

# Creating a Virtual Innovation Hub to Increase Women's Employment in the Digital Economy

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Bridging the Skills and Opportunity Gap for Women in South Africa



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# EXECUTIVE SUMMARY

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## The Problem

The gap in South African women being employed in the digital economy stems from the mismatch between the skills required by employers and the skills possessed by women. A lack of resources and opportunity to upskill themselves is reflected by the unemployed women in the transition phase of their ICT journey.

## The Opportunity

The transitional gap that exists between women and employment provides stakeholders with an opportunity to invest, intervene and increase female employability. Our solution is an online career development platform tailored to provide women with opportunities to build their skills, allow them to network, and innovate with like minded females to unlock a plethora of sustainable employment opportunities.

## The Outcome

If implemented, by 2025, our solution would yield:

- 31% growth in the South African growth sector
- 12% growth in GDP per Capita
- 66k+ ICT jobs created
- 54k+ women employed in the ICT sector
- 47k+ families lifted out of poverty
- \$66.9M saved in development costs

## REGION OF FOCUS

# SOUTH AFRICA

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South Africa, with a population of 59.9 million has the largest and most developed ICT infrastructure in Africa and is consequently a regional leader in ease of creating digital jobs. Despite this, South Africa still lacks real momentum - partially due to the high inequalities that plague the country. This allows us to capitalize on the existing infrastructure and focus on tackling issues regarding access and opportunities.

- ➡ **Women are familiar with technology and have some access** - 83% of women own mobile phones and 54% use the internet. <sup>[1]</sup>
- ➡ **There is a large youth population** - The median age is 27.6 years<sup>[2]</sup> and 55.97%<sup>[3]</sup> of this population is unemployed. In rural communities, most women work in unpaid sector.
- ➡ **They have a growing ICT industry** - As internet access increases, the female work participation would increase simultaneously by 80%. This is mostly prompted because of the large skills mismatch across South Africa, equating to the lack of supply and demand of essential skills + 49.5% youth unemployment rate for women.
- ➡ **Women contribute to the labour force** - 49.66% of women have jobs, but only 25.4% of these women are doing high-skilled, cognitive work. <sup>[5]</sup>



# THE PROBLEM

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## Insufficient Education

Women make up 65% of all school dropouts in rural communities. Only 28% of women are enrolled in tertiary education<sup>(1)</sup>.

## Poverty

51% of youth aged 18-24 were unable to afford education<sup>(5)</sup>. Out of the 52.2% of female-led households, 74.8% fall below the upper-bound poverty line<sup>(6)</sup>.

## Unproductive Use of Tech

Despite 2/3<sup>(2)</sup> of women having phones, 60%<sup>(3)</sup> couldn't contribute to the digital economy in meaningful way, due to a lack of awareness and opportunities.

## Lack of Guidance

Women have the drive and passion, but don't have strong female role models in ICT field to look up to, as only 23%<sup>(4)</sup> South African ICT jobs are held by women.

## Time Poverty

Women spend 4.3 hours a day on unpaid housework, while men spend 1.5 hours<sup>(7)</sup>. As a result, women are spending less time on other areas of their lives.



LEVERAGING THE GAP INTO THE OPPORTUNITY

# THE SKILLS & OPPORTUNITY GAP

“A lot of women are passionate and want to do something greater. They recognize the power of technology and education, but they don't learn the skills in school and don't know how gain more skills after Matric\* ... After that, they usually get married and take up low skilled jobs and the cycle just continues.”

~ Aaliyah Sacoor, Pietermaritzburg, SA



Increasing Knowledge of  
Relevant digital skills through  
project based learning

+

Decreasing barriers of entry  
and easing the transition to  
opportunities

=

More Women in the  
Digital Economy

**The Opportunity:** Bridging the gap of developing skills and obtaining opportunities for women in South Africa.

\* Matric is the Grade 12 equivalent in South Africa



# SOLUTION OVERVIEW: CRES UPSKILLING PLATFORM

The Cres web app takes women of all calibers, and provides them with the opportunity to network, develop skills through project based learning and eventually establish connections with potential job placements through projects and pathways.

## PROPOSED ROADMAP

1

### BUILDING FOUNDATIONAL SKILLS WITH NGOS

An abundance of existing NGOs aim to provide access to basic digital literacy and soft skill training for women in South Africa's emerging economy. Following this training, women will be funneled to the Cres platform to continue their upskilling.

2

### ESTABLISHING CREDIBILITY

Once on the platform, women will build credibility, develop skills, and optimize their portfolio while building connections through crowdsourcing projects, and participating in challenges and events.

3

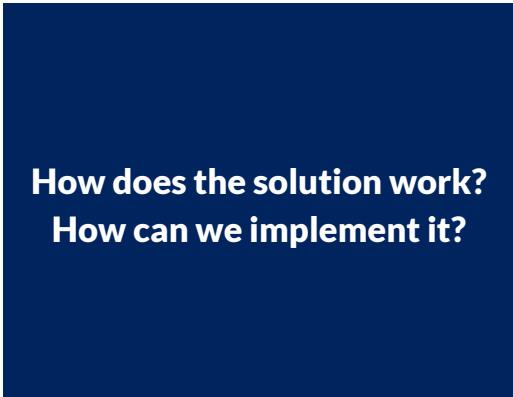
### CONNECTING TO OPPORTUNITIES

Through working with various established organizations, available gig opportunities as well as long-term job opportunities are channeled on the Cres platform.



## THE PLATFORM

The platform places emphasis on a key element needed to facilitate women's support in transitioning into the digital economy, the network effect. Through various features the women are able to develop close connections, and facilitate accountability and innovation through open-source code pages, community projects, discussion forums, and direct communication channels.





## THE FEATURES

# PHASE ONE: UPSKILLING AND PORTFOLIO BUILDING



**Integrated Profile and Features:** The Cres web app allows users to build their personal brand - each user can build a profile with her portfolio and showcase her technical skills and projects.



**Personalized Project Recommendations:** Using an ML model, the platform conducts an analysis on the user's portfolio and provides recommendations from Github regarding the next projects they should complete. More details in feature breakdown.



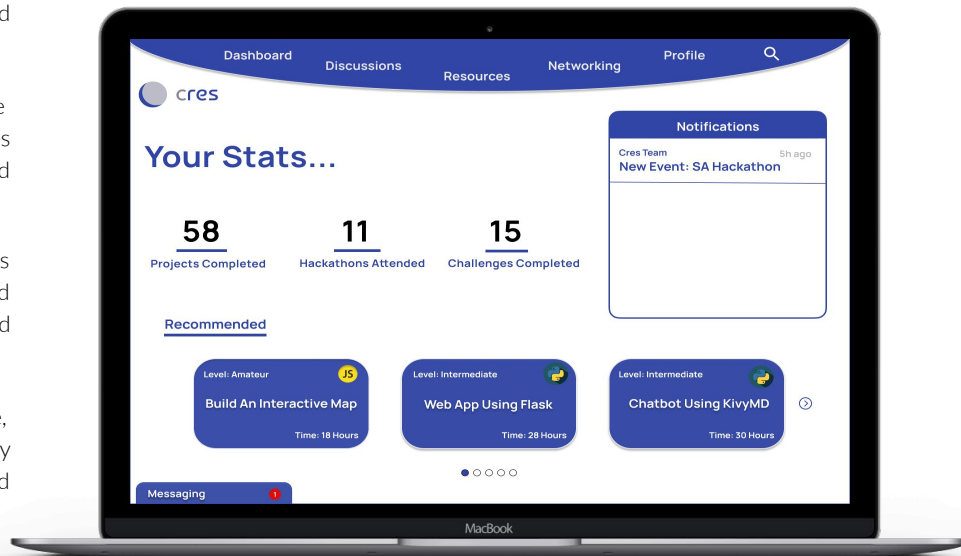
**Community Discussion Forum:** Similar to Stack Overflow, this forum acts as a central location where users can get support from other like-minded women with the ability to access global stacks for sourcing information and making it accessible on zero-rate sites for the community.



**Resource Tab:** This feature will allow anyone to post open-sourced code, projects, resources, videos, and opportunities that can be published by anyone in the network and NGOs. It acts as a central hub of tailored information used to further enhance the upskilling process.



**Personal Messaging Feature:** Users share, connect, and build deeper relations both with clients and internally throughout the Cres network. It also allows for a better channels for collaborating, managing projects, and streamlining niche skill-communities for clients to source talent from.



[See Feature Breakdown](#)



THE POSSIBILITY

## PHASE ONE: OUTCOMES

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### Personal Branding

The platform allows women to build a personal brand through encouraging project completion, and portfolio building. These public profiles will decrease the friction between potential employee-employer relations by establishing trust & credibility for the women.



### Equipping Women with necessary Skills

Through the promotion of project based learning, women are able to continuously develop their skills, and upskill to ensure stable employability,



### Networking & Accountability

By providing women with a central hub for networking, we are able to develop system of accountability where women are motivated by the progress of one another, and are able to help each other cross barriers.



### Promoting Innovation

Through the events posting, women are also encouraged to start their own projects and leverage their network to gain collaborators and promote in-sector innovation.





## THE POSSIBILITY

# PHASE TWO: INTEGRATING THE GIG ECONOMY

The gig-economy enables freedom in terms of when and where they work and thus workers have the opportunity to achieve a work-life balance and complete jobs that fit with their other responsibilities - that's precisely why the number of **freelancing mothers has increased by 79%** between 2008 and 2016 <sup>1</sup>.

Women working digital jobs are attractive to prospective employers because they have a 90% retention rate and a 60% employment rate <sup>2</sup> in comparison to traditional jobs such as nurses and teachers. Additionally, the gig economy is growing both globally and in South Africa - according to the World Bank, the gig economy can **produce over 4.5 million new, long-term, and high-quality jobs** in South Africa.

Rather than building an entirely new outsourcing model on the Cres platform, we can partner with already established remote outsourcing companies <sup>3</sup> to provide women with real world opportunities to grow their skills and get compensation for their work.



### Unlock

Once 8 projects are added to the Cres portfolio,<sup>4</sup> the woman gains access to the job board with opportunities with outsourcing companies.



### Apply

Upon selecting a job/ project, women are directed to apply through the outsourcing company's portal.



### Work

If selected, women complete the designated projects/ work the job remotely, and are paid directly by the outsourced company.

<sup>3</sup>- Similar to the Aegis model. See the Aegis case study [here](#).

<sup>4</sup>- See how we facilitate the transition between Phase 1 and Phase 2 [here](#).

<sup>5</sup> - See Gig Economy Analysis [here](#)

# PARTNERSHIPS WITH OUTSOURCING COMPANIES



Decagon provides women with training, aids them to develop skills, and connects them with employers. With a partnership with Decagon, Cres would be able to take advantage of their existing connections.



**Ikechukwu Nsofor** - Strategy Associate



**Fatimath Bawa-Allah** - Program Associate



CodeLn offers a skill bridging platform, and connects students with employers. CodeLn has provided a letter of intent which depicts that they would allow Cres to leverage their existing network.



**Elohor Thomas** - CEO and Co-Founder

[Letter of Intent](#)



With Andela's stellar reputation, through a partnership Cres would be able to leverage Andela's credibility and connect more women to various opportunities funneled through the Andela platform.



**William Burch** - Head of Strategic Partnerships

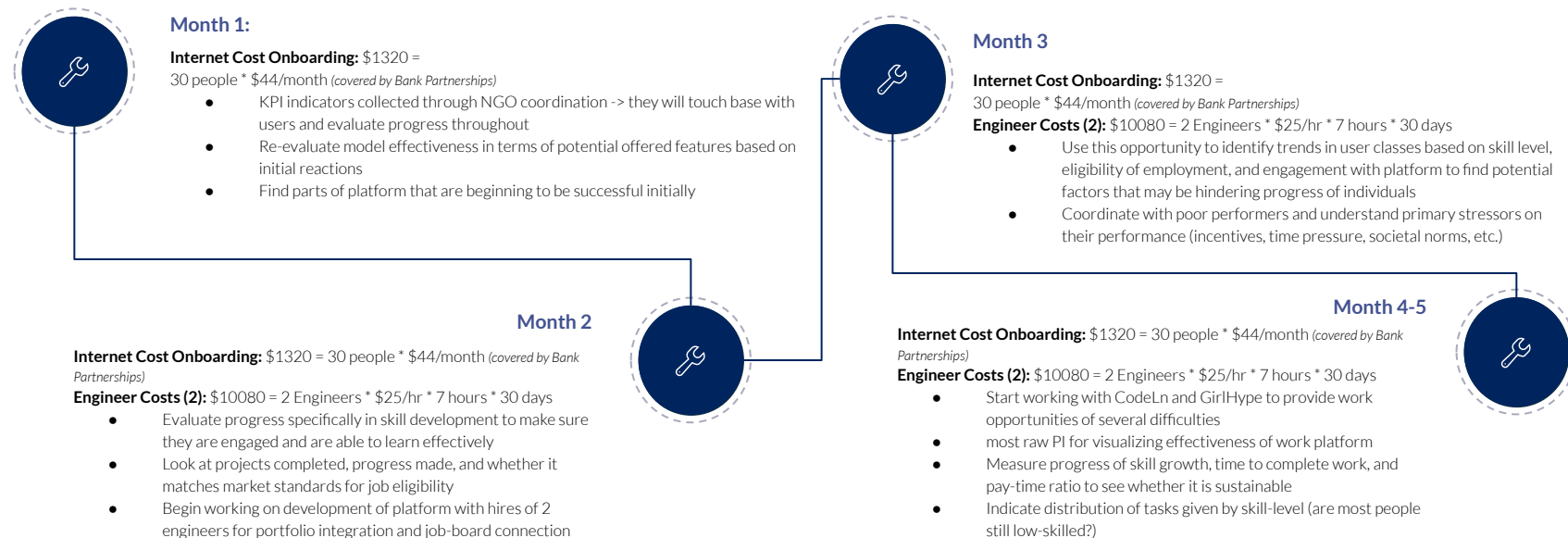


**Martin Chikilian** - Head of Talent Operations

[See full list of prospective partners](#)

## BREAKDOWN

# PILOT PROGRAM



**Aggregate Cost (UN Only) = \$30240\* for Engineer Salary Only**

BREAKDOWN

# SCALING PLAN



- 1. After going through the NGOs existing programs and building foundational digital skills, women would be on boarded onto our platform to continue upskilling, and continue the notion of lifelong learning.
- 2. Women on the platform are going to be learning at an extremely rapid pace, and be working towards 10X themselves. Guidance and resources would allow them to easily filter quickly obtain access to real world opportunities.
- 3. In order to activate this portion of the platform, users would need to have a portfolio built out, a certification from phase 1 uploaded, and they must provide some sort of reference that is able to speak of their technical skills. Job and gig project postings are funnelled onto the platform through existing platforms, and partnerships created.

Month 1-4	Month 4-5	Month 5-7	Month 7-10	Month 10-11	Month 12
<div>Pilot Program</div> <div>Recruit <b>150 women</b> from GirlHYPE and place an emphasis on high-skilled work and providing opportunity.</div>	<div>Pilot Testing and Validation</div> <div>Collect feedback and data through surveys and networks. Use this information to develop an action plan to improve the platform, and implement these adaptations.</div>	<div>Expansion to Other NGOs</div> <div>Scale program to several townships, establish proprietary NGO partners. Continue to implement changes in the platform based on pilot program end.</div>	<div>Building on Supply</div> <div>Iterate on previous changes of last year pilot program + <b>onboard many medium and low-skilled workers.</b> Partner with NGOs to port training material on the platform.</div>	<div>Social Impact Focus</div> <div>Increase quota for <b>low-skilled workers</b> by testing and improving networks and communities to optimize for learning.</div>	<div>Skilling Emphasis</div> <div>Use UN lobbying power to <b>pass through 2030+ incentive model plan into works</b>, better blended finance programs for companies, direct investment in women.</div>

## YEAR ONE: MONETARY BREAKDOWN

# 2021 SCALING COST BREAKDOWN

**Onboard Users** \*no. based on current NGO Partners Established, **LoC Costs** \*assuming each new user requires a LoC, only \_% will, **AWS Deployment** \*constant per fixed fee + platform partners, **Employees Dev. Cost** \*onboarding 1 employee every 2 months

2021 Pilot Program	PILOT PROGRAM w. NGO PARTNERSHIPS + PLATFORM DEV.				SCALING STAGE + RETURN ON LOC			ESTABLISHING LONG-TERM PARTNERS + LOW -> HIGH SKILLING					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Onboarded Users	150	200	266	354	471	627	834	1110	1476	1963	2610	3470	
AWS Deployment Costs	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00
Employees for Dev. Costs	\$41,000.00	\$0.00	\$56,103.00	\$0.00	\$31,013.00	\$0.00	\$31,013.00	\$0.00	\$31,013.00	\$0.00	\$31,013.00	\$0.00	\$0.00
Technical Support and Assistance	\$11,200.00	\$0.00	\$0.00	\$11,200.00	\$0.00	\$0.00	\$16,800.00	\$0.00	\$0.00	\$16,800.00	\$0.00	28000	
<b>Total Costs (Up Until Y)</b>	<b>\$54,200.00</b>	<b>\$2,000.00</b>	<b>\$58,103.00</b>	<b>\$13,200.00</b>	<b>\$33,013.00</b>	<b>\$2,000.00</b>	<b>\$49,813.00</b>	<b>\$2,000.00</b>	<b>\$33,013.00</b>	<b>\$18,800.00</b>	<b>\$33,013.00</b>	<b>\$30,000.00</b>	

## OBJECTIVES OF 2021 SCALING PLAN

**Pilot Program:** test out the platform and evaluate effectiveness for different townships + establish NGO and Platform Partnerships

**Scaling Stage:** begin to see returns [LoC](#) + higher percentage of workers now collaborating across multiple townships, working on multiple high-skilled projects, and contributing to community resources

**Long-Term Partnerships:** establish a larger variety of corporate partners and upskilling NGOs across South Africa, open up door to higher rate of medium-skilled workers, evaluate independence of females and impact on community social welfare and household pov.

## METHODS TO MITIGATE LONG-TERM RISKS IN COSTS

1. A fee system taken out of each transaction that contributes to a **blended finance pool** where stakeholders and communities benefiting from these platforms can add funds to fund LoC and greater expansion (for \$800 million income 2021, require \$1.04 million or **0.1% of total income**)
2. **Long-term social score system incentive models** increase stake of corporations in SA upskilling. This involves potential foreign investment, tech-friendly policies, and greater social security benefits offered to employees. Read **2030 + incentive models** for balancing supply and demand.
3. Lack of NGO partners or stagnation will require **greater emphasis on community learning**, hence working through **networking and community development to counteract supply of upskilling NGOs**, producing a self-sustaining model for talent.

## OPERATIONAL TIMELINE 2021-2030

Time and Activity	2021	2022	2023	2024	2025	2026
GDP CAGR Status Quo (2.1% )	\$317,190,000,000.00	\$323,850,990,000.00	\$330,651,860,790.00	\$344,685,056,413.79	\$337,595,549,866.59	\$351,923,442,598.48
GDP CAGR with Tech (3.5%)	\$317,190,000,000.00	\$335,185,774,650.00	\$342,224,675,917.65	\$356,749,033,388.27	\$349,411,394,111.92	\$364,240,763,089.43
No. of New Jobs Created	413400	465365.2068	523862.544	589713.1135	663841.2313	747287.4018
Growth of ICT Sector (2020 Reference)	30%	33.50%	37.00%	40.50%	44.00%	47.50%
VC Funds Raised in SA Tech Sector	\$1,430,000,000.00	\$1,610,157,549.00	\$1,813,012,120.70	\$2,041,423,183.62	\$2,298,610,454.41	\$2,588,199,283.48

### GLOBAL GIG ECONOMY -> FOCUS ON IMPACT OUTSOURCING

The tech industry has the potential to provide an increase in GDP of \$13 trillion USD while creating 747k new jobs. By 2026, the industry is projected to grow by 47.5% but these statistics are dependent on the slow-growing stats primarily in VC investment. Through our platform growth in just SA alone of 174k, the potential to increase the CAGR for GDP can reach up to 7% ([McKinsey](#)). Moreover, this can create up to 3 million new jobs with our platform in SA alone assuming our 2025+ strategy to attract foreign investment and companies through the platform's growth.

No. of Users added on Platform	3450	13950	31650	88650	127950	174450
Company savings/Women Skill Value	0.8	0.8	0.85	0.85	0.89	0.89
Total Household Poverty Reduction(People)	4173.12	17828.08	42613.47	125421.64	189774.7	270675.36
Per Capita GDP (Conservative Est, act. CAGR of 5.3%)	5235.79	7225.3902	9971.038476	13760.0331	18988.84567	26204.60703

### SOCIOECONOMIC BENEFITS -> BATTLING POVERTY AND INEQUALITY

Through our platform, women and families in poverty will be able to not only be included in the tech sector boom, but also lift themselves out of poverty at a drastic scale. By onboarding 174450 new women struggling with unemployment onto the platform, we can see substantial growth in Per Capita GDP assuming this is only for the highest-skilled workers (\$26204 USD is 375057.07 Rands). This can also have long-term impacts on communities and families alike, with the potential to lift 270k people out of poverty while increasing not just the opportunity generation in rural communities, but allowing for future generations to exploit far greater benefits from the model.



# 2030 AND BEYOND

## Global Economy + Companies:

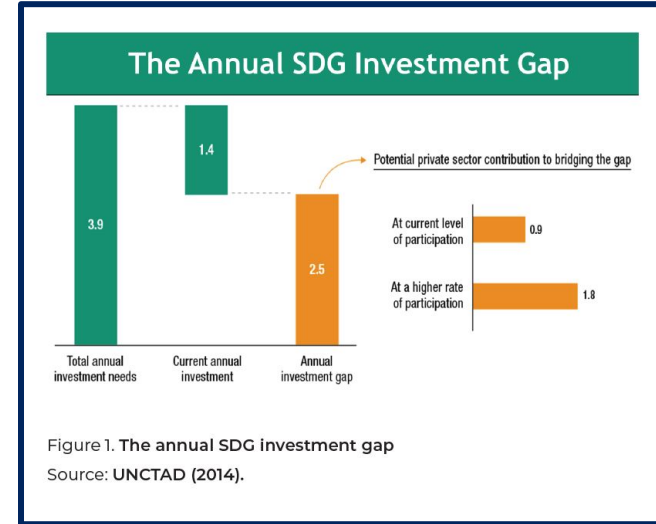
- Conceptualisation of the project – including feasibility studies and research and development (grants for R&D and feasibility studies, THRIP, Stp, etc)
- Capital expenditure – involving the creation or expansion of the productive capacity of businesses (MCEP, EIP, CIP, FIG, etc)
- Competitiveness enhancement – involving the introduction of efficiencies and whetting the competitive edge of established companies and

Global markets will now require direct investment into companies. Growth of African tech market potential to exceed 125% by 2030, companies need to be sure that there is a digitally skilled population with an apparent labour force to meet demand growth.

SA government in collaboration with UN amongst other countries can provide an incentive model to attract foreign investment and the development of new tech industries based upon previous programs listed. Social enterprise frameworks surrounding tax competition which also improves welfare because it forces government officials to reduce wasteful expenditure + generate jobs that reflect corporate needs.

Asian Infrastructure Investment Bank (2015) and the New Development Bank (2016) expanded the available sources of finance within the global development portfolio by US\$ 200 billion through Social Capital Incentives frameworks built around reformed tax policies. Rapid adoption of these + visible effects of outsourcing can promote governments to make tech-friendly policies and focus on leveraging private investment for blended financial projects (ie. results-based financing mechanisms is the Development Impact Bond in India which increased the enrollment of girls and improved the learning outcomes of about 18,000 children in Rajasthan).

Need for greater incentive models that leverage country resources with available, ready to deploy talent while rewarding socioeconomics over monetary contributions from companies. Examples include the Black Economic Empowerment where businesses with a good level BBBEE rating stand a better chance of being awarded government contracts.



Indigenization policies in some markets make it difficult for foreigners to own controlling stakes in companies. In South Africa, most companies incorporated off-shores if they do not have favourable government contracts.

28% of taxable income derived from the South African Branch makes it less favourable for companies, especially tech and VC funds, to enter African markets.

THE PROSPECTIVE FUTURE

## SNAPSHOT OF 2025

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66,000+

Jobs Created In The ICT  
Sector\*



31%

Growth In The Tech Sector



54,000+

Women Employed In The ICT  
Sector\*



12%

Growth In GDP Per Capita\*



\$66.9M

Saved In Development Costs



47,000+

Families Lifted Out Of  
Poverty\*

\* Source Finalized Sheets

# WHAT EXPERTS ARE SAYING

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We talked to a multitude of people to get their views/feedback on our recommendation. Here's what some of them said:



**Prof. Govender Nadaraj**  
Associate Prof. of Science  
Education - UKZN

"The envisaged project is well researched based on the SA scenario and economy. It is a feasible idea with an action plan and can be sustainable with a dedicated team and resource and start-up financing. If it becomes a reality, it can promote jobs and skills training in ICT and empower rural women towards more semi-skilled to high skill jobs."



**Ernesto Spruyt**  
Founder of Tunga.io

"I really like how this project addresses what I call the 'missing middle': upskilling developers - especially female coders - with basic training to being fully employable. Tunga is certainly interested to see the future of this initiative!"



**Baratang Miya**  
CEO, Founder of GirlHYPE

"There is definitely a gap in the market for your service. I can't wait to work with your team on building young women's portfolio's and seeing the impact it will have on creating employable skills for them. I am convinced that this approach will definitely create more job qualifying opportunities for our young women and in turn change their economical status in an empowered positive development."

ALL THE DETAILS YOU MIGHT NEED TO IMPLEMENT THIS SOLUTION

## FREQUENTLY ASKED QUESTIONS

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➡ Can I learn more about the exact problem in South Africa?

[Problem Analysis](#)

➡ How do you know that the gig economy is the way to go?

[Gig Economy Analysis](#)

➡ Do the women have internet infrastructure and devices?

[Microfinancing Plan](#)

➡ What exactly do the features on the Cres platform encompass?

[Feature Breakdown](#)

➡ How do you determine if someone is ready to transition to phase 2?

[Transitioning from Phase 1 to Phase 2](#)

➡ Which NGOs will you partner with?

[Potential NGO Partnerships](#)

➡ How will you evaluate if the Pilot is successful?

[Pilot Program and KPIs](#)

➡ How does Cres compare to the traditional Gig Economy?

[Cres vs Traditional Gig Economy](#)

# On a more Personal Note

Dear Team UN,

We can't thank you enough for this life changing opportunity. Our team had a fantastic time learning about how we can leverage technology and creative education models to encourage South African women to reach their highest potential. This challenge has been such an eye-opening experience and it pushed us to think about others' perspectives.

Over the past 5 weeks, we've learned so much about digital education, the ICT sector, and South Africa - through our understanding, we feel that we have plenty to contribute through this solution.

We hope that we were able bring new insights and value to you. Please feel free to reach out to us if you have any questions or comments about our recommendation. It's been a pleasure.

*Richa, Manroop, Aryan, and Dev*

Enjoyment



Learning



Aryan Thakur



Dev Patel



Manroop Kalsi



Richa Pandya

