobs to demand higher levels of STEM literacy.

In his opening address at the Pan African Conference on Education in April 2018, the Assistant Director General for Education at the United Nations Educational, Scientific and Cultural Organisation (UNESCO), Firmin Matoko, said: '*We need to help Africa tap into scientific inventions and discoveries that are happening around the world, and step up investments in scientific research to enable Africans to be producers of knowledge rather than consumers, by embracing the advancement in technology and equipping the youth with relevant knowledge and skills the 21st century demands*.'[59]

In recent years educators and entrepreneurs across the region have been stepping into the STEM space with enthusiasm. Research shows that the growth in technology adoption is underway at unprecedented rates with the e-learning market in Africa estimated at $690m in 2017[60].

One inspirational example is Ubongo. This social enterprise creates innovative interactive edutainment for young learners and closely parallels the highly successful Sesame Street example launched in the USA in 1969.

Both Ubongo and Sesame Street are built around a single, breakthrough insight: "*that if you can hold the attention of children, you can educate them"*[61].

The vision at Ubongo is '*To equip Africa's next generation with the educational foundation, critical skills and positive mindsets to change their own lives and communities for the better'*. The main product, Ubongo Kids, is an educational cartoon broadcast daily on national TV. The product is co-designed with children, is delivered in 6 languages and incites primary school kids to '*tumia ubongo'* (to 'use your brain' in Swahili) by teaching them math and sciences through animated stories and original songs. The children use mobile phones to answer multiple-choice questions via SMS and they receive feedback from their favourite cartoon characters. Ubongo's mission is to '*inspire the next generation of digital learners and thinkers'* and the model has already proven successful. The product reaches 11 million households across 31 countries with research showing that students who watched the show once a month for six months had significantly better numeracy score than classmates who watched an alternative non-educational cartoon.

In order to reliably establish a sound platform for rapid learning leading to economic inclusion African governments must urgently re-gear their education budgets towards over-investing in STEM, EQ and literacy development at pre-primary and primary level learning, and to STEM skills at primary and secondary levels.

[59] Accounting & Business Magazine, Africa Edition. June 2018
[60] DigitalJournal.com. Africa e-learning market by sector, product, type, technology, regional insights, competitive landscape, growth opportunities and forecasts 2018-2023.
[61] Malcolm Gladwell. The Tipping Point. 2000.

EMBRACE YOUR OWN ACCOUNTABILITY

Education is not a choice. For children and young adults making their way in Africa there is not the option to opt-out. For the great majority of people in the region the key to improving their situation is to learn, develop new skills and then develop themselves as far as is possible for them.

Once a solid foundation is in place in core literacy, EQ and STEM skills, and as our illustration of a vertically integrated pathway on page 24 indicates, a diversity of learning pathways become possible. Such a proliferation of potential pathways is an absolute necessity as Africa develops and as African youth begin to plug into job opportunities, both local and global.

However, the caveat to this is that learning success is dependent on the ability of the individual to be proactive and effectively chart their own course. The era of being spoon-fed knowledge and skills should be consigned to history. Africa is not entering a period where a few large institutions will guarantee regular employment for thousands and tried and tested paths to success are readily on hand (although several governments in the region are giving in to the temptation of trying to use the public sector as an employer of last resort). Instead, we are entering a period of extreme uncertainty, but also tremendous opportunity.

The skill set of feeling ownership over and accountable for your own learning is closely allied to EQ and the skills of self-actualisation. These skills have been extensively discussed and reviewed from every angle by world renowned authors and thinkers in the last few decades. Thought leaders valued and cited by our interviewees included Dan Goleman, Steven Covey, Tony Robbins, Jon Kabat-Zinn, Dr Tara Swart and Brene Brown to name but a few. The purpose of this paper is not to review or add to this body of work.

Never-the-less, from the interviews and research completed for this paper there are several points that may be worthy of emphasis and that could be incorporated into most face-2-face learning and adaptive learning platforms in Africa. Further to our suggestions on page 25 we offer the items below, not as a definitive checklist, but as a potential tool kit for actors to utilise or adapt as is most helpful to them.

Our checklist includes;

1.	**Discard any sense of dependency on others**	The responsibility for action rests with the individual. At every step the individual's own sense of agency should be supported and developed.
2.	**Set yourself clear and practical goals**	The steps to mastering leapfrog include real clarity on the individual's own goals; clarity on the skills gap to be bridged to achieve these; and clarity on how best to develop those skills as efficiently as possible. Perhaps the most essential component of this will be in the individual recognising what it is that they *don't need to learn.* In her recent book 'The Source', Dr Tara Swart points out that the clearer an individual visualises their intentions and goals the more effective their actions become in achieving them[62].
3.	**Nurture your own growth mindset**	Mistakes and failures are opportunities to learn something new, not a judgement nor a reflection of any inadequacy. One of the qualities that will accelerate learning is relentless experimentation and inquiry. That quality that demonstrates the individual's deep personal commitment to their own learning journey. As one of our interviewees described it, '*it's that quality that is always asking how other people have succeeded; how they learned what they learned; how they gained the experience and connections that they have; and how I can do that to*'. The ability to repeatedly inquire and experiment exemplifies the personal accountability to learn. It empowers the individual with the ability to self-actualise. It embodies a permanent fight to be better and to self-improve and is the true essence of the growth mind-set.
4.	**Focus your attention and take action**	Focused attention is rooted in self-awareness and allows the individual to manage their own responses to both internal and external stimuli, as well as decide on priorities and choose where and how to focus their efforts. It is a key cognitive skill. Steven Covey describes this in the habits of being proactive and focusing effort within one's circle of influence.

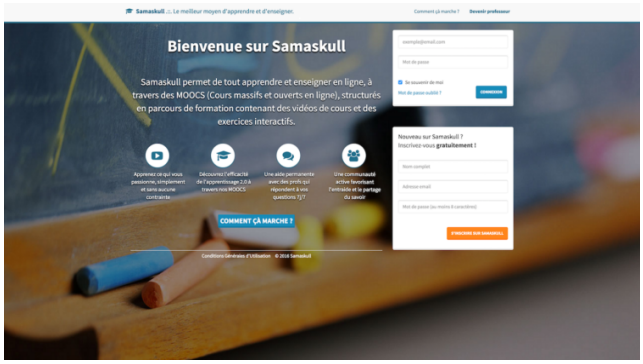
[62] Dr Tara Swart. The Source. 2019.

5.	**Keep at it and persevere**	The attitudes of resilience and determination have been cited by numerous interviewees as common qualities in learners across Africa. To quote Dr Tara Swart '*Learning early on how to survive existential challenges - bereavements, being uprooted-– can lead to a strong determination to thrive in spite of life's unexpected challenges'* [63]. Perhaps the difference in much of Africa is that challenges are not unexpected, they are an every-day part of life and offer learners in the region deep wells of personal resilience and determination on which to draw.
6.	**Connect and network**	As we discussed earlier in this paper, learning and job opportunities are best developed through networks. One of the default behaviours that should be encouraged in all learners throughout the region should be the habit of reaching out, making connections across communities, businesses, schools and social networks in order to develop their own possibilities. 5 practical suggestions offered by Forbes as part of their Path Forward Career Restart Kit[64] included; 1. Talk to real people who have the job you want 2. Consider taking a class, but invest wisely 3. Figure out what skills you have that will transfer 4. Find a way to "try it out" before you commit 5. Explore alternative changes you can make

As part of the above, and with reference to the rapidly growing global body of work on personal effectiveness and neuroplasticity, the challenge for public, private and 3rd sector actors on the continent may be to develop the curricula and teaching channels to help young Millennials and Gen Z establish the understanding and skill necessary to effectively manage their own thoughts and architect their own mind.

LEARN FAST / ADAPT FAST

For African learners to catch up (and overtake) their peers elsewhere learning has to be very fast, practical to consume as bite-sized packets of micro-learning and very easily applicable. Microlearning of this nature will be best enabled through well designed adaptive learning platforms. This is an approach to skills building that delivers personalised content in short, focused and easily digestible bites. To be effective, microlearning must fit naturally into the daily workflow. It must engage the individual in voluntary participation, be based in brain science (how people actually learn), adapt continually to ingrain the knowledge the individual needs in order to be successful, and ultimately drive behaviours that impact specific learning outcomes (or business results if in employment).



Micro-learning is markedly different from the variety of e-learning platforms that are becoming available across Africa. These platforms, such as GetSmarter or Samaskull, a Senegalese e-learning platform, allow access to a wide database of educational materials. In the case of Samaskull the platform and the available content is framed as *'Made by Africans, for Africans'* and includes access to interactive Massive Open Online Courses (MOOCs) and Small Private Online Courses (SPOCs) that provide one-on-one private lessons.

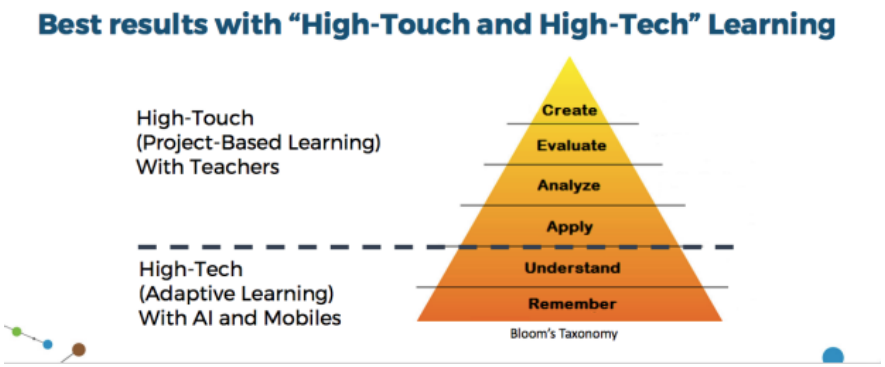
Samaskull styles itself as an innovative and open platform designed to enable Africans to take full control of their future. Whilst the model of broadening choice and ease of access that e-learning platforms offer is very welcome, they are based on distance learning methods and an augmented on-line teaching environment that do not easily encompasses adaptive learning technology. Targeting learning packets to the precise needs of large numbers of students remains

[63] Dr Tara Swart. Ibid.
[64] Forbes. Ready to make a career change? Take these 5 steps first. Aug 2017.

problematic, and the learning preparedness of the students remain hard to assess.

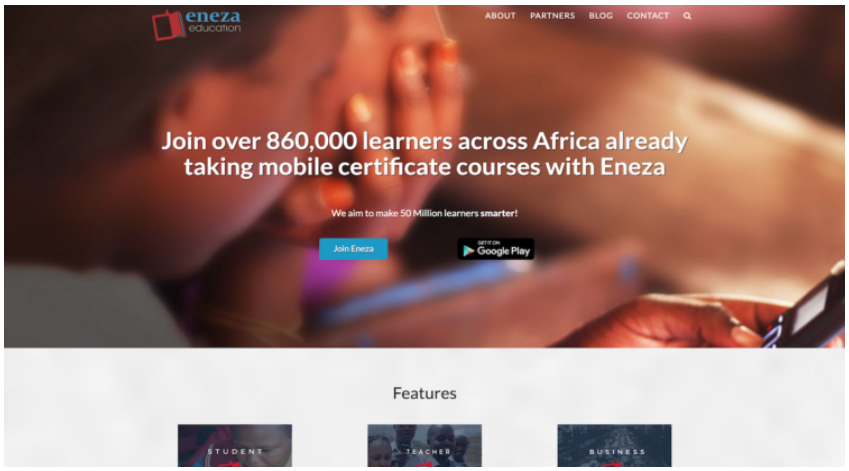
As outlined earlier in this paper regarding High-Touch High-Tech learning, adaptive learning platforms provide a powerful way to scale and accelerate learning. One example is from the Arizona State University (more than 65,000 students) where students benefited from an adaptive learning system in 12 basic courses. These basic courses were identified as a predictor of academic success because they serve as a gateway to numerous academic majors and career paths. Introducing an adaptive algorithm called Assessment and Learning in Knowledge Spaces (ALEKS) in a college algebra course resulted in the drastic increase in completion rates by 20.5 percent on average and by 28.5 percent for those with math skills below algebra level. Students who received adaptive tutoring rather than traditional algebra were also more likely to attempt a subsequent, more advanced mathematics course and major in a STEM field[65].

As illustrated by the adaptation of Bloom's taxonomy (see figure), these platforms can reduce the burden of teachers to help a large number of diverse students remember and understand core content. Instead, the algorithm adapts the provision of content to the current knowledge of the student and thus frees up time for teachers. Teachers are then available to focus on "high-touch" learning interventions such as projects, discussions, hands-on experiences, and nurturing higher order skills like complex problem-solving and socio-behavioural skills such as teamwork[66].



Whilst not based on adaptive learning, an African example of the principle of High-Touch and High-Tech in operation is Eneza Education in Kenya. Eneza - translating as '*to reach*' in Swahili - is the educational platform that acts as a virtual tutor and teacher's assistant for thousands of Kenya-based students. Eneza's model is to partner with schools in Kenya to track and assess students' knowledge using the country's most common form of technology: the mobile phone.

In this model students access educational quizzes, a live 'Ask-a-Teacher' feature, offline access to Wikipedia, a dictionary and other learning materials via SMS. The platform is specifically geared towards Kenyan primary students in the upper primary grades as they prepare for the test (KCPE) crucial for their entry to secondary school. Using the high-quality content platform, students are able to hone and test their knowledge. This augments the 'remember' and 'understand' levels in Bloom's pyramid and allows space for teachers to concentrate on how students analyse, evaluate and create.



Considering the increasing access to digital content and to adaptive learning platforms overall, African learners must be encouraged to pivot very quickly from hearing from their teachers "*This is the way you have to learn this material, because this is the way that I know how to teach it*", to a networked environment where they are hearing and saying to each other *"Guys, if you want to learn about that topic, here's a list of the best, most reliable information that's helped me. If you start here and move forward, one step at a time, you'll learn what you need to know in the most effective way possible."* [67].

[65] The Education World Forum. Combining High-Tech and High-Touch to Personalise Education for Every Child. Jan 2019.
[66] The Education World Forum. Ibid.
[67] Buckley Barlow. In The Know; How innovative learning paths can help close the skills gap. 2015.

Mark West, a mobile learning expert and author of UNESCO's Policy Guidelines on Mobile Learning, neatly encapsulated the link between learner accountability and the importance for the individual to learn fast - adapt fast. He notes that "*E-learning is a portal into educational opportunities that, frankly, hadn't existed before, and some of those opportunities - if you can afford the broadband connection and the hardware to use that connection - are free. For really self-motivated learners, it's remarkable."* [68]

[68] ITWeb. Africa's e-learning market comes of age. Sept 2016.

CONCLUSION

In conclusion - and in brief given the extent of our work and the commitment that we have asked of the reader (thank you if you've got this far) - The Future of Learning in Africa will include many learners going around the formal education systems in the region, not through them.

Instead, learning on the continent will be shaped around a private sector led proliferation of vertically-integrated shared-value learning pathways that accelerate TVET skills and give a line of sight from early learning to the workplace.

This will demand learning solutions that have the individual at the centre of learning ecosystems that converge around the learning needs of the individual and that allow the individual to accelerate his/her own learning (and re-learning) in order to leapfrog into economic opportunities as they may emerge.

Placing the individual at the centre of new learning solutions will demand a step up in how actors empathise with learners and account for the economic and social reality of how they live and learn. In so doing there will be specific barriers that must be mitigated (linguistic, cultural and psychological), as well as some surprising advantages that have yet to be fully exploited in the development of a future-fit workforce (resilience, resourcefulness, commitment to learn and a sense of service). We frame this opportunity as '*the advantage of being disadvantaged'* and suggest 10 principles that can be used to anchor the experience of the individual at the centre of learning delivery.

In asking public, private and 3rd sector actors to converge around learning delivery we advocate that all stakeholders act within and deliberately augment the effective functioning of vertically integrated learning networks. Curricula should be private sector led and, as such, rooted in a clear view of the future demand for skills. Skills and knowledge in the individual should be accelerated through exposure to local and international learning channels and access to broad networks of mentors. Using these channels we expect larger numbers of African learners to gain access to the key knowledge and skills that they need in order to plug in to future job opportunities, whether local and global.

But the key to our recommendations are around how each individual might navigate such learning pathways and specifically how he or she can leapfrog skills gaps. This is about agency and how agency is invested in the individual. The Holy Trinity of EQ, literacy and STEM necessarily demands effective pre-primary, primary and secondary education delivery that is teacher-led, but the foundations of individual agency are never-the-less established in these very earliest stages in the learning pathway. We believe that the ethic of individual agency should be invested in the individual as early as possible and should be extended rapidly during secondary education. In this way the individual is left with a clear sense of their own accountability for their own learning journey. They feel empowered and energised to act, and act quickly and effectively to explore the diverse routes to employment that are presented through a rapid proliferation of learning pathways.

As we have advocated, The Future of Learning in Africa should be business led and should be structured around the economic realities of local and international job markets. The role of business is to clearly assess where and how new capabilities can be built and how best to enable the execution of that investment. We believe that there are clear business cases for private sector investment in skills building. The work that now urgently needs to be done is the detailed investigation of such business cases.

The role of governments should be to support this strategy by significantly ramping up on national education budgets and guiding progress with forward thinking tax, legislative and regulatory structures. The role of the 3rd sector should be to step into the riskiest aspects of these learning pathways and boldly go where government and the private sector fear to tread. In so doing, the 3rd sector will play a critical role in facilitating and de-risking the development of these ecosystems.

Our recommendations sound daunting. But much of the work has already been done. If we can re-frame our thinking around the systemic nature of the challenge we face and re-cast our actions to amplify synergies and stimulate action across these systems, then we have a good chance of bridging the skills gap in Africa.

To that end, the immediate change that we advocate for each actor is to reach out to and connect with the full range of stakeholders across their ecosystem in order to exchange ideas, inform and align around the learning delivery in which they are engaged. Each actor should do this repeatedly, at every decision point, and without exception.

If we don't do this, if we stay in siloes and focus on our own sphere of influence then the worst scenarios of continued exclusion and social and economic unrest may unfold.

There is extraordinary value to be created if we take action. Everyone has a role to play.

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Many individuals generously gave their time and thoughts to contributed to the development of the ideas and themes outlined in this paper. We are extremely grateful and extend our thanks to all those involved.

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An outline of our research method

An outline of the research method that we used to research this paper.

IDM utilised qualitative research methods to complete this paper. We identified qualitative research as the most effective approach given the resources and time available to identify, describe, contextualise and gain insight into the practical learning challenges that we wanted to investigate.

The method was based on both desk-research and confidential, face-2-face and telephonic semi-structured interviews that used an agreed interview schedule and a standard set of questions, both closed and open, and that ran between 45 – 60 minutes.

The sources for desk research are outlined in the Bibliography.

The information gained from the interviews was collected using both note taking as well as recordings and we then categorised the information collected around the logical themes emerging from the interviews.

The interview process that we went through included;

- Identifying a diverse sample of respondents, both pan-African and international.
- Drawing up an agreed set of questions.
- Piloting our question design and lines of inquiry.
- Engaging our interviewees and establishing the purpose of the interview, standards of confidentiality and disclosure and appropriate permissions.
- Starting with some introductory closed questions.
- Avoiding leading questions.
- Carrying out interviews accurately and keeping appropriate notes/recordings.
- Collating and transcribing the information gathered.
- Thematically analysing results and relating these to other findings from our desk research.

A brief introduction to IDM

The Institute for Developing Markets

What would happen in Africa if the full talents of her people were unleashed? How would the future look then? How rapidly would the people, businesses and communities of Africa rise? And how would they make themselves felt on the world stage?

IDM is a business education institution that has been established to help bridge the skills gap in fast growing and rapidly changing economies and sectors.

Our vision is to build an institution that provides world-class learning and advisory services that are locally specific and are practical and applicable in the context of the work place.

Our services are based on robust diagnostics and research into learning and performance challenges in local markets and are carefully tailored to meet the needs of our clients and partners.

The IDM learning approach is based on our research into the current and future performance challenges facing organisations in rapidly changing markets.

IDM delivers services globally. Our experience covers multiple industries and disciplines and now extends to over 13 countries across Africa, as well as India, Latin America, the Middle East and Europe.

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