

APPENDIX A

SKILLS 4.0: TOWARDS INDUSTRY 4.0
Apprenticeships into the future

THE APPRENTICE OF THE 21ST CENTURY
(ICT4APP project)

ICT4APP Credentialing POC



merSETA
MANUFACTURING, ENGINEERING
AND RELATED SERVICES SETA

CSIR
our future through science

BACKGROUND: South Africa's Skills 4.0 challenge

How do we ensure South Africa has the appropriate skills, competencies and talent to embrace Industry 4.0 in order to enhance our industrial competitiveness?

Amidst:

- A uncompetitive & often dysfunctional educational system
- Poverty & increasing unemployment
- Fear of job substitution by machines with a high probability of labour unrest
- Uncertain political climate
- Tough economic climate



merSETA's challenge

1. merSETA unable to scale their support for apprentices.
2. merSETA unable to reach SMEs who pay levies, but do not take in apprentices.
3. The quality of apprenticeship training is sometimes poor.
4. The quality of workplace experience and practical training is uneven.
5. Apprentices are not emerging with the appropriate 21st century skills (e.g. being open to lifelong learning, collaboration, creative problem-solvers, flexibility, etc.)



GOAL

DEVELOPING SKILLS 4.0 FOR INDUSTRY 4.0

*Using a **Fourth Industrial Revolution (4IR)** paradigm to re-imagine, disrupt and develop a high quality new apprenticeship skills development process in SA that is vastly more accessible, scalable and that prepares apprentices for Industry 4.0*








ICT for Apprentices (ICT4APP)

- Ensures a largely paperless apprenticeship implementation system for a pilot occupation (Solar PV Technician);
- makes provision for apprenticeships for informal sector learners;
- acts as a stimulator for participation of SMEs in hosting learners for workplace experience assignments;
- preserves quality development of learning, teaching and workplace interaction; and
- modifies learning behaviour towards a self-directed, milestone-structured learning pathway, through the use of innovative technology.



ICT4APP Definition

ICT4APP is an innovative LEARNING PATHWAY INTEGRATION PLATFORM

<p>...that aims to TRANSFORM APPRENTICE SKILLS DEVELOPMENT in South Africa</p>	<p>...by creating a unique INCENTIVISED learning environment</p>	<p>...which combines THEORETICAL KNOWLEDGE, PRACTICAL SKILLS and WORKPLACE EXPERIENCE</p>	<p>...to ensure the RAPID SCALING OF HIGH QUALITY TECHNICAL SKILLS</p>	<p>...using ADVANCED DIGITAL TECHNOLOGIES and METHODS to reimagine a new 4IR skills development paradigm</p>
				

whilst still
CONFORMING TO CURRENT REGULATIONS.



ICT4APP Platform Functionality



- Information about apprenticeships
- Self-test (skills & aptitude)
- Etc.

- **Apply online**
- **Book an appointment**
- **Etc.**

- Personalised learning pathway & tracking
- Incentives & rewards
- Online & offline learning
- Etc.

- Trade test
- Digital Portfolio
- CV
- Apply for a job
- Etc.

- Contribute back by becoming a mentor or coach.
- Etc.



Technical mentors



Matchmaking



Digital badges



Rating systems



Friendly zones



Online learning



VR Training



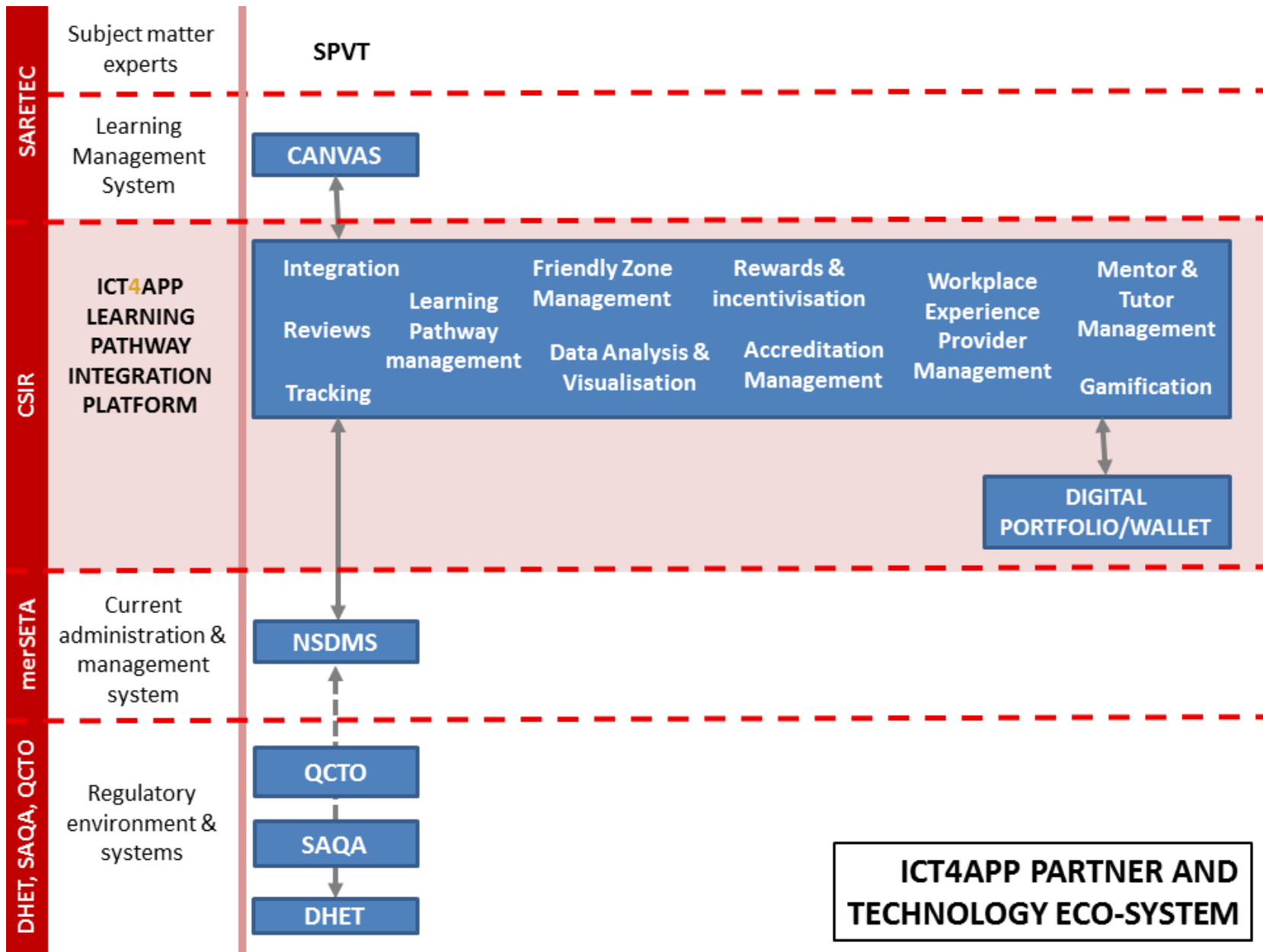
AR Training

Uses technology to facilitate learning

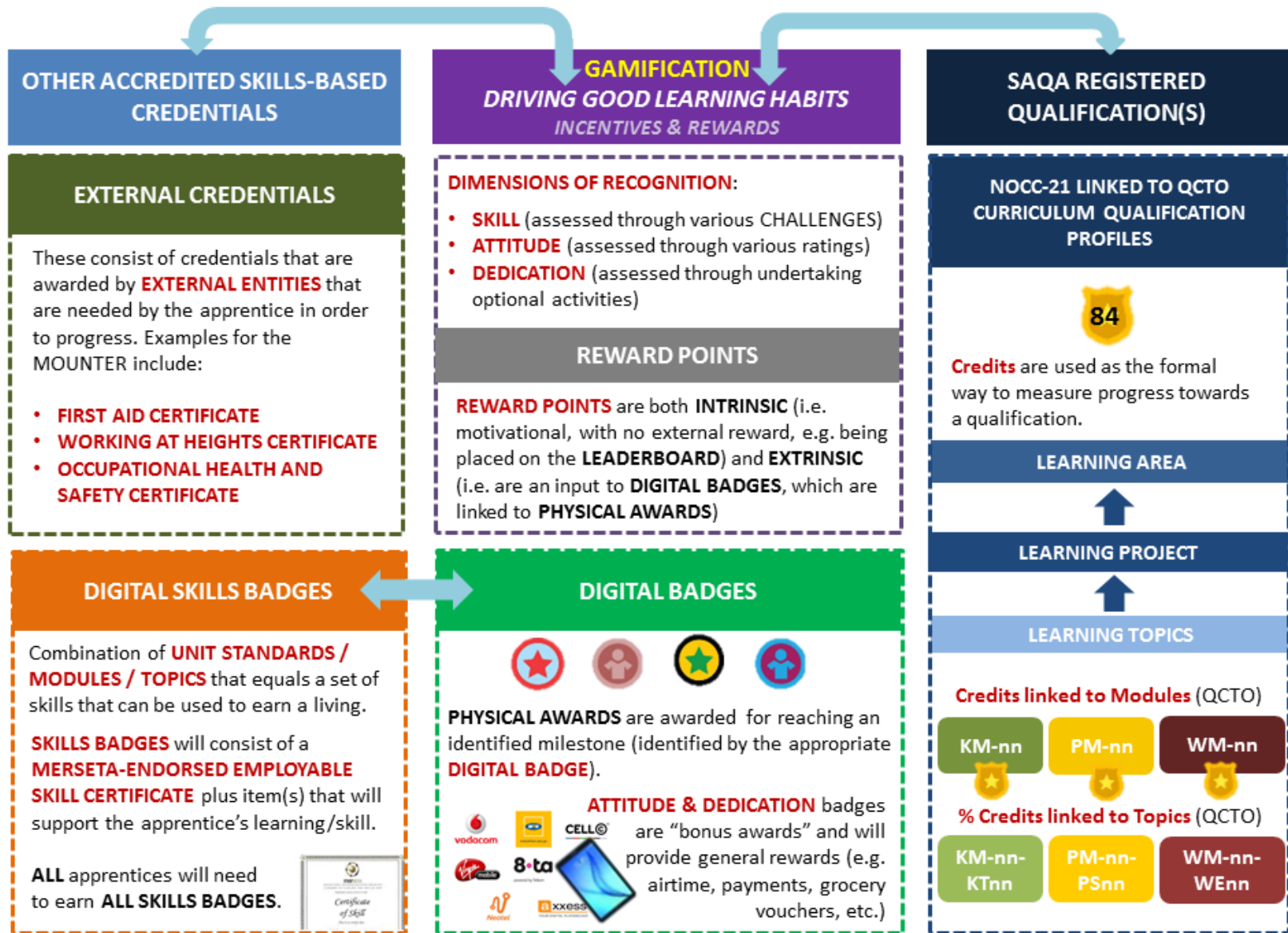
21st CENTURY APPRENTICE

Learning with technology





INCENTIVE-BASED LEARNING FOR APPRENTICES OF THE 21ST CENTURY



Credentialing POC deliverables

Innovation opportunity

Short report which defines the innovation opportunity (digital credentialing) and why it is important

Research Report

Document outlining the research findings on digital credentialing (state-of-the-art, trends, standards, applications etc.)

Innovation investigation report

A detailed investigation of the selected blockchain technology solution and its application to the innovation opportunity.

Prototype Specification

Specification for prototype

Prototype development

Development of blockchain credentialing POC for the ICT4APP platform, including:

- Blockchain credentialing API
- Standards-based Digital Portfolio/Wallet

Prototype limited integration into ICT4APP

Prototype operational on ICT4APP V1.2



