

1. Record Nr.	UNINA9910805701203321
Autore	Mazibuko-Makena Zamanzima
Titolo	Leap 4.0. African Perspectives on the Fourth Industrial Revolution : African Perspectives on the Fourth Industrial Revolution
Pubbl/distr/stampa	: The Mapungubwe Institute for Strategic Reflection (MISTRA)
ISBN	9781928509165 1928509169
Descrizione fisica	1 online resource , 1 online resource
Soggetti	Industry 4.0 - Africa Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Title page -- Copyright page -- Contents -- Preface -- Acknowledgements -- Contributors -- Acronyms and abbreviations -- INTRODUCTION. Framing the Fourth Industrial Revolution in the context of Africa -- A CRITICAL REVIEW OF THE NOTION OF THE FOURTH INDUSTRIAL REVOLUTION -- A BRIEF HISTORY OF INDUSTRIAL REVOLUTIONS AND 'THE ABSENCE' OF AFRICA -- POSITIONING THE 4IR WITHIN A DEVELOPING CONTEXT -- SUMMARY OF THE BOOK CHAPTERS AND THEIR CONTRIBUTIONS -- REFERENCES -- Section One - Emerging Technologies and Inclusive Innovation -- ONE. A new digital deal rather than a Fourth Industrial Revolution policy? -- INTRODUCTION -- POLICY AND GOVERNANCE RESEARCH PROBLEM -- NATIONAL RESOURCE ALLOCATION: DEMAND VALUATION OF SPECTRUM AS A PUBLIC GOOD -- GLOBAL GOVERNANCE OF GLOBAL PUBLIC GOODS: INTERNET AND DATA AS GLOBAL PUBLIC GOODS -- LOCAL GOVERNANCE: SMART TOWNSHIPS -- SMART TOWNSHIPS -- CONCLUSION -- REFERENCES -- TWO. From science, technology and innovation to Fourth Industrial Revolution strategies in Africa: The case for indigenous knowledge systems -- INTRODUCTION -- STI POLICY LANDSCAPE IN AFRICA - A FORETASTE OF EMERGENT 4IR STRATEGY -- MEASURING STI READINESS IN AFRICA: THE CASE OF NIGERIA AND KENYA -- BEYOND STI: SOUTH AFRICA'S 4IR STRATEGY -- SOUTH AFRICA'S PROGRAMME ON INDIGENOUS KNOWLEDGE SYSTEMS (IKS) --

IKS MISSING IN THE 4IR STRATEGY -- INDIGENOUS KNOWLEDGE AND INDIGENOUS KNOWLEDGE SYSTEMS: SCOPE AND SCALE -- TK/IK: INTELLECTUAL PROPERTY, BIOPIRACY, ACCESS AND BENEFIT SHARING -- SAMPLES OF SECTORAL SITES WHERE 4IR TECHNOLOGIES INTERFACE WITH IKS -- CONCLUSION -- REFERENCES -- THREE. When algorithms meet humanity -- INTRODUCTION -- ALGORITHMS: APPROACHES AND PARADIGMS -- SOCIOTECHNICAL FRAMEWORK -- ESCAPING HUMAN FALLIBILITY: ALGORITHMIC GENIUS -- UNDECLARED ARBITERS OF HUMAN DECISION-MAKING AND CONFIDANTES.

ALIGNING SOCIAL AND TECHNICAL SYSTEMS -- REFERENCES -- FOUR.

Why African natural language processing now? A view from South Africa #AfricaNLP -- INTRODUCTION -- MACHINES UNDERSTANDING LANGUAGE: FROM AI TO TEXT -- WHERE IS THE DATA? -- PAST EXPERIENCE WITH SOUTH AFRICAN LANGUAGE PROCESSING -- CHALLENGES FACING LOCAL LANGUAGES -- HOW WE MOVE FORWARD: EXPANDING AFRICAN NLP -- CONCLUSION -- ACKNOWLEDGEMENTS -- REFERENCES -- Section Two - Human Capability Formation -- FIVE.

Education and skills development in the South African Fourth Industrial Revolution: Confronting the dynamics of human capabilities, technological change and structural inequality -- INTRODUCTION -- FRAMING EDUCATION POLICY IN THE ERA OF THE FOURTH INDUSTRIAL REVOLUTION -- EDUCATION AND SKILLS DEVELOPMENT IN THE FOURTH INDUSTRIAL REVOLUTION -- PREPARING HUMANS FOR A FUTURE OF DECENT WORK -- THE 4IR AND SOUTH AFRICAN EDUCATION INSTITUTIONS -- POLICY IMPLICATIONS -- CONCLUSION -- REFERENCES -- SIX. The impact of adopting 4IR-related technologies on employment and skills: The case of automotive and mining equipment manufacturers in South Africa -- INTRODUCTION -- THE 4IR AND ENTERPRISE HETEROGENEITY -- METHODOLOGY AND DATA COLLECTION -- ADOPTION OF 4IR TECHNOLOGIES AND IMPACT ON EMPLOYMENT AND SKILLS -- FINAL REFLECTIONS AND POLICY CONSIDERATIONS -- REFERENCES -- SEVEN. Impact of current technologies on jobs and employment: Insights from mining and banking in South Africa -- INTRODUCTION -- THE IMPACT OF ROBOTS ON EMPLOYMENT -- SETTING THE SCENE - SOUTH AFRICA -- TECHNOLOGY IN BANKING AND MINING -- CONCLUSION: THE ROLE OF INSIGHTS IN SHAPING POLICY DISCUSSION -- REFERENCES -- EIGHT.

The impact of new technologies on labour relations and market structures in the economy: The case of Uber -- INTRODUCTION -- SOUTH AFRICA AND THE 4IR -- SHARING OR TAKING ECONOMY?. UBER'S ORIGINS AND ITS FORAY INTO SOUTH AFRICA -- THE DIGITAL ECONOMY, MARKET DISRUPTION AND SOCIAL DYNAMICS -- LABOUR RELATIONS AND TECHNOLOGY -- PRICING AND COMPETITIVENESS -- CONCLUSION: LESSONS AND RECOMMENDATIONS -- REFERENCES -- Section Three - Application of Advanced Technologies in Sectoral Developments -- NINE. The potential of Fourth Industrial Revolution technologies to transform healthcare: The question of access for the marginalised -- INTRODUCTION -- HEALTHCARE SYSTEMS AND TECHNOLOGICAL ADVANCEMENTS: GLOBAL TRENDS -- 4IR IN THE SOUTH AFRICAN HEALTH SECTOR -- THE CASE OF ELECTRONIC HEALTH RECORDS -- ENSURING EQUITABLE ACCESS TO TECHNOLOGIES IN HEALTHCARE -- CURRENT ADVANCES IN 4IR TECHNOLOGIES IN THE SOUTH AFRICAN HEALTH SECTOR -- WAY FORWARD: A MULTI-LAYERED, SYNDEMICS APPROACH TO HEALTHCARE -- CONCLUSION -- REFERENCES -- TEN. The potential benefits and risks of technologies of the Fourth Industrial Revolution in addressing environmental transgression in South Africa -- INTRODUCTION -- A JUST TRANSITION INTO A LOW-CARBON ECONOMY USING THE 4IR AS A CATALYST --

FRESHWATER QUANTITY, QUALITY AND ECOSYSTEM HEALTH -- LAND SYSTEM CHANGE -- MINING -- CARBON EMISSION AND CLIMATE CHANGE -- BIODIVERSITY MANAGEMENT AND ENVIRONMENTAL DECISION SUPPORT SYSTEMS -- HAVE WE LEARNT ENVIRONMENTAL LESSONS FROM PREVIOUS INDUSTRIAL REVOLUTIONS? -- POLICY RECOMMENDATIONS AND ENVIRONMENTAL GOVERNANCE IMPLICATIONS -- CONCLUSION -- REFERENCES -- ELEVEN. Inclusive energy transitions: An analysis of the potential for a digital revolution in South Africa's electricity system -- INTRODUCTION -- BACKGROUND LITERATURE: SOUTH AFRICA'S ELECTRICITY REFORM -- RESEARCH METHODOLOGY -- THE CASE OF SOUTH AFRICA -- GENERATION -- TRANSMISSION -- SYSTEM SIDE FLEXIBILITY -- DISTRIBUTION -- GRID-SIDE FLEXIBILITY -- CONSUMPTION/PROSUMERS -- DEMAND-SIDE FLEXIBILITY.

DISCUSSION AND CONCLUSION -- REFERENCES -- TWELVE. Intellectual property and Fourth Industrial Revolution technologies -- INTRODUCTION -- IP AND THE EARLY DEVELOPMENT OF 4IR TECHNOLOGIES -- IP'S PROBABLE IMPACT ON THE DEVELOPMENT OF 4IR TECHNOLOGIES -- FURTHER AND EQUITABLE DEVELOPMENT OF 4IR TECHNOLOGIES -- CONCLUSION -- REFERENCES -- CONCLUSION. Final reflections: Towards an inclusive and sustainable Fourth Industrial Revolution in Africa -- EQUITABLE ACCESS TO TECHNOLOGIES TO PREVENT EXACERBATION OF EXISTING INEQUALITIES -- THE NEED FOR INCLUSIVE, ETHICAL AND SUSTAINABLE INNOVATION -- GOVERNANCE AND REGULATION OF 4IR TECHNOLOGIES AND THEIR IMPACT IN SOCIETY -- SKILLS, EDUCATION AND PUBLIC SECTOR CAPACITY REQUIRED FOR THE 4IR -- REFERENCES -- INDEX -- Back cover.

---

#### Sommario/riassunto

"Leap 4.0: African Perspectives on the Fourth Industrial Revolution seeks to identify the challenges and opportunities the 4IR presents to South Africa and the rest of the African continent, especially to workers and marginalised sectors of society. Authors examine the prerequisites for the successful introduction of the 4IR, including infrastructure, skilled personnel and appropriate regulation. They underline the importance of inclusive innovation, with a deliberate objective to create net new jobs and reduce inequality. The 4IR is well established in many parts of the world, with technological advances driving profound social and economic change. However, for many developing countries, particularly countries in Africa, the 4IR may not offer the anticipated 'leap' forward. There is a danger that the continent may find itself dictated to by experiences that are not in tune with its social contexts"

---

--