Influence of Digital Technology Accessibility on Career Preference in the South African Information and Communications Technology (ICT) Sector

Applied Business project

Syndicate 7

Agenda

1. Introduction and Problem formulation

2. Research findings

3. Proposed solution

4. Conclusion

5. Acknowledgements

6. References

Problem Formulation

Research Question:

How does digital technology acceptance in secondary school's influence career preferences in the South African Information and Communications Technology (ICT) Sector?

Problem Formulation:

- **W&R SETA SSP:** Skills shortage of software developers (Regenesys Business School, 2024).

- **Youth unemployment** = 45.5% (Statistics SA, 2024).

- **SDG 8.6:** Address unemployment and promote economic growth.

- **5 – Why Root Cause Analysis:** Technique was used to determine the underlying cause of the problem statement.
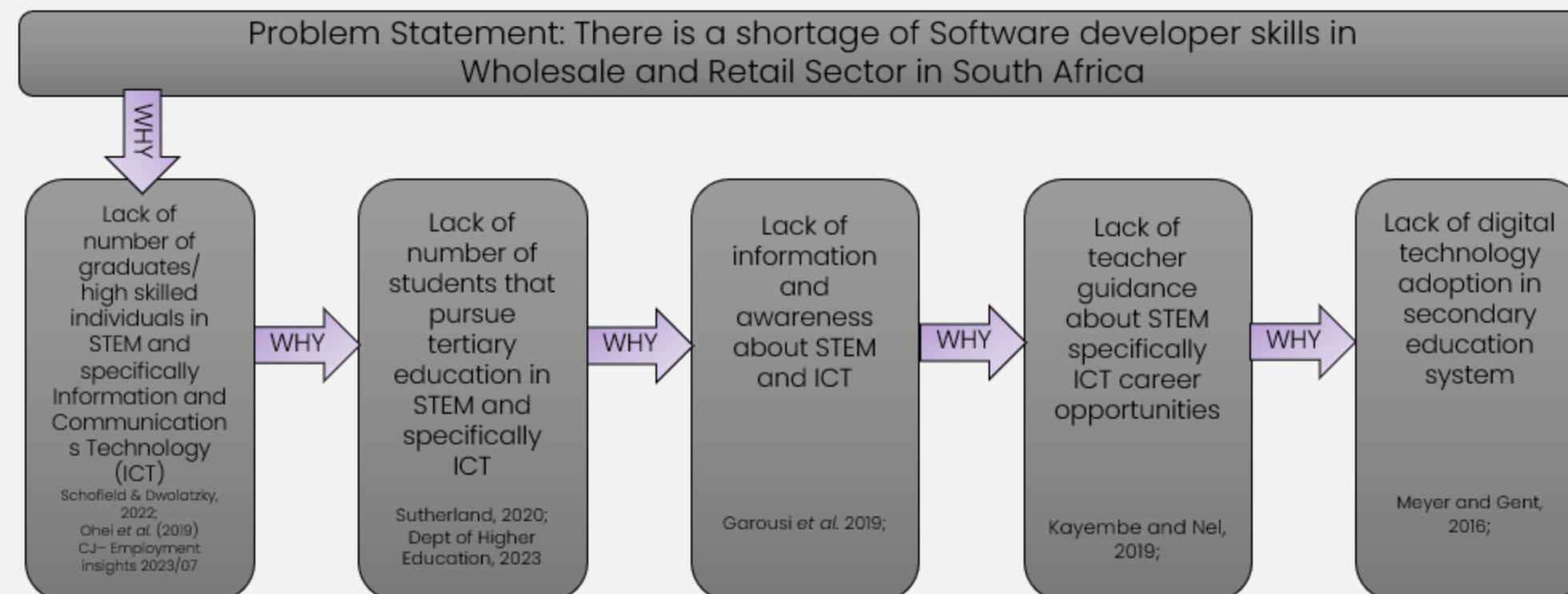
Objectives:

- Investigate the extent of material access for enabling technology as an aid in schools for education

- Determine the influence that technology access has on career preference in ICT

- Explore challenge to enabling material access

- Derive a solution that would encourage collaboration between companies and the W&R sector to promote interest in ICT careers – with specific focus on W&R Sector

Problem Statement: There is a shortage of Software developer skills in Wholesale and Retail Sector in South Africa

WHY →

| Lack of number of graduates/ high skilled individuals in STEM and specifically Information and Communications Technology (ICT) Schofield & Dwolatzky, 2022; Ohei et al. (2019) CJ– Employment Insights 2023/07 | WHY → | Lack of number of students that pursue tertiary education in STEM and specifically ICT Sutherland, 2020; Dept of Higher Education, 2023 | WHY → | Lack of information and awareness about STEM and ICT Garousi et al. 2019; | WHY → | Lack of teacher guidance about STEM specifically ICT career opportunities Kayembe and Nel, 2019; | WHY → | Lack of digital technology adoption in secondary education system Meyer and Gent, 2016; |

Research Findings

Research Methodologies

QUALITATIVE METHOD

SEMI-STRUCTURED INTERVIEWS WITH 5 TEACHERS (TAM-MODEL – DAVIS, 1989)

AUDIO RECORDINGS WERE TRANSCRIBED AND TREND ANALYSIS PERFORMED USING GEMENI

FINDINGS:
TECHNOLOGY ENHANCE LEARNING
ACCESS TO TECHNOLOGY EMPHASIZED THE DIGITAL DIVIDE
TEACHER TRAINING AND SUPPORT CRUCIAL FOR TECH INTEGRATION
STAKEHOLDER BUY IN DETERMINES SUCCESS (TEACHER LAPTOP INITIATIVE 2017)

QUANTITATIVE METHOD

STRUCTURED SURVEY BASED ON 5-POINT LIKERT SCALE – 15 PARTICIPANTS (AT AGE OF MAJORITY)

COMPARATIVE DATA TO DETERMINE THE INFLUENCE OF DIGITAL TECH ON CAREER PERSPECTIVE AND CHOICE

FINDINGS:
- 60% AGREE ACCESS INFLUENCE AWARENESS OF ICT
- 53% AGREE TECH USE IN SCHOOL IMPACT CAREER PREFERENCE TOWARD ICT
- 66% STRONLY AGREE THAT EARLY ADOPTION PROVIDES AND ADVANTAGE IN ICT CAREER
- INFLUENCE OF TECHNOLOGY CONTRIBUTES TO CAREER DECISIONS

Proposed Solution
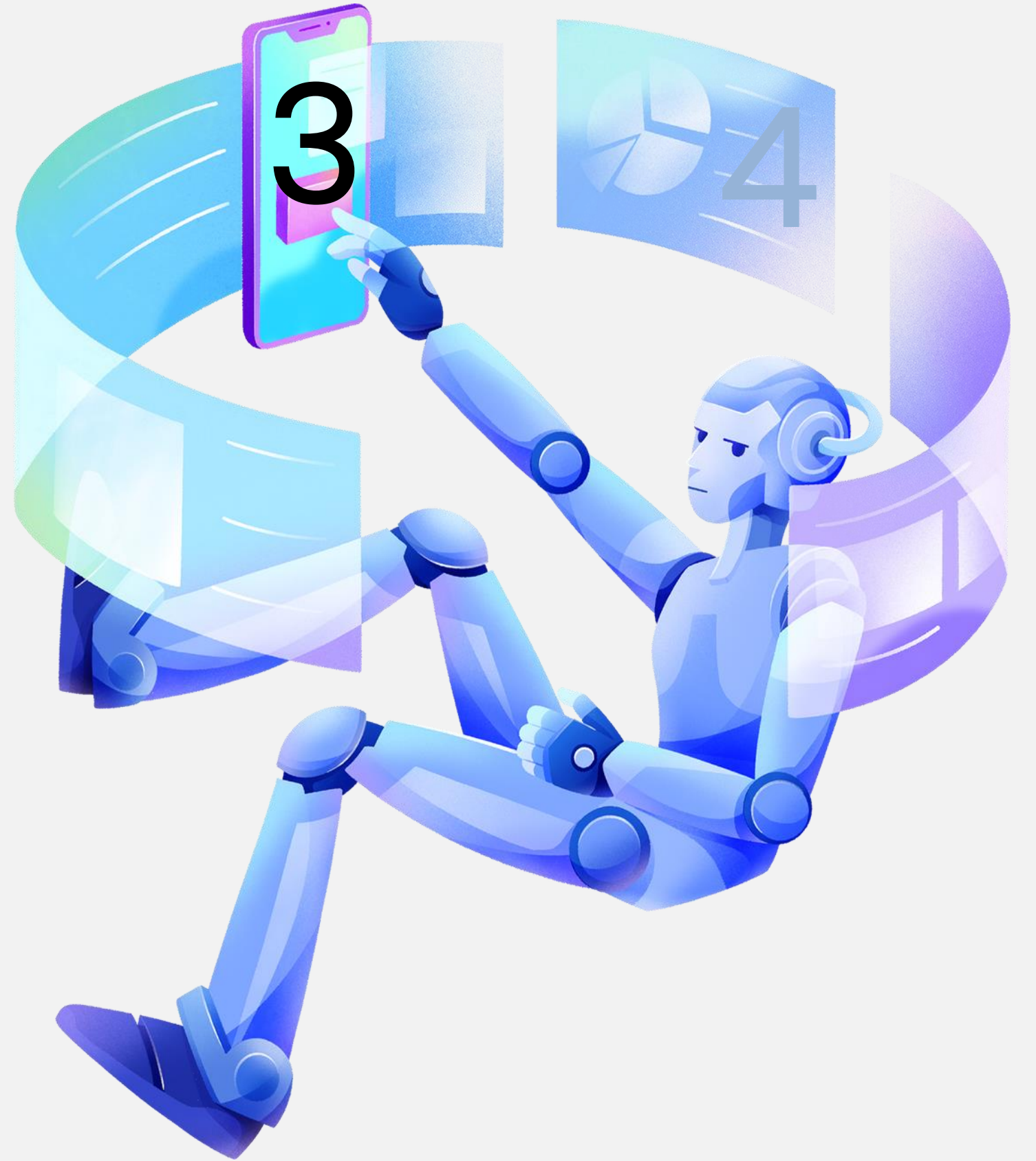
Imagine...

An educational game designed for mobile devices to introduce young people to the world of software development in a fun and engaging way whilst simultaneously creating awareness of careers in wholesale and retail sector.

Prensky, 2007 & Connoly et al, 2012
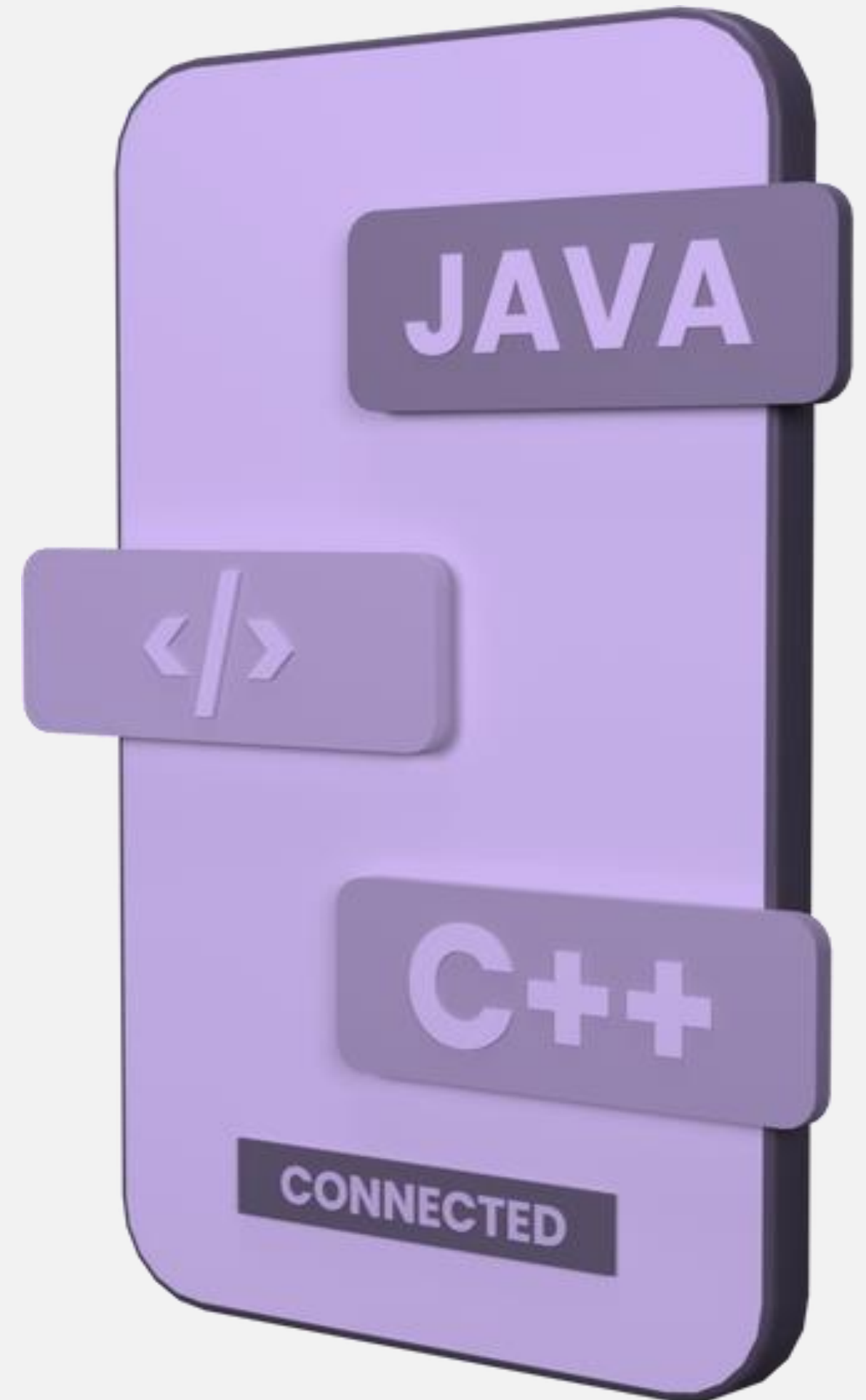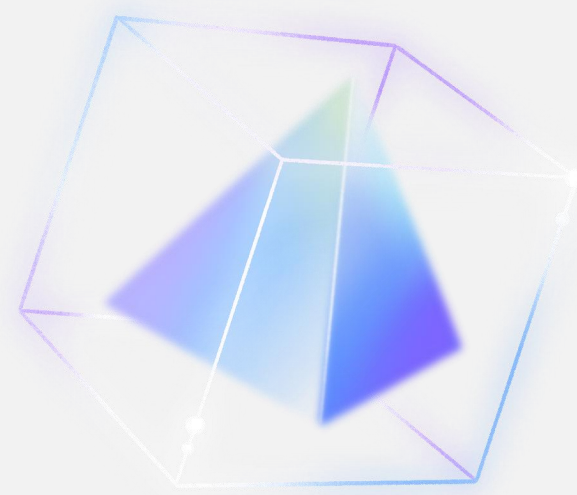
What to expect when playing…

01 Building & Customisation

02 Inventory Management & Automation

03 Challenges & Rewards

04 Social Interaction

05 Educational Narrative

ADD TO CART

Implementation Plan...

01 — Planning and Preparation

02 — Alpha Testing

03 — Beta Testing

04 — Feedback and Analysis

05 — Iterative Process

"If you fail to plan, you are planning to fail."
Benjamin Franklin

Value Proposition

Stakeholders:

- Youth
- Secondary Schools
- Tertiary Education Institutions
- W&R Seta (Government)
- W&R Sector (Industry)
- South Africa

Benefits:

- Addressing the root cause of the problem
- Driving technology adoption in schools
- Trade partners have access to top candidates
- SDG & ESG Goals Contribution
- Incentives

Financial Viability:

R5m in profit over a 5-year period with 700% growth in users and 400% in revenues

Key Assumptions

6%	Inflation Rate
10%	Discount Rate
8%	Forex Annual Escalation Rate
R18.3	Rand vs $ Exchange

Financial Viability Summary

R4.1M	Upfront Costs
R951.8K	NPV
4.4	Payback Period (Years)
13.3%	Internal Rate of Return

R5,000,000	3	33.33%
Start-Up Costs	Number of Investors	Share per Investor

Number of Companies Year on Year — Year 1: 3, Year 2: 4, Year 3: 5, Year 4: 7, Year 5: 9
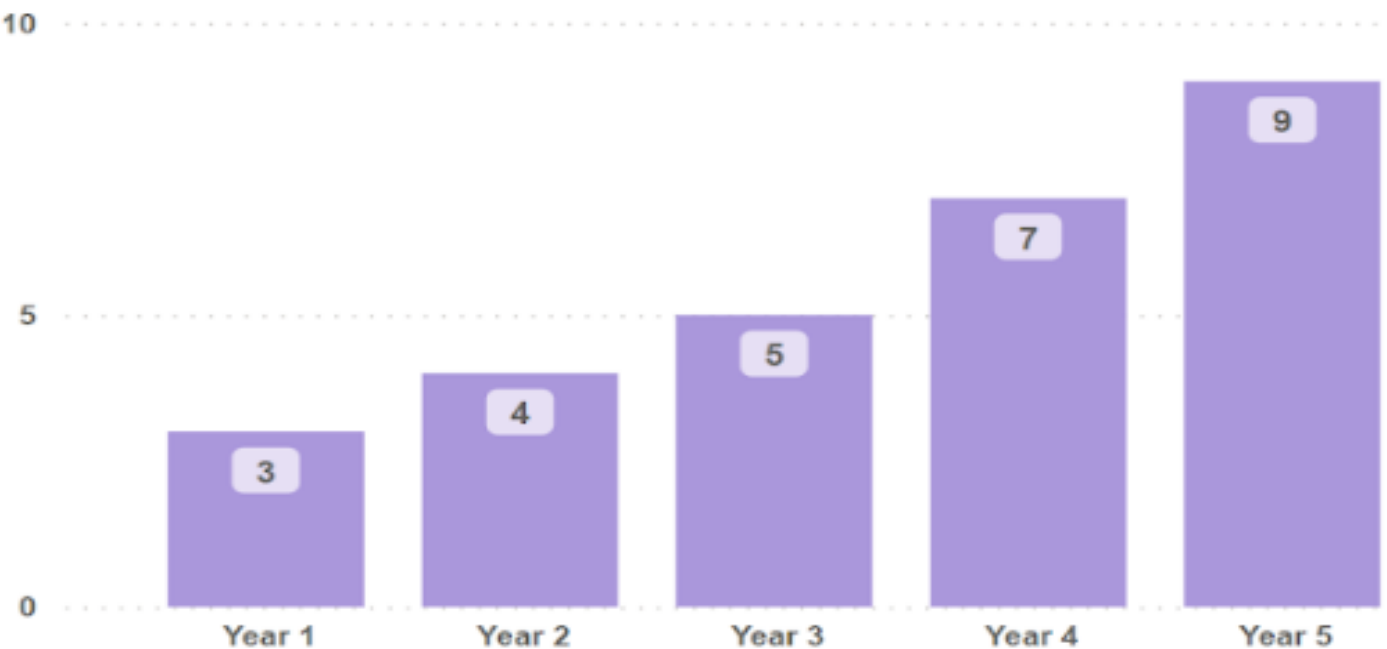
Number of Users Year on Year — Year 1: 15K, Year 2: 21K, Year 3: 45K, Year 4: 75K, Year 5: 120K

Profit/-Loss Year on Year — Year 1: -2M, Year 2: -2M, Year 3: 2M, Year 4: 4M, Year 5: 8M
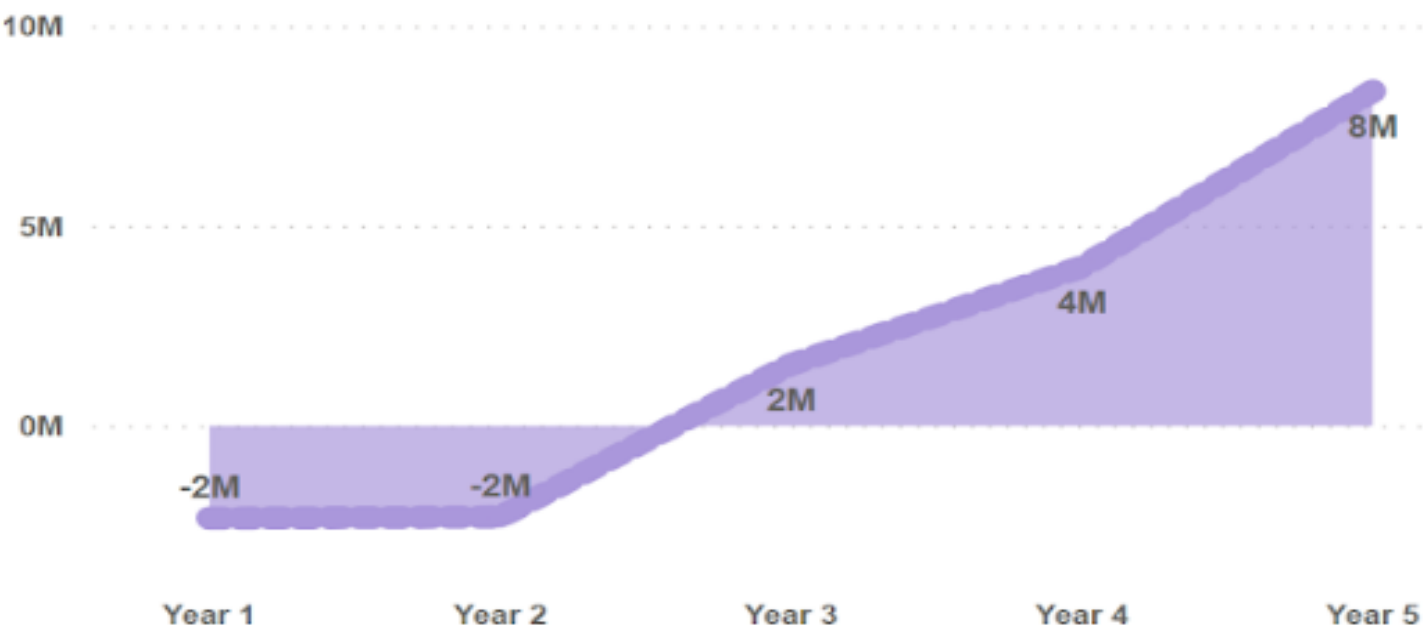
Revenue Streams Over 5 Years - R34.3M

Income
- In App Adverts — R18M (51.47%)
- In App Level Upgra... — R14M (41.84%)
- In App Purchases — R2M (6.7%)
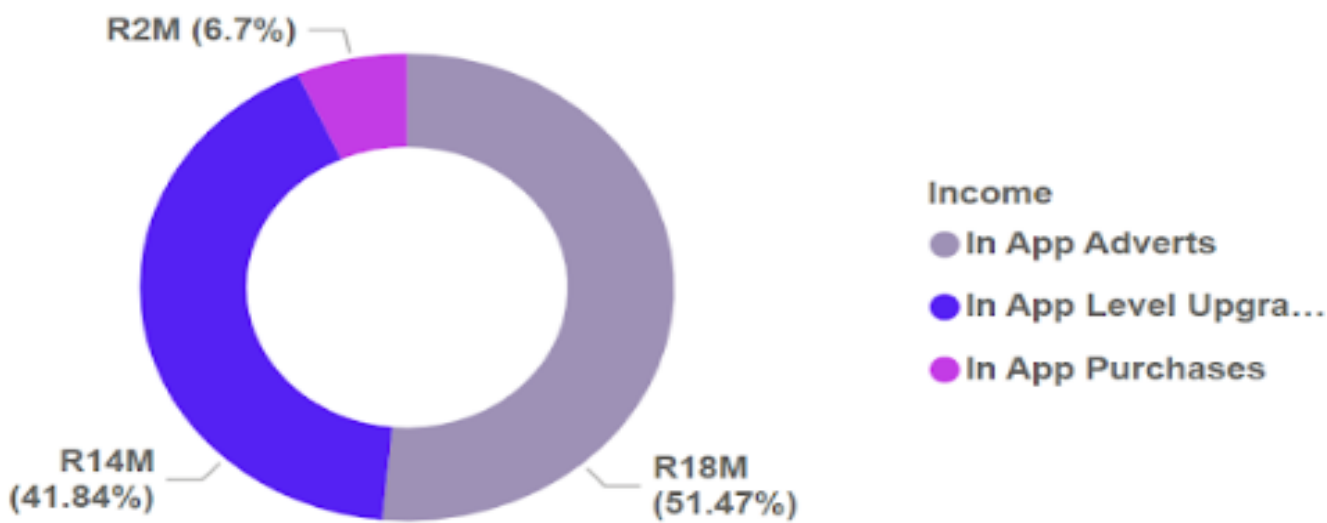
Qualitative Costs and Benefits

Opportunity costs	Physical and Mental health	Skills development	Pool of prospective Talent
Gaming Vs Other Activities	Reduce Social and Physical Contact	Technical and Retail	Analysts, Developers and Retailers

Risks and Mitigation

Risk: Digital Divide

Mitigation:
Compatibility with low end devices and minimal data usage.

Risk: Misalignment through oversimplification

Mitigation:
Varied levels of difficulty

Risk: Cultural and Language Barriers

Mitigation:
Multiple language versions and culture inclusive design options.

Risk: Data Privacy and Security

Mitigation:
Robust Data privacy and cyber security in line with legislation.

Conclusion

Conclusion

- **Problem:** Address skills shortage of software developers in South Africa's W&R Sector.

- **What did we find?** Lack of awareness and limited technology exposure in education

  Solution: Innovative gamified solution to increase awareness and bridge the gap in skills mismatch in W&R Sector

- **Outcome:** Contribute to SDG 8, South Africa NDP, W&R SSP.

ACKNOWLEDGEMENTS