INSURTECHS: Current and Future Skills Needs

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1. BACKGROUND AND CONTEXT

1.1 Purpose

The study is primarily focused on determining the skills needs of insurtechs in South Africa. It analyses the insurtech and identifies the insurtech operating models and key occupations and skillsets. It highlights training interventions that respond to insurtech skills demands currently and in the future. It explores career pathways for new entrants into the insurance sector.

1.2 Global Insurance Market

The global insurance market was resilient during the COVID-19 pandemic. The premiums were USD 6 287 billion in 2020 compared to 6 284 billion USD in 2019.[1] The Asia-Pacific, Middle East and North America recorded slight premium growth between 1.3% and 2%. The premiums in Africa, Europe, Latin America, and the Caribbean declined by 3%, 10%, and 16%.[2]

However, the insurance sector faces challenges in 2021 and 2022 due to the prolonged pandemic. Life insurance is under strain because millions of people have lost their lives due to COVID-19. There is a surge in life and health insurance claims.[3] Non-life insurance grew by 1.2%, and life insurance premiums declined by 2.2%.[4]

1.3 African Insurance Market

Africa was the second-fastest-growing insurance market before the COVID-19 pandemic. It was expected to grow at 7% per annum between 2020 and 2025.[5] Africa grew at twice the North American rate, three times Europe, and close to six times the Asian rate.[6] Except for South Africa, African gross premiums grew twice the region's GDP, reflecting an improved uptake in insurance.[7] Africa had a USD 60 190 million turnover in 2020. It dropped to 10.54% in 2021.[8]

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[1] Atlas Magazine., 2021, July. Global insurance market in 2020. *Atlas Magazine: insurance around the world.*
Global insurance market in 2020 (atlas-mag.net)
[2] IBID
[3] OECD., 2021, January. Global Insurance Market Trends. *OECD.*
https://www.oecd.org/daf/fin/insurance/globalinsurancemarkettrends.htm
[4] IBID
[5] Bagus, U., Jurd de Girancourt, F., Mahmood, R., & Manji, Q., 2020, December. Africa's insurance market is set for takeoff
[6] IBID
[7] Warren, A., 2017, August. Unlocking new markets Digital innovation in Africa's insurance industry. *Deloitte.*
[8] IBID

South Africa accounts for more than 80% of the continent's total gross premiums.[9] South Africa's insurance sector turnover in 2020 was 40 638 million USD.[10] Unfortunately, premiums dropped 12,46% from 2019 due to the coronavirus.[11] Flight insurance was halted, which impacted the car insurance industry.[12] McKinsey believes that the setback is temporary.[13]

1.4 Future of Insurance

From an ageing population with limited savings to the multibillion threat posed by climate change, looming risks will collectively have a broad scope and a deep impact. Insurance service providers will need to offer different products because the way people buy and use insurance will fundamentally change.

Consider car insurance. As ride-sharing increases, fleet owners will assume greater risk than individual drivers. And when driverless cars become a reality, who will buy insurance for these robots?

Smart homes and commercial buildings will transform the property market. Will homes and buildings that have smart sensors that can detect fraying electrical wires or overstressed pipes receive discounts?

A similar transformation could occur in life insurance as people embrace wearable technology. Will people receive financial incentives for exercising or eating healthy? Discovery Health South Africa is a global leader in this field.

Insurers will need to rely on new technologies, such as Blockchain and AI, to protect vital data.[14]

Insurance is an effective and valuable tool to alleviate unforeseen shocks. Low-income households at the base of the socio-economic pyramid (BoP) are at risk of accidents, adverse weather conditions, death or illness benefits without insurance.

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[9] Ibid.

[10] *McKinsey & Company*. https://www.mckinsey.com/featured-insights/middle-east-and-africa/africas-insurance-market-is-set-for-takeoff

[11] Atlas Magazine., 2021, July. African insurance market: turnover in 2020. *Atlas Magazine: insurance around the world.* African insurance market analysis: turnover in 2020 per country (atlas-mag.net)

[12] Goldstuck, A., 2020, May. How the insurance industry has changed in the face of Covid-19. *The Citizen. https://www.citizen.co.za/business/2288384/how-the-insurance-industry-has-changed-in-the-face-of-covid-19/*

[13] Bagus, U., Jurd de Girancourt, F., Mahmood, R., & Manji, Q., 2020, December. Africa's insurance market is set for takeoff. *McKinsey & Company*. https://www.mckinsey.com/featured-insights/middle-east-and-africa/africas-insurance-market-is-set-for-takeoff

[14] Ernest & Young. Accessed at: https://www.ey.com/en_gl/insurance/the-future-of-insurance

Traditional insurance service providers (ISPs) either are not interested in struggling to break into the BoP market due to low financial client literacy, access to and trust in ISPs. Costly legacy systems centred around broker networks, brick-and-mortar branches and bank-based payment channels raise premiums.[15] ISPs eager to expand their market penetration beyond traditional market segments should understand the importance of span, simplicity, access, affordability, scalability and flexibility in product design.[16]

Digital technology enables ISPs to reduce service costs, tailor products to specific income groups, and streamline internal processes. Technology should be embedded into a digital mindset to leverage innovation in the insurance value chain. Agility, collaboration and flexibility are necessary for a fast-moving insurance sector. It has led to a proliferation of technology-driven ISPs disrupting the traditional insurance edifice.[17]

Insurtechs combine insurance and technology solutions for registration, claims processing, underwriting, policy administration, data insights, fraud detection and other insurance activities. Insurtechs are disrupting the insurance industry by providing cost-effective pricing and better customer experiences. There are a limited number of insurtechs in South Africa that apply digital technologies to products and services, but it is a growing market segment. Insurtechs are disrupting the traditional insurance business models.[18]

Exhibit 1: Insuretechs distribution channel

Source: Capgemini Financial Services Analysis, 2019.
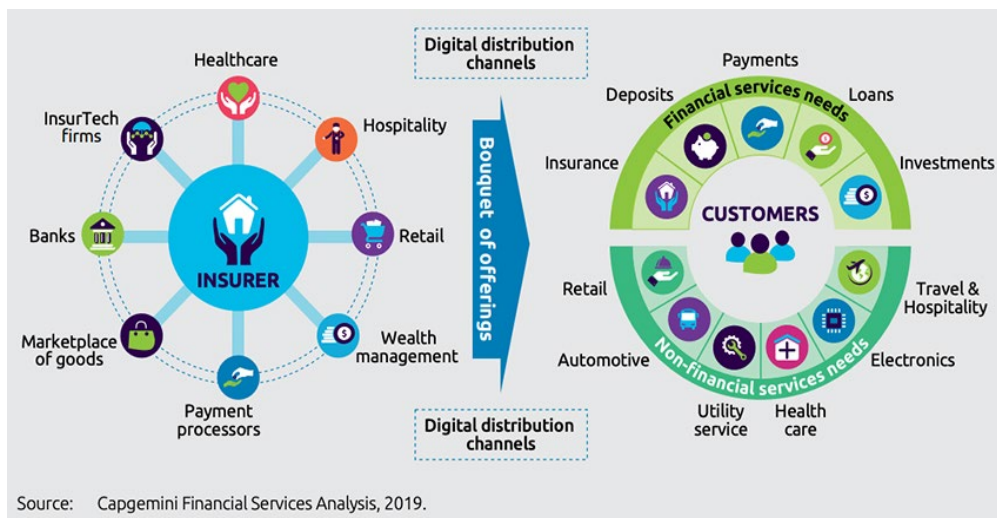
Capgemini Financial Analysis (2019)

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[15] Warren, A., 2017, August. Unlocking new markets Digital innovation in Africa's insurance industry. *Deloitte.*
[16] IBID
[17] Warren, A., 2017, August. Unlocking new markets Digital innovation in Africa's insurance industry. *Deloitte.*
[18] Moyo, A., 2021, November. Assupol ups digital transformation amid insurtech surge. *ITWeb. Assupol ups digital transformation amid insurtech surge | ITWeb*

1.5 Insurance and Industry 4.0

Insurtech firms employ fourth industrial revolution (4IR) technologies to disrupt the insurance sector.

Exhibit 2: 4IR dimensions

Blockchain	Blockchain is a distributed ledger that addresses cybersecurity issues.
Internet of things	A network of machines and devices with built-in connectivity, electronics, software, or sensors allows them to share data and improve efficiency.
Predictive maintenance	A technique that uses condition-monitoring tools to track the performance of equipment to detect possible defects and fix them before they fail.
Autonomous robots	Like humans, they can make their own decisions and then act accordingly.

Additive Manufacturing	3D printing, as it is known, builds up components from scratch, using only the material needed and minimising waste.
Augmented Reality	A technology superimposes a computer-generated image on a user's real world view.
Simulation	Also called Virtual Reality (VR). The use of computer technology to create a simulated environment.
Cybersecurity	The practise of protecting systems, networks, and programs from digital attacks.

The shift to the above technologies is driving the growth of insurtechs.[19] Some companies regard technology platforms that "happen to offer" insurance products.[20] Combining innovative technologies with a digital mindset holds great potential for ISPs to achieve growth and develop new business models and services geared toward unlocking the BoP insurance market. Insurtechs have the potential to grow Africa's insurance industry.[21]

Today, Blockchain is applied across the insurance value chain:

Exhibit 3: Blockchain in insurance

Capgemini Financial Analysis (2019)

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[19] Moyo, A., 2021, November. Assupol ups digital transformation amid insurtech surge. *ITWeb*. *Assupol ups digital transformation amid insurtech surge | ITWeb*
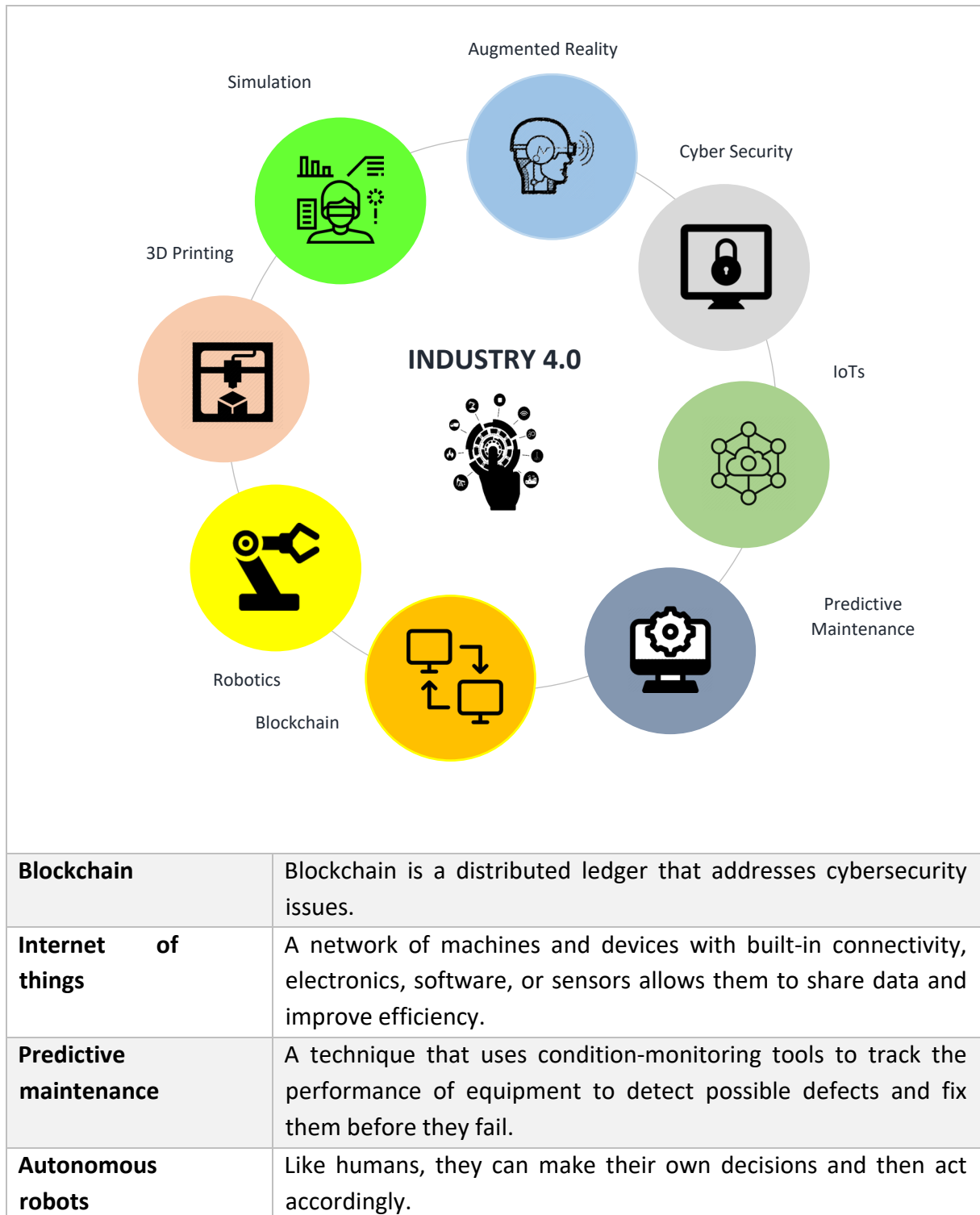
[20] Warren, A., 2017, August. Unlocking new markets Digital innovation in Africa's insurance industry. *Deloitte.*

[21] Warren, A., 2017, August. Unlocking new markets Digital innovation in Africa's insurance industry. *Deloitte.*

1.6 Insurance Trends

Several trends are reshaping the insurance sector:[22]

Digital and omnichannel

Consumers have more complex needs and are more knowledgeable about choices. They want personalised offerings and tailored communications. Insurers must digitise services and optimise

Big Data and Analytics

Insurers are making significant investments in data analytics and modeling techniques to improve nearly every part of the business

Legacy Transformation Systems

Core insurance systems are being modernized to optimise processes, collaboration and reduce costs. "Robots" simplify business processes through robotic process automation

Cybersecurity

Cybersecurity must be proactive and strategic, not reactive and defensive.

InsurTech and blockchain

InsurTech and blockchain mean significant new threats and more intense competition but also promising new opportunities for collaboration between new and old market players

Business Models

Transformation will require revisiting business models, acquiring customers through new channels and creating rich user experiences.
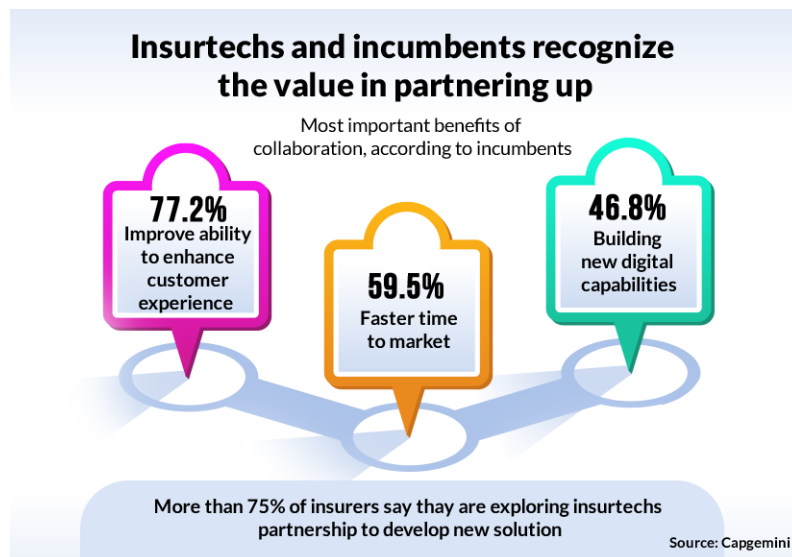
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[22] Ernest & Young. Accessed at: https://www.ey.com/en_gl/insurance/the-future-of-insurance

1.7 Benefits of Insurtechs

Digital technologies allow for a diversified market segment. It helps clients to be served through several social media channels. The insurer automates the customer engagement operational processes and uses digital technologies such as cloud computing to meet business needs.[23]

Insurtechs collect and analyse data from various data points like wearables and the internet of things (IoT) to offer a personalised product. Consumers are inclined to purchase a tailored product. Insurtechs are competitive since their cost structures are low.[24] Cloud services, data analytics and cyber security, are driving down premiums. [25]

Exhibit 4: Benefits of insuretechs

Insurtechs and incumbents recognize the value in partnering up

Most important benefits of collaboration, according to incumbents

77.2% Improve ability to enhance customer experience

59.5% Faster time to market

46.8% Building new digital capabilities

More than 75% of insurers say thay are exploring insurtechs partnership to develop new solution

Source: Capgemini

1.8 Transformation

Insurance is undergoing disruption. The sector is changing from the growing adoption of mobile technology, artificial intelligence (AI), machine learning (ML), cloud and data technologies. These technologies redefine how insurance products and applications (apps)

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[23] Moyo, A., 2021, November. Assupol ups digital transformation amid insurtech surge. *ITWeb. Assupol ups digital transformation amid insurtech surge | ITWeb*

[24] Pillay, T., 2018. *The influence of insurtech on the existing insurance business model* (Doctoral dissertation, University of Pretoria).

[25] Ibid.

for services like first notice of loss (FNOL), fraud detection, underwriting and risk management are distributed.[26]

Insurtechs are fast-moving, digitally-enabled enterprises that identify and capitalise on the weaknesses of traditional insurers in car insurance, property and casualty (P&C) insurance, health insurance, life insurance and home insurance with valuable customer offerings.

Traditional insurers are re-examining their solutions and delivery models and exploring innovation opportunities. Initial disruptions focused on transforming how business services are delivered. However, it now aims to transform the entire business model. Therefore, insurance companies must stay on top of digital trends to meet customer needs.

The insurance sector is experiencing major disruptions due to 4IR and insurtechs. Tech start-ups are forcing traditional businesses to embrace the digital era. These new developments require different skills sets for the insurance companies' traditional IT teams. The digital talent gap is a significant challenge in the insurance industry.[27] In our ever-changing world, we need to evolve and adapt.

Digital processes and operations: Digital technology has disrupted process delivery models in the insurance sector. Processes like robotic process automation (RPA) have reduced the cost of the claims journey by as much as 30%.

Innovative solutions built on AI, ML, cloud and RPA, provide a low-cost, high-returns mechanism. Cognitive and AI patterns have improved insurtechs' abilities to deal with complex commercial claims.

Customer engagement: Success in insurance involves an advice-driven approach enhanced with digital platforms to cater to evolving consumer expectations. Digital engagements include insurance delivery through chatbots, online customer journeys via digital channels, and policy administration and claims through self-service portals or apps.

Digital data management: Improvements in AI, ML, big data and data management have enabled insurers to comprehensively leverage data and provide better coverage. Home sensors, telematics and drone surveys provide opportunities for obtaining critical data to help insurtechs provide personalised solutions and take better decisions in underwriting, pricing, and claims adjustments.[28]

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[26] https://nuvento.com/blog/digital-trends-and-disruption-in-the-insurance-sector/

[27] Flinders, k., 2021, March. Insurers unable to fill a quarter of tech roles. *Computer Weekly.com.* *https://www.computerweekly.com/news/252497944/Insurers-unable-to-fill-a-quarter-of-tech-roles*

[28] https://nuvento.com/blog/digital-trends-and-disruption-in-the-insurance-sector/

1.9 Disruptive Technologies

A report by IBA suggests that seven disruptive technologies are changing how business is done in the insurance sector:[29]

Infrastructure and productivity: Legacy infrastructure slows down innovation and is a hurdle in succeeding in a digital-first world. Going digital is not an event. It is a process. Insurers must invest in modern infrastructure that aligns with their offerings and goals to achieve digital innovation. It includes technologically advanced ways of functioning, processing, computation and storage.

Technologies that enable online sales: Leveraging the most modern technologies to target the right customers, pinpoint the ideal user, and analyse consumption is another trend insurers are following. Insurers must get their customer data aligned to succeed.

Data analytics: Analytics is a capability that allows insurers to gain deep insights into customer behaviour and helps to determine more about customers' needs and preferences.

**IoT**: Analysing data from devices fitted with sensors can help insurers understand user behaviour.

Distributed ledger technology: Insurers improve the time taken for claims processing by storing data on distributed ledgers.

Machine learning: Insurers use machine learning to manage claims processes, price products and shape underwriting.

Virtual reality: Virtual reality uses three-dimensional imaging to ascertain how a particular incident happened by reconstructing the environment in which it happened – such as a room or building – to absolute precision.

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[29] https://www.insurancebusinessmag.com › special-reports

Exhibit 5: Transformation trends
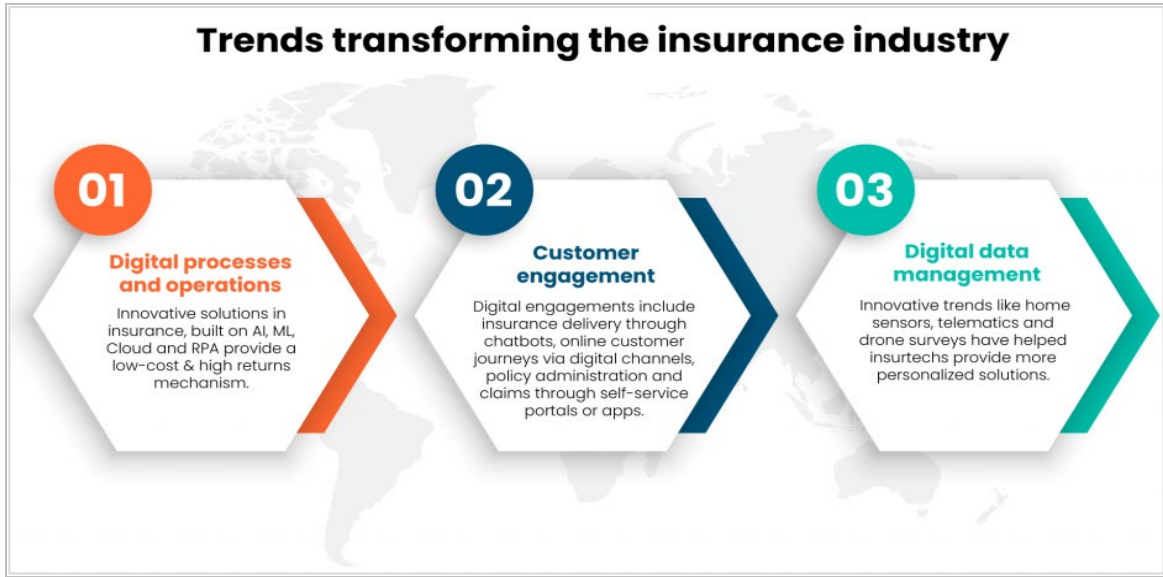
2. DEFINITIONS OF INSURTECHS

2.1 Insurtechs

Insurtech uses technology innovations to bring savings and efficiency to the insurance industry. The term "insurtech" is a combination of "insurance" and "technology".[30] It is a subset of the larger fintech sector, at the intersection of insurance and technology, where companies focus on manufacturing, distributing and aggregating insurance policies.[31]

Insurtechs use innovations to squeeze out savings and efficiency from the current insurance sector model. It is also a combination of insurance and technology solutions for enrollment, claims processing, underwriting, policy administration, data insights, fraud detection, etc.[32]

The insurtech concept is the commitment to innovation and development of new products and services in the insurance sector. It uses the latest technologies to expand and optimise the business model. Insurtech continues what was started by fintech and applies it to the insurance sector.[33]

The term "insurtech" also refers to the innovative technologies and new digital tools developed to optimise insurance companies' performance, deliver a better customer experience, and unlock advanced analytics potential. It drives strategic and IT priorities while disrupting the business processes and models of one of its largest industries.[34] Insurtechs power the creation, distribution and administration of the insurance business. [35]

3. SIGNIFICANCE OF STUDY

The study investigates the impact of 4IR on current and future skills needs in the insurance sector.

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[30] Apoorva., 2021, December. *Cleartax: Insurtch.* *Insurtech - Definition, Understanding, and Why Insurtech is Important? (cleartax.in)*
[31] The Economic Times., 2021, December. *The Economic Times: What's behind the insurtech boom?.* *What's behind the insurtech boom? (indiatimes.com)*
[32] Apoorva., 2021, December. *Cleartax: Insurtch.* *Insurtech - Definition, Understanding, and Why Insurtech is Important? (cleartax.in)*
[33] Electronic Identification., 2020, September. Electronic Identification: *What is Insurtech and why it is the future of the insurance sector.* *What is Insurtech and why it is the future of the insurance sector (electronicid.eu)*
[34] J de Waal, M ,. 2019, July. *Fortifier It Company: WHAT IS INSURTECH? WHAT YOU SHOULD KNOW ABOUT EMERGING TECHNOLOGIES IN THE INSURANCE SECTOR.* *What is InsurTech? Definition, Meaning, and the Role of Technology in the Insurance Industr (4tifier.com)*
[35] Tibco., *Tibco: What is insurtec*h?. *What is Insurtech? | TIBCO Software*
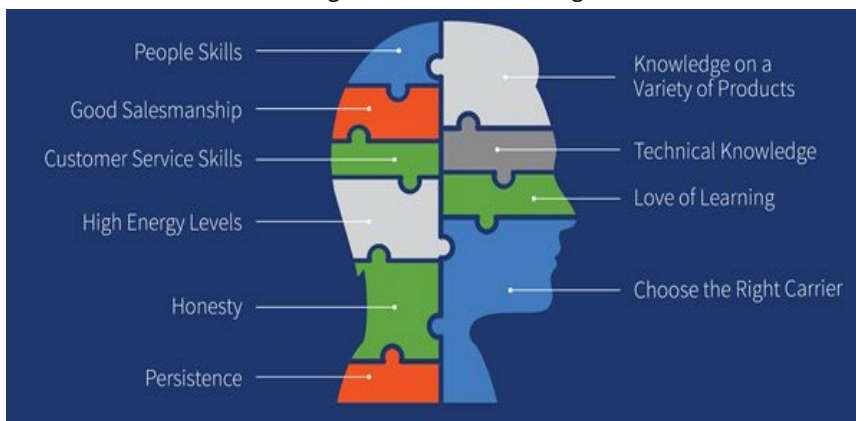
Exhibit 6: Three dimensions of skills development
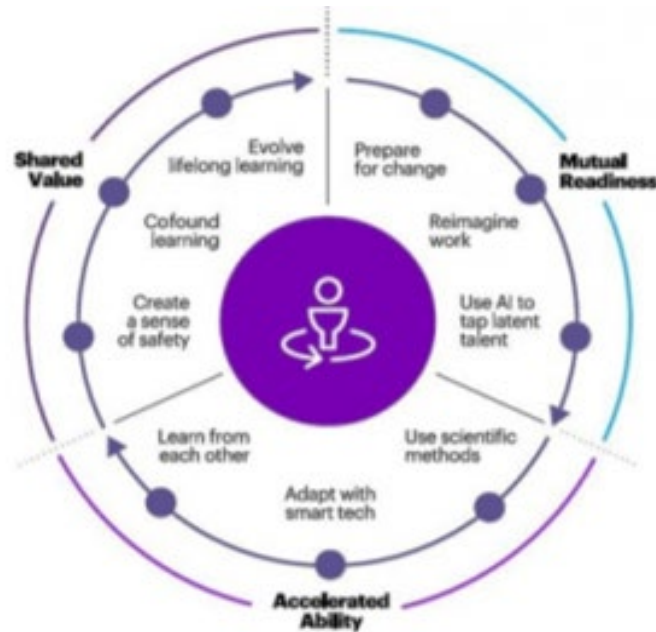
Source: Accenture[36]

Buying insurance is a difficult, tedious and unpleasant experience. Sales agents are commission-focused instead of concentrating on the client's personal needs. Therefore, people keep away from insurance products, thus leaving the majority uncovered.[37] Insurtechs have the potential to change this by selling insurance products to the uninsured.

Exhibit 7: Characteristics of a good insurance sales agent

Capgemini Financial Analysis (2019)

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[36]   https://insuranceblog.accenture.com/10-must-have-human-machine-fusion-skills-for-insurance-workforces

[37]   n.a., November 2019. *What is insurtech? The future of insurance, explained.* Breeze. https://www.meetbreeze.com/blog/what-is-insurtech/

Insurtechs are addressing the uninsured and exploring niche markets with innovative product offerings. Insurtechs are disrupting the sector by yielding better customer experiences and cost-saving for clients.[38]

Innovation increases product distribution at lower costs with efficiency and productivity gains.[39] Communication and transportation costs drop, logistics and global supply chains improve, and trade costs decrease, enabling new markets to spur economic growth. As fintech changes banking, insurtechs will have the same impact.

Insurtechs have quicker response times, better pricing models and tailored products. They employ artificial intelligence to do the tasks of a broker. Mobile and desktop apps make it easier and more user-friendly to do business. Furthermore, integrating policies in a singular platform, creating on-demand policies for short terms, peer-to-peer (P2P) model adoption, incentives, and loyalty points give insurtechs a competitive edge.[40]

There is a concern about whether South Africa is ready to adapt, create and embrace insurtechs. Funding start-ups is not an issue, as R45.8 million was received in 2020.[41] However, funding is not the only factor for success. Skills, utility costs and the digital infrastructure are crucial for insurtechs.[42]

Skills acquisition is critical for successful insurtechs, especially in IT, data analytics, Big Data, social media, actuarial science and product development.

There is a need to assess the readiness of the insurance industry for 4IR. A needs analysis of current and future skills needs should be done with appropriate occupational mapping.[43]

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[38] Apoorva, 2021, December. Insurtech. *Cleartax.* Insurtech - Definition, Understanding, and Why Insurtech is Important? (cleartax.in)

[39] IBID

[40] Hargrave, M., August 2020. *Insurtech.* Investopia. https://www.investopedia.com/terms/i/insurtech.asp

[41] Moyo, A., 2020, May. SA insurtech start-up bags additional R23m funding. *ITWeb.* SA insurtech start-up bags additional R23m funding | ITWeb

[42] IBID

[43] Pillay, T., 2018. *The influence of insurtech on the existing insurance business model* (Doctoral dissertation, University of Pretoria).

4. PROBLEM STATEMENT

Financial technology (fintech), also known as 'insurtech' (i.e., referring to technology and not start-ups), is transforming the financial services sector across the globe. The insurance industry is no exception. Technology allows for new service provision, increased data collection, intelligence gathering, risk identification and mitigation measures.

The fourth industrial revolution (4IR) and insurtech effectively hollow out the edifice of the traditional insurance sector. The changing nature of insurance necessitates a new skills development plan for employers, training providers and insurance personnel. 4IR is creating skills gaps for the insurance workforce as new technologies, gadgets, work processes, and communication vehicles come into play. Technology leads to the emergence of new occupations as insurers develop sophisticated technology platforms.

There is a need to determine the profile of the insurtech landscape in South Africa. It includes determining employer and employee size, product offerings, operating models, key occupations, and skillsets required by insurtechs (i.e., insurance providers). The profile is required to identify new qualifications and skills programmes that should be developed to address the skills needs of insurtechs currently and in the future.

It is important to consider how the insurance sector responds to economic and societal technological innovations and provides processes and policies that incorporate such changes. For example, the sharing economy has enabled start-ups such as Uber to make ride-sharing more convenient and widely available. While taxi drivers must have commercial motor liability insurance, Uber drivers may not have such coverage. It raises the question of how insurers respond to new risks.

By investigating insurtechs, the industry will better understand the future of insurance. ISPs can deploy innovative technologies to achieve self-reform and jointly promote the insurance industry's rapid development.
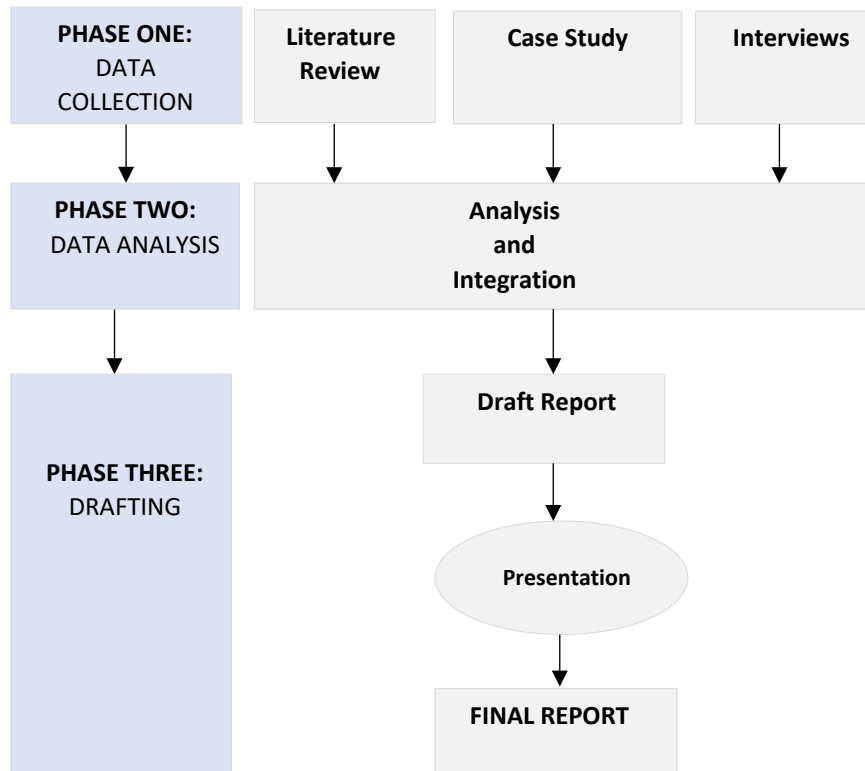
5. AIMS AND OBJECTIVES

The objectives of the study are to:

Analyse the insurtech landscape in South Africa.

Identify key insurtech occupations and skillsets.

Determine new qualifications and skills programmes that should be developed.

Identify current and future occupations and skills needs of insurtechs.

Develop learning and career pathways for new entrants in the insurance sector.

6. RESEARCH DESIGN AND METHODS

A mixed methods research design is the most effective, efficient, and economical way to achieve the research outcomes. Mixed methods research uses several data collection techniques in a single research paradigm to dissect the research problem. Although a mixed methods research design is complex, it allows triangulation and viewing of the research problem from different perspectives.

| PHASE ONE: DATA COLLECTION | Literature Review | Case Study | Interviews |

| PHASE TWO: DATA ANALYSIS | Analysis and Integration |

| PHASE THREE: DRAFTING | Draft Report |

Presentation

FINAL REPORT

6.1 Literature Review

Pertinent literature on insurtechs is reviewed. The literature review investigates insurtech types, business models, how insurtechs service the previously uninsured, and current and future skillsets required. The literature review analyses trends driving change in the sector and their implications for ISPs and employees. The study identifies new and emerging occupations and skills and determines qualifications and skills programmes that should be offered.

6.2 Study Limitation

A major limitation of this study is that insurtechs were reluctant to participate in the study. Insurtechs that were approached were unwilling to discuss their organisations' operating model because they believed that it would be disclosing trade secrets to competitors. However, one insurtech participated in the study. A few insurtechs also mentioned that they were busy and thus could not participate in the study.

We addressed this issue by offering case studies of insurtechs in other parts of the world to give a glimpse into what is on offer.

6.3 Case Study

Case studies of insurtechs were conducted:

KEY PARTNERS	KEY ACTIVITIES	VALUE PROPOSITION	CUSTOMER RELATIONSHIP	CUSTOMER SEGMENTS
1. Who are your key partners? 2. Who are your key suppliers? 3. What key resources are you acquiring from your partners? 4. Which key activities/do your partners perform tasks?	1. What key activities does your value proposition require? 2. What key activities are carried out in your distribution channels? 3. What key activities are necessary for creating and maintaining customer relationships? 4. What key activities are necessary to ensure adequate revenue?	1. What products and services do you deliver to the customer? 2. What is the main customer issue/problem you are trying to resolve? 3. Which customer needs are you paying specific attention to? 4. What bundles are you offering customers and potential customers?	1. What type of relationship does each of your customer segments expect and have with you? 2. Of these, which have you established? 3. How costly are they? 4. How are they integrated with your business model?	1. Who is your target market? 2. Who are your most important customers? 3. Which customers play a key role in the overall outcome?
	KEY RESOURCES 1. What key resources does your value proposition require? 2. How many distribution channels do you have? 3. Have you established proper customer relationships? 4. Are you making use of multiple revenue streams?		**CHANNELS** 1. What mode of reach do you prefer using? 2. How are you reaching your target population/group currently? 3. How are your channels integrated? 4. Which work best and are in line with customer routines? 5. Which of your channels is more cost-effective?	

COST STRUCTURE	REVENUE RESOURCES
1. What are the most crucial costs to your business model? 2. Which key resources are most expensive? Which key activities are the most expensive?	1. What combination of goods and services are your customers willing to pay? 2. What do they currently pay? 3. What means of payment do they use? 4. What is their preferred method of payment? 5. How much does each stream contribute to the overall revenue?

We examined three South African insurtechs – Naked, Simply and Click2Share. Several insurtechs in other countries were also discussed.

6.4 Interviews

As part of the case study, interviews were conducted with insurtech managers to obtain in-depth information on skills demand, supply and mismatches. The managers possess the following:

i. Experience, knowledge and insights into the sector.
ii. Level of involvement, influence and interest in the sector.
iii. Knowledge of insurtechs' skills needs.

A semi-structured interview schedule is developed, enabling the interviewer to probe interviewees and allow for in-depth responses.

6.5 Data Analysis

The Constant Comparative Analysis (CCA) method was employed to ensure that the coding process maintains its momentum by moving back and forth, identifying similarities and differences between emerging categories. Having identified a common feature that unites instances of a phenomenon, the researcher would refocus on differences *within* a category to identify any emerging *subcategories*. In this way, the full complexity and diversity of the data can be recognised, and any homogenising impulse can be counteracted. The ultimate objective of CCA is to link and integrate categories so that all instances of variation are captured.

6.6 Triangulation

The data collected from the literature review, interviews and case studies were triangulated to produce a Draft Report. This process is vital to validate findings, establish areas where there may be inconsistencies between data sources, identify any possible outliers, and determine whether there is a need to undertake additional analysis. It entailed comparing data and considering the views of participants.

## 7. LITERATURE REVIEW

7.1 Insurtech Landscape

Insurtechs are a growing segment of the insurance sector. There are about 1 500 insurtech start-ups worldwide. Funding is slowly becoming less of an issue as $9 billion has been committed to over 700 insurtechs for the past five years. Insurtechs have grown into a $5.5 billion sub-sector that can now disrupt mainstream insurance companies. It is forecasted that by 2025 the sub-sector will almost double to $10.14 billion.[44]

An increase in venture capital funding has driven Insurtech growth since 2010. Compared to other fintech sub-sectors, insurtechs have better cooperation and collaboration than direct competition and disruption. The insurtech ecosystem is supported by several private-sector initiatives like innovation hubs and accelerators. It is further supported by several public-sector initiatives (innovation hubs, accelerators, sandboxes). [45]

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[44] Mueller, J., 2018. InsurTech Rising: A Profile of the InsurTech Landscape. *Milken Institute*, *10*.
[45] Braun, A. and Schreiber, F., 2017. *The current InsurTech landscape: business models and disruptive potential* (No. 62). I. VW HSG Schriftenreihe.

Exhibit 7: Insurtech ecosystem
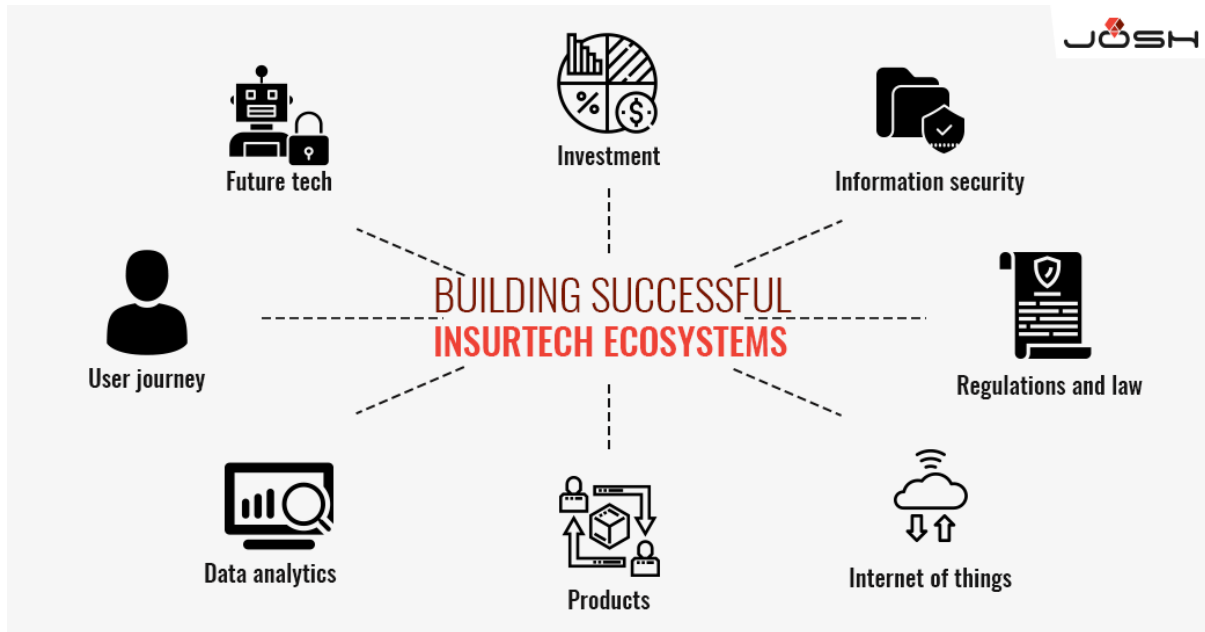
Source: Rege (2019)

Digitalisation is normal, and insurtechs are no exception. Reaching people requires digitalisation, and automation capabilities have become a driving factor. Autonomous reach and virtual presence have become more effective with payment improvements such as blockchains.[46]

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[46] Koprivica, M., 2018. Insurtech: challenges and opportunities for the insurance sector. In *2nd International Scientific Conference ITEMA* (pp. 619-625).

Exhibit 8: Insurtech ecosystem
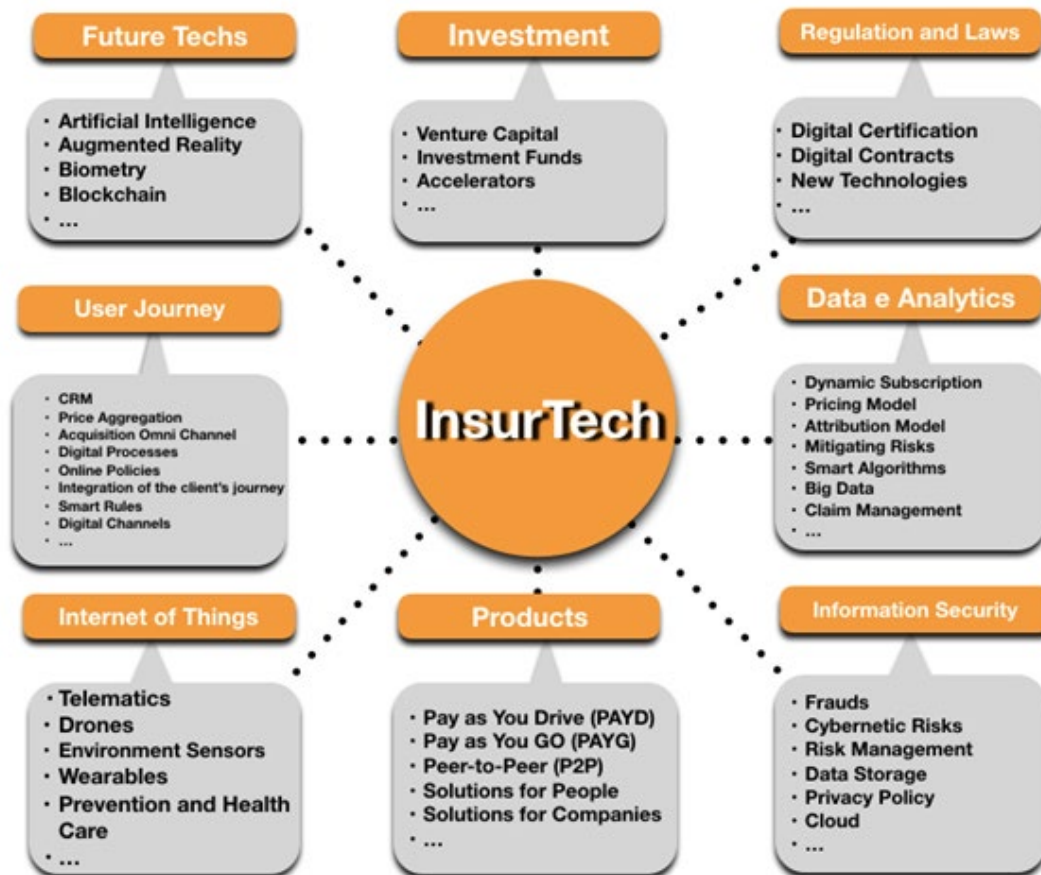
Source: insurtechnews.com

The insurance industry presents opportunities for insurtechs due to traditional insurers covering most people. Technological innovations, attending to mass consumers and capturing their data have paved the way for insurtechs. [47]

It is not easy to pinpoint a value chain fitting for insurtechs due to variations in business models.[48] Consequently, not enough progress is made in tracking insurtechs and evaluating their gains in ensuring financial inclusion. The insurtech space continues to evolve at an incredible pace. [49]

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[47] IBID

[48] Braun, A. and Schreiber, F., 2017. *The current InsurTech landscape: business models and disruptive potential* (No. 62). I. VW HSG Schriftenreihe.

[49] Braun, A. and Schreiber, F., 2017. *The current InsurTech landscape: business models and disruptive potential* (No. 62). I. VW HSG Schriftenreihe.

7.2 Competitive Insurtech Landscape

The insurtech market is scattered with many agents in life and non-life insurance. The growth of policies increased during COVID-19 with better deals for clients. It is due to AI, machine learning and Blockchain in the insurance sector.[50] Insurtechs' strength lies in customising policies to meet client expectations. [51]

7.3 Growth of Insurtechs

The insurtech market is expected to grow due to the simplification of the claims process, improved communication with the client, and the capability to implement automation.[52] Health insurance is expected to have the highest growth rate. It is attracting funds from legacy players and investors because of innovations.[53] Ping, United Health Group and Allianz have increased their rankings due to technology and digitalisation.

Although Africa is considered a developing area of business, its insurance industry is valued at $68 billion and is the eighth largest. Markets are inconsistent in size, mix, growth, and degree of consolidation, with 91% of premiums concentrated in just ten countries. In Southern Africa, 54% of the premiums are life cover. However, in the other parts of Africa, non-life insurance premiums are prominent. [54]

Africa is experiencing double-digit insurance growth. It is attributed to economic growth instead of penetration.[55] It allows a gap for insurtechs to capitalise and make a major impact while strengthening the insurance market in Africa. The current penetration rate in Africa is half the global average, and premiums are lower than that of the world.[56]

Growth is more likely to come from pensions and life insurance in Africa - the fastest-growing products. Motor insurance is a close competitor and is the largest contributor to non-life insurance. Property insurance is growing in Morocco, Kenya, Nigeria, and Egypt.[57] The possibility for growth in the commercial market is also good in Nigeria, with oil and gas growing at 9% and marine and aviation at 10% per annum between 2014 and 2018. In 2018, oil and gas, marine, and aviation insurance accounted for 34% and 11% of non-life gross premiums. The Ghana Oil and gas insurance pool (GOGIP) was raised from $25 million to $48 million between 2016 and 2019.[58]

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[50] Neale, F.R., Drake, P.P. and Konstantopoulos, T., 2020. InsurTech and the Disruption of the Insurance Industry. *Journal of Insurance Issues*, *43*(2), pp.64-96.

[51] Braun, A. and Schreiber, F., 2017. *The current InsurTech landscape: business models and disruptive potential* (No. 62). I. VW HSG Schriftenreihe.

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[53] Scheil-Adlung, X., 2018. Worldwide innovations in health insurance reform. In *Recent Health Policy Innovations in Social Security* (pp. 9-30). Routledge.

[54] Alhassan, A.L. and Biekpe, N., 2016. Determinants of life insurance consumption in Africa. *Research in International Business and Finance*, *37*, pp.17-27.

[55] Alhassan, A.L., 2016. Insurance market development and economic growth: Exploring causality in 8 selected African countries. *International Journal of Social Economics*.

[56] IBID

[57] IBID

[58] IBID

7.4 Growth Trends in Africa

Insurance in Africa is on the rise, and several trends show promise. Our analysis highlights five pivotal ways to determine how the sector evolves in a post-pandemic world.

- Stimulating growth through structural reform.

- Increasing access through digital innovation and wider distribution.

- Accelerating growth through competition, innovation, and disruption.

- Using regulatory supervision to get to consolidation.

- Ensuring long-term growth prospects through Pan-Africanisation.

7.5 Insurtech Disruption

Insurtechs are disrupting the insurance market by leveraging technology. The IoT, ML, AI, big data, and Blockchain disrupt the sector. These advancements allow insurtech companies to assess risk and price it into products. Chatbots limit human interactions. In addition, claims and settlements can be managed much more easily and remotely.[59]

With investments, insurtechs are expected to dominate the global market.[60] There are signs that traditional insurers are slow to take on technological innovations. Insurtechs have a huge uptake as they solve many legacy issues.

Lack of inclusion: Many insurers do not accommodate the lower socio-economic groups, and not much effort is made to insure the uninsured. These pose risks for bigger ISPs.[61]

Lack of direct relationship: The insurance sector does not necessarily require face-to-face communication. People prefer to do things from their homes and with minimal effort. Insurtechs can cover a person online, and a rapport can be created virtually. Client needs are tailored virtually. Chatbots communicate with clients to address smaller issues.[62]
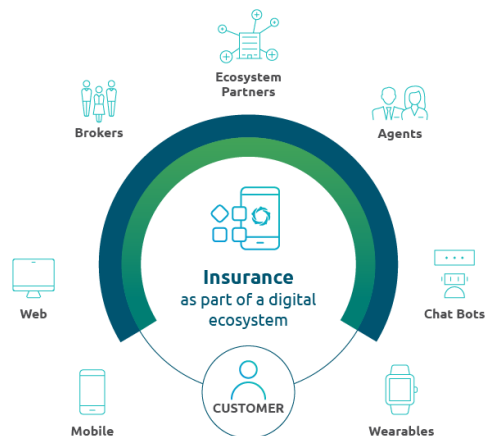
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[59] Team FinTech Central., May 27, 2021. *InsurTech: The Technological Disruption of the Insurance Industry*. FinTech Central. https://www.fintechcentral.in/2021/05/27/insurtech-the-technological-disruption-of-the-insurance-industry/
[60] IBID
[61] IBID
[62] IBID

Exhibit 9: Insurtech ecosystem partners

Source: www.softwaregroup.com

Predictive nature: The ability to foresee events dictates premiums. ML and AI make forecasting more reliable than guesswork. It is cost-effective and can be done without physical interaction. The system can be accessed from the cloud from anywhere.[63]

Tech-Devices: Smartphones, drones and sensor devices are becoming more affordable and accessible.[64] Moisture and temperature sensors linked to IoT devices and apps can be used in houses and agricultural fields. Drones to conduct inspections over larger areas that save time are more cost-effective. Monitoring devices are attached to machines to monitor maintenance to avoid failures. Auto insurance telematics devices in cars determine premiums and excess payment while encouraging better driving. Devices like smartwatches, phones, bands, and others can help motivate people to be healthier.

IoT: IoT gathers information on our daily habits to better service. IoT helps insurers improve customer experience, evaluate risk and create better insurance products. For example, there are devices capable of preventing water leaks, fires, gas leaks or internet outages based on IoT.[65]

Blockchain: Blockchain enables more security in transactions. Data is transferred to 3rd parties through codes. It enables us to create smart contracts, reduce paperwork, and make faster processes based on client needs. [66]

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[63] Team FinTech Central., May 27, 2021. *InsurTech: The Technological Disruption of the Insurance Industry*. FinTech Central. https://www.fintechcentral.in/2021/05/27/insurtech-the-technological-disruption-of-the-insurance-industry/

[6464] IBID

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[66] n.a., 3 May, 2021. What are the drivers of change inside the Insurance Sector? *Wenalyze.* Wenalyze

Cloud Computing: It brings the benefits of cost reduction and process optimisation. As the information is stored in the cloud, it is easier to access it anywhere. At the same time, this storage is more organised, efficient, and protected. [67]

Open Data: Open data is any information accessed and found on the internet (publicly available). It is a world of underwriting client data. It is easier to automate and improve underwriting.[68]

Exhibit 10: Building a digital strategy
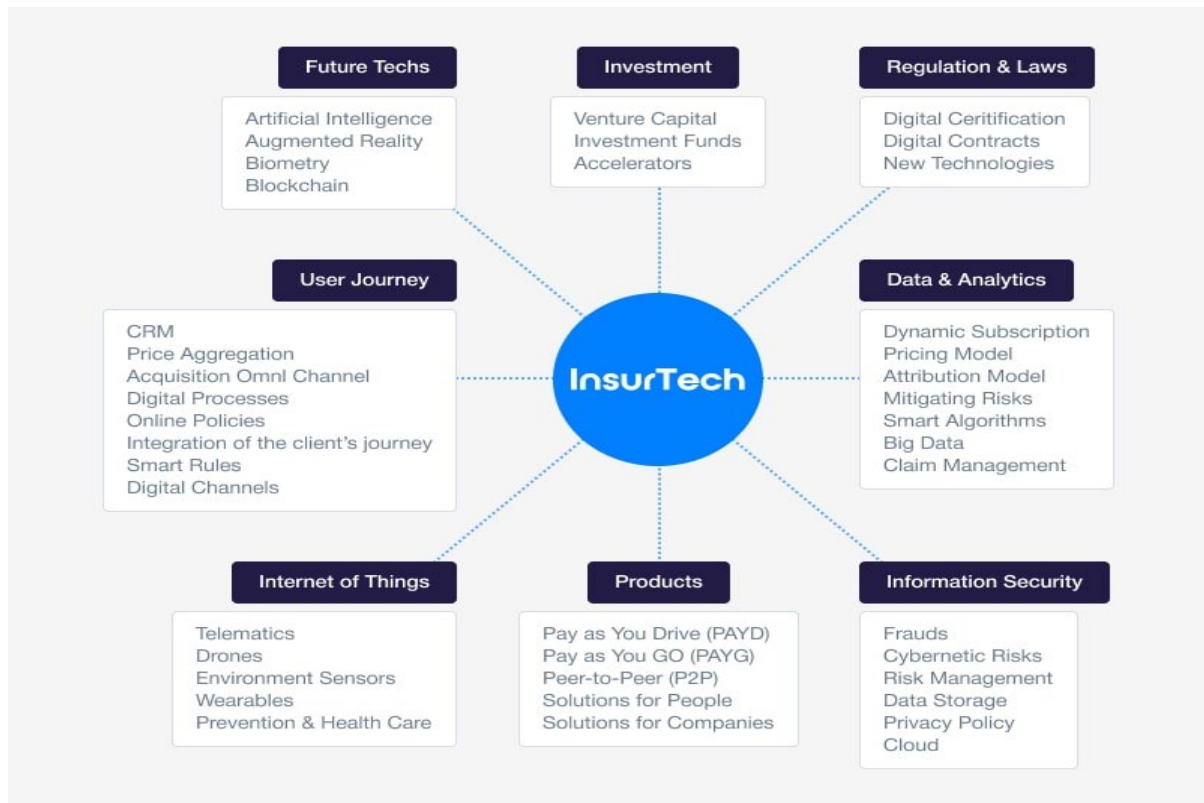
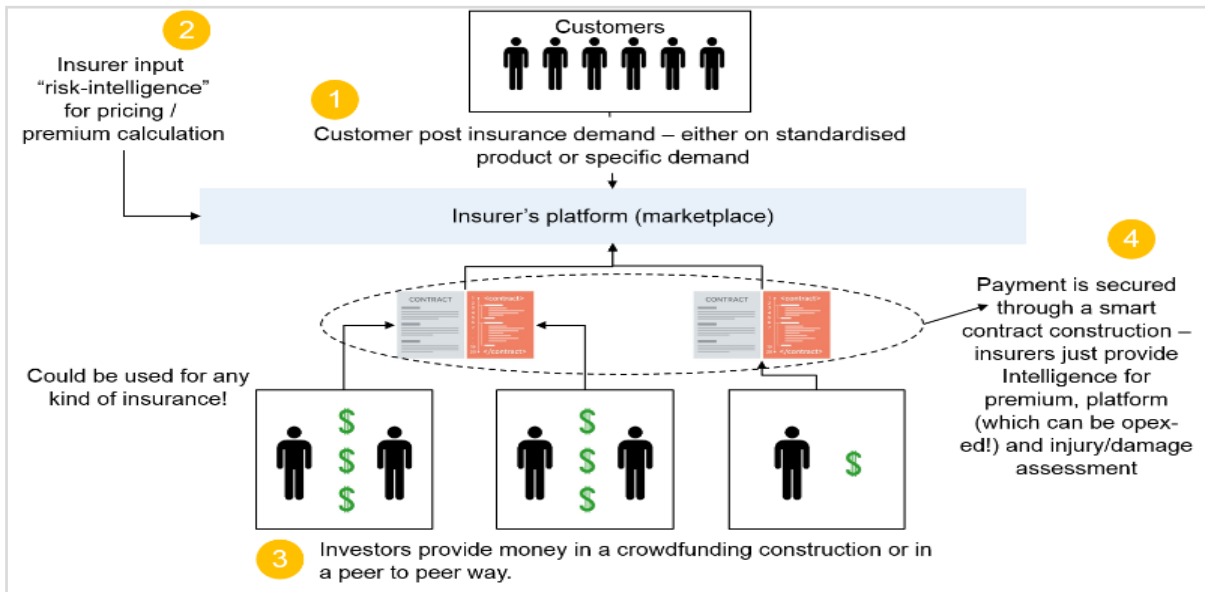Source: Clark, E (2020)

7.6 Business Models

P2P insurance: P2P insurance is based on a group of associated or like-minded individuals who pool their premiums to share risk instead of paying a traditional insurance provider to ensure their risk.[69] Customers approach the insurer with a demand/offer on a product. After that, insurers place risk on it, detailing the final pricing. Once that is done, "crowdfunding" allows many people to contribute funds towards it.

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[67] IBID
[68] IBID
[69] Edinger, H., Masha, Y., Adepoju, R., Schaefer, S., Xabanisa, S., August 2017. Unlocking new markets Digital innovation in Africa's insurance industry. *Deloitte.*, p1-24

Exhibit 11: Peer-to-peer insurance

Episodic/on-demand: Episodic insurance covers on-demand protection. The coverage lasts for a set period. This model is attractive for the sharing economy in which users do not own the assets but use them for a limited period.[70] It is achieved quicker through mobile apps. The direction in which technology and insurtechs are going allows for a more user-friendly process while achieving the required results.

Exhibit 12: Mobile apps

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[70]Edinger, H., Masha, Y., Adepoju, R., Schaefer, S., Xabanisa, S., August 2017. Unlocking new markets Digital innovation in Africa's insurance industry. *Deloitte*., p1-24

Index Insurance: Index insurance pays out benefits on a predetermined index, e.g., insufficient rainfall levels that will result in harvest loss. This model allows quick payouts, not relying on cumbersome and costly claims assessment processes. Donors often back this type of insurance.[71] Clients immediately deal with the issue by eliminating waiting for the actual issue to present itself in its worst form.

Exhibit 13: Index insurance

Source: https://www.cimmyt.org/
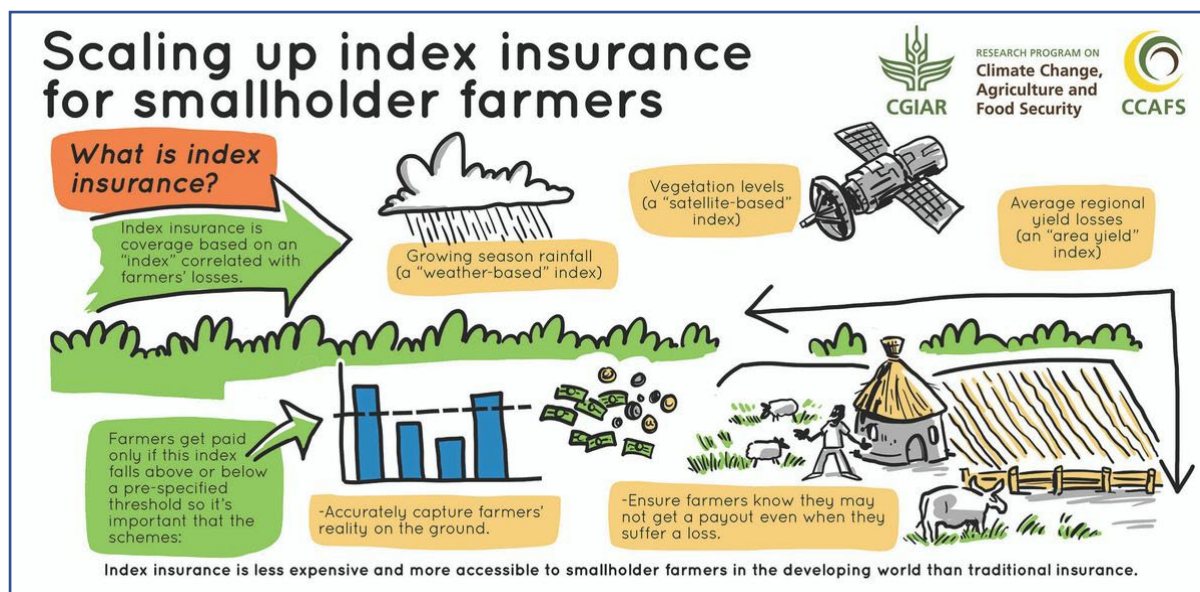
8. Skills Needs

Digital Skills: Digital skills are generic (e.g., administration or e-health). Software, hardware, troubleshooting, machine learning, data analysis, cyber security, programming, artificial intelligence, data science, Blockchain, Internet of things, robotics, cloud computing and big data are in demand.

Digital Leadership Skills: Leadership is needed to manage business process engineering, IT strategy, and organisational development.

ICT Practitioner Skills: Skills are needed for researching, designing, developing, managing, producing, consulting, marketing, selling, integrating, installing, administrating, maintaining, supporting, and servicing ICT systems.

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[71]Edinger, H., Masha, Y., Adepoju, R., Schaefer, S., Xabanisa, S., August 2017. Unlocking new markets Digital innovation in Africa's insurance industry. *Deloitte.*, p1-24

Digital Literacy: This can be described as the ability of individuals to use digital tools and facilities to perform tasks, solve problems, communicate, manage information, collaborate, create and share content, and build knowledge.

Coding and Programming: Coding, programming, running, operating digital systems, and creating commands.

Blockchain Analysis and Control: Blockchain is a safe method for conducting transactions. Therefore, blockchain skills are likely to grow in demand.

Cybersecurity: Digital apps can be hacked or compromised. There is an increased risk of cyberattacks due to increased data sharing. Therefore, skills are needed in cybersecurity.

Exhibit 14: Insurtech skills needs
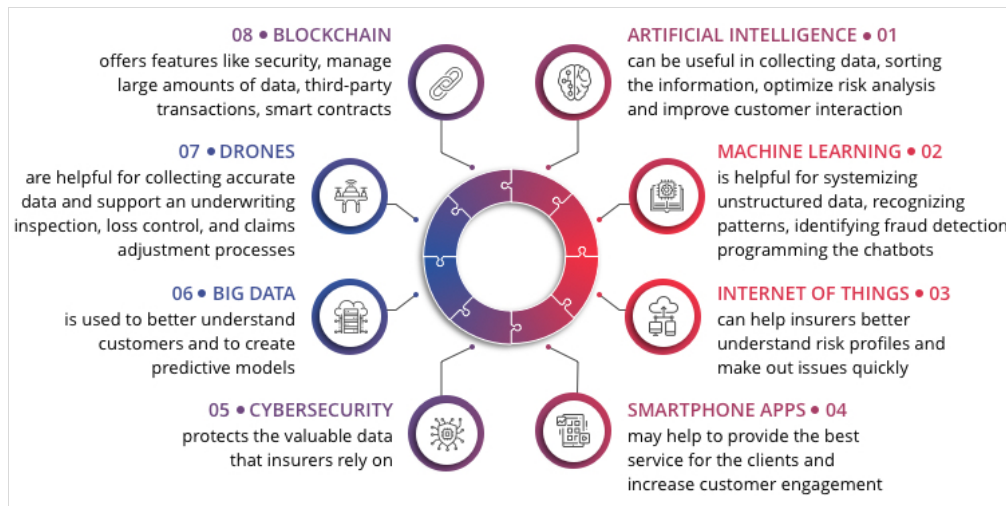
Source: 4tifier.com

9. Occupations

Insurtech occupations include: [72] [73]

Occupations		
ESG Specialist	Desktop Support Technician	Data scientist
Senior UX/UI Designer	Junior Oracle Developer	Research scientists
Lead Solutions Architect	Digital consulting Manager	Applications developer
ICT Engineer	IT Technical Specialist	AI developer
DevOps Engineer	Digital ethics officers	Machine learning scientist
Cyber/IT Security Specialist	Futurist	Intelligence analyst
Data Analyst	Digital risk managers	Big data specialist

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[72] DEDAT (2020) Western Cape Digital Skills Shared Agenda For Action. DEDAT
[73] National digital and future skills strategy South Africa (2020) www.gpwonline.co.za

Occupations		
Software Developer	Analytical engineers	Developer/engineer
Cyber Security Architect	BI engineer	Data scientist
Junior Software Developer	Database architect	Security analyst
Security tool specialist	Digital systems developer	Cybersecurity regulatory specialist
Information security specialist	Cloud computing solutions engineer	AI scientist
Incident response specialist	Cloud AI research specialist	Product developer
Digital graphic designer	Network engineer	Big data manager
IP network engineer	Consulting engineer	Research scientist
Mobile application developer		

10. Skills Gap

The digital skills shortage is influenced by the state of the education system and its responsiveness to employer demand. Therefore, the relationship between education, work and skills development are interdependent. The education system should produce learners with cognitive skills, agility, curiosity, problem-solving, resilience, and STEM.[74]

The digital divide exacerbates the current skills shortage. It contributes to unemployment. Paradoxically, digitalisation can also remedy the problem.[75]

Many South African ISPs lack the skills to compete in the digital economy. Employees should work with AI, Blockchain, biotech, machine learning, robotics, nanotechnology, IoT, quantum computing, and big data analysis.[76]

The JCSE-IITPSA ICT Skills Survey ranks "Information Security/Cybersecurity" as a top priority role for organisations. Second level priority roles are "Big Data/Data Analytics", "Software as a Service/Cloud Computing", "Artificial Intelligence", and "Application Development". [77]

Skills such as "Database Development" and "Business Intelligence/Knowledge Management" fell off the top tier list. All types of digital skills in the South African ICT sector are in short supply.[78]

Key occupations and skillsets required by insurtechs are digital skills. The impact of automation and digitalisation on the world of work is likely to increase further in the years to

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[74] DEDAT., 2020. Western Cape Digital Skills Shared Agenda For Action. DEDAT
[75] IBID
[76] Harambee., November 2020. *Final Report Mapping Of Digital And Ict Roles And Demand In South Africa*. Harambee Youth Employment Accelerator.
[77] IBID.
[78] IBID

come. And in future years, automation is likely to continue to create more jobs than it destroys. It also likely looks that transformation in occupational roles and the shifting of jobs within and between sectors will accelerate.

Advanced levels of training and complex problem-solving skills have also become more important for employees. The training system must adapt to the challenges of automation and digitalisation. It includes accelerating changes in vocational training to respond rapidly to evolving occupational profiles and skills requirements and focusing more on basic education in ICT skills and social intelligence. These skills include entry-level and advanced digital skills.

Entry-level digital skills can include:

- Computer literacy
- Data entry
- Social media
- Web-based communications and research
- Word processing
- Email and chat
- Secure information processing

Advanced digital skills can include:

- Programming, web, and app development
- Digital business analysis
- Digital marketing and content creation
- Digital design and data visualisation
- Digital product management
- Data science
- User experience design

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