

Ensuring (Digital) Startups and Local Innovators Benefit from Potential in the Green Hydrogen (GH2) Sector in Namibia

Documentation of the ii2030 Green Hydrogen in Africa Edition
April 2023

ii2030

INCLUSIVE INNOVATION 2030

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Introduction to ii2030 Methodology

Key Ingredients for ii2030

ii2030 is an initiative that brings together a curated group of participants to explore systems and co-create solutions that enable technology to help us achieve the Sustainable Development Goals at scale.

2

Curated group of key players from diverse sectors



1

Tech-based opportunity to positively disrupt current systems

3

Facilitate a co-creation and co-implementation process

ii2030 GH2 in Africa Edition

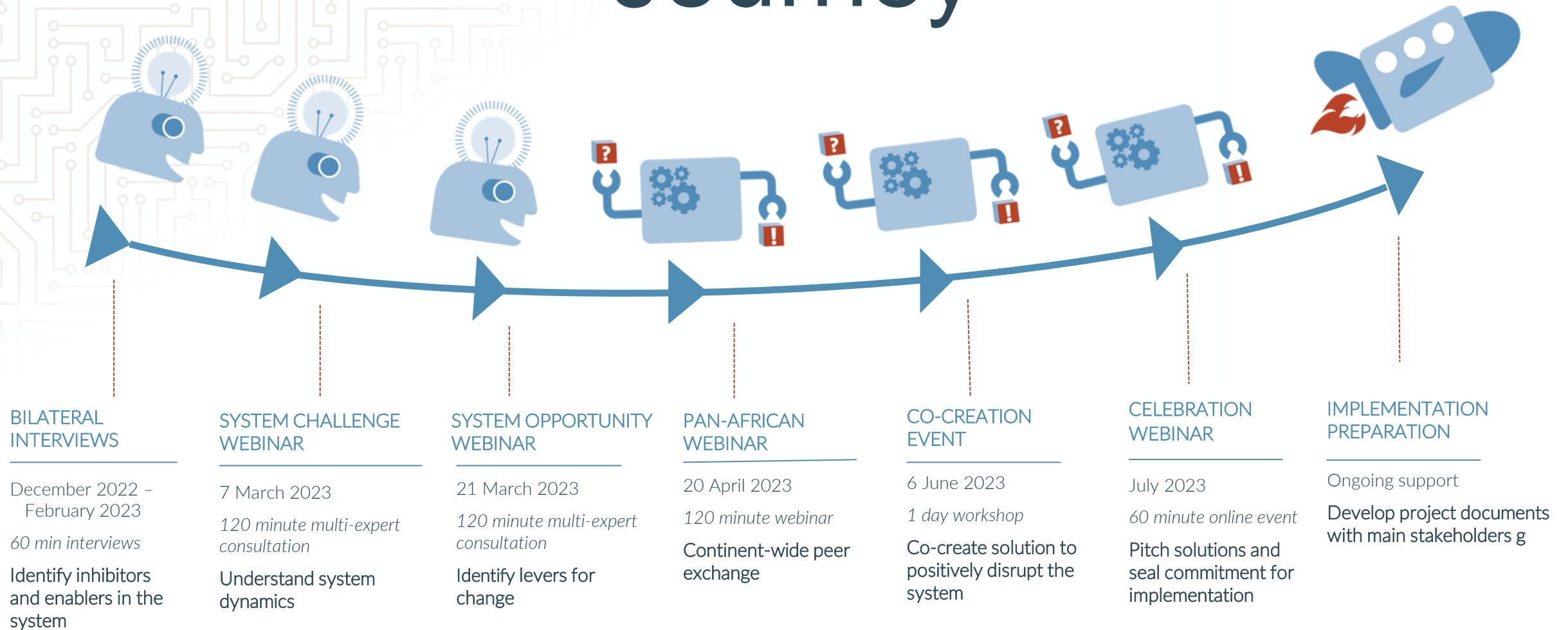
Green hydrogen can be transformative for Africa. The sector will create **green jobs** and **new opportunities** for local startups and innovators.

Now is the time to create the fertile ground for entrepreneurs, who often lack access to adequate finance, skills, or even awareness of opportunities in the GH2 sector.

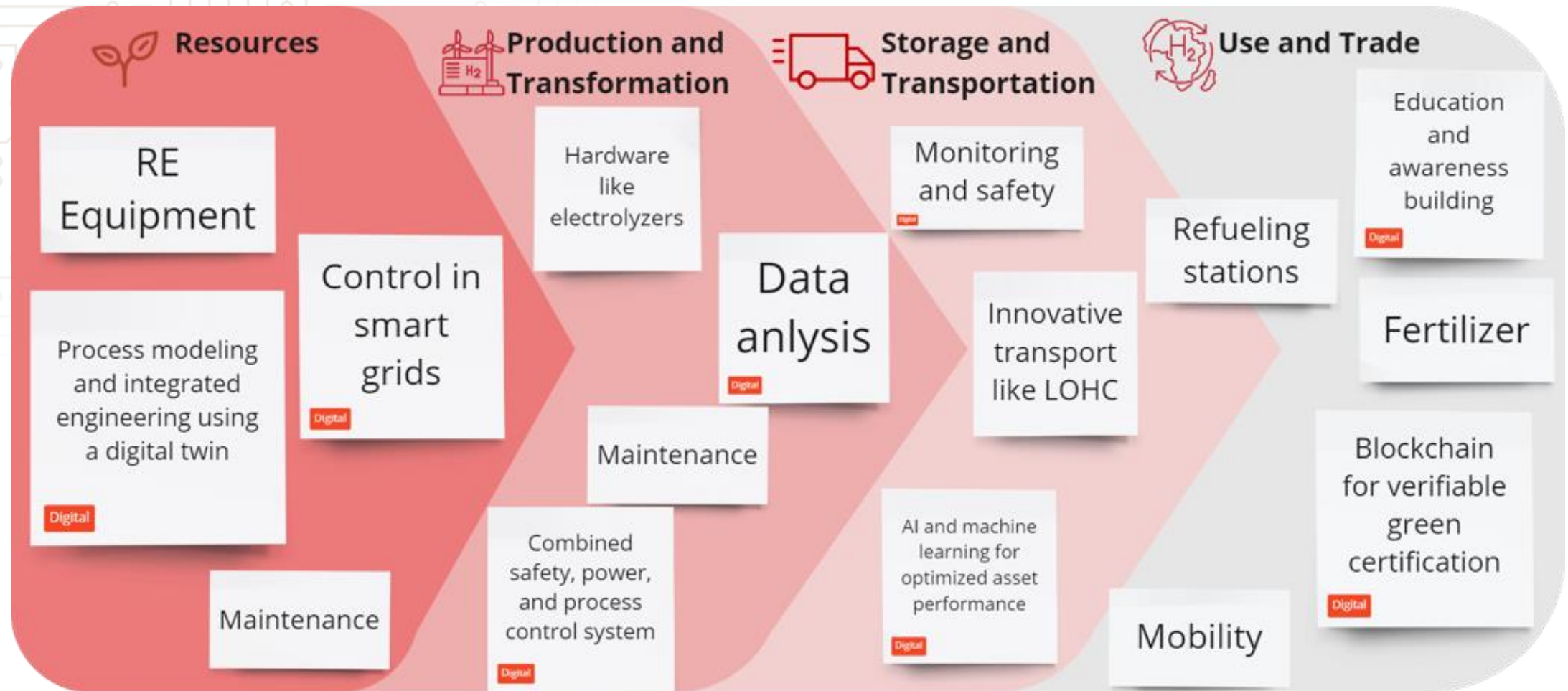
ii2030 is a **catalytic process** that begins with a problem and an opportunity and ends with a prototype of a systemic solution that can be implemented to **strengthen the GH2 support ecosystem** for local startups and innovators at the national and pan-African levels.



ii2030 GH2 in Namibia Edition Journey



Scope: Opportunities for (Digital) Startups and Innovators





Status of the GH2 Sector in Namibia

GH2 in Namibia by the Numbers

- The Namibia Green Hydrogen and Derivatives Strategy targets a production of 10-12 million tonnes per annum hydrogen equivalent by 2050.
- Through the pilot project HYPHEN Tsau Khaeb, Namibia has set a hydrogen production target of 300,000 tons per year
- The electrolyser capacity target for the Hyphen Tsau Khaeb project is 3 GW.
- McKinsey estimates that Namibia could be producing green hydrogen at US\$1.5/kg by 2030.

Milestones of the Sector

Namibia's world-class solar and wind resources give it a long-term competitive advantage in producing green hydrogen and green ammonia.

May 2021: The President of The Republic of Namibia established an **Inter-Ministerial Green Hydrogen Council (GHC)** as outlined in the Harambee Prosperity plan II

November 2021: Hyphen Energy is selected as preferred bidder by the Namibian Government to invest around 9.4 bn USD in a GH2 plant near Lüderitz

November 2022: Namibia's Green Hydrogen Council launched its **GH2 strategy** which supports the country's commitment to the Paris Agreement

2026: The Hyphen project is planned to start producing GH2



Namibia.
Green Hydrogen and Derivatives Strategy



The Namibian Green Hydrogen Strategy

Map of GH2 Projects (03/2023)

HDF Energy Namibia: French hydrogen specialist Hydrogène de France (HDF) is moving forward with its green hydrogen project. The facility is planned to sell energy to the Namibian grid.

(<https://www.renewstable-swakopmund.com/the-project>)

Daures Green Village: production of green hydrogen and green ammonia and the utilization of its derivatives; Run by Daures Green Hydrogen Consortium (DGHC), National Green Hydrogen Research Institute (NGHRI) and the University of Stuttgart.
(www.daures.green)

Cleanergy Solutions Namibia - a joint venture between CMB.TECH and the Ohlthaver & List (O&L) Group - works on setting up a Hydrogen pilot plant and refuelling station at the coast of Namibia (www.cleanerynamibia.com)

The HyRail Namibia project: Hyphen Technical, CMB.TECH, TransNamib, the University of Namibia and Traxtion, aim to develop Africa's first dual-fuel hydrogen-diesel locomotive to be fuelled with Namibian green hydrogen
(www.hyphentechnical.com, <https://cmb.tech>)

Hyphen: Planned US\$9.4 billion plant producing 300,000 metric tons of GH2/year from 5GW RE capacity and 3GW electrolyser; Produce green hydrogen partly for domestic use, but mainly for export to Europe through a pipeline
(www.hyphenafrica.com)



Key Actors



Enablers of GH2 Development



Government drives development of the GH2 sector; GH2 strategy and inter-ministerial Green Hydrogen Council are in place



Access to natural resources will allow Namibia to produce GH2 at a highly competitive price globally



Trust and support of the international governments, businesses and finance providers



Namibian Green Hydrogen Research Institute, Namibian Green Hydrogen Private Sector Task Force and Namibian Investment Promotion and Development Board are enablers for the GH2 startup ecosystem



Planned projects are large-scale, with an agreed percentage of local contribution

Inhibitors of GH2 Development



Overall situation of policies, offtake and financing is unclear as the sector is in its early stages



Negligible domestic market for green hydrogen



Lack of awareness on opportunities in the GH2 industry for digital startups and innovators

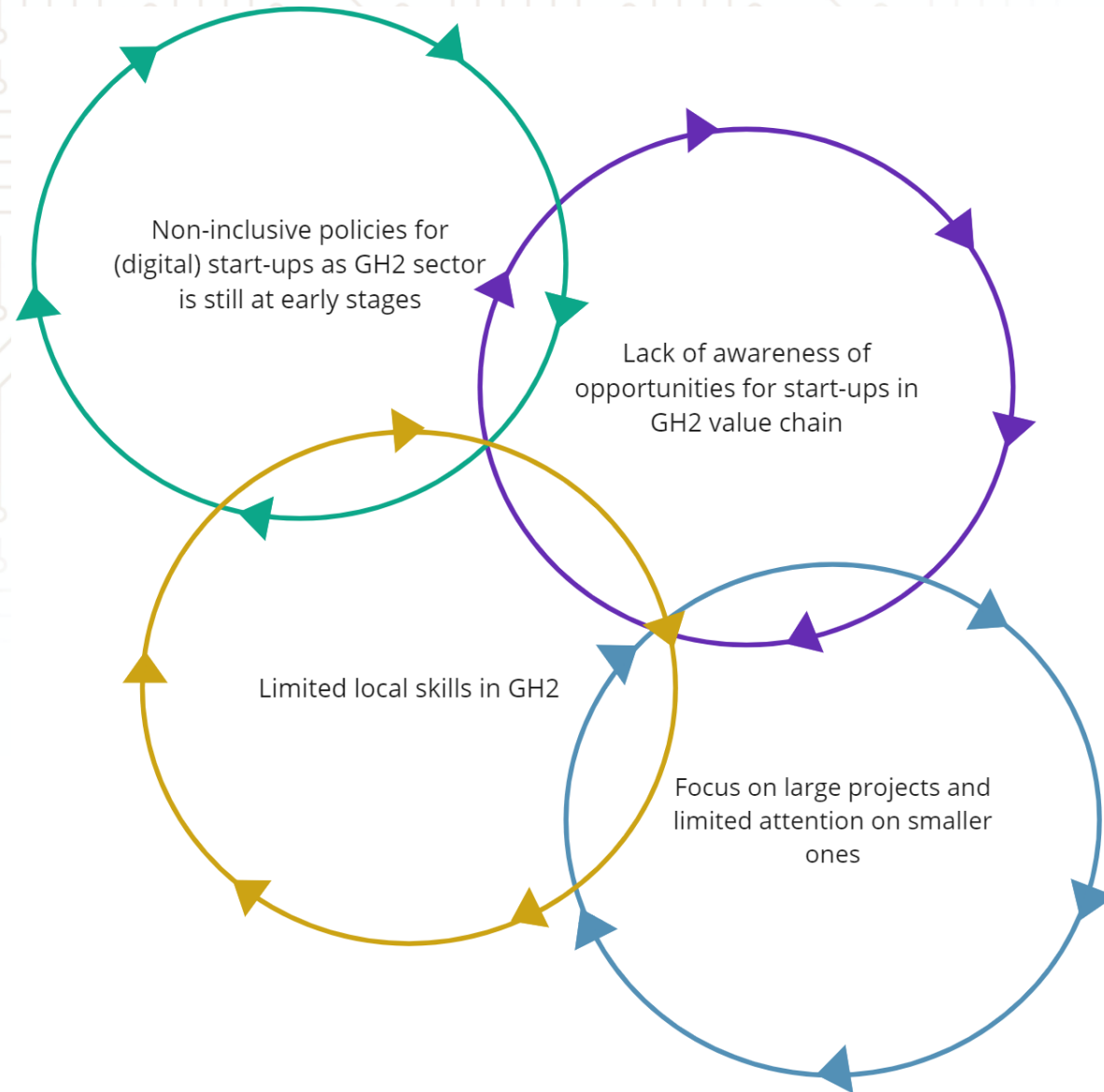


Unclear whether Namibian companies can provide GH2 at the global/EU standards that the large companies will require



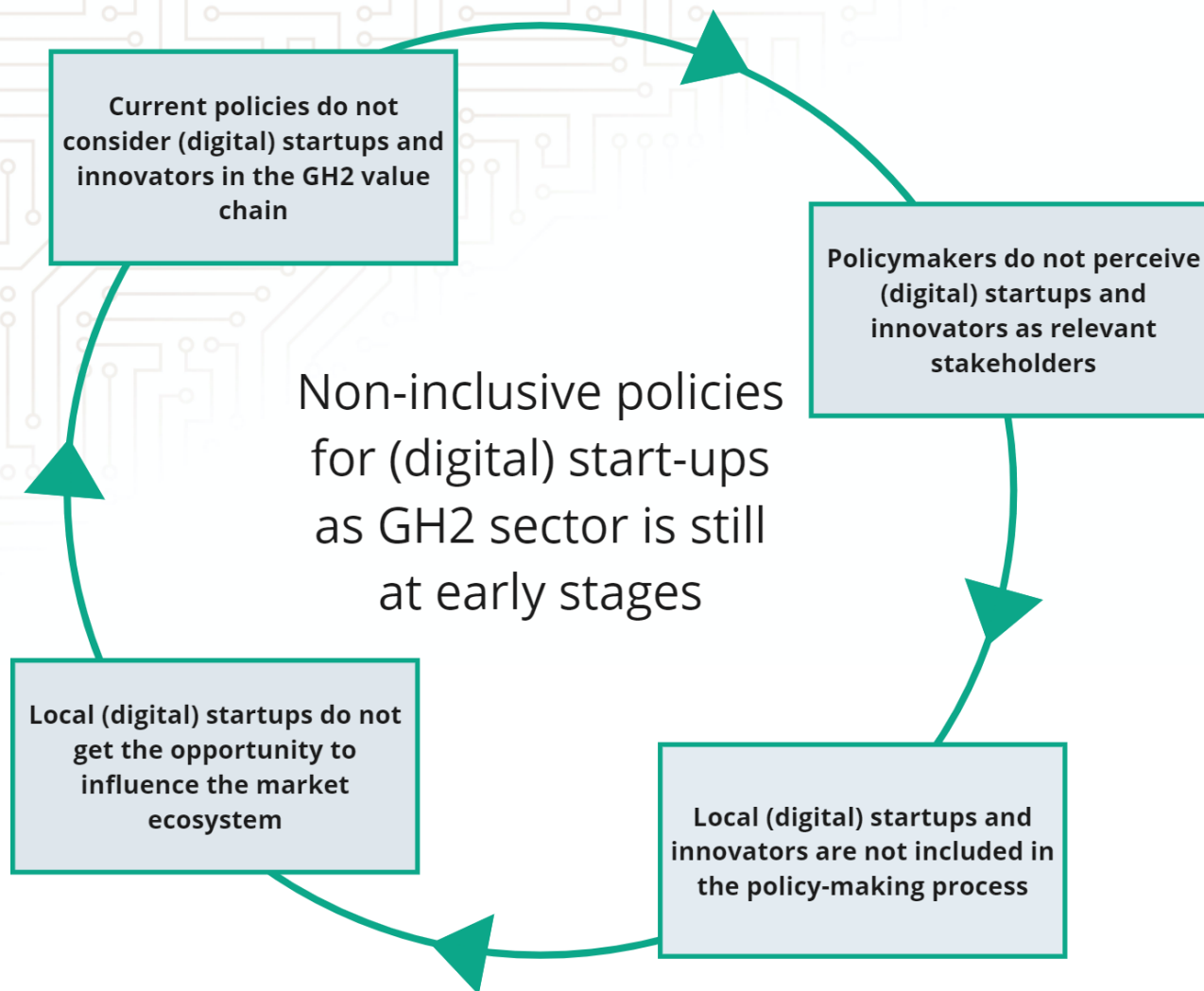
Skills and knowledge on GH2 and related sectors are underdeveloped

Core Story of the System



Overall, we see that the loops combine to form a system that is currently optimized to maintain strong foreign influence on the Namibian GH2 sector through skills and investments for export, with more attention on large-scale projects, and less attention on smaller scale projects and startups.

Loop 1: Unclear Policy Framework



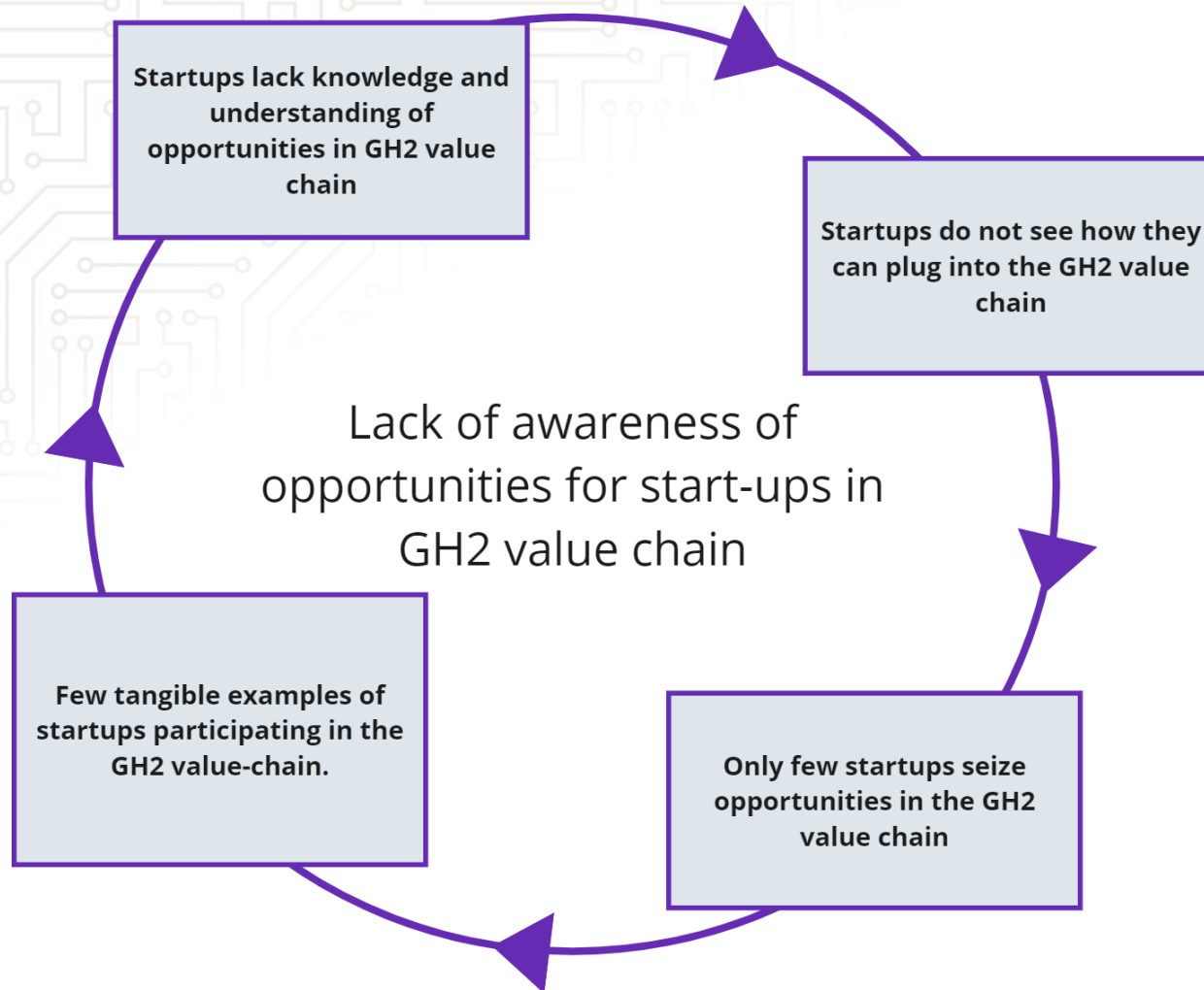
Current policies (at this early stage) do not include specific regulations to support startups and innovators in GH2.

This is due to the fact, that policymakers don't perceive (digital) startups as relevant stakeholders in the sector.

Therefore, they do not include them in the policymaking process.

This means that startups cannot influence or inform policies and the market ecosystem, which then further keep policies in a state that does not consider startups in the GH2 value chain.

Loop 2: Lack of Awareness

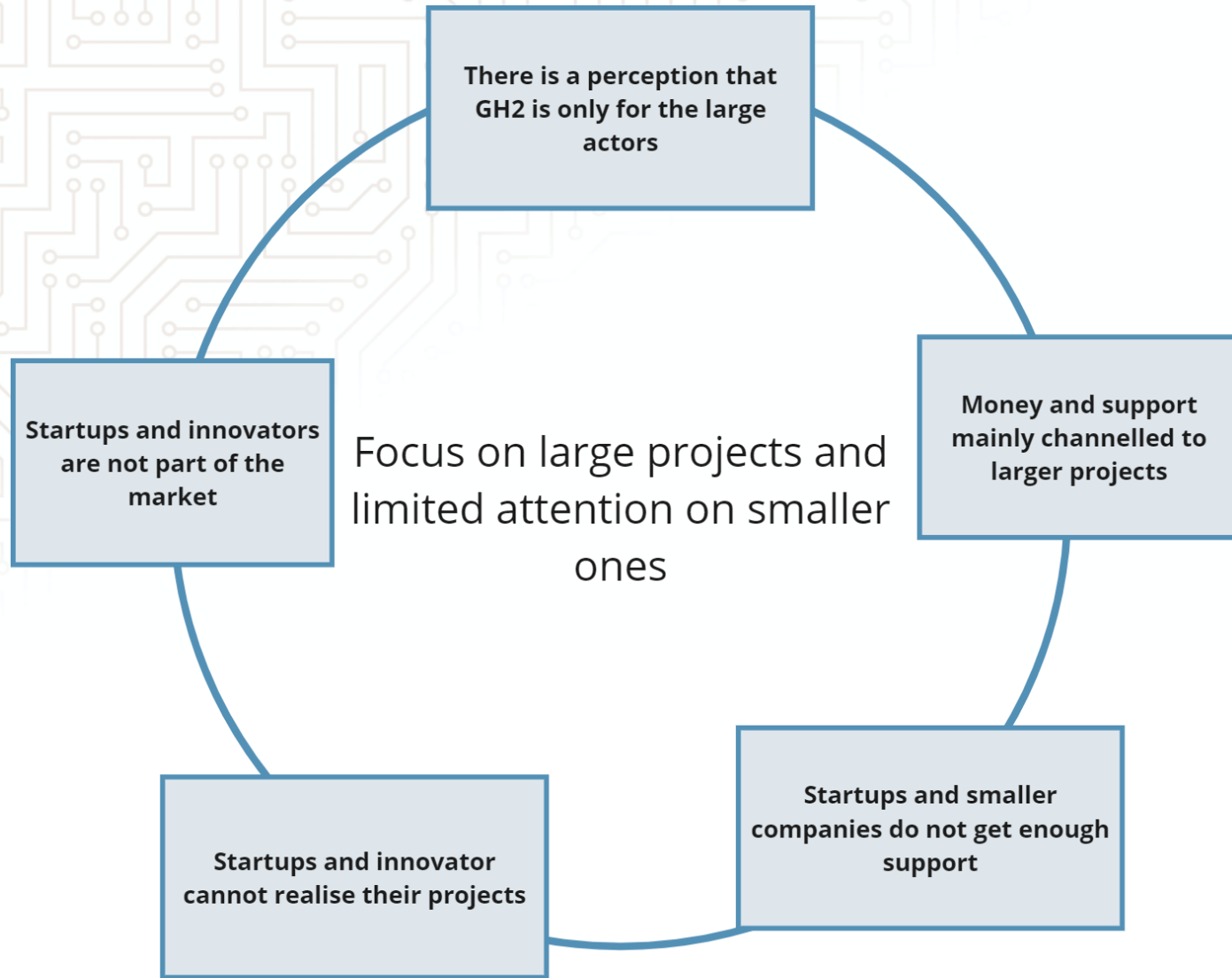


The lack of knowledge and understanding of opportunities for startups in the GH2 value chain means that startups do not see how they can plug in the value chain.

This leads to only a few startups seizing opportunities available in the GH2 value chain.

Therefore, there are only a few tangible examples of startups participating in the value chain, further reinforcing the state of lack of awareness of opportunities in the GH2 value chain.

Loop 3: Focus on Large Projects



The overall impression that GH2 is only for large-scale actors leads to money and support mainly channeled to larger projects.

Startups and smaller companies thus do not get enough support, which hinders the realisation of their projects.

This dynamic means that startups are not part of the GH2 market, which further reinforces the impression that GH2 is only for large-scale actors.


Loop 4: Limited Local Skills



Local GH2 curricula are underdeveloped, which limits local skills and experience in GH2 among graduates and skilled workers.

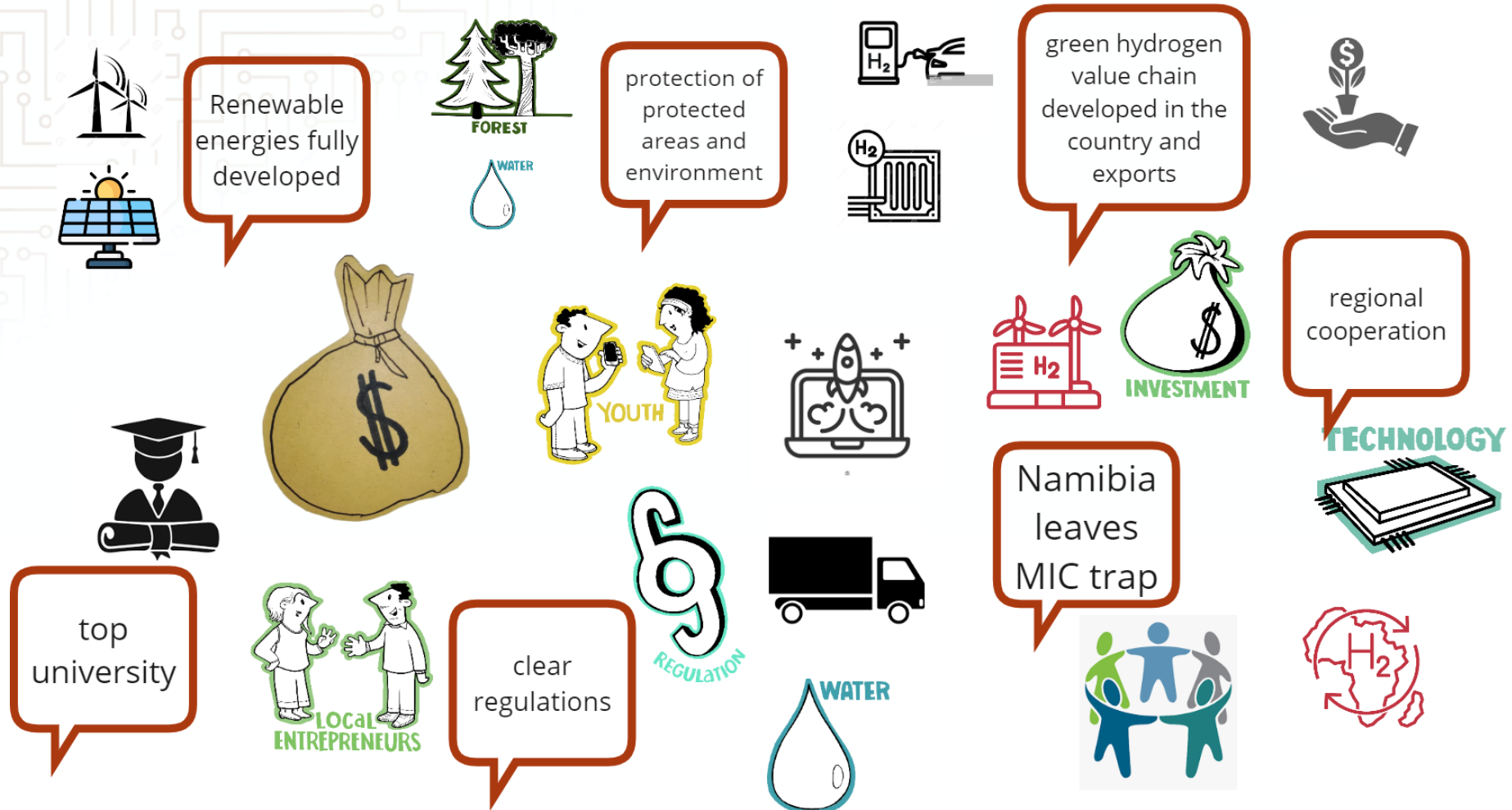
This limitation means that there is a lack of awareness regarding opportunities for local graduates and skilled workers in the sector,

This lack of awareness and participation in the sector creates little incentive for local GH2 skills programs to be developed, which in turn feeds back into underdeveloped GH2 curricula in Namibia.

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Aspirational Future for the Green Hydrogen Sector

The Future We Hope For





Namibian GH2 start-ups find a conducive ecosystem and enough skilled workers to become part of the global GH2 value chain

A **guiding star** is a vision that is framed as the desired future system toward which your team is working.

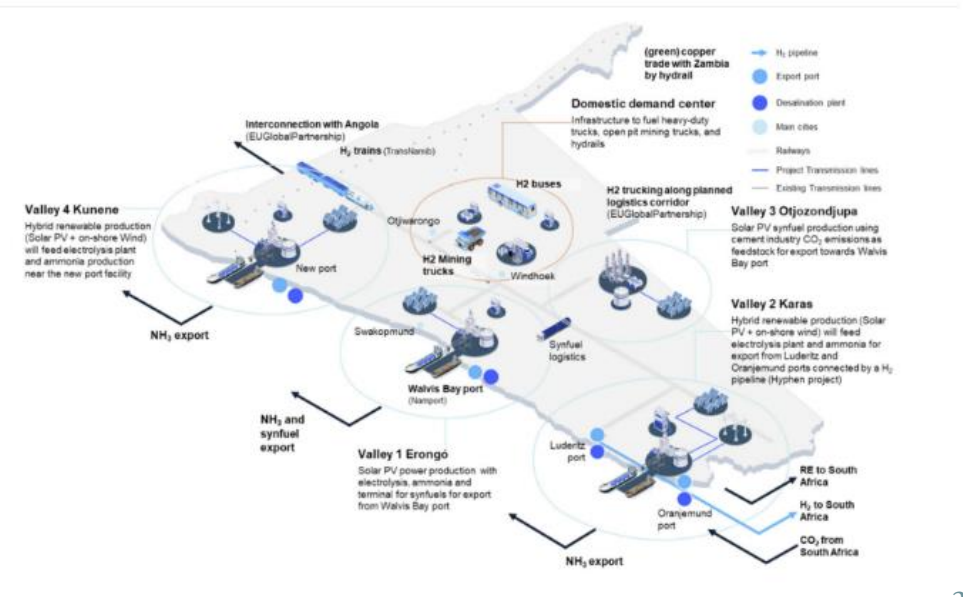


OUR MISSION



Training centers, incubation hubs and hackathons create awareness and nurture the local digital skills and start-ups in the Namibia's GH2 value chain.

A **near star** is a 5- to 10-year goal that is framed as a distant, but foreseeable outcome that could be attained. It should be a significant step toward the guiding star.



OUR GUIDING QUESTION

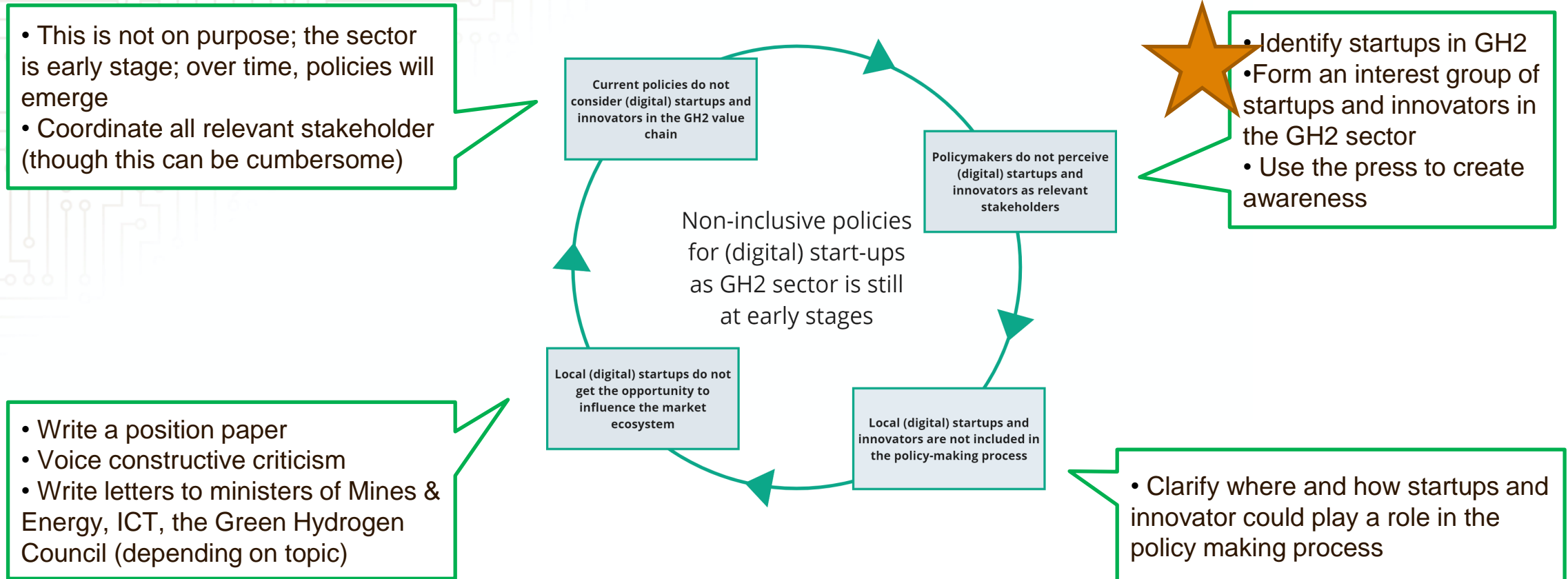
How might we ensure that (digital) startups and local innovators benefit from the potential in the green hydrogen sector?

Levers and Solutions for Change

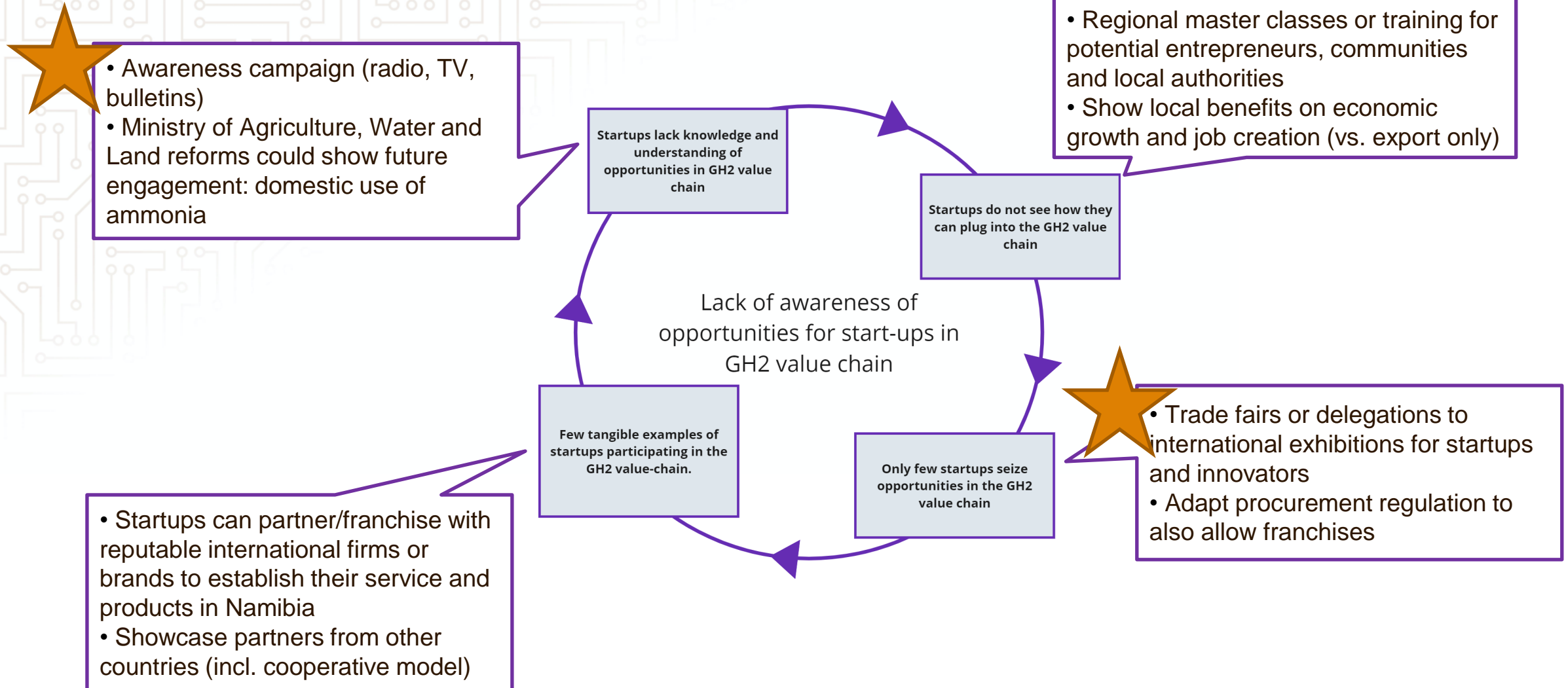


Stars mark the solutions which resonated most with the consultations' participants

Solutions to Create a Conducive Policy Framework



Solutions to Create Awareness



Solutions to Re-Focus on Startups

- Pan-African startups and local innovator (esp. software) could work globally; this might get them more attention
- Local content could come not only from Namibian startups but African startups which create subsidies in Namibia

- Consider similar industries (logistics, mining) and show what startups can do there, e.g. maintenance
- Intrapreneurs from large companies could culture of innovation

- Support existing startups, e.g. through programmes that foster the collaboration with large companies or the shared research between large and small ones.
- Procurement of large companies should include startups
- Innovation challenges

There is a perception that GH2 is only for the large actors

Startups and innovators are not part of the market

Focus on large projects and limited attention on smaller ones

Money and support mainly channelled to larger projects

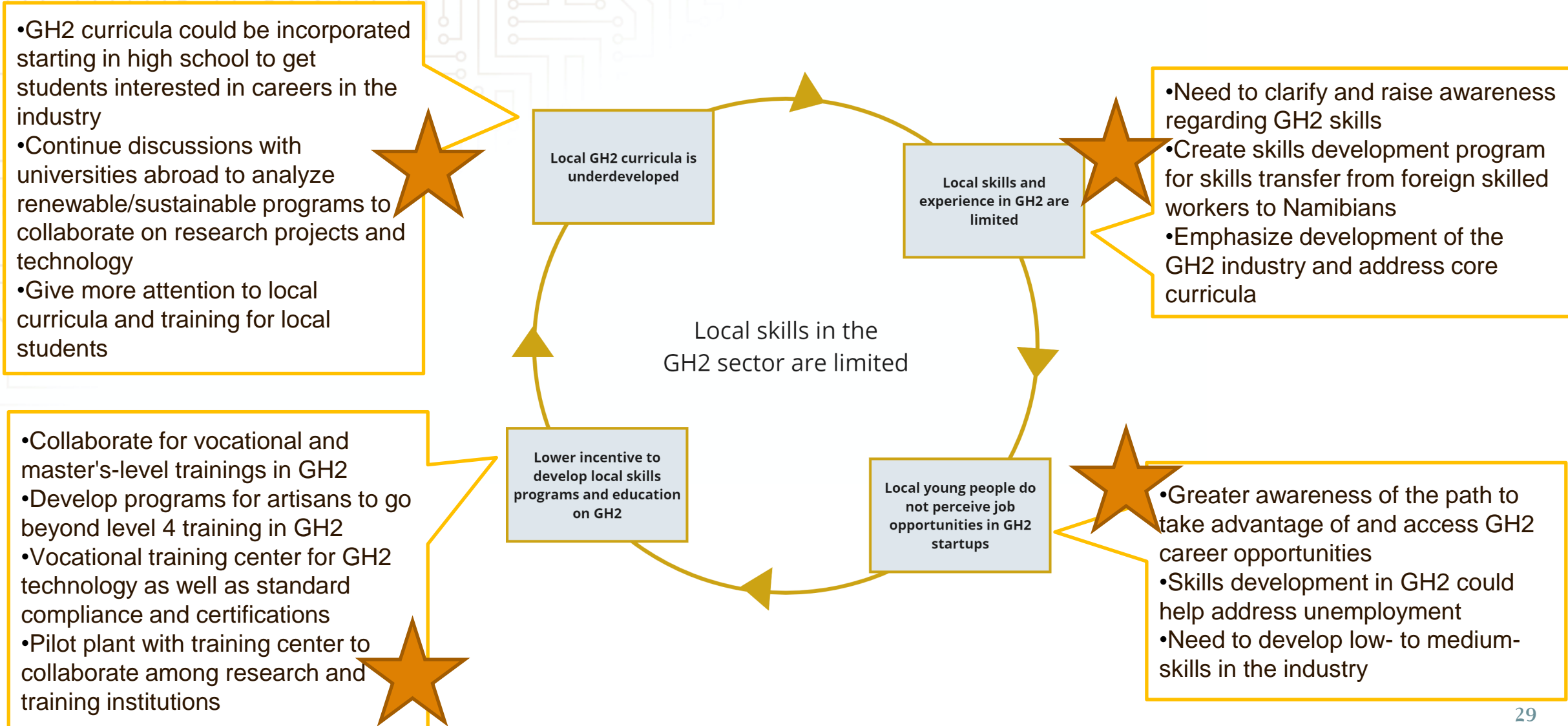
Startups and innovator cannot realise their projects

Startups and smaller companies do not get enough support

- Show opportunities for startups to show that it is not only wishful thinking to create a local GH2 startup scene

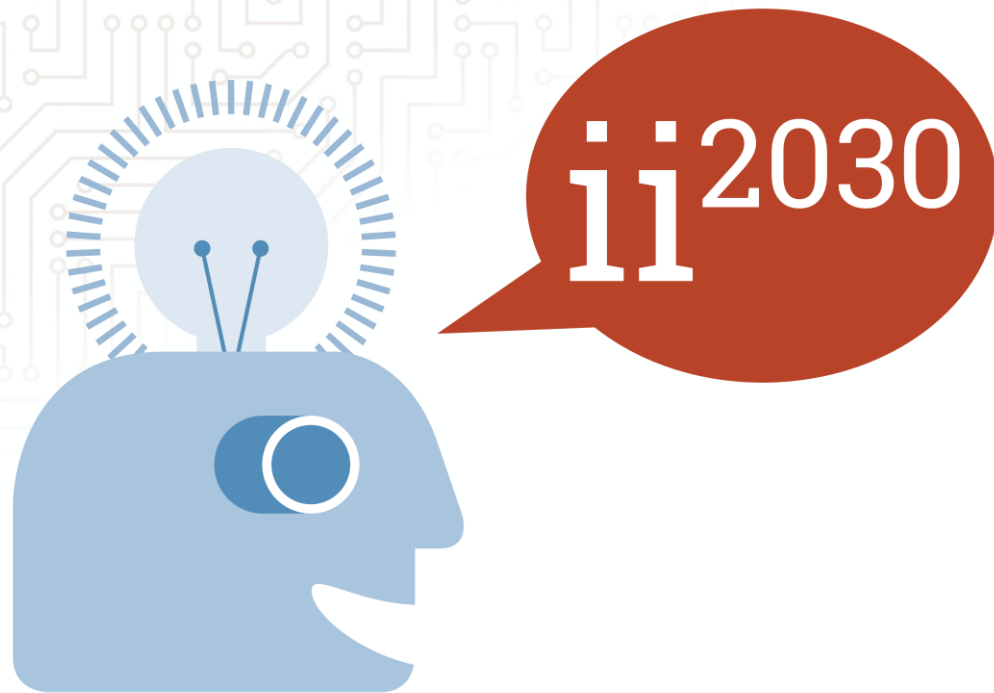
- Large companies could start entrepreneurs in residence programme or trainee programmes to foster innovation

Solutions to Develop Local Skills



Thank you for your attention

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or comments, contact Claudia
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