



# A Guidebook on Commercialization of Research and Innovation Outputs in Universities in Kenya



# Purpose of the document

This guidebook was developed by Kenya Innovation Agency (KeNIA) and E&K Consulting Firm, with support from the Lemelson Foundation, to guide institutions in Kenya on how to commercialise their research and innovation output.

The guidebook was developed from a synthesis of evidence in the literature, best practices from case studies in Kenya and input from experts in innovation commercialisation.

## Disclaimer

The research has been funded by the Lemelson Foundation, and this is gratefully acknowledged. The analysis has been implemented by E&K Consulting Firm and views expressed are those of the authors and do not necessarily reflect the Foundation's official policies.

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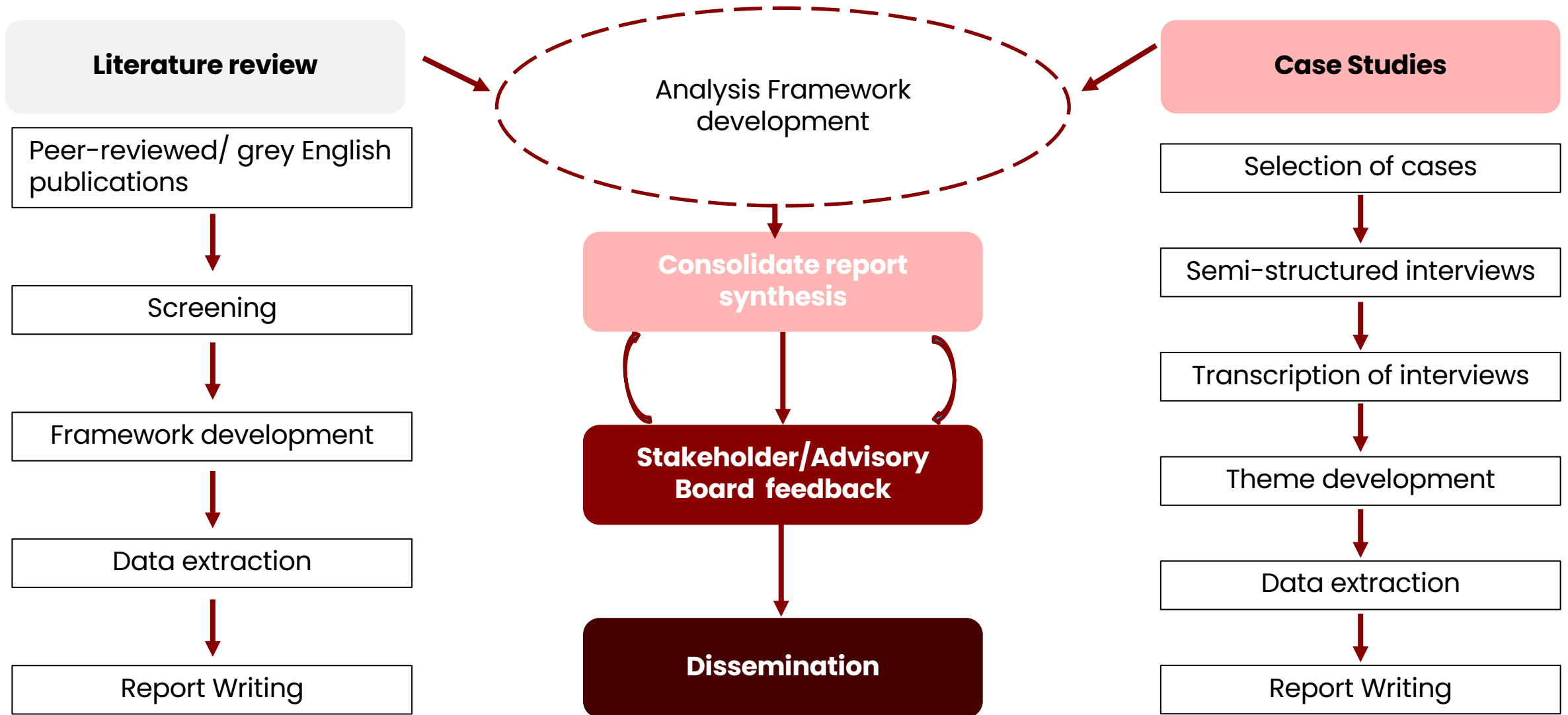
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## Acknowledgements

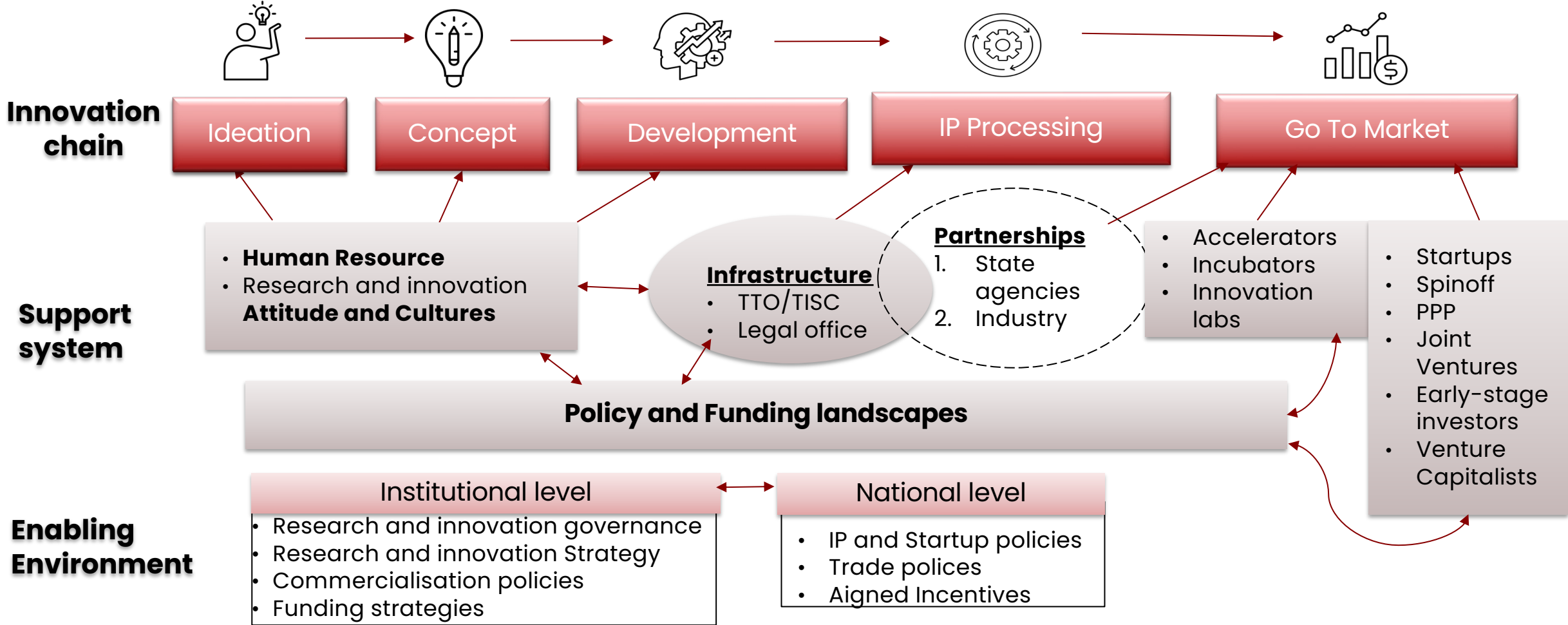
The authors are very grateful to the key stakeholders engaged in creating this work, particularly members from case-study universities Dedan Kimathi University of Technology, Kenyatta University and Strathmore University, whose support was critical to the development of the commercialisation model pathways, and their continued support at the institutional level will be critical in implementation.

# Technical Approach

The data that informed the development of the guidebook was gathered through extensive desk research, case-study and expert interviews

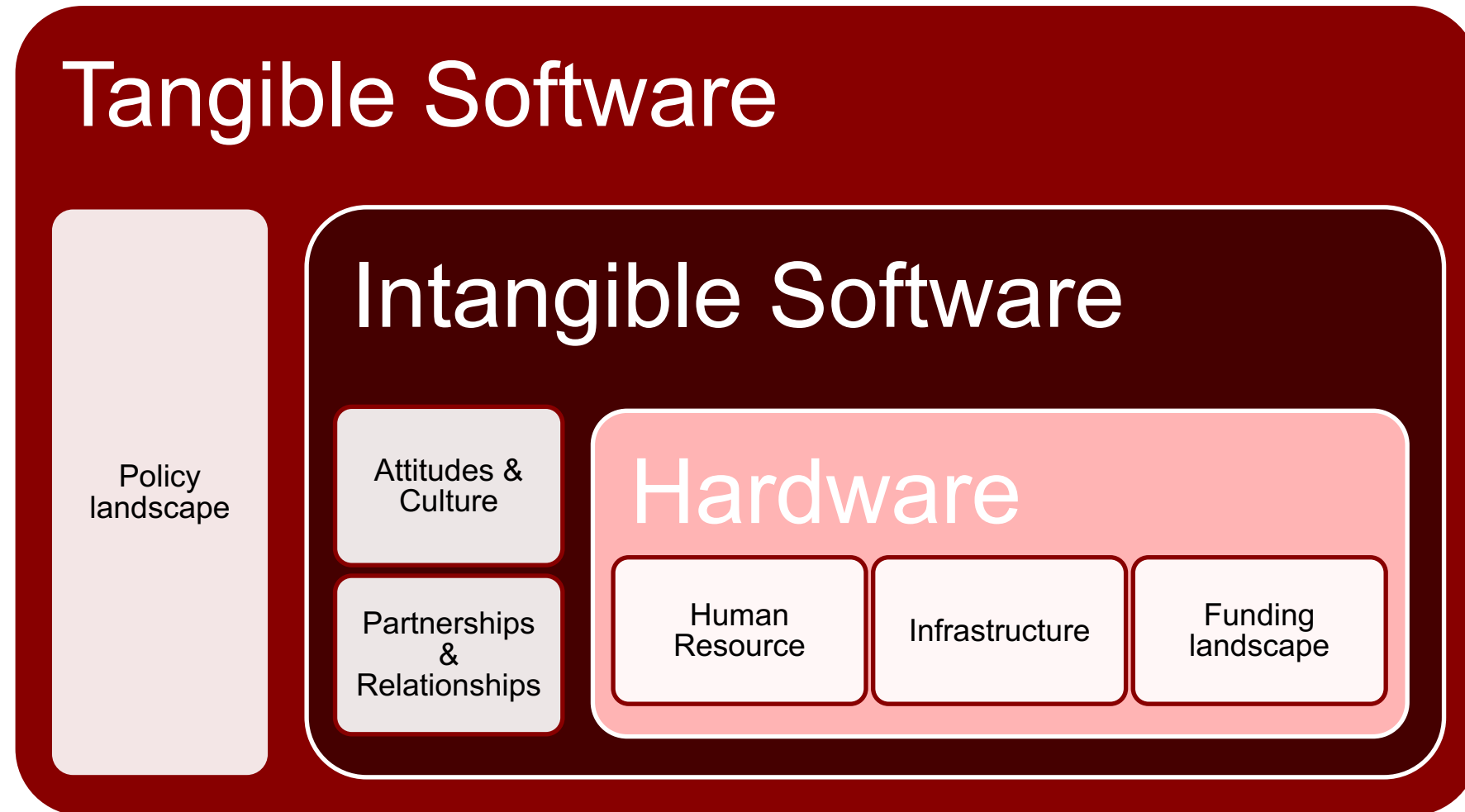


# Concept to Market: Conceptual Framework



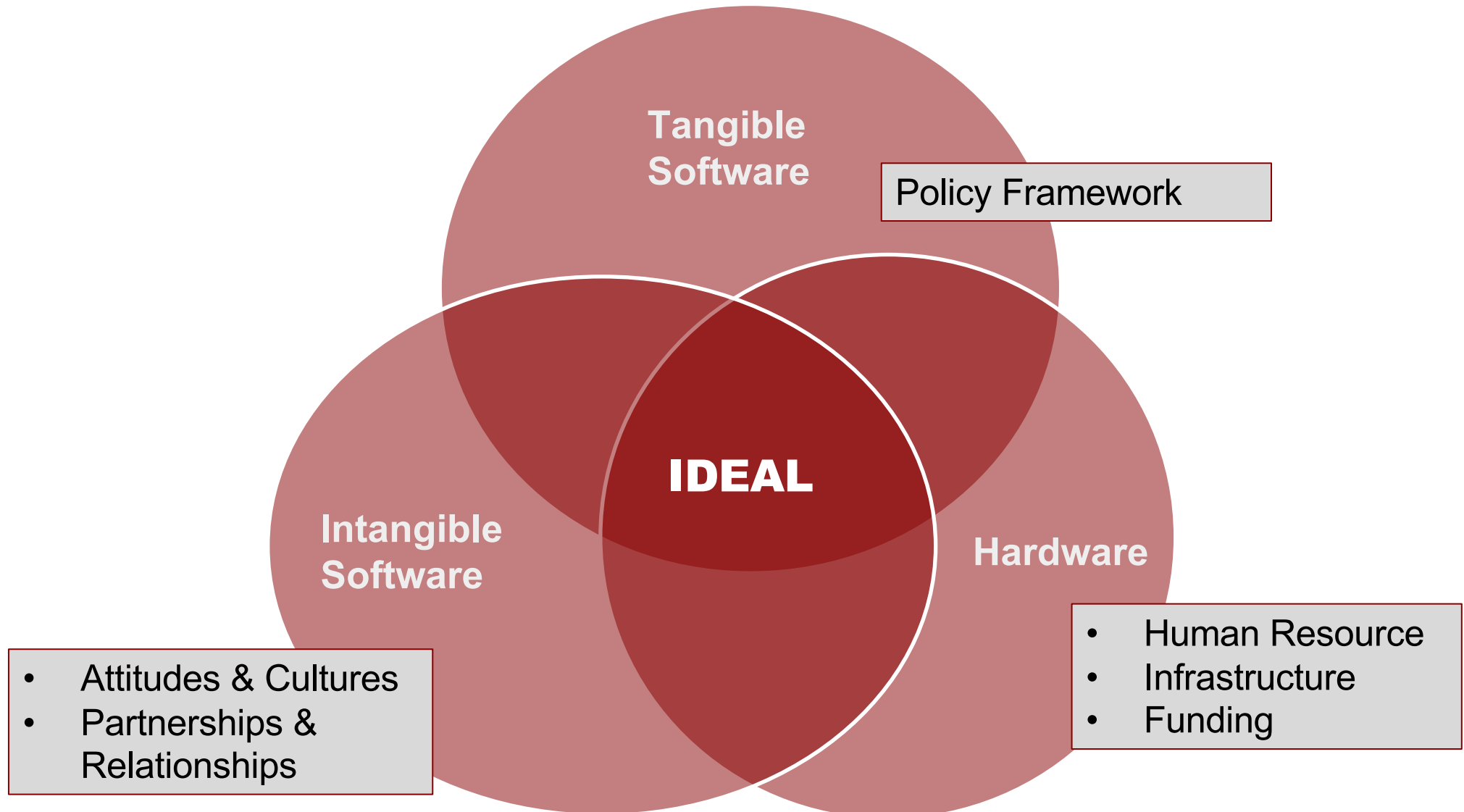
# Key capacities for successful commercialisation

Six key themes were adapted in analysis from Aragon's framework of organisational capacities



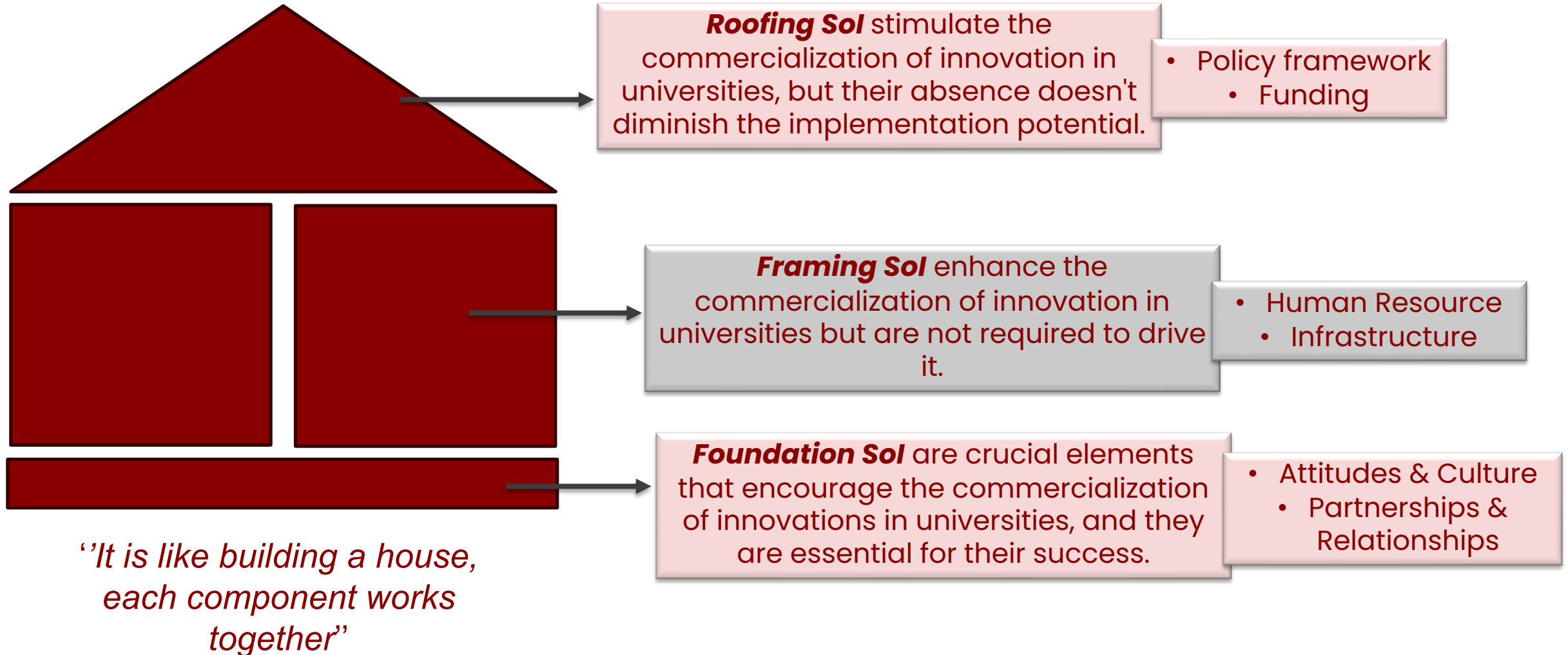
# Synthesis of themes

Comprehensive Integration of all themes represents an **ideal** in the commercialization journey for universities...



# Strategic Prioritisation: Spheres of Influence (Sol)

...however, strategic prioritization of key themes into sequential spheres of influence is recommended.





# Adoption Pathways

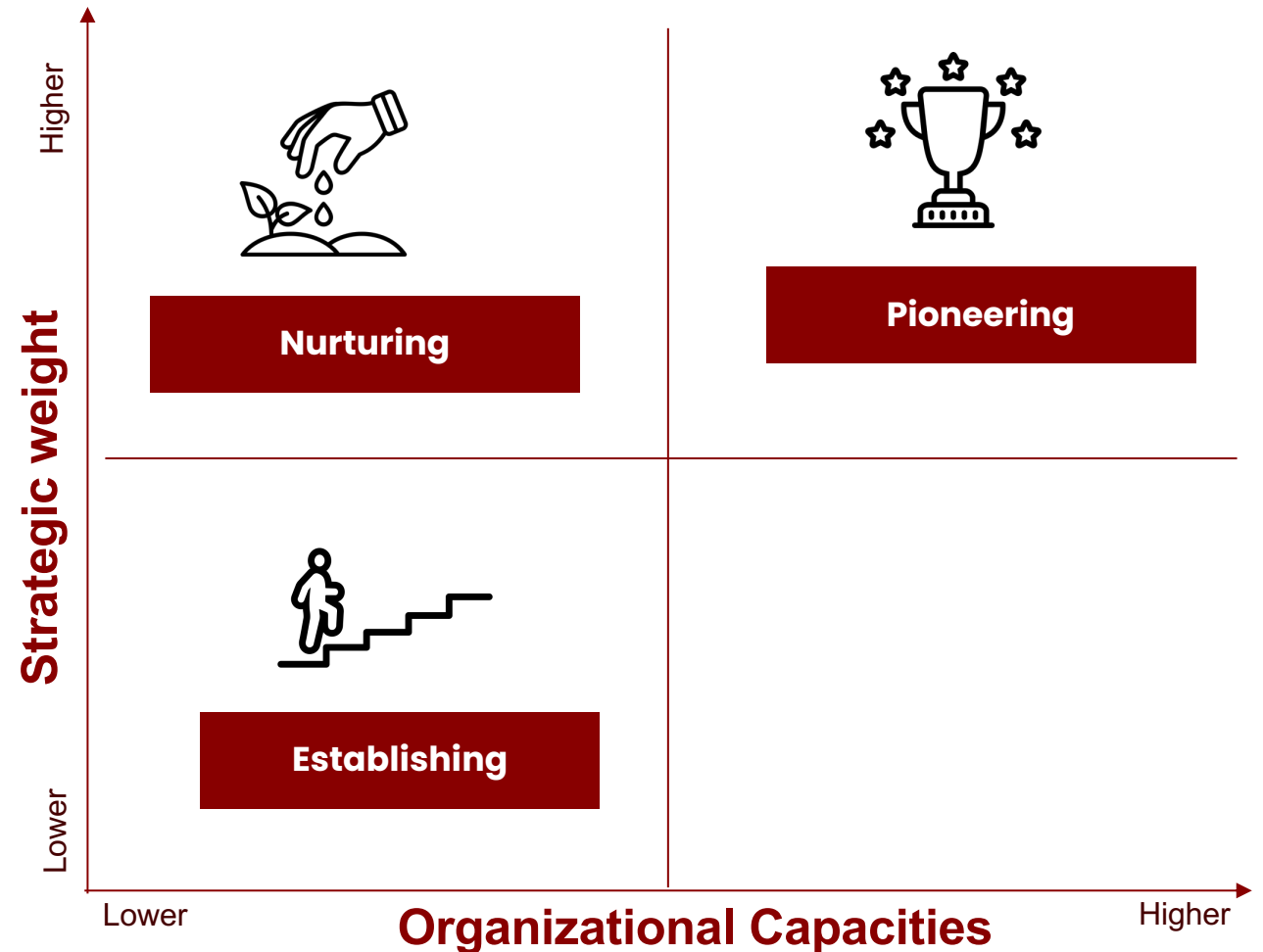
## Steps to commercialisation of innovation

*Unpacks three key pathways for successful  
commercialisation of innovation in universities*

# Commercialisation archetypes

...rather, there are different pathways (“archetypes”) you can adopt.

**No single pathway is right for institutions...**



# Self-Assessment Process

Determining the commercialization archetype of an institution depends on your strategic considerations and capacities.

## Strategic considerations

- What are our goals for commercialization?
- How important is it to achieving overall university strategy?
- What are key bottlenecks that have presented?
- To what extent would moving towards entrepreneurial models enhance our key mandate?

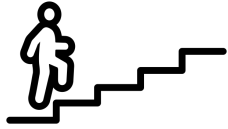
## Capacities

- What are our existing capacities? Do we have a TTO or TISC, substantial research outputs, and have we commercialized a few Items?
- To what extent can we use or adapt our existing capacities?
- To what extent can we build or generate new capacities?

**From the self assessment questions, you can determine your archetypical descriptor**

# Archetypal Descriptor

Archetypes are determined by the strategic weight of commercialisation, current level of commercialisation and key sphere of influence (Sol)



## Establishing

- Currently delivering on core university mandate of teaching and research and aiming to supplement by innovation and entrepreneurship efforts
- Yet to develop systems to support protection and exploitation of IP.
- Focus on: **Foundation Sol**



## Nurturing

- Strategic focus on commercializing innovations, complementing core mandate
- Presence of an IP office, research policies and a strategic direction, but lack of a TTO and disconnected operations
- Focus on: **Framing Sol**



## Pioneering

- Innovation and entrepreneurship-centric strategy
- Presence of Technology TTO/ TISC, substantial research outputs and have commercialized a few innovations
- Focus on: **Roofing Sol**

# Commercialisation pathways

Once you have self-assigned to an archetype, you can then adopt either a gradual or accelerated pathway in your commercialisation journey progression.

Self Assessment Process



**Establishing**



**Nurturing**



**Pioneering**

Journeys within each archetype are split into two based on HEI aspirations.



**Gradual**

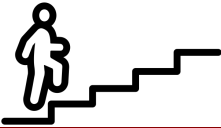


**Accelerated**

# Archetype 1: Establishing

# Profile of *Establishing* archetype

While in the establishing state, a university prioritizes the development of **Foundation Sol** factors: attitudes & culture and partnerships & relationships



**Establishing**

## **Attitudes and Culture**

### ***Fostering an entrepreneurship culture***

1. Innovation champions.
2. Focus on mentorship.
3. Focus on training.
4. Incentives and rewards.
5. Raising awareness – success stories.



**Nurturing**

## **Partnerships and Relationships**

### ***Leveraging networks***

1. Focus on institutional support needs.
2. Mapping complementary partners.
3. Defining value proposition.
4. Focus on feedback mechanisms.

# Establishing archetype: Attitudes & Culture

The following steps can be adopted in either a gradual or accelerated pathway

Which pathway do you prefer?



## Gradual

1

Identify and empower entrepreneurship and innovation champions.

2

Establish formal mentorship programmes: peer to peer, existing staff.

3

Leverage existing skill sets in staff to establish training programmes for other faculty and students.

4

Identify feasible rewards for innovators and staff e.g. leadership recognition.

5

Hold conferences, hackathons, bootcamps, etc to promote entrepreneurial culture.



## Accelerated

1

Incorporate research and innovation as a requirement for course completion and graduation.

2

Leverage alumni network and industry partners for training and mentorship.

3

Inbuild tangible rewards and compensation for staff and innovators e.g. promotion, tenure.

4

Partnerships especially with renown universities in commercialisation and benchmarking.



# Establishing archetype: Partnerships

The following steps can be adopted in either a gradual or accelerated pathway

Which pathway do you prefer?



## Gradual

1

Define short, medium and long-term goals and potential support needs.

2

Identify different categories of potential partners, other HEIs, industry, governments.

3

Identify existing connections to partners e.g. leverage alumni, student and staff community.

4

Showcase success stories to attract potential partners: events, hackathons etc.



## Accelerated

1

Establish MoUs with partners to formalise partnerships, define roles and set out engagement timelines.

2

Create a dedicated liaison office or role within the university to manage partnerships.

3

Allow industry access to talent e.g. establish internships connecting students with industry.

4

Industry driven curriculum: Develop and adapt courses that meet the needs of industry.

# Archetype 2: Nurturing

# Profile of *Nurturing* archetype

Universities in the nurturing archetype build on the journey by improving the status of **Framing Sols**: human resource and infrastructure



## Nurturing

### Human Resource

#### *Unlocking Potential, Maximizing Impact*

1. Maximise institutions community expertise.
2. Continuous professional development.
3. Leveraging partnerships and networks.



## Pioneering

### Infrastructure

#### *Elevating Efficiency*

1. *Optimising existing infrastructures.*
2. *Leverage digital resources.*
3. *Focus on feedback mechanisms.*

# Nurturing archetype: Human Resource

The following steps can be adopted in either a gradual or accelerated pathway

Which pathway do you prefer?



## Gradual

1

Identify faculty members with entrepreneurial experience or expertise to shape the university's entrepreneurial ecosystem.

2

Establish cross-disciplinary programmes for training and mentorship.

3

Create "for-credit" student entrepreneurship volunteer programmes at graduate level to increase HR pool.

4

Recognize and reward faculty who actively contribute to entrepreneurial and innovation activities.



## Accelerated

1

Development of tangible reward systems for staff in entrepreneurship.

2

Establish entrepreneurship-in-residence programmes to provide mentorship and advice to early-stage entrepreneurs.

3

Tap into the expertise of alumni who have entrepreneurial experience.

# Nurturing archetype: Infrastructure

The following steps can be adopted in either a gradual or accelerated pathway

Which pathway do you prefer?



## Gradual

1

Adapt or re-configure classroom layouts for entrepreneurship activities after hours.

2

Leverage digital resources like virtual labs and online learning platforms to support R&I.

3

Leverage external partners with identified infrastructure to allow access.

4

Enhance the university library by providing access to resources on entrepreneurship and innovation including e-books and databases.



## Accelerated

1

Dedicate funding to design and develop additional infrastructure that can adapt to changing needs.

2

Leverage existing infrastructure as a revenue source for entrepreneurship activities.

3

Set up entrepreneurial support centres, TTOs, innovation hubs etc to facilitate the commercialization of university research and innovation.

# Archetype 2: Pioneering

# Profile of *Pioneering* archetype

Pioneering archetype universities, having established Foundation and Framing Sols, focus on the development of **Roofing Sols**: policy frameworks and funding

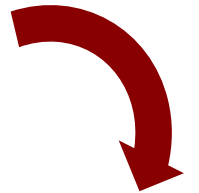


**Pioneering**

## **Policy**

### ***Framing Progress, Shaping Policy***

1. Focus on strategic goals, mission and vision.
2. Focus on documentation of metrics and feedback mechanism.
3. Streamline operations.



## **Funding**

### ***Unlocking Opportunities, Maximizing Resources***

1. Analysis of current budget allocations and trends.
2. Institutional strategic prioritisation.
3. Innovative financing through partnerships.

# Pioneering archetype: Policy

The following steps can be adopted in either a gradual or accelerated pathway

Which pathway do you prefer?



## Gradual

1

Define a clear mission and specific objectives for the university's entrepreneurship and innovation efforts.

2

Identify and engage key stakeholders, including faculty, students, alumni and industry partners, in the policy development process from the start.

3

Leverage cross-disciplinary expertise e.g. legal faculty to develop policies for handling.

4

Define metrics and methods for evaluating the impact and success of entrepreneurship and innovation initiatives.



## Accelerated

1

Establish a dedicated entrepreneurship office responsible for developing and implementing policy frameworks.

2

Develop policy to streamline administrative processes and reduce bureaucracy in innovation chain.

3

Leverage key internal and external expertise in development of process-specific policies e.g. IP policy, start-up policies etc.

4

Regular review of policies to reflect current trends in the innovation space.



# Pioneering archetype: Funding

The following steps can be adopted in either a gradual or accelerated pathway

Which pathway do you prefer?



## Gradual

- 1 Conduct analysis of current budget allocations and trends.
- 2 Apply for grants to supplement the university budget.
- 3 Host events, workshops, or conferences related to entrepreneurship and commercialization that charge fees or attract sponsorships.
- 4 Leverage partner networks including alumni, donors and industry for targeted sponsored partnerships.



## Accelerated

- 1 Create a university-specific investment fund, to dedicate endowment or operational funds to entrepreneurial activities.
- 2 Leverage entrepreneurship infrastructure to generate lease income from use of facilities.
- 3 Offer business development services, consulting, or incubation services to local start-ups for a fee.
- 4 Explore alternative financing options with partners e.g. Income share agreements repaid based on future income or revenue.

# Resources

## Additional tools on commercialisation of innovation to help on your journey

- **KeNIA Commercialisation Toolkit**  
[https://www.innovationagency.go.ke/storage/pub-docs/ken\\_pub\\_CommercialisationToolkit.pdf](https://www.innovationagency.go.ke/storage/pub-docs/ken_pub_CommercialisationToolkit.pdf)
- **KeNIA Institutional Support Report**  
[https://www.innovationagency.go.ke/storage/pub-docs/ken\\_pub\\_IS-Phase-II-Final-Report-August-2023\\_Updated.pdf](https://www.innovationagency.go.ke/storage/pub-docs/ken_pub_IS-Phase-II-Final-Report-August-2023_Updated.pdf)
- **OACPS Guidelines for strengthening commercialisation in universities and research institutes in Kenya**  
<https://acrobat.adobe.com/id/urn:aaid:sc:EU:1fd4ffcb-e6eb-4c78-b753-b9eef35c44c4>
- **KeNIA Science, Technology and Innovation (STI) Policy 2020–2030**  
<https://www.innovationagency.go.ke/storage/pub-docs/phpVsotRa.pdf>
- **Kenya Innovation Outlook Report 2022**  
[https://www.innovationagency.go.ke/storage/pub-docs/ken\\_pub\\_kio\\_report\\_22\\_Ors.pdf](https://www.innovationagency.go.ke/storage/pub-docs/ken_pub_kio_report_22_Ors.pdf)
- **Kenya 10–Year National Innovation Masterplan**  
<https://www.innovationagency.go.ke/resources/publications>
- **Technology and Innovation Support Centres (TISCs) in Kenya**  
<https://www.kipi.go.ke/images/docs/journals/TISCs.pdf>

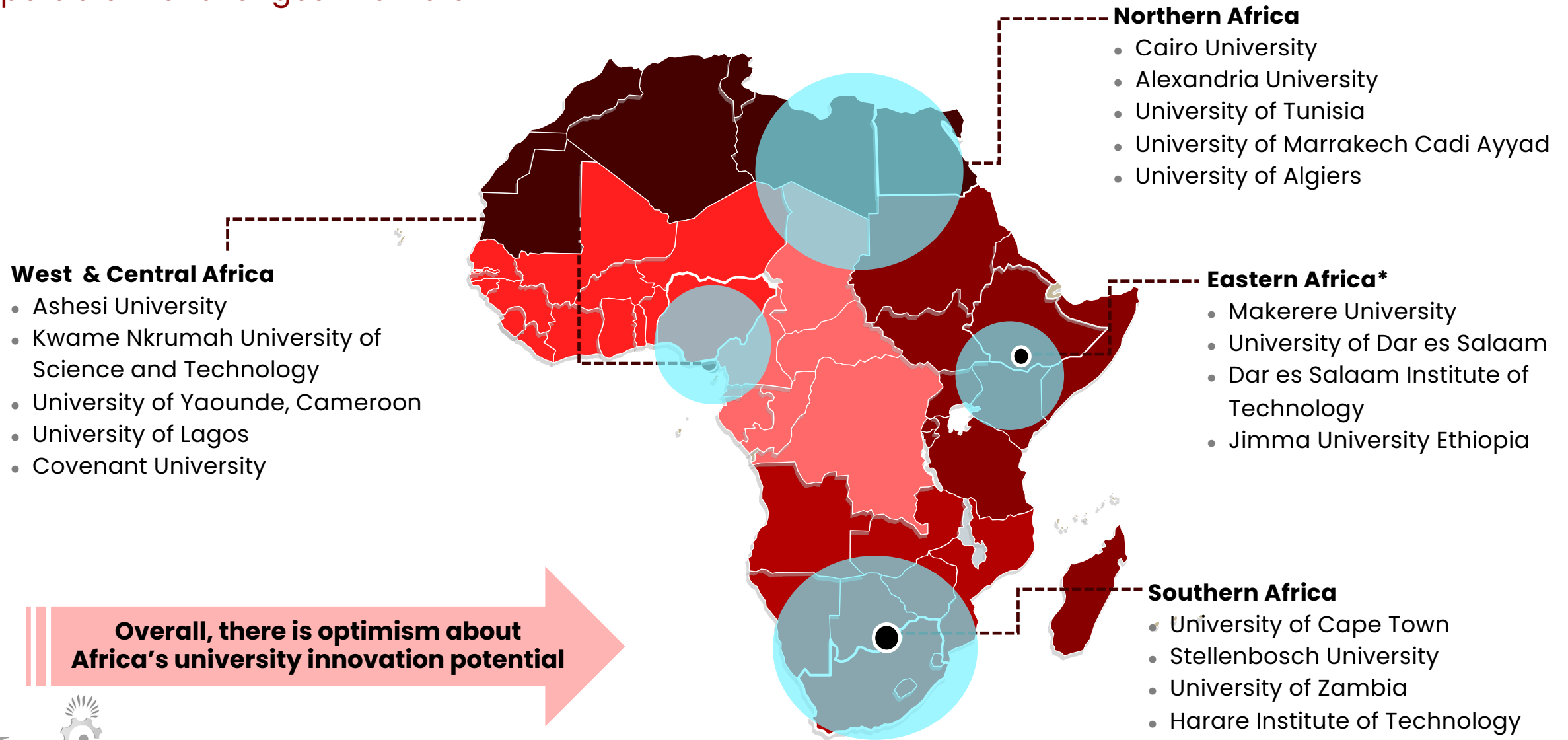
# Annex

## University commercialisation of innovation landscape

*Description of current exemplars of success in  
university commercialisation of research and  
innovation in Africa and Kenya (2023)*

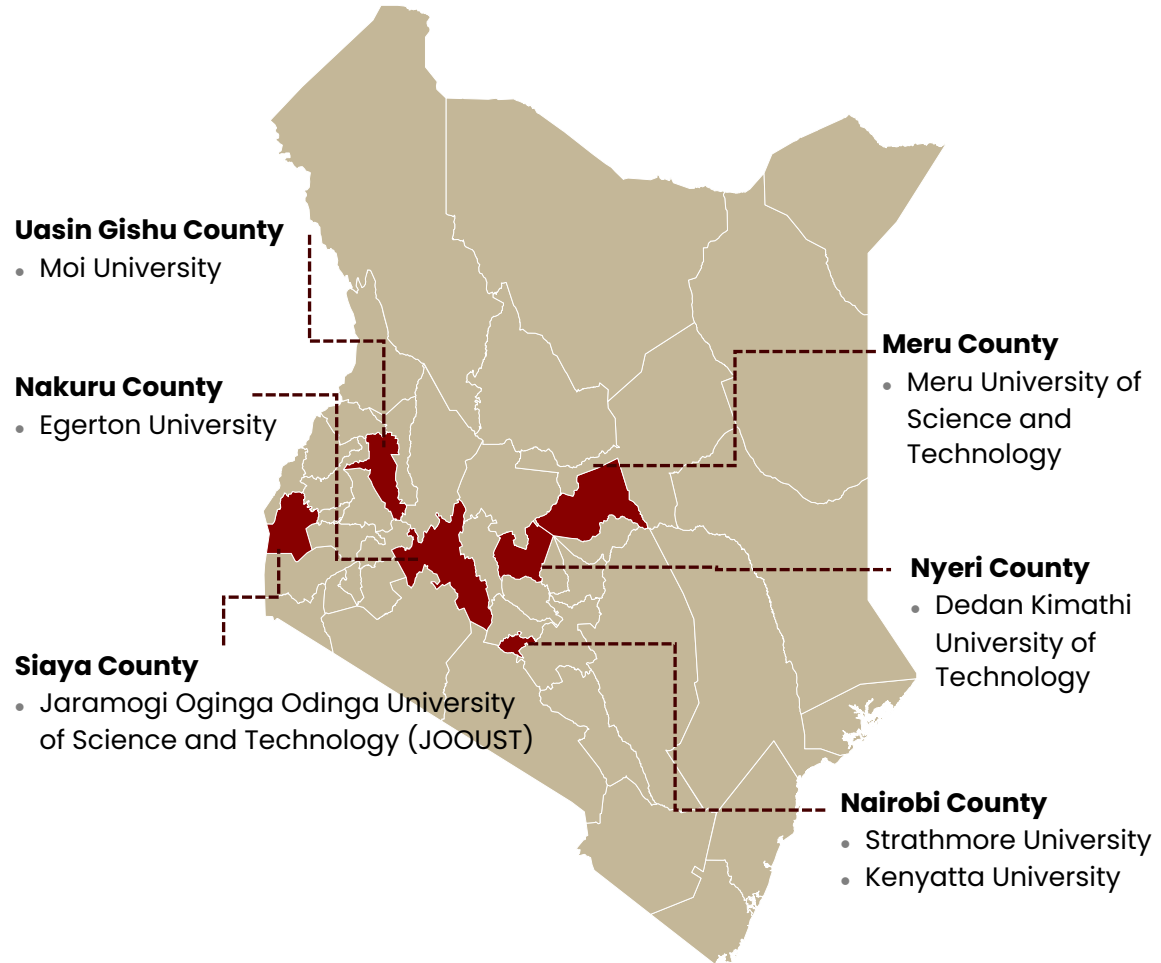
# University commercialization landscape in Africa

Mixed picture in Africa HEIs: Significant progress in some African countries with several trailblazers but persistent challenges in others



**Overall, there is optimism about Africa's university innovation potential**

# University commercialization landscape in Kenya



***Potential for growth:*** innovation and entrepreneurship are recognized as essential parts of university core function with wide adoption across the country



***Impact:*** In the period 2013–2023, a total of 265 patents were filed with KIPi and 60 patents published



***Notable patents and spin-outs:***



PURPINK

ASTROLEPIS  
COCHISENSIS  
FERTILIZER



Flavored yoghurt



Speed limiter