Commencement

Throughout history, the need to preserve information has played a crucial role in facilitating communication, connections and knowledge generation.

Information has always been *the* fundamental resource that shapes societies, empowers individuals, encourage innovation and foster human development.

The unavailability of information undermines social cohesion, economic prosperity, democratic governance, transparency and societal resilience.

Where did it all begin?

Since the dawn of time humans wanted to leave behind information related to their experiences.

Pre-historic symbols were used by humans to convey information about their world.

Petroglyphs and pictograms were used to share information with others about events such as hunting, animal herding, dangers and death.
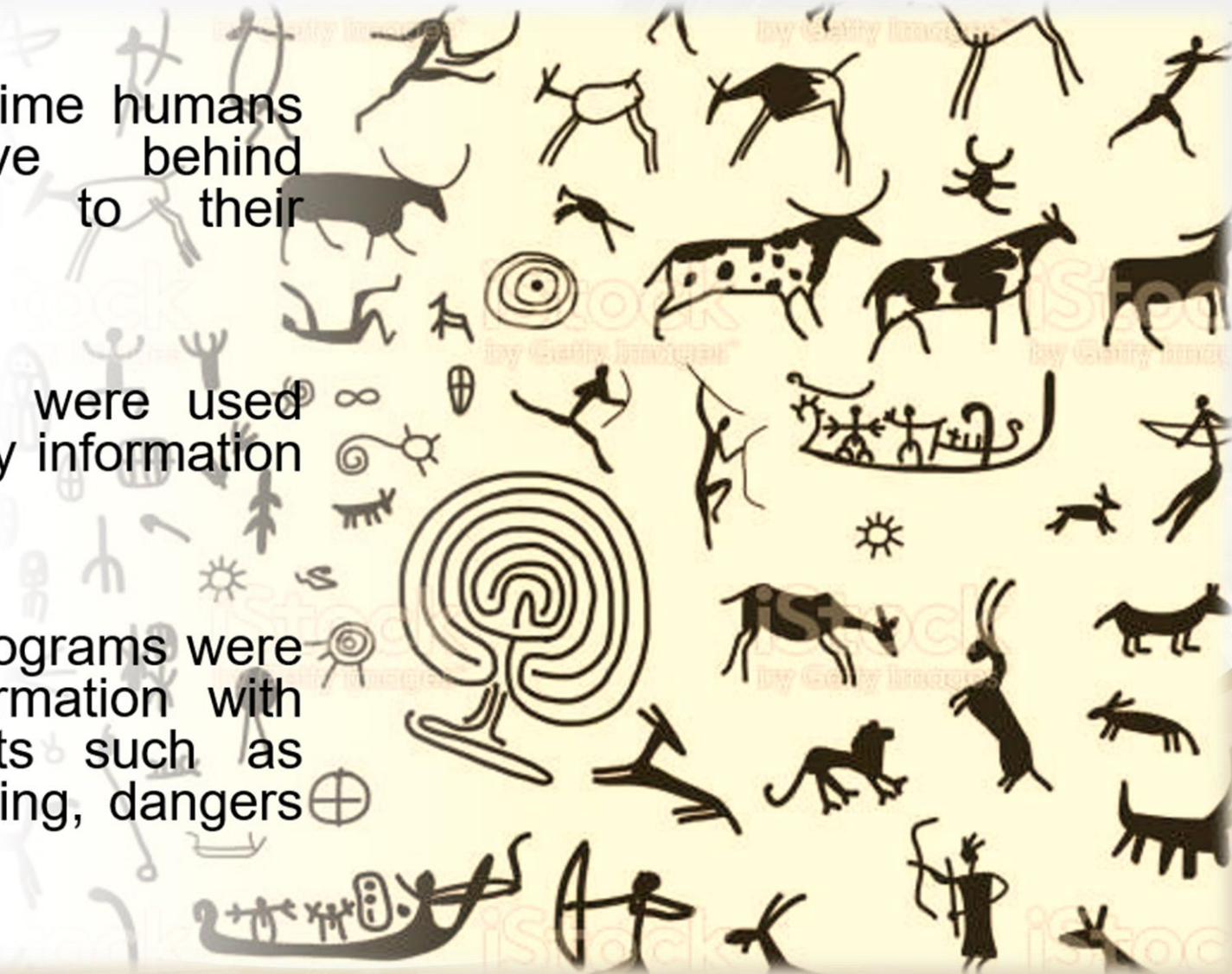
The need for information organisation

As humans evolved, so too, did their need to communicate.

The Cuneiform writing system in Mesopotamia, Egyptian Hieroglyphs and Chinese logograms expounded information sources needed to communicate social, economic, religious and political information.

The extent at which written records were created, laid the foundation for efforts to organise and store information.

The evolution of information professionals

- In ancient Mesopotamia, temples and palaces housed extensive collections of clay tablets containing administrative, legal and literary texts.

- In ancient Egypt, valuable sources of information were stored in temples, royal palaces and administrative centers.

- Ancient Greece held one of the earliest know public libraries – the Library of Alexandria in Egypt founded in the 3rd century BCE.

- In ancient China, imperial courts and Buddhist monasteries maintained extensive collections of scrolls and manuscripts for administrative, scholarly and religious practices

Scribes, who were highly educated individuals trained in reading and writing, served as custodians of these collections – responsible for managing the storage, cataloguing and preservation of information records.
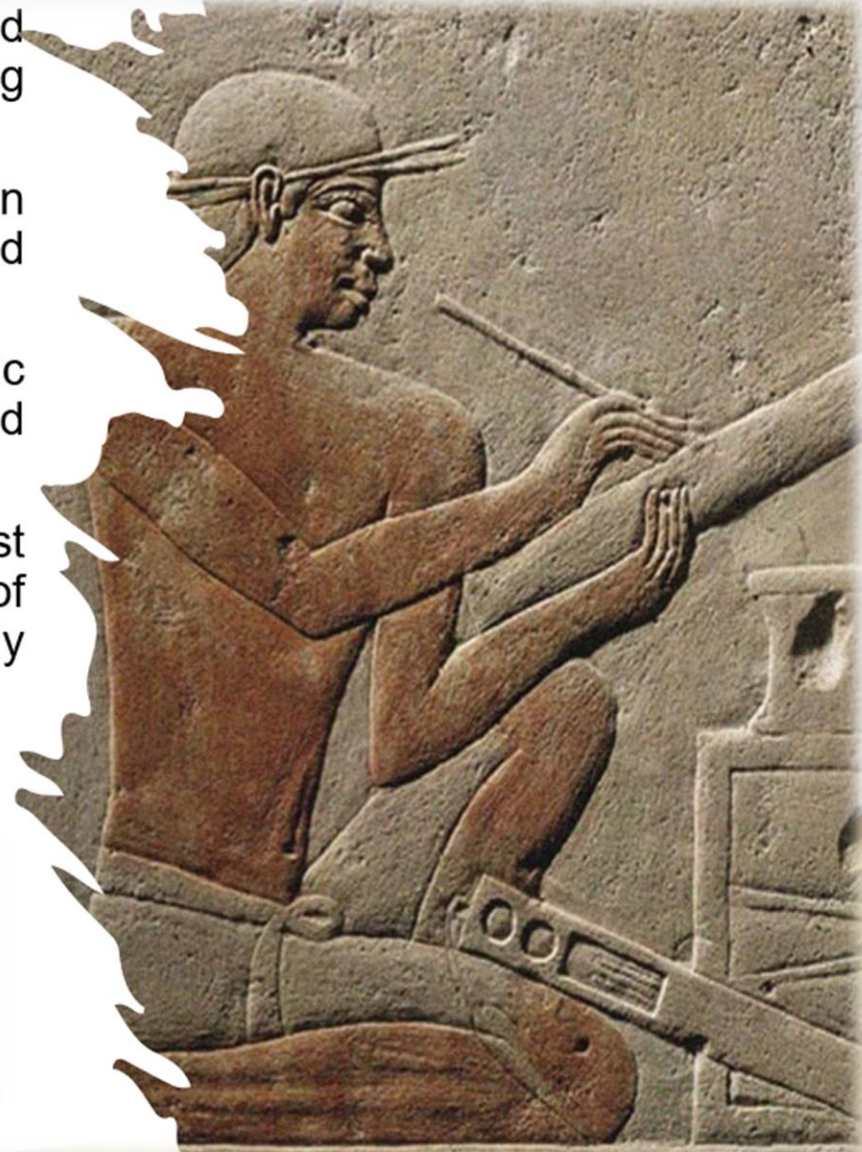
Who are these information professionals?

The term refers to individuals who work in various capacities to manage, organise, disseminate and make information of various formats accessible.

They are the curators of libraries, archives, museums, information centres, educational institutions, government organisations and corporations where information is preserved as a significant asset.

Early education of information professionals

Training during Ancient civilisations and Middle ages

Training during 17th to 19th centuries

Training during the late 19th to 20th centuries
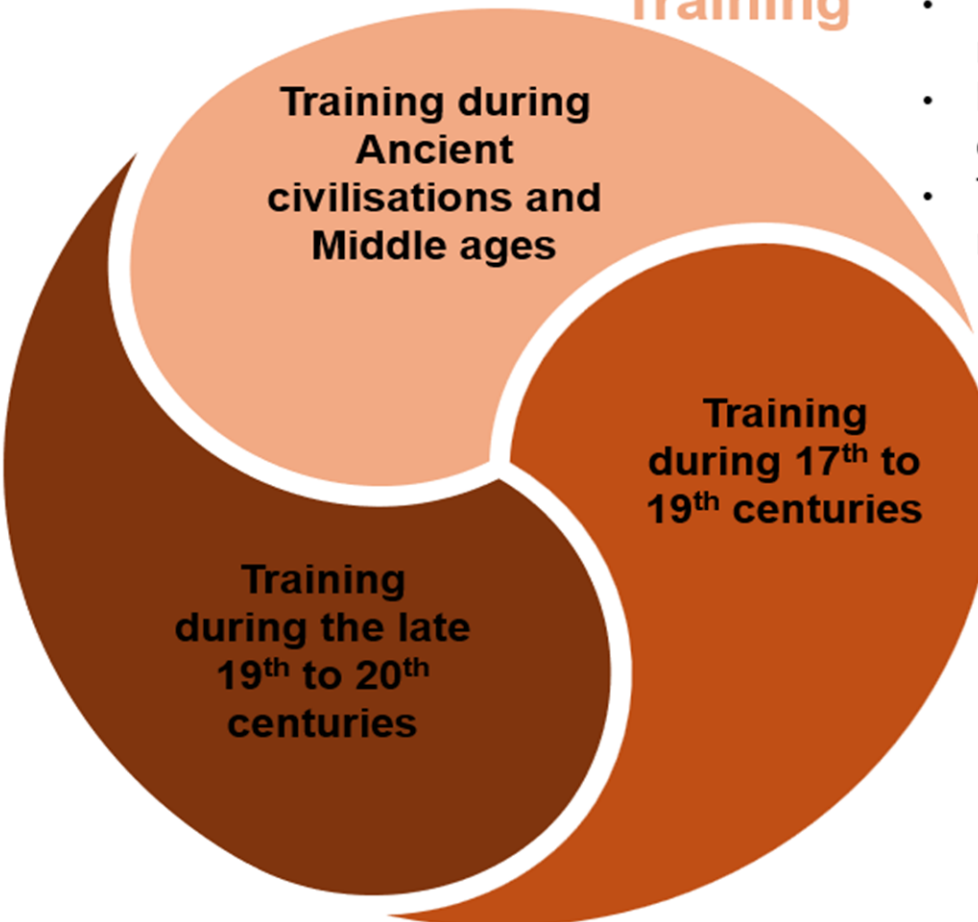
Apprenticeship and Informal Training

- Training through apprenticeship or informal mentorship
- Passed down knowledge and skills about cataloguing, preservation and access to information
- Training in scriptoria, collection organisation and manuscript preservation.

Early Formal Education

- Expansion of libraries in universities and churches the need for trained information professionals grew.
- Universities started to offer courses in bibliography and library management.

Emergence of Library Schools

- Establishment of library schools
- One of the first was the School of Library Economy at Columbia College founded by Melvil Dewey in 1887.
- Accreditation standards for library schools were established, which led to the recognition of maters degrees in library and information science.

Modern-day education of information professionals

Formal Training

- Doctoral Degrees
- Master's degrees
- Bachelor and Honours Degrees
- Undergraduate Certificates

Non-formal training

- Lifelong learning
- Short learning courses
- Skills development
- Workshops
- Seminars

Informal training

- Unplanned and unstructured
- No instructor - spontaneous
- Not goal oriented
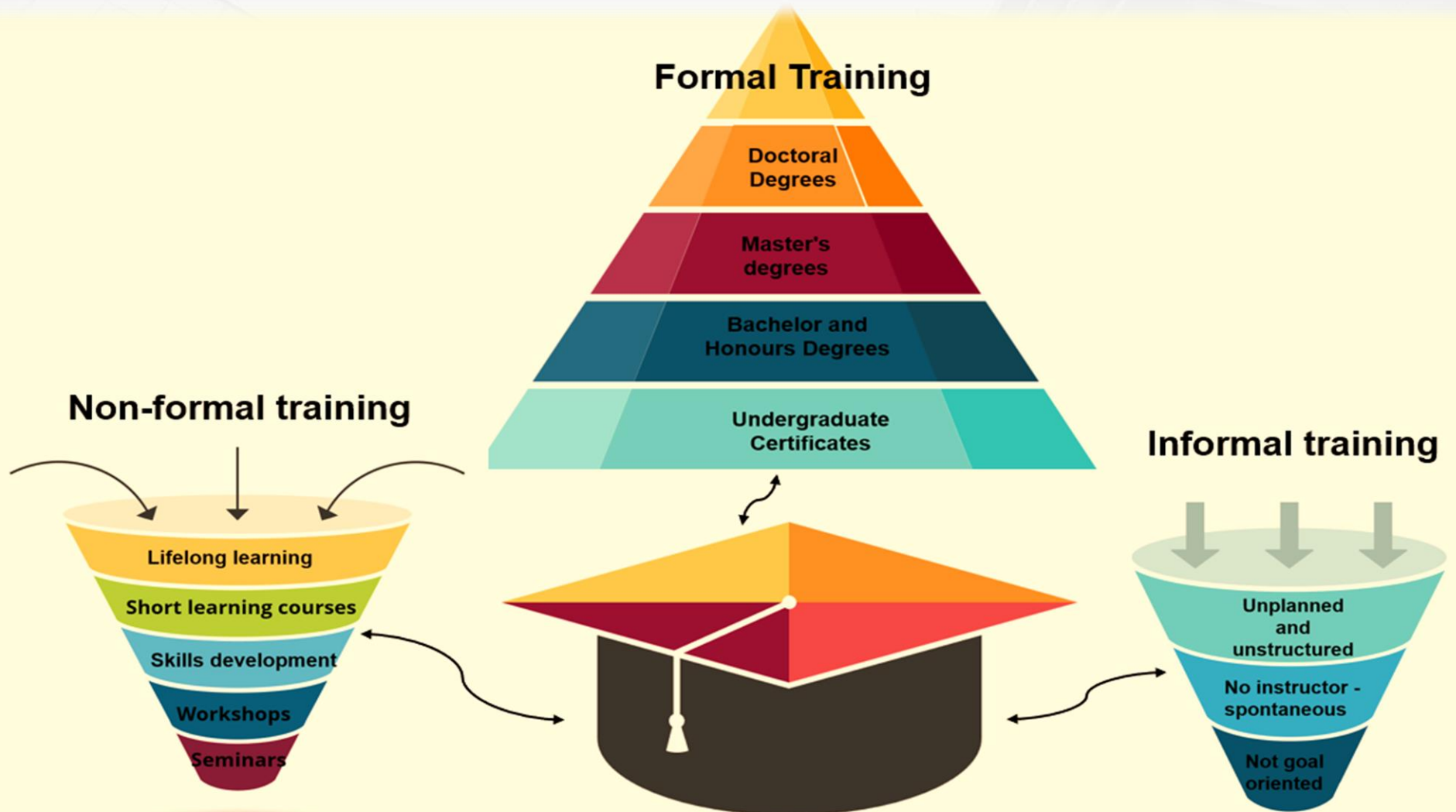
Education of information professionals across the world
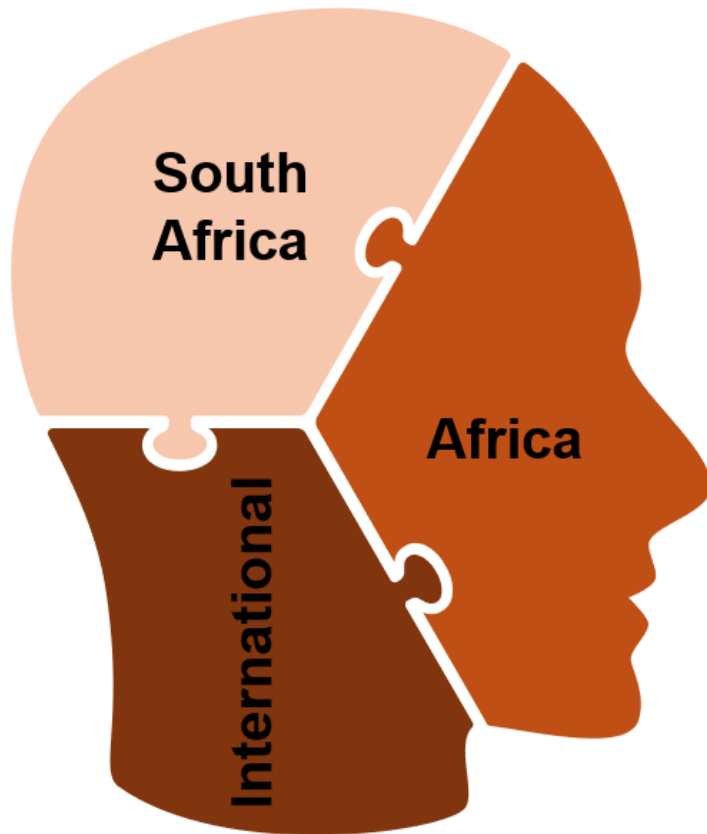
South Africa

- Higher Certificates
- 3- and 4-year bachelor degrees
- Honours degrees
- Postgraduate Diplomas
- Master's degrees
- PhDs

Africa

- University of Botswana – 4-year degree
- University of Ghana- 4-year degree
- Ahmadu Bello University in Nigeria - Diploma, Bachelor's degree, Masters, PhD
- University of Namibia – 4-year degree
- Moi University in Kenya – Bachelor of Science 4-year degree

International

- San Jose University (SJSU) – Master of Information Science
- University of South Carolina – BSC degree in information Science
- Syracuse University in New York – BSC degree in Information Management and Technology
- University College London – Knowledge, Information and Data Science MSc
- University of Toronto – Bachelor of Information 11 credit degree
- University of Michigan – Masters and PhD
- University of Sheffield – Masters and PhD

Marginalisation of information professionals

The 4th and 5th Industrial revolutions poses challenges for information professionals that may marginalise the profession if not addressed proactively.

These challenges include:

• Automation of information tasks

• Digital disintermediation

• Data-centric approaches

• Resource Constraints

• Digital divide and inequalities

Consequences of the marginalisation

Citizen scientists and researchers

Data scientist/ data analysts

IT specialists

Ethics and equality advocates

User-centric experience designers

Information architecture specialists

Digital literacy educators

Changing nature of the work

Digital preservation specialists

Digital humanities specialists

Heritage managers

Open access collection curators

Knowledge management specialists

Skills needed to overcome the marginalisation of information professionals

Information literacy skills

Technology proficiency

Data analytic skills

Skills to design friendly user-interfaces

Skills to train digital literacy

Collaboration skills

Critical thinking skills

Communication skills

Adaptability skills

Data management skills

Cultural competence and awareness skills

Decision-making skills

Innovation skills

Information management skills

Customer service skills

Research skills

Generative thinking skills

Vision-building skills

Maker space skills

Marketing skills

Informing current qualifications

Current structure of formal higher education qualifications is pre-determined by legislation and regulations:

- South African Qualifications Authority (SAQA) Act 58 of 1995 (amended) provide guidelines for the development and implementation of a National Qualifications Framework
- National Qualifications Framework Act 67 of 2008 (amended) aimed to establish an integrated framework for the recognition of qualifications
- Higher Education Amendment Act of 2016 that introduces measures to prove the quality assurance of higher education programmes
- Higher Education Quality Committee (HEQC) regulations that provides guidelines for the accreditation of higher education programmes and qualifications as well as the execution of quality audits
- Higher Education Regulations (2018) that provides detailed guidelines and procedures for the accreditation of higher education programmes and qualifications.
- National Policy on the Recognition of Prior Learning (RPL) (2019) to enable individuals to receive credit for skills and knowledge acquired through informal learning, work experiences and other non-formal means.
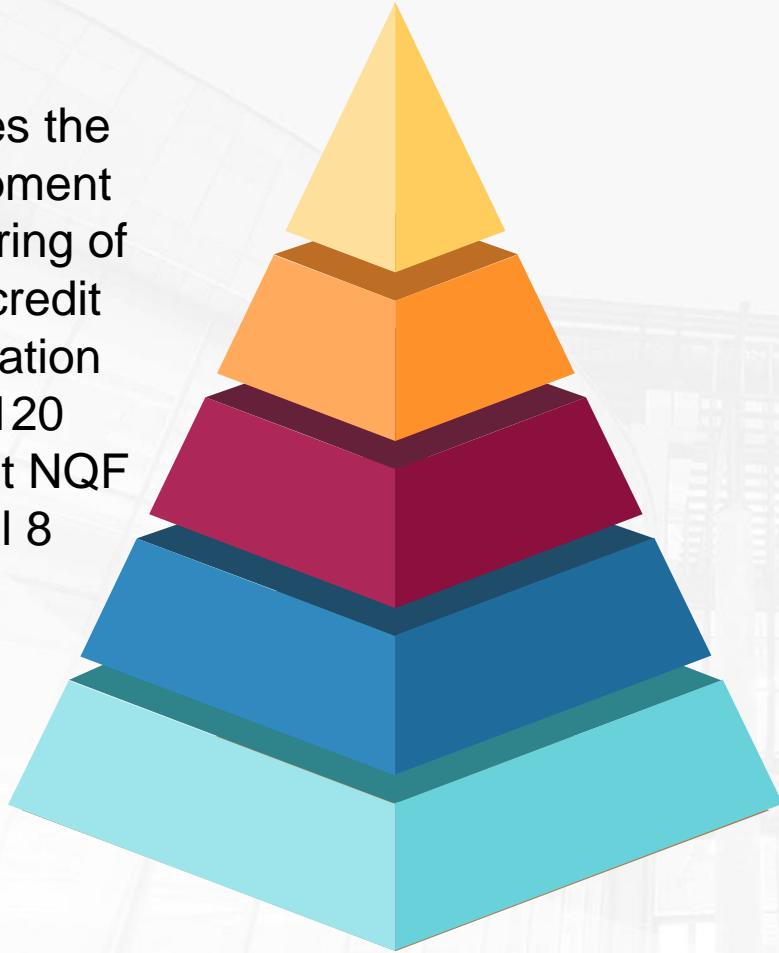
Qualification Contexts
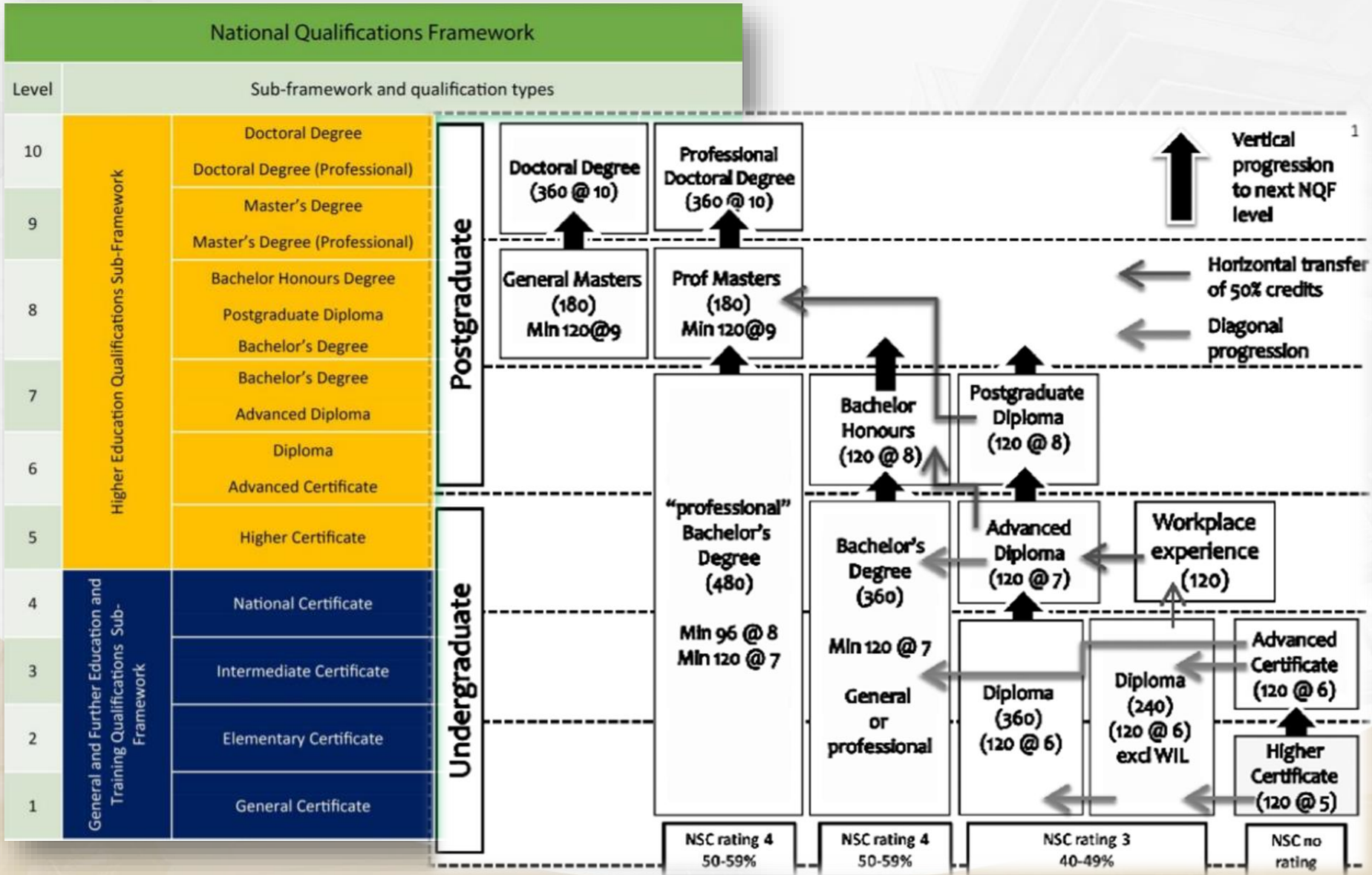
Qualification Standard for Bachelor of Library and Information Science

Requires the development and offering of a 480-credit qualification with 120 credits at NQF Level 8

Knowledge Requirements

- Foundational knowledge related to history and legislative framework of IS, roles in society

- Selection, acquisition and organisation of sources

- Information access, retrieval and reference work

- ICT applications inclusive of AI technology

- Management of organisations and services

- Scholarly communication infrastructure and services

- Reading, literacies and learning

- Research methodology

- Interpersonal engagements related to negotiation skills, negotiation, team-work
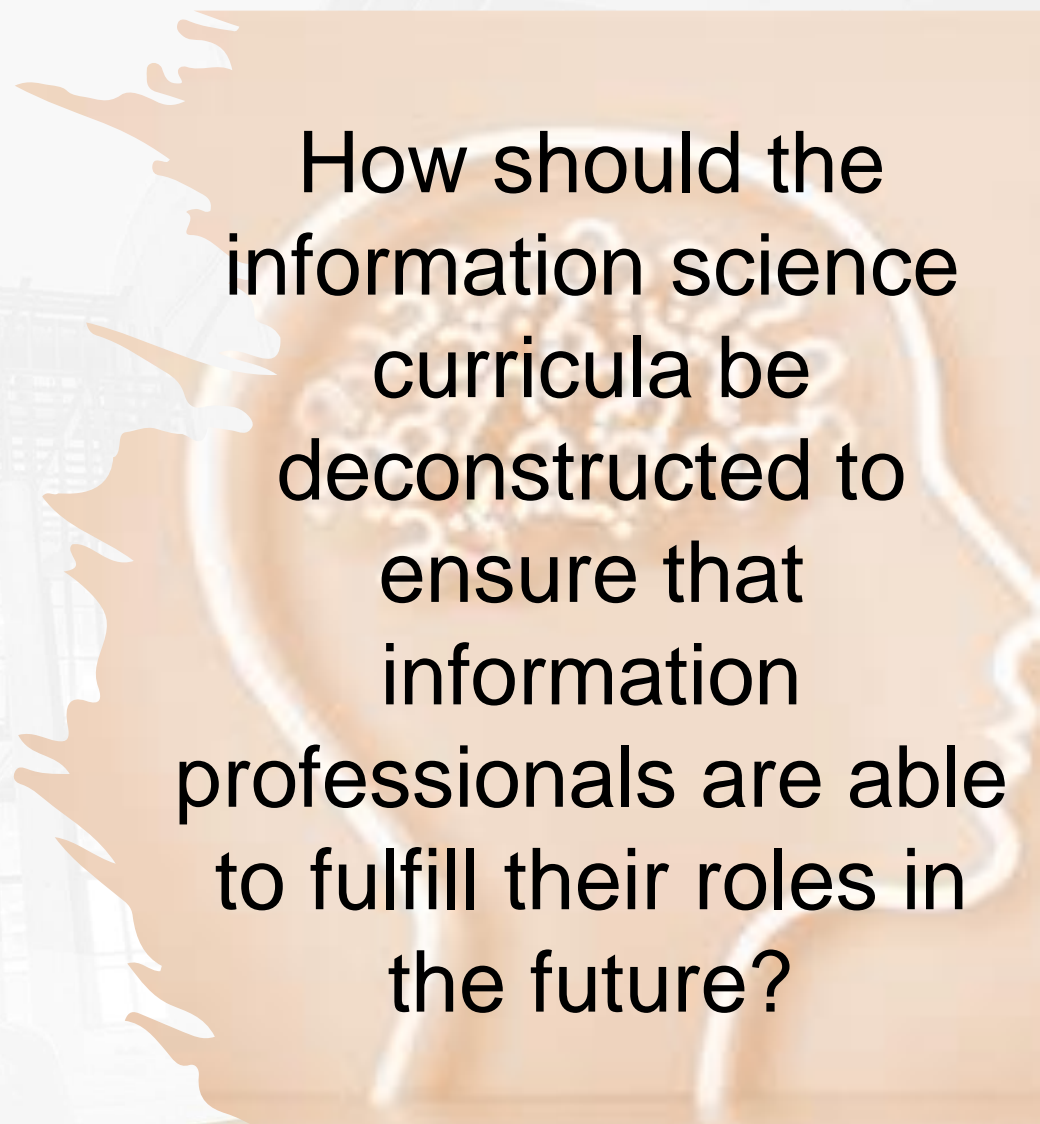
A problem defined, is a problem half solved…

Albert Einstein

From the changing roles and skills needed by information professionals, one can argue that their education must expound to cater for the future demands on this profession.

However, current formal educational programmes and qualifications are restricted in what is offered as part of the curricula.

The CHE (2013) notes that curriculum structures often lag changes in society, affecting the quality of graduates produced in comparison to the industry demands.

How should the information science curricula be deconstructed to ensure that information professionals are able to fulfill their roles in the future?

Looking for solutions…

Barnett and Coate (2005:25) propose that curricula should be used as the major constructs in proactively preparing individuals to engage actively in their social, economic, health and political environments.

What is necessary, as argued by Maphosa et al. (2014) is that curriculum planning receives urgent attention which involves the design and development of programmes, modules and courses that encourage broad-based thinking on teaching, learning and skills development.

Vreuls et al. (2021) concur by explaining that due to rapid democratic, economic and technological developments, changes in professions demand of educators to adapt curricula as a plan of learning to stay abreast of changes.

Curricula transformation is imperative, as suggested by Tella (2021) to ensure that students are prepared to deal with challenges such as high levels of poverty and inequality, social transformation and technological advancements.

Changing perspectives about curricula

A curriculum is a set of purposeful intended experiences, content, learning activities and learning collaborations as a course of action to increase discipline-related knowledge and understanding (Howson & Kingsbury 2021).

Curricula, whether at undergraduate or postgraduate level refers to a whole set of learning experiences towards meeting the requirements of a module or a qualification.

Changing perspectives on our view of curricula may provide opportunities for students to obtain greater autonomy towards their career paths and receive acknowledgement of prior learning.
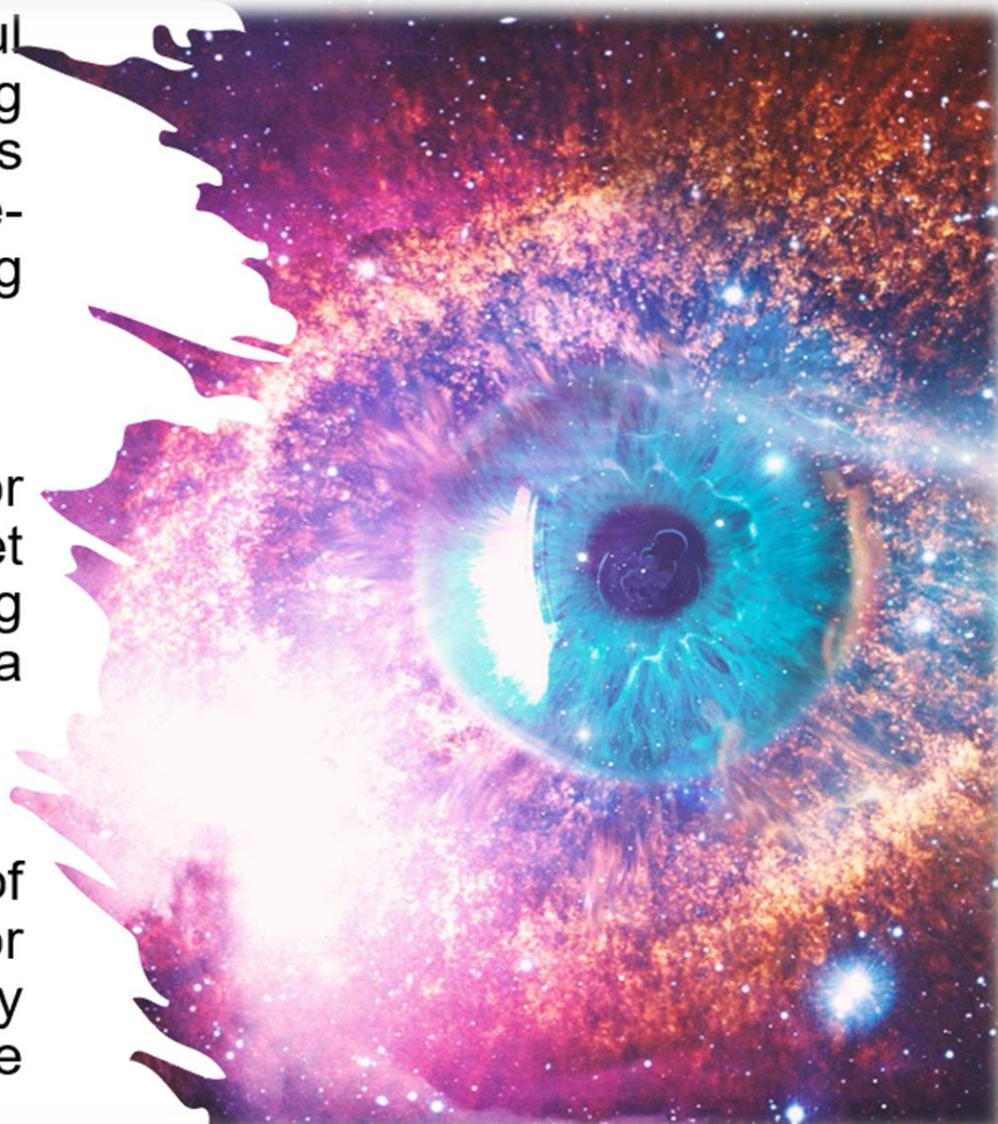
Changing Information Science curricula

Considering the problem:

- We are looking for ways in which the curriculum can be deconstructed to provide expanded opportunities for learning.

The reason:

- Though information professionals are now on the list of occupations in high demand (DHET), the profession is in danger of disappearing due to issues such as technological advancements, financial limitations and ill preparedness for future roles due to slow changes in education.

The solution:

Applying a flexible curriculum framework

Guidelines are good… actions are better

A flexible curricula can be used to enhance learning related to contemporary local and global conditions that is professionally and socially important in the contemporary world.

Flexible learning is about the when, where how and at what pace learning occurs for a diverse student body.
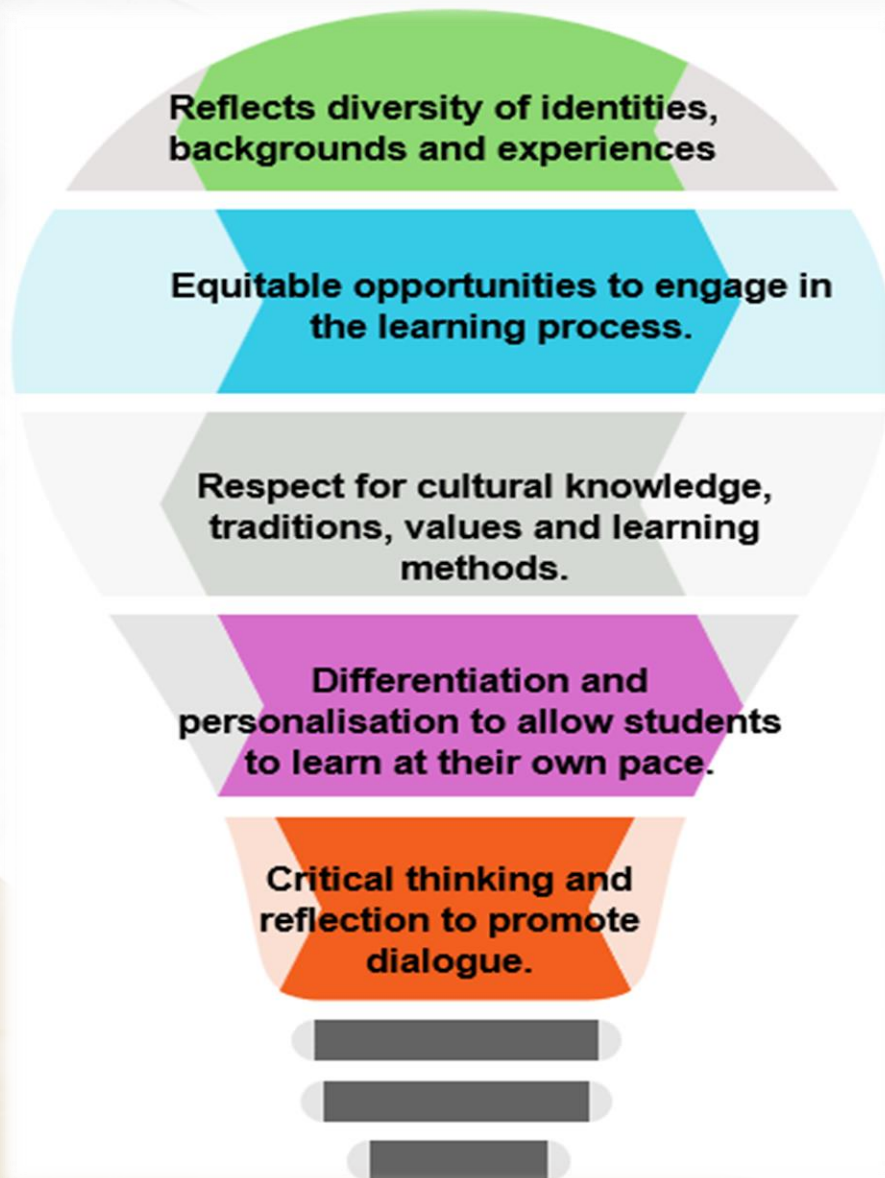
The main aim of a flexible curricula is to empower students to develop a mindset necessary to understand and tackle vast environmental, economic and social changes. In the African context, it is particularly important that flexible curricula create centrality, unique to the identity and culture of Africa.

Deconstructing curricula.. Key sources to consider

- Council on Higher Education's *Proposal for undergraduate curriculum reform in South Africa* (2013)

- Council on Higher Education's *Policies on the recognition of prior learning, credit accumulation and transfer and assessment in higher education* (2016)

- Department of Higher Education and Training's *White Paper for post-school education and training* (2013)

- South African Government's *National Policy and Credit Accumulation and Transfer* (2013)

- South African Qualifications Framework's *Policy and Criteria for Credit Acumination and Transfer within the National Qualifications Framework* (2021)

Deconstruction through a flexible curriculum

Reflects diversity of identities, backgrounds and experiences

Equitable opportunities to engage in the learning process.

Respect for cultural knowledge, traditions, values and learning methods.

Differentiation and personalisation to allow students to learn at their own pace.

Critical thinking and reflection to promote dialogue.

A flexible curriculum is one that recognises and accommodates all students.

As students have different views and experiences, and requirements for learning, the aim of a flexible curriculum is to provide opportunities to all learners to actively participate in formal learning.

A flexible curriculum recognises diversity as a strength in the learning environment towards promoting educational equity, social justice and the holistic development of every student.
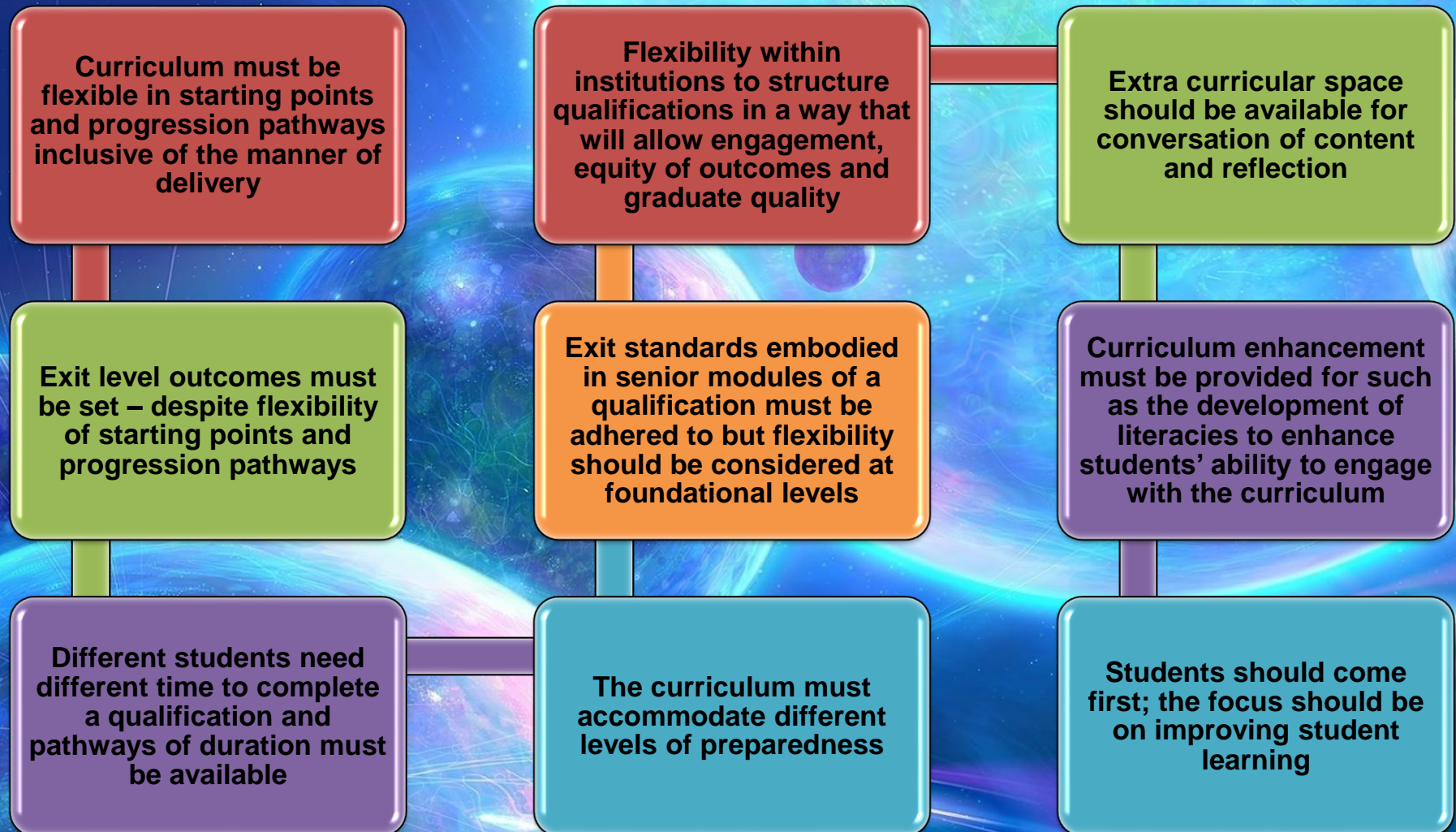
Flexible curricula guidelines

Flexible curricula should provide:

- New parameters for the duration of a qualification.

- Alternative starting points to allow for diversity in preparedness.

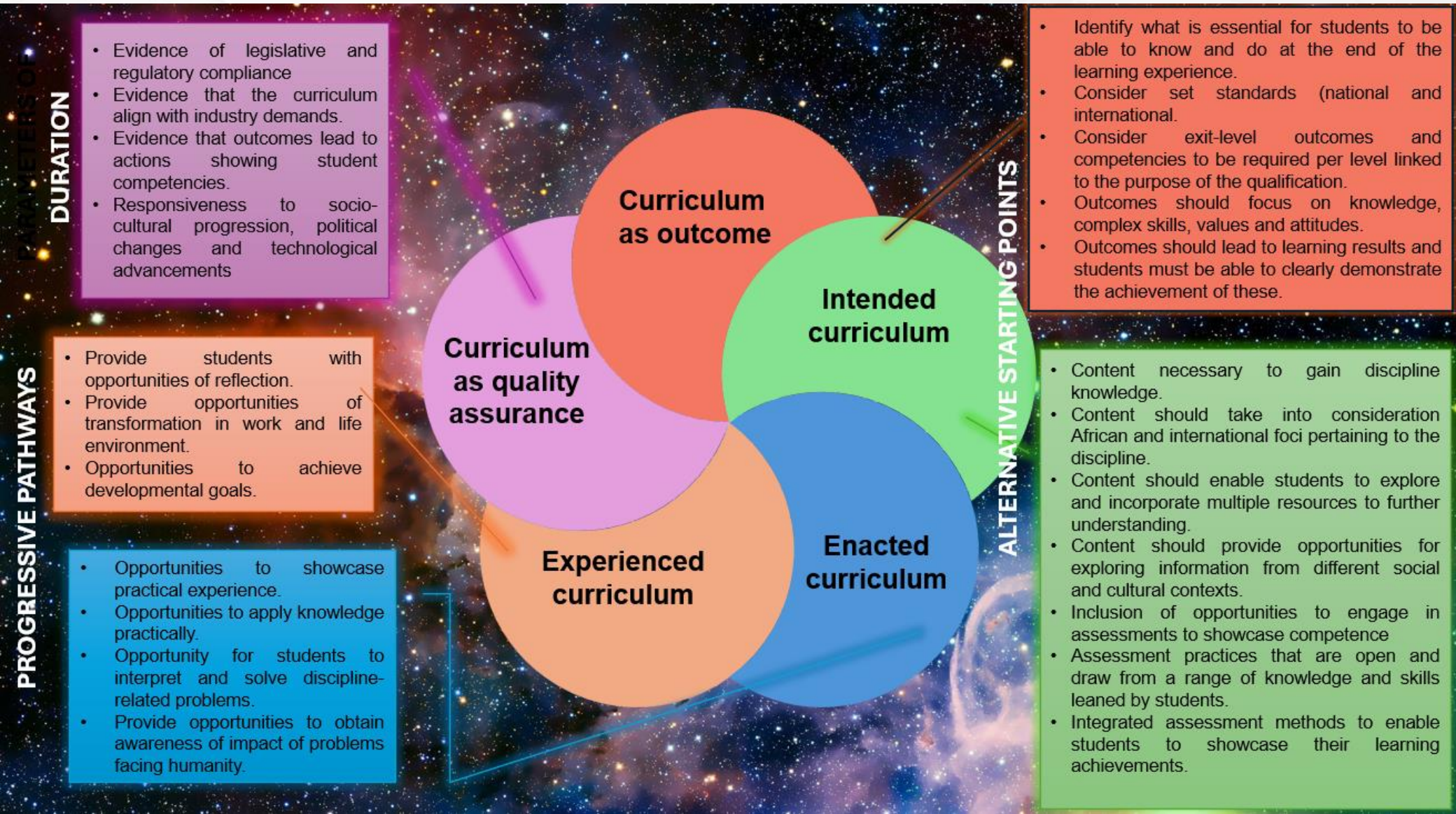- Varied progression pathways through credit accumulation, micro credentials, RPL to improve graduate outputs.

(CHE 2013)

Principles of creating flexible curricula structures

Curriculum must be flexible in starting points and progression pathways inclusive of the manner of delivery

Flexibility within institutions to structure qualifications in a way that will allow engagement, equity of outcomes and graduate quality

Extra curricular space should be available for conversation of content and reflection

Exit level outcomes must be set – despite flexibility of starting points and progression pathways

Exit standards embodied in senior modules of a qualification must be adhered to but flexibility should be considered at foundational levels

Curriculum enhancement must be provided for such as the development of literacies to enhance students' ability to engage with the curriculum

Different students need different time to complete a qualification and pathways of duration must be available

The curriculum must accommodate different levels of preparedness

Students should come first; the focus should be on improving student learning

(CHE 2013)

Proposed framework towards a flexible curriculum

PARAMETERS OF DURATION
- Evidence of legislative and regulatory compliance
- Evidence that the curriculum align with industry demands.
- Evidence that outcomes lead to actions showing student competencies.
- Responsiveness to socio-cultural progression, political changes and technological advancements

PROGRESSIVE PATHWAYS
- Provide students with opportunities of reflection.
- Provide opportunities of transformation in work and life environment.
- Opportunities to achieve developmental goals.

- Opportunities to showcase practical experience.
- Opportunities to apply knowledge practically.
- Opportunity for students to interpret and solve discipline-related problems.
- Provide opportunities to obtain awareness of impact of problems facing humanity.

Curriculum as outcome

Intended curriculum

Curriculum as quality assurance

Experienced curriculum

Enacted curriculum

ALTERNATIVE STARTING POINTS
- Identify what is essential for students to be able to know and do at the end of the learning experience.
- Consider set standards (national and international.
- Consider exit-level outcomes and competencies to be required per level linked to the purpose of the qualification.
- Outcomes should focus on knowledge, complex skills, values and attitudes.
- Outcomes should lead to learning results and students must be able to clearly demonstrate the achievement of these.
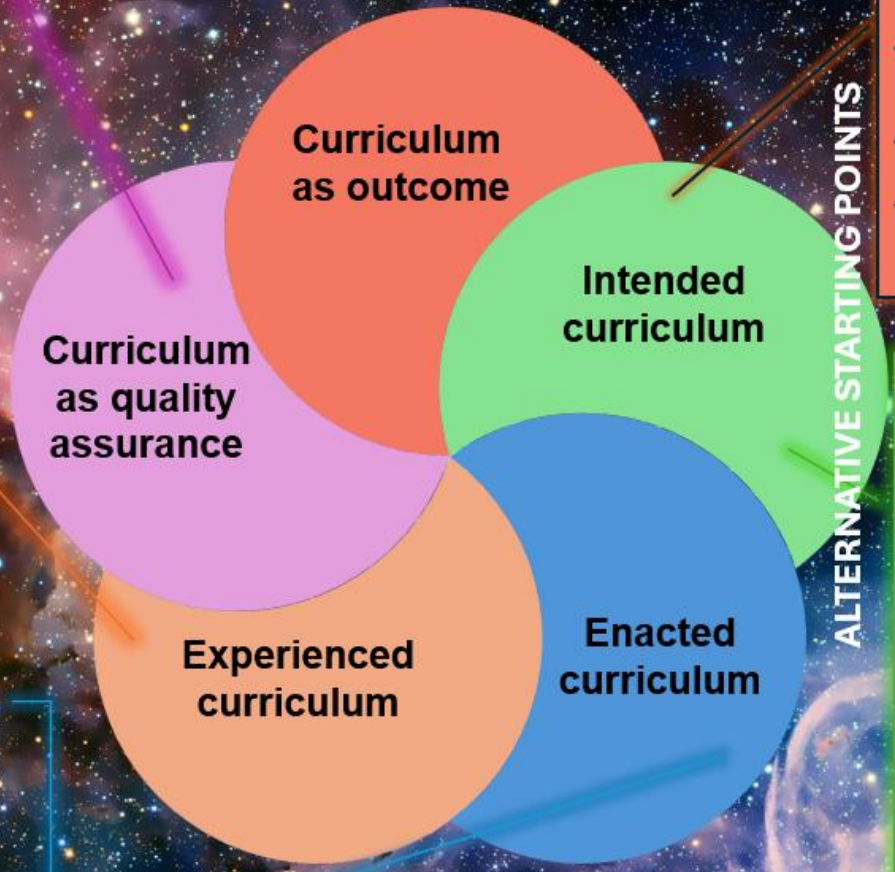
- Content necessary to gain discipline knowledge.
- Content should take into consideration African and international foci pertaining to the discipline.
- Content should enable students to explore and incorporate multiple resources to further understanding.
- Content should provide opportunities for exploring information from different social and cultural contexts.
- Inclusion of opportunities to engage in assessments to showcase competence
- Assessment practices that are open and draw from a range of knowledge and skills leaned by students.
- Integrated assessment methods to enable students to showcase their learning achievements.

Application towards Information Science curricula

- Identify core exit level outcomes relevant to the knowledge students should acquire at the end of the qualification.

- Identify core modules that must be completed by students – specifically at higher exit levels.

- Classify competencies and skills that credit can be awarded to based on credit accumulation and micro credentials.

- Offer multiple pathways for students to enter formal higher education.

Application towards Information Science curricula

- Provide opportunities for elective modules or specialised tracks within curricula

- Create personalised learning opportunities through assessments that align with personal interests

- Allow students control over when and where they want to engage with a curriculum.

- Offer open registration opportunities as well as different modes of delivery to cater for unique student needs.

Application towards Information Science curricula

- Provide access to varied information sources through OERs, open access and webinars with more knowledgeable others.

- Offer feedback and feed-forward opportunities for students to engage actively with achieving learning objectives.

- Promote engagement through peer evaluation and check-ins with academics and academic support staff.

- Encourage reflection through self-assessments to build credits.

Application towards Information Science curricula

- Utilise technology to enhance flexibility and accessibility to achieving outcomes

- Incorporate opportunities for students to obtain acknowledgement for real-world learning

- Provide credit for micro credentials where students can showcase competencies of specific skills and knowledge

- Apply principles of credit accumulation and transfer (CAT)

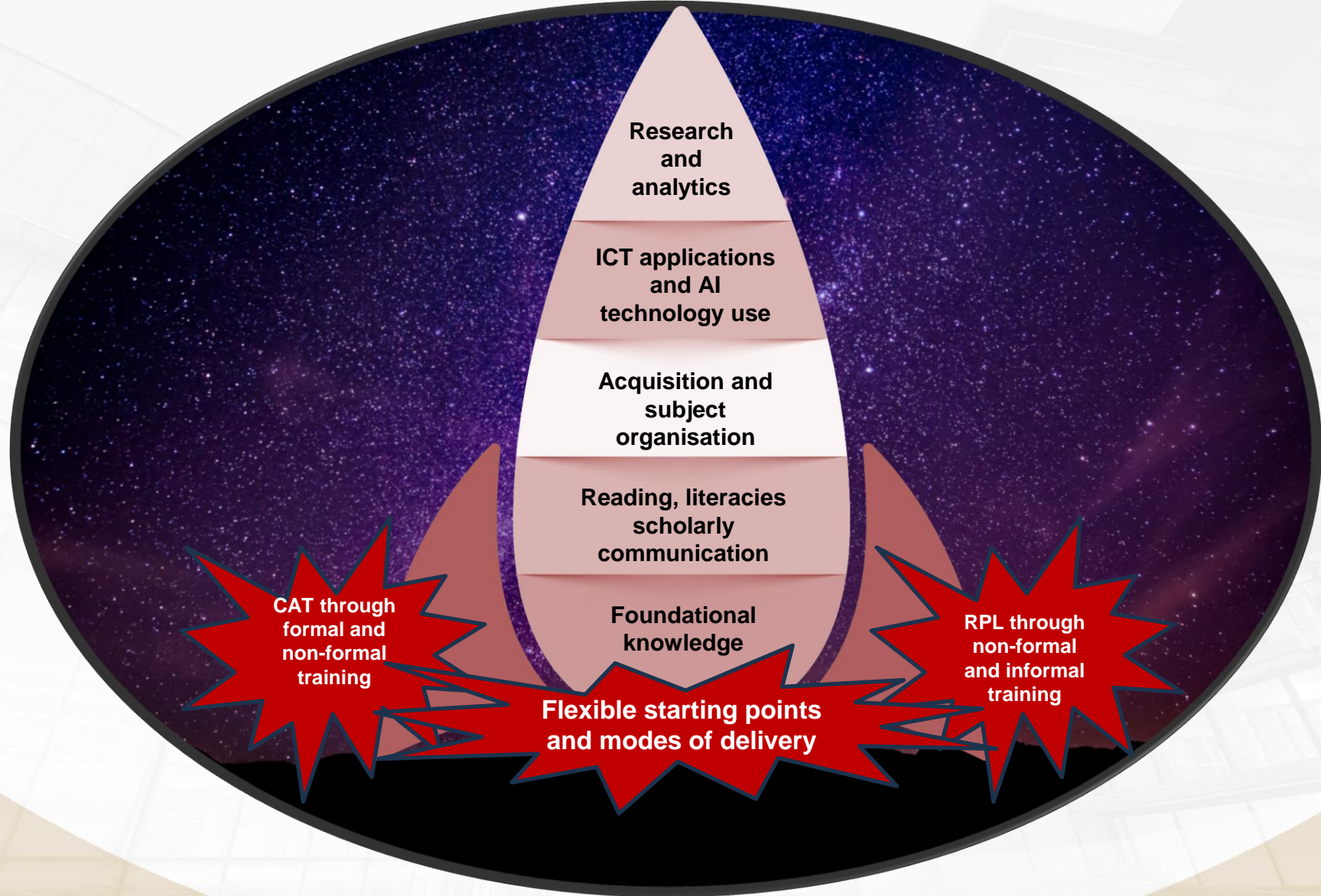- Apply the principles of recognition of prior learning (RPL)
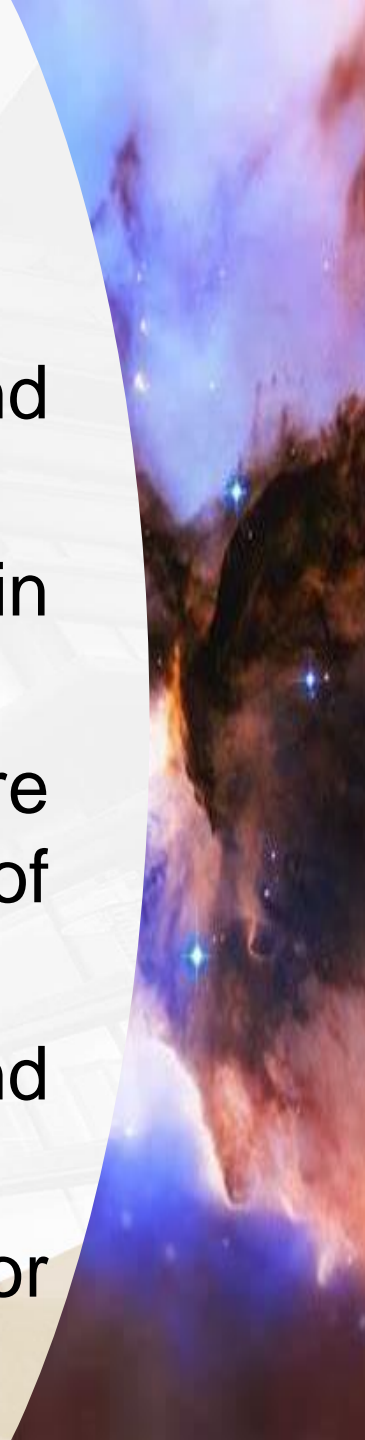
A word on CAT

- Credit accumulation and transfer (CAT) is the process of collecting academic credits through various educational experiences and transferring them between institutions or qualification.

- CAT is imperative in a flexible curriculum as it offers students the opportunity to pursue their academic goals via different educational pathways.
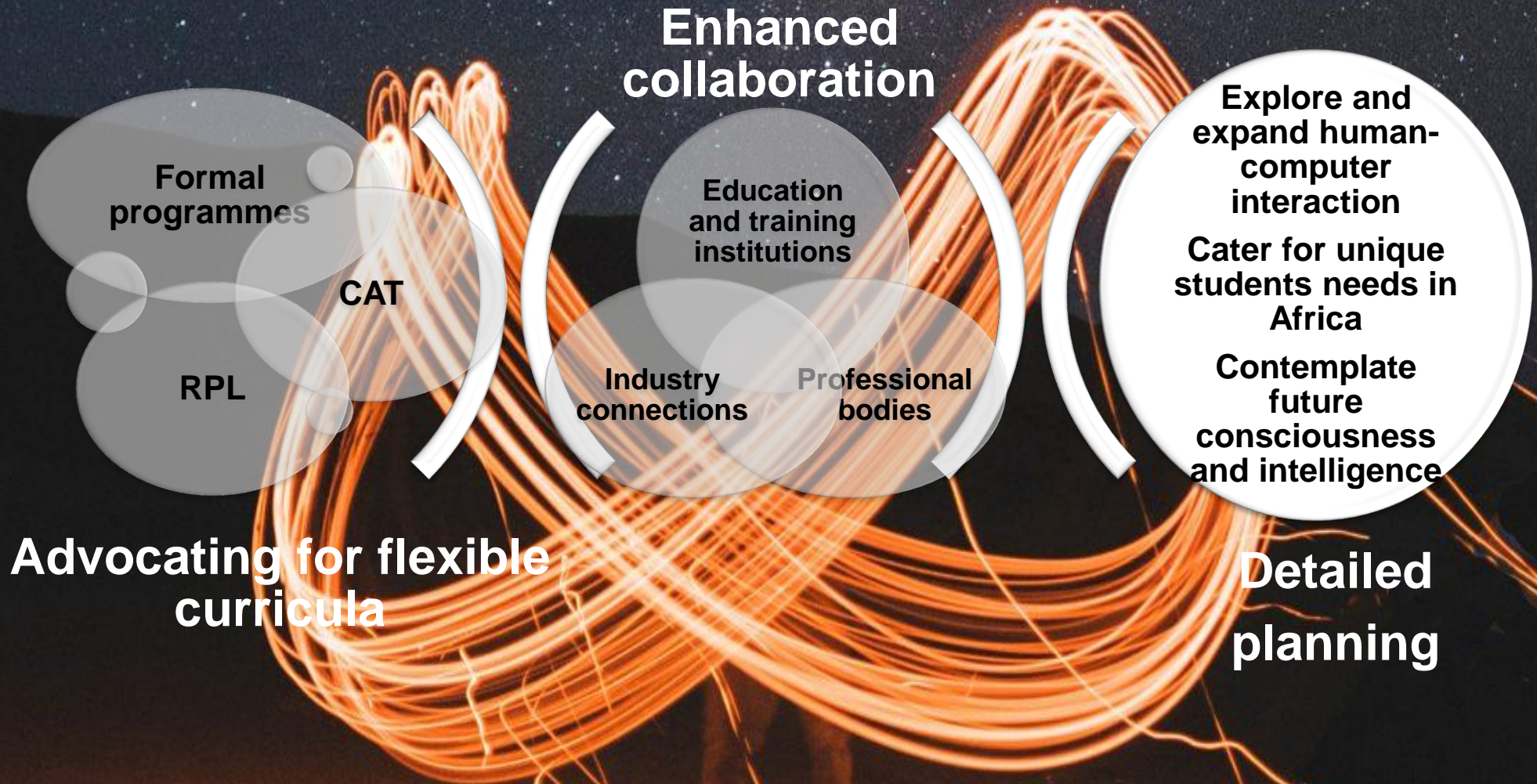
A word on RLP

- RPL provides the opportunity for students to demonstrate their learning and competencies acquired through formal and informal experiences.

- RPL can be used for credit recognition or credit exemption to increase opportunities for individuals from diverse learning backgrounds and experiences to access and progress in higher education.

- Individuals are usually required to provide documentary evidence to support their claims of knowledge and understanding of specific outcomes.

Bringing it all together

Research and analytics

ICT applications and AI technology use

Acquisition and subject organisation

Reading, literacies scholarly communication

Foundational knowledge

CAT through formal and non-formal training

RPL through non-formal and informal training

Flexible starting points and modes of delivery

To Infinity and Beyond

Enhanced collaboration

Formal programmes

CAT

RPL

Advocating for flexible curricula

Education and training institutions

Industry connections

Professional bodies

Explore and expand human-computer interaction

Cater for unique students needs in Africa

Contemplate future consciousness and intelligence

Detailed planning

Reclaiming Africa's Intellectual Futures

Thank you