WORKSHOP REPORT

'Building Innovation Ecosystems from Scratch'

03 - 07 February 2020

Gaborone Botswana

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INTRODUCTION

Since ecosystems are becoming the main change agents in today's business environment why are firms in developing economies not actively engaged in them? The challenge is in designing and executing market leading innovation ecosystems.

As part of supporting the development of innovation ecosystems in developing economies, Beyond imagination organised three workshops in Botswana. The first workshop was with 15 manufacturing SMEs, the second with 65 researchers and industry stakeholders from across six African countries and the last workshop was with 20 entrepreneurs affiliated to Botswana Innovation Hub. These workshops aimed to engage various stakeholders in making sense of innovation ecosystems through the use of design visualisation tools. The workshops were developed to help stakeholders understand where they are located in the innovation network relative to their stakeholders. Having a deep sense of their position within innovation ecosystems was expected to help them better recognise opportunities for innovation.

The workshops started with presentations about innovation ecosystems to allow all participants to engage in a meaningful discussion. Two researchers from Lancaster University provided insights on the local factors that hinder the development of innovation ecosystems in Botswana based on previous case studies. These workshops were part of Beyond Imagination's aim to connect with the international community. Therefore, to promote interconnections, the workshop

empowered SMEs, policymakers and higher education institutions with design tools to help them develop their local innovation ecologies.

The feedback received was very positive. During the first workshop, manufacturing SMEs were excited about engaging with tools and exploring their connections. They saw the value in using the tools to help them understand their networks and explore new relationships. During the second workshop with different people from six African countries, participants expressed great value in exploring connections with diverse people across countries. We also registered positive feedback on the last workshop with a group of entrepreneurs from Botswana Innovation Hub. Enterpreneurs saw great value in working with diverse actors from across fields to explore new ideas for innovation.

In the following sections, the report provides an overview of the three workshops, conclusions and suggestions for next steps.

WORKSHOP OBJECTIVES

The workshops were intended to address the following objectives;

- Share knowledge on innovation ecosystem design, and develop knowledge of Identifying criteria for forming innovation networks.

- Introduce visualisation tools to aid participants in visualising networks and identifying connections.

- Provoke reflection and critical evaluation of stakeholders' roles within the visualisation networks and explore new roles.

- Motivate workshop participants to explore new relationships identified during the workshops and make plans on how to sustain these connections.

WORKSHOPS SYNOPSIS

The first workshop was conducted on the 03 February 2020 at Local Enterprise Authority (LEA) leather incubator. This incubator is financed by the Government of Botswana through LEA to offer basic services such as working space, equipment, subsidised raw materials and mentorship programs. We engaged 15 SMEs from this incubator who are predominantly using leather as their primary raw material.

On the 05 February 2020, we conducted the second workshop at Avani resort in Gaborone. This workshop was conducted in collaboration with the Recirculate project from Lancaster environment centre. We had around 65 people in attendance from Six African countries (Nigeria, Ghana, Kenya, Malawi, Zambia, Botswana). This group was composed of University researchers, SMEs from the leather incubator, Botswana Innovation Hub management team and others from private entities. Therefore, the workshop was a mix of different stakeholders from different countries across Africa.

The last workshop was conducted on the 07 February 2020 at Botswana Innovation

Hub (BIH) in Gaborone. The innovation hub is funded by the Government of Botswana to promote entrepreneurship environment in the country. The hub has over 50 entrepreneurs, majority of which are from the information technology fields. 20 of these entrepreneurs attended the workshop.

METHODS

In the first session, we used 'My innovation network tool' as shown in Figure 1 as a platform for participants to express themselves freely by brainstorming their network in 60 seconds. As shown in Figure 1, the tool acts as a blank canvas in which participants can visualise themselves in their innovation network and after that say a few words about their network to the rest of the group. This first step was meant to expose participants to the significance of visualising networks and to incite their participation in the workshops.
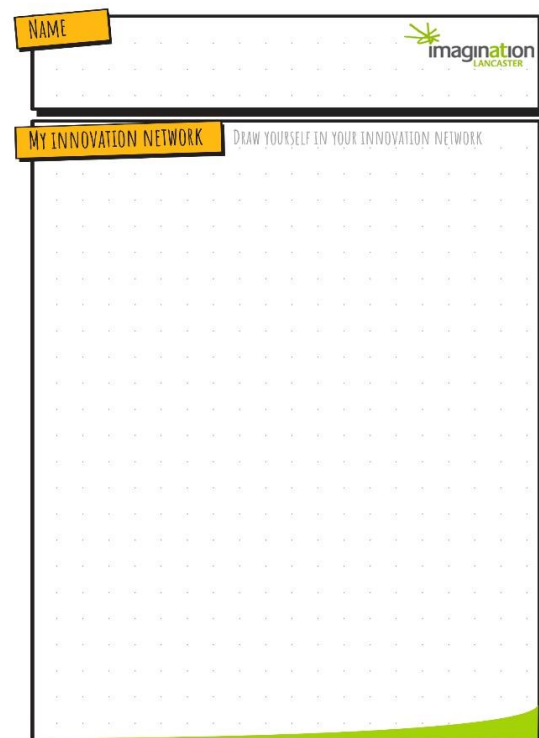

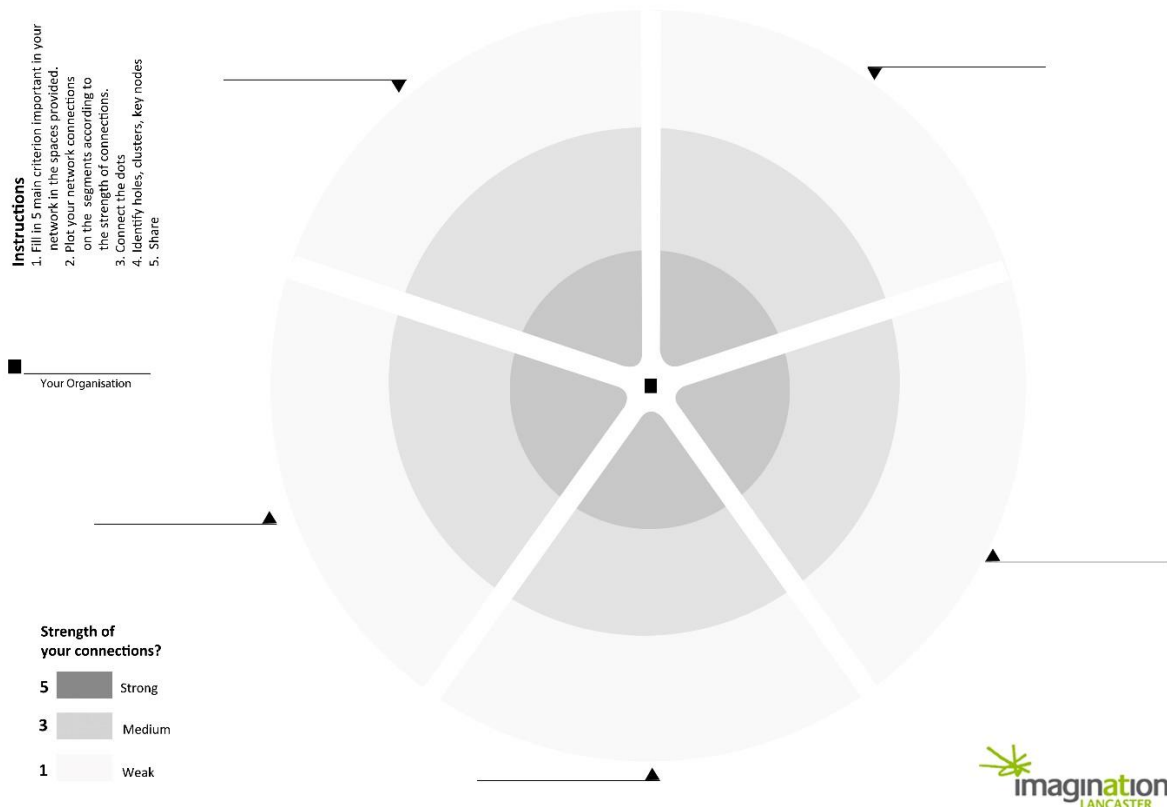*Figure 1: My Innovation Network tool*

Instructions
1. Fill in 5 main criterion important in your network in the spaces provided.
2. Plot your network connections on the segments according to the strength of connections.
3. Connect the dots
4. Identify holes, clusters, key nodes
5. Share

■ Your Organisation

Strength of your connections?
5 Strong
3 Medium
1 Weak

Figure 2: The Innovation Ecosystem Design Visualisation Tool

After a presentation about the research project, participants were then introduced to the main visualisation tools shown in Figure 2. We explained how participants might use the tool to explore their networks, and the first emphasis was on listing the main criteria for forming networks with stakeholders. We asked participants to select five main criteria for networking and fill in the spaces provided on the tool. Then the next task was to list as many contacts or connections as possible in their innovation process and plot them in the tool by observing the strength of connections. We asked participants to join each network point in the tool with a line. Lastly, each participant gave feedback on what they observed from the visualisation networks, what new insights are visible from the maps and what opportunities for innovation are there.

After individual mapping sessions, we mixed participants in groups to explore new networks. Each group started by identifying five main criteria that are common to all of them and then considering their networks from various organisations, and they mapped all their contacts on the tool. To differentiate between organisations, participants used a different colour to plot the contacts and develop connections. After the mapping exercise, participants from each group took 2 minutes to talk about what they observed from their visualisation network. Lastly, they also made decisions on what role each of them can play in exploring new relationships.

At the end of the workshop, we conducted an evaluation exercise about the whole workshop process with participants. At this point, we gave participants time to reflect on the tools used and the facilitation of the workshop. We captured the evaluation feedback on the form provided in appendix 1.

WORKSHOP DISCUSSIONS & EVALUATION

Monday 03 February 2020 Workshop summary

Location: LEA leather Incubator, Gaborone

The workshop discussions focused on the concept of innovation ecosystems. We also discussed why it is essential to be part of an ecosystem rather than operate in silos. Three key questions formed part of the presentation.

- What do you understand by the innovation ecosystem?

- Do you feel part of an innovation ecosystem?

- What's the value of networking for you?

In the first session, we asked the participants to produce their innovation network and share their story in a few seconds(60 sec). Below is an example of a visualisation produced during the first session shown in Figure 3(A). The exercise was meant to prepare the participants for the main task. Next session was to explore the network using the design tool provided in Figure 3(B), which was the main workshop task. The participants were excited to think about their networks in an engaging process.
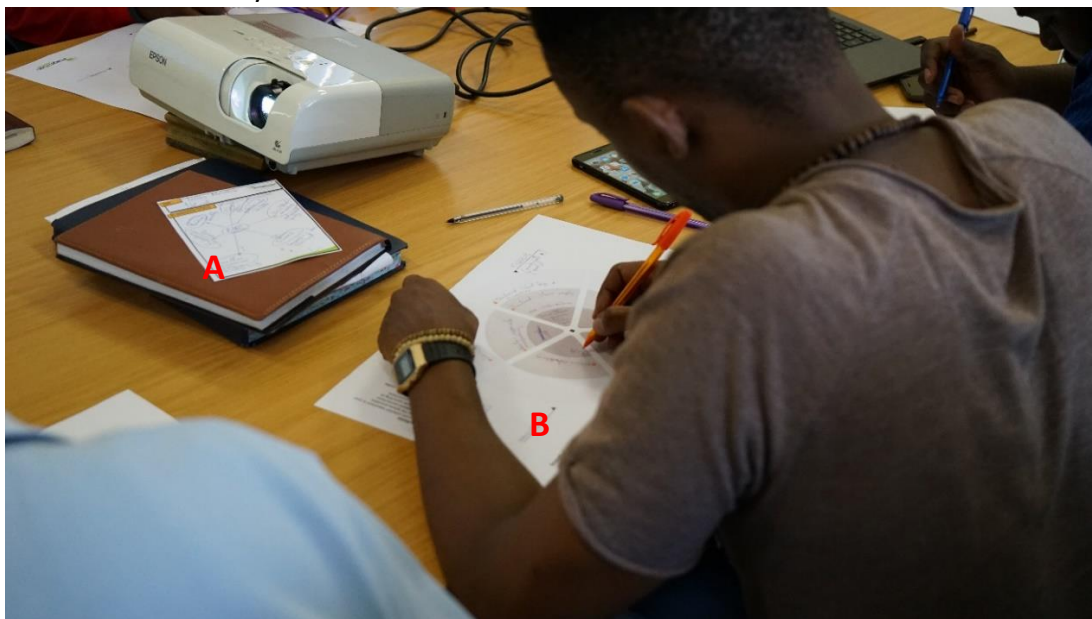
Figure 3: LEA participants engaging with design visualisation tools: A shows my innovation network tool and B shows the innovation ecosystem design tool.

Individual visualisations examples

We observed that participants were eager to visualise their innovation networks on the main tool and produced different visualisations, as shown in Figure 4. Figure 4 (A, B, D) show SMEs who share the same

criteria for innovation network. Although the SMEs were doing the mapping separately, they reveal that funding, raw material supply, marketing, skills development and customers are critical factors that determine their need to seek engagement in innovation networks. Figure 4(C) represents the incubation

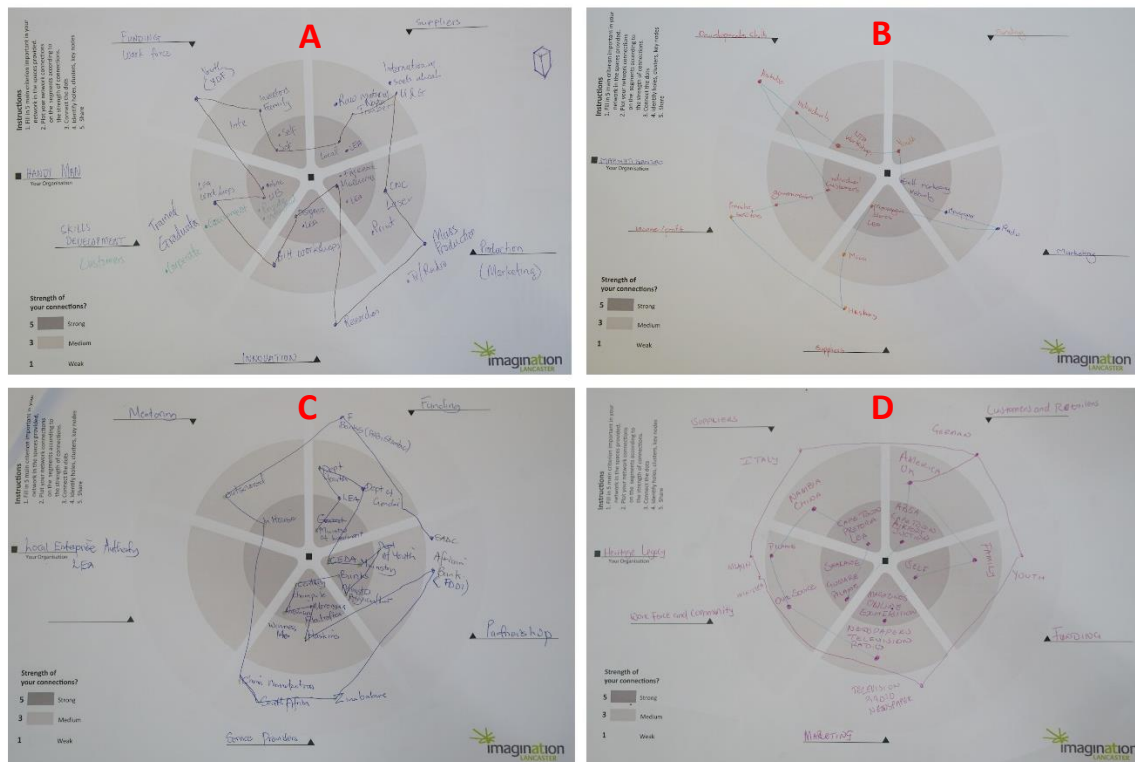manager network visualisation with different criteria from the SMEs.

Figure 4: Individual SMEs innovation network visualisations

After the individual session, the SMEs were divided into three groups to explore opportunities for innovation together. Group members were asked to decide on the most critical factors that are common to their firms, that they may be able to combine their resources to develop innovations. Figure 5 shows a mixed group sessions. SMEs brought in their previously generated networks from the first session to determine how they may connect with other SMEs to develop innovation networks.

Figure 5: LEA participants divided into mixed groups to explore new connections and new criteria for connecting with others.
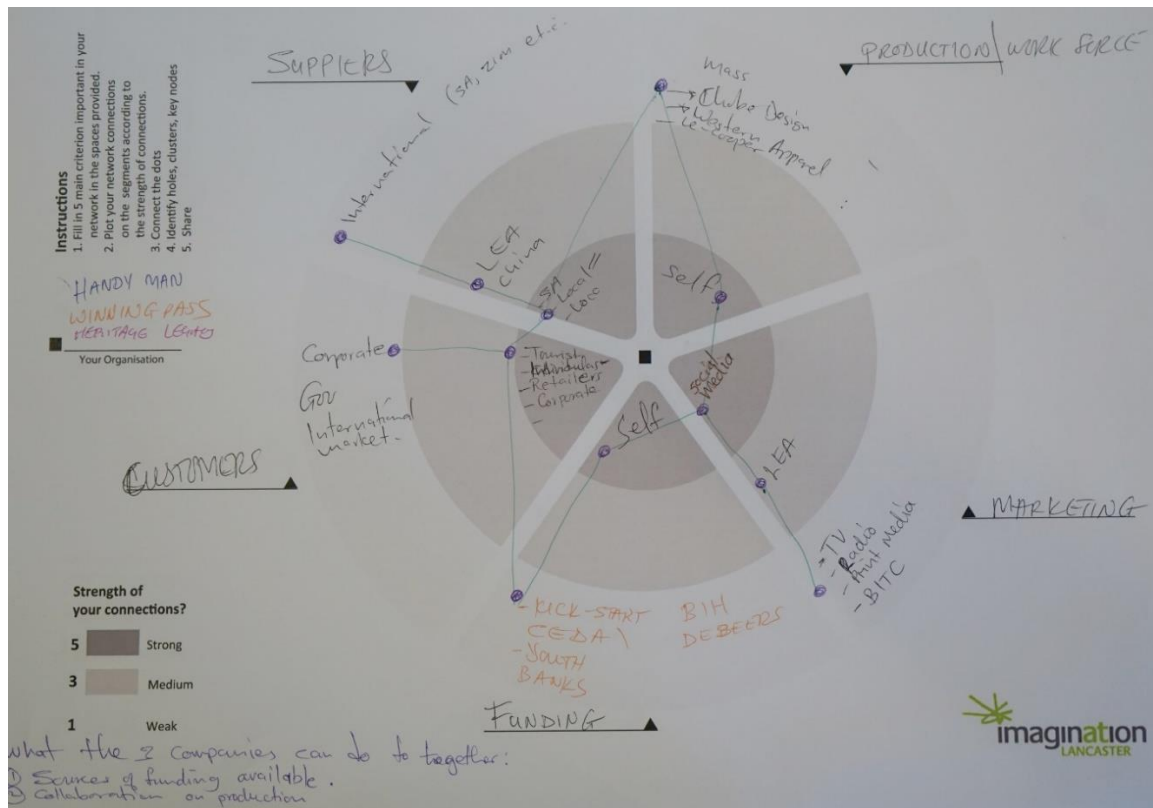
Mixed group visualisation example

Figure 6: A visualisation network from 3 mixed SMEs groups.

At the end of the mapping exercise, participants were asked to look at the map and describe what they observed as new insights about their innovation ecosystems. Below are some of the comments registered from the participants during the presentation of visualisations;

Insights from participants

- *Through these maps, we now realise that we are disconnected yet located in the same incubator.*
- *We can see opportunities to connect amongst ourselves and start on new ideas.*
- *We see gaps that may be bridged into active linkages between some of us.*
- *The tool helped us to see that we have common problems in marketing, machinery and funding.*

- *We were able to see common weak ties amongst ourselves with the leather suppliers.*
- *We can explore ways of accessing markets from each other's experiences.*
- *We can share jobs to increase our capacity as manufacturing space.*
- *We can see an opportunity for bulk purchases of raw materials which can cut down on transport costs.*
- *We can do group advertising and promotion of our products.*
- *We can share high tech tools instead of each one of us owning the same high-cost manufacturing machines.*
- *The tool helped us to see our comfort zone and what we need to focus on to move away from our comfort zone to more innovative spaces.*

- *The tools also showed us areas where we can work together to overcome common weaknesses.*

Evaluation results

Participants were asked to evaluate the workshop at the end of this session using the form in appendix 1, and the analysis of the results are as shown in Figure 7. Only 14 participants (P1 to P14) filled the evaluation forms for this workshop, and according to the results, majority of the participants gave positive feedback about the workshop and wish to participate in similar workshops in the future.
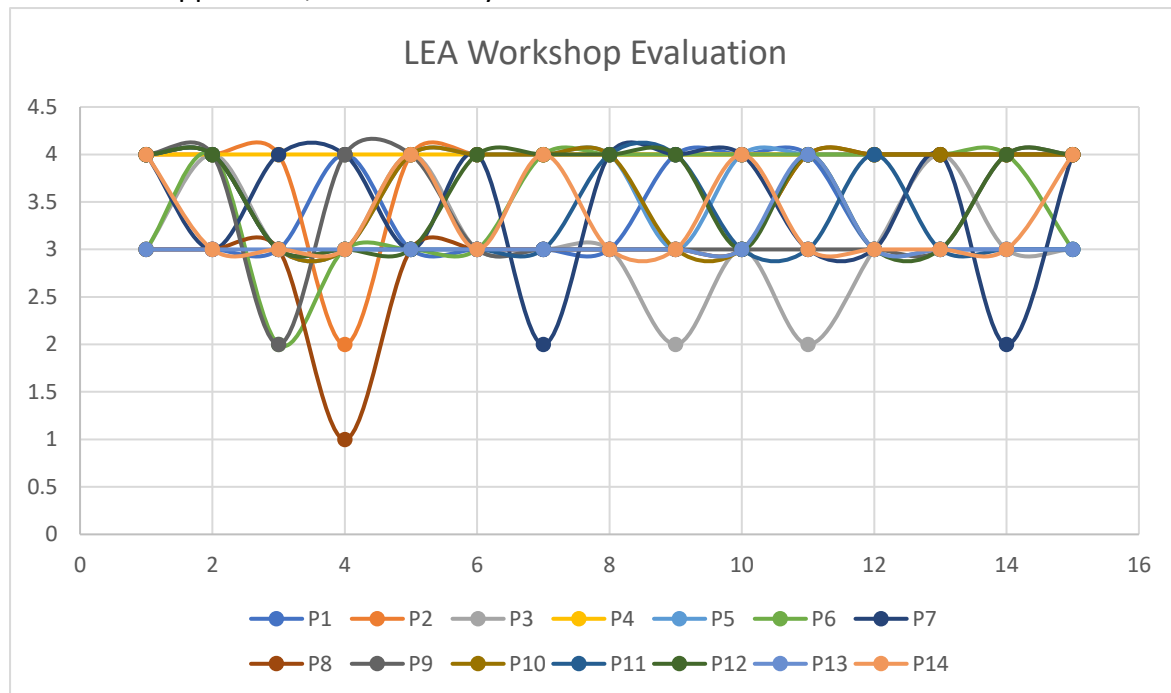

Figure 7: The Y-axis represents the measure of responses to the evaluation exercise. 4- strongly agree, 3-Agree, 2- Disagree, 1- strongly disagree. The X-axis represents the evaluation questions in appendix 1.

Wednesday 05 February 2020 Workshop summary

Location: Avani Hotel, Gaborone

Unlike in the first workshop, this was composed of different people from different areas across Africa. It provided a platform for more detailed mapping and interconnections. Participants first explored the concept of innovation ecosystems through discussions facilitated by BeyondImagination researchers. Most of the participants were involved in the Recirculate week-long workshop on Knowledge Exchange (KE) mechanisms. The idea was to bring everyone on-board from

Recirculate workshop and link KE mechanisms workshops with innovation ecosystem design. Then we divided the participants into eight groups according to their countries, with an exception to Botswana, where we grouped participants according to their organisations because they were too many to be in one group. Although some people were from the same country but different organisations, the idea was to promote dialogue between them and for them to collectively find factors that are common in their country which they can use to map innovation networks. Figure 8 shows participants from different African countries doing the country visualisation network.

Figure 8:Workshop participants divided into their respective countries to do the innovation network mapping.

In the case of Botswana participants, we divided them into three different groups. For example, Botswana International University of Science and Technology (BIUST) had its table, then a group of invited SMEs from the leather incubator were on their table, Botswana Innovation Hub and other participants were grouped to form one table.

Country visualisations example

Figure 9 shows an example of what BIUST produced during the first session of the network visualisation process. Participants who generated this visualisation revealed that co-delivery of programs, research funding, equipment, collaboration and quality of graduates were crucial in their innovation network criteria.
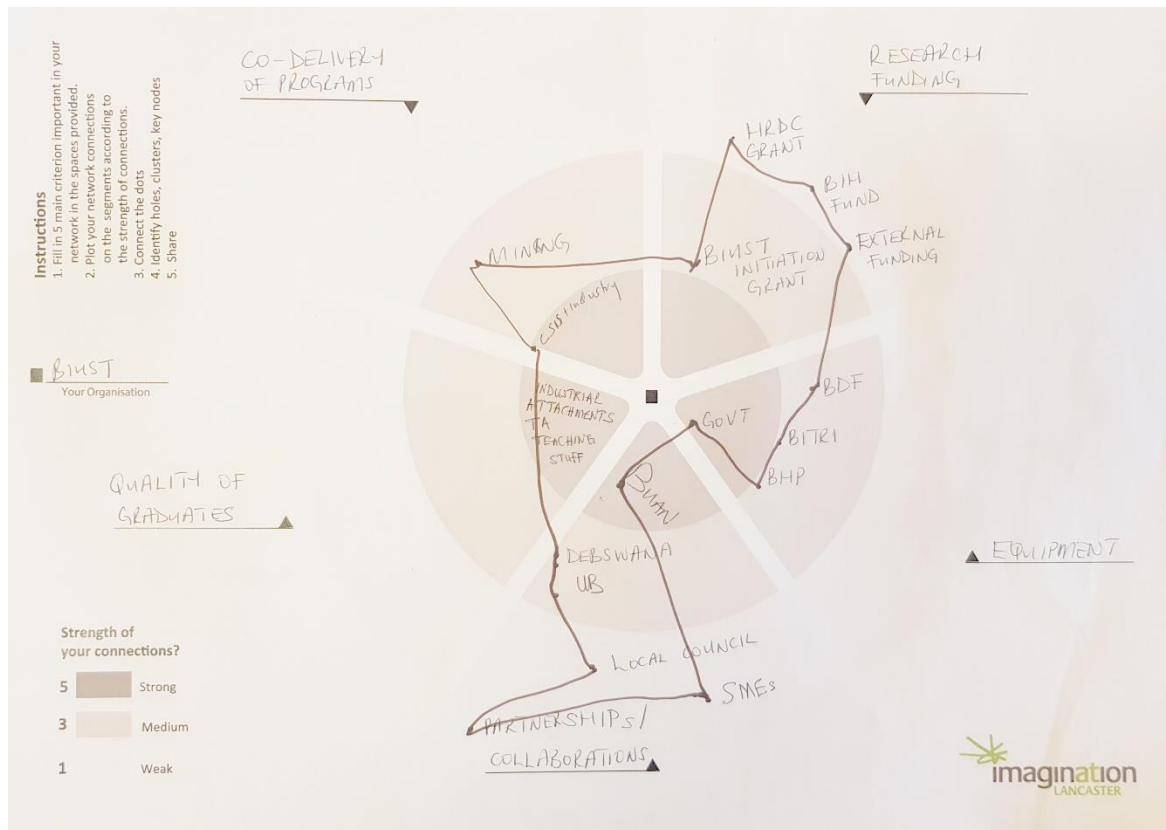
Figure 9: An example of a visualisation map for a higher institution.

Mixed groups visualisation example

We divided participants into mixed groups, irrespective of their countries. The grouping was made randomly to experiment on how participants generate innovation networks from a diverse group and with different people from different countries. Participants used different colours to distinguish how their contacts connect with others. Figure 10 shows results from a mixed group between people from Botswana Innovation hub, Kenya, Malawi and Botswana University of Science and Tech. They found that funding, partnerships, consultancies and capacity building are vital criteria for their innovation networks.
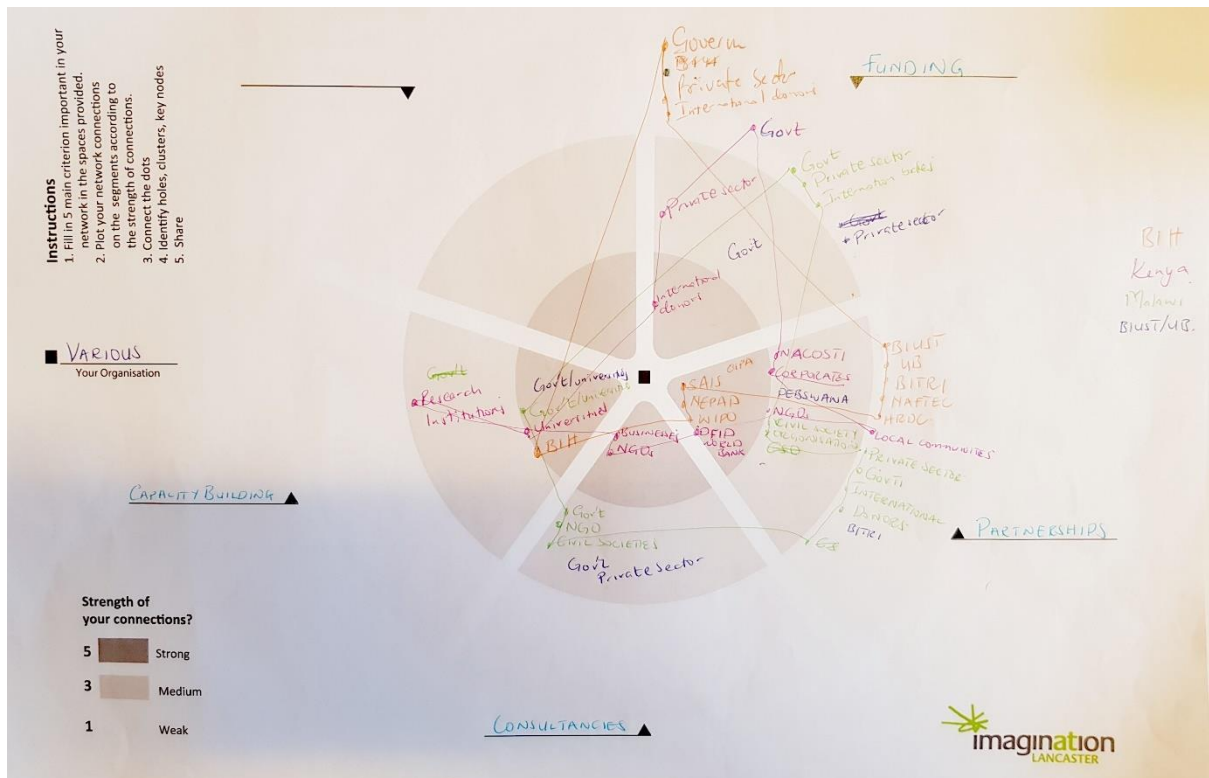
Figure 10: Network visualisation design between BIH, Kenya, Malawi and BIUST participants

Presentations

We asked participants to select one person amongst the group to present their findings to the rest of the workshop participants in less than 60 seconds.

Figure 11 shows participants from mixed groups presenting their insights.

Figure 11: Participants presenting their insights about the maps produced during the second session.

Insights from participants

- *We see that this tool works like the SWAT analysis tool; it's a strategic tool to help decision-makers.*
- *The tool helped us to visualise our network and to understand that we can't work alone or in silos, we need partners.*
- *The tool helped us to identify strength from others and the innovation environment.*
- *We were able to identify common weaknesses between the connections.*
- *The tool helped us to identify connections and opportunities between what strong connects us and what we are neglecting in the innovation network.*
- *We see weak connections between ourselves and the Government funding department.*
- *We see gaps between our institutions and other research centres*
- *We see opportunities to start working across borders in Africa, with other high institutions in terms of research collaborations.*
- *I realised we have common accreditation problems.*

Evaluation results

We asked participants to evaluate the workshop at the end of the session using the form provided in appendix 1, only 44 participants (P1 to P44) filled in the evaluation forms out of 65 who were present. From the results shown in Figure 12, the majority of the participants were satisfied with the workshops and felt that it gave them new perspectives and knowledge about innovation ecosystems.
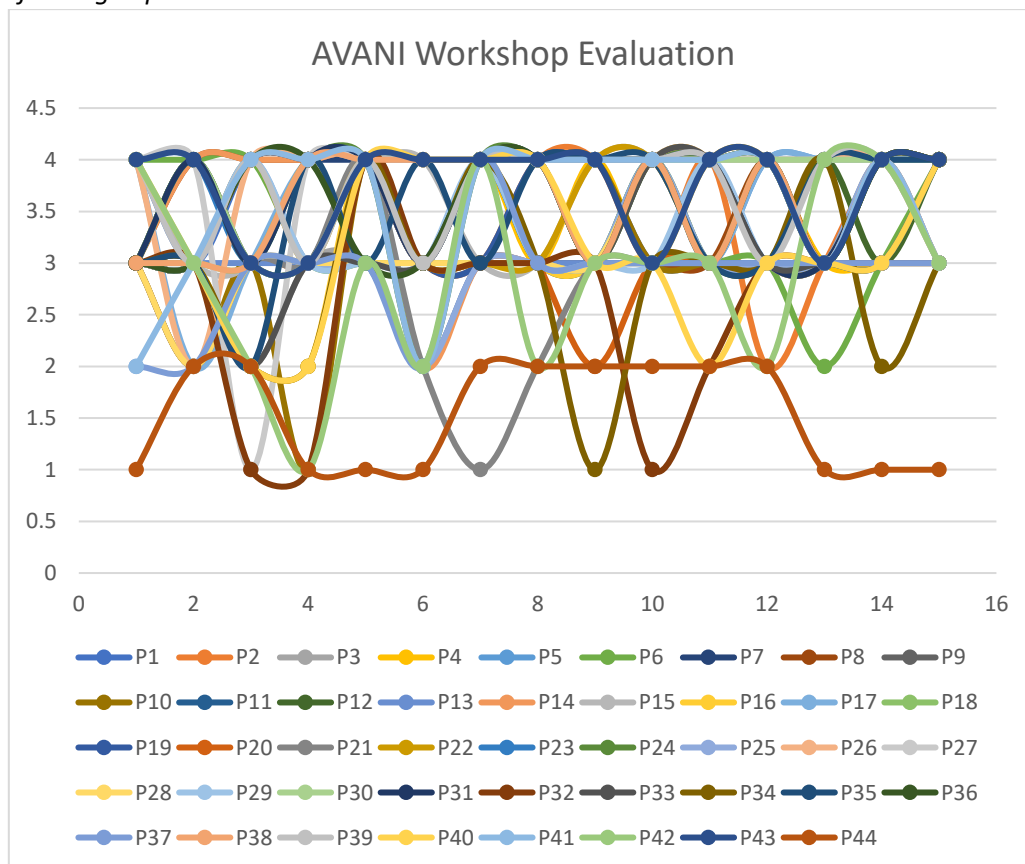

Figure 12: The Y-axis represents the measure of responses to the evaluation exercise. 4- strongly agree, 3-Agree, 2-Disagree, 1- strongly disagree. The X-axis represents the evaluation questions in appendix 1.

Friday 07 February 2020 Workshop summary

Location: Botswana Innovation Hub (BIH), Gaborone.

We conducted the last workshop at Botswana Innovation hub. 20 participants in attendance were all affiliated to BIH. The workshop started with self visualisation exercise meant to warm -up the participants and allow them to feel part of the workshop using a tool shown in Figure 1.

Then participants were engaged in a discussion about innovation ecosystems looking at the following three questions:

- What do you understand by the innovation ecosystem?
- Do you feel part of an innovation ecosystem?
- What's the value of networking for you?

Majority of participants at first could not explain what innovation ecosystems mean to them, nor express whether they feel part of the innovation ecosystem or not. However, when it came to the question of what value they derive from networking,

majority of the participants expressed that they see much value in networking with others. Some of the reasons raised are that when networking, people can share ideas, equipment and knowledge. We further explained the concept of innovation ecosystems and why it is essential to be part of it.

In the next session, we asked the participants to visualise their firm innovation network on the tool shown in Figure 2. Figure 13 shows some of the results produced by the participants during the individual firm mapping exercise.

Network visualisations examples

Figure 13 represents the network visualisations from some of the participating entrepreneurs. Looking at visualisations shown in Figure 13, from A to D, entrepreneurs share some similar criteria for innovation networks. Examples of the criteria are funding, skills development, collaborations, access to facilities and high technology equipment and others. We allowed participants to share their maps to the rest of the group. Then we moved on to the next session of the workshop.
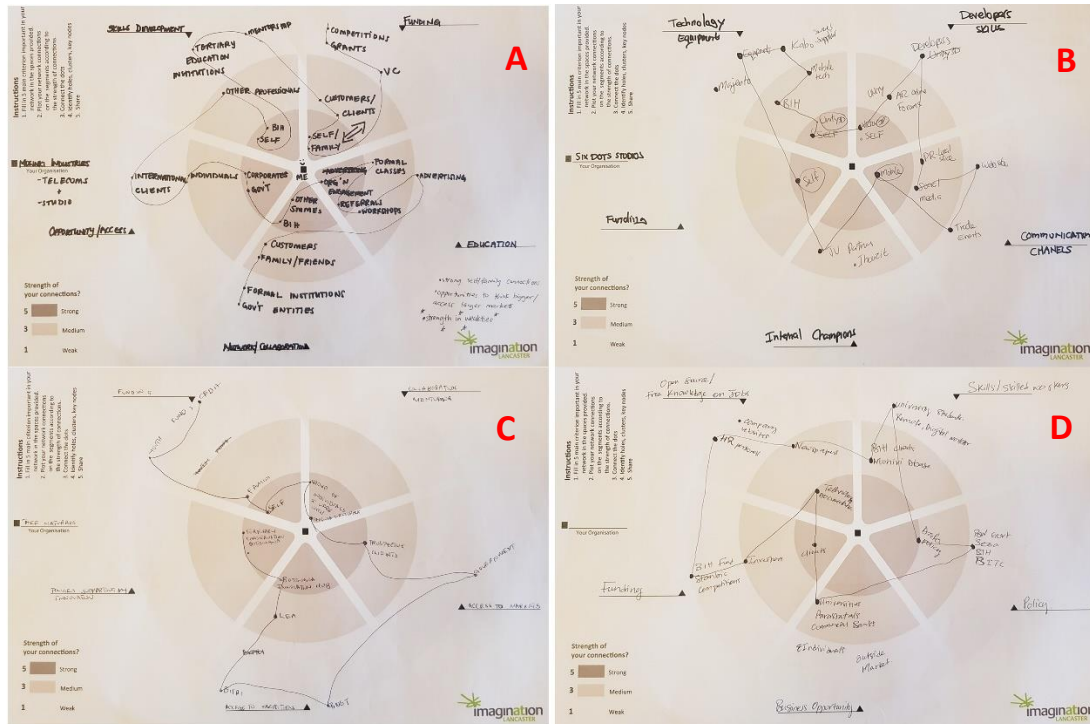
Figure 13: Individual Entrepreneurial innovation network visualisations.

The participants were divided into random groups to do the visualisation mapping exercise. Figure 14 shows the group session in progress. This session allowed participants to mix with other entrepreneurs and engage them in visualising innovation network. Like in previous workshops, entrepreneurs were given different colours to represent their contacts in the visualisation map.

Figure 14: Group innovation network visualisation sessions between different entrepreneurs from BIH

Mixed groups visualisation examples

Participants enjoyed working in different groups and meeting new people. Most importantly, they made critical decisions on what is common amongst themselves. Figure 15 shows that the 5 key criteria for innovation network amongst entrepreneurs were policies, funding, distribution, procurement and skills development.
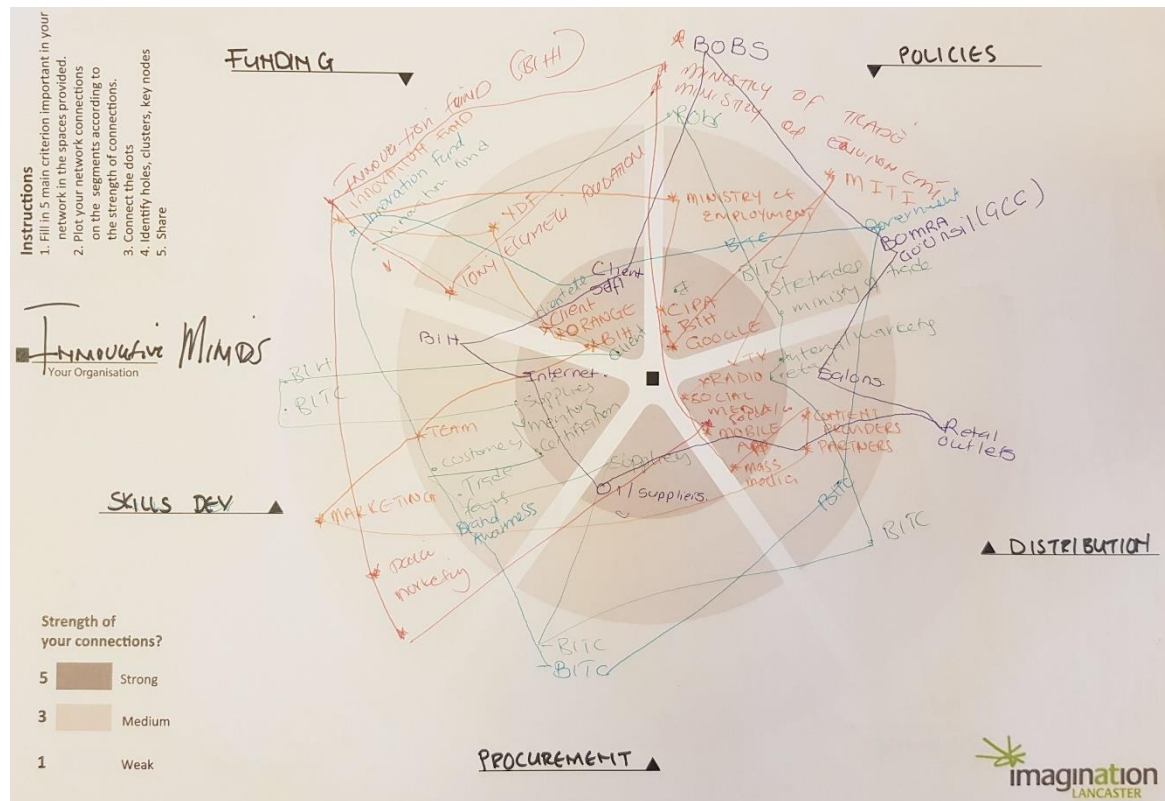

Figure 15: Mixed group visualisation network

Presentation of results by participants

After a lengthy discussion amongst themselves, we asked participants from each group to select a leader to present their insights to the rest of the workshop. Figure 16 shows one of the group leaders presenting on their innovation map and highlighting some of the critical insights they found through the use of the mapping tools.

Figure 16: One of the group leaders giving a presentation on their insights about the innovation visualisation they produced during the exercise.

Insights from participants

- *The tool helped me to visualise self and others around my innovation network.*
- *I realise we forgot to train our customers on new products offered.*
- *I noticed a lot of people here at Botswana Innovation Hub are software developers, something I didn't know before.*
- *I realised that even though we are in the same space, we are profoundly disconnected.*
- *On my visualisation, I see many weak ties from the outside of the tool, meaning that there are more opportunities for innovation there.*
- *My map is denser on the inside segments, indicating that I have more strong connections, perhaps I need to look outwards on the weak ties and explore there.*
- *Looking at this map, I think I lack access to resources from within my key stakeholders.*

- *I think my contacts are strong*
- *I can now see that people who can drive the brand are laying on the outside of the innovation network.*
- *We have a strong relationship with our market and a weak relationship with the office of the president and environment office.*
- *We have a weak relationship with Government policy*
- *We have weak relationships with the local market.*
- *We see weak relationships with the land department*
- *We have weak ties with the local council, and we would like to explore this relationship to benefit from local Government business.*

Evaluation results

17 participants completed the evaluation sheet, and Figure 17 shows that the majority of entrepreneurs reacted positively towards the workshop. Participants felt that the tools explored

there could help them build innovation networks, and ultimately build a vibrant ecosystem.
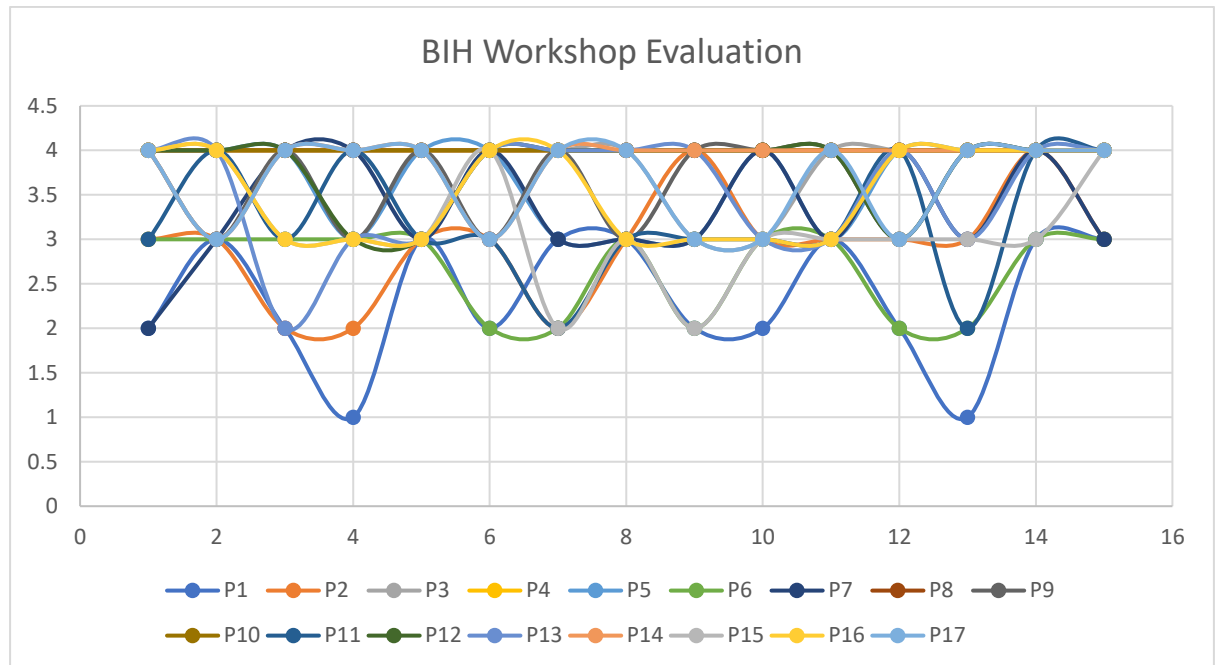

Figure 17: The Y-axis represents the measure of responses to the evaluation exercise. 4- strongly agree, 3-Agree, 2-Disagree, 1- strongly disagree. The X-axis represents the evaluation questions in appendix 1.

Conclusions

The workshops underlined the significance of understanding the innovation ecosystem value. Firm's resources are limited compared to combined resources across various entities. Moreover, the workshop enabled participants from diverse firms and countries to understand the importance of innovation networks and how to consider taking design steps towards building innovation ecosystems from scratch. Most importantly, participants were engaged through design visualisation tools to map innovation networks with their potential stakeholders in a practical way. The mapping exercise also exposed participants to exploring stakeholder roles and identification of new connections during the workshop,

which may inform their decision-making process about innovation networks. Many participants were highly motivated to pursue these new relationships beyond the workshops. The workshop activities generated rich data which may require further analysis. Key insights emerged from the workshop discussions. The following are a summary of some significant points discussed by the participants:

a) The workshop revealed gaps and weak ties within innovation networks which could be further explored to support innovation.
b) The workshops revealed common barriers amongst entrepreneurs, SMEs and researchers such as lack of marketing skills, lack of

machinery, lack of funding and lack of access to raw materials.

c) The workshops revealed comfort zones for some participants, and this was a wake-up call to start migrating to less comfortable zones(Outer segments of the tool) for innovation.

d) The workshop tools provided the strategic means to aid the decision-making process in innovation networks.

e) The workshop activities revealed various strengths in stakeholders that could be tapped to improve innovation.

f) The workshop participants recognised the importance of innovation networks in leveraging existing resources or to partner up to mitigate common challenges.

Next step

The workshops are an ongoing process, and further findings may be reported in the form of conference and journal papers. We hope to further develop design tools from these workshops that can be used to enhance the design and understanding of innovation ecosystems.

The workshops discussed several practical steps that could be done to explore the identified relationships further, especially with entrepreneurs, policymakers and SMEs:

- Produce and Publish a Conference paper based on these workshops.
- Publish a Blogpost about Botswana workshops on Beyondimagination website.
- After the BIH workshop, entrepreneurs adopted the Innovation ecosystem framework and formed a network of 20 enterpreneurs. They are working towards innovating together and leveraging their diverse resources. The next step would be to followup with these entrepreneurs in the near future to measure the impact of the workshops on their innovation networks.
- Maintaining a strong relationship between Beyondimagination and BIH enterpreneurs is key in terms of knowledge exchange, this could be achieved by organising networking activities that involve both stakeholders.

Appendix

1.

Workshop Evaluation Form

Date	
Workshop Location	
Presenter(s)	

Please respond by using the 4-point rating scale to indicate the extent to which you agree of disagree with each statement. Circle the number that applies.

4-Strongly Agree   **3**- Agree   **2**- Disagree   **1**- Strongly Disagree

1. The workshop objectives were clearly stated and met	**4 3 2 1**
2. The questions and instructions were clear	**4 3 2 1**
3. The workshop helped me to connect with contacts that I knew before but didn't have a working relationship with.	**4 3 2 1**
4. The workshop helped me to make new contacts with people or organisations I didn't know.	**4 3 2 1**
5. The information presented was relevant and useful.	**4 3 2 1**
6. The presenter provided adequate time for questions and answered them satisfactorily.	**4 3 2 1**
7. The workshop introduced a new technique of developing networks that I never used before.	**4 3 2 1**
8. The workshop increased my knowledge and skills in the design of innovation ecosystems from scratch.	**4 3 2 1**
9. The workshop helped me to re-think my business model in terms of working with other organisations.	**4 3 2 1**
10. The connections developed from the workshop will be useful in my future innovation networks.	**4 3 2 1**
11. The opportunities identified during the workshop will be useful to my future business model development.	**4 3 2 1**
12. The physical arrangements were adequate	**4 3 2 1**
13. The workshop met my expectations	**4 3 2 1**
14. I would recommend the workshop to others.	**4 3 2 1**
15. The workshop was well organised.	**4 3 2 1**

Others comments

_____
_____

2.

'Building Innovation Ecosystems from Scratch'

Workshop Program

Exchange: Identifying criteria for exchange of resources between key networks. **Design**: Visualising network connections and meaning. **Develop**: Connect the dots to explore structural holes, clusters, key stakeholders and niche services. **Manage**: Decide on potential roles and how each stakeholder may contribute value. **Sustain**: How will you maintain the connections to deliver innovations. **OR-Death**: Identify potential factors that may collapse the new connections.

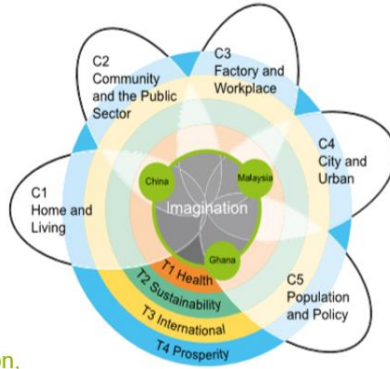| No	Objective	Activity	Time
1	Having refreshments & getting ready	Arrival and coffee	5
2	Introduce the workshop aim	Facilitators brief	3
3	Getting to know people	5 Lines (5 secs to talk about yourself)	5
4	Making sense of innovation ecosystems.	Innovation ecosystem shared Value • PowerPoint presentation	15
5	*Individual organisations*	*Break into your respective organisations*	*5*
6	To explore what stakeholders' value most in their networks.	What criterion are important in your networks • List at least 10	10
7		Share the list with the group and select 5 most critical to use	10
8	Making decisions on key network contacts.	What actors are important in your networks • List at least 20 contacts in your project or business.	5
9	Designing interrelationships	Write 5 criterion on the spaces provided and Plot 20 actors on the tool segments. Plot according to the strength of the connection	10
10	Exploring opportunity for development of networks	Connect the nodes to reveal connections and gaps	5
11	Feedback	Share insights to the rest of the group	15
	Break		
12	*Mixing random organisations*	*Break away from your organisation into random groups*	*5*
13	Exploring stakeholder's preferred criterion	Preferably with people you don't know, list the important criterion that may connect you, and select 5 most critical to use	10
14	Exploring stakeholder's contacts	List at least 20 contacts that may be important in your new connections	10
15	Identify new links and roles	Write criterion and plot new stakeholders on the design tool	15
16	Develop and manage networks through new roles	Connect the nodes and assign new possible roles to nodes	10
17	Network sustainability	Assign sustainability roles to each node	10
18	Share new connections as new IE Designs.	Feedback- Group Presentations	30
19	Conclusions	Evaluation	5

*Designing Connections is Fun, Enjoy It

3. Workshop Facilitators

Badziili Nthubu

C3- Post Doctoral Research Associate
Design methods, Innovation Ecosystems, Digital Technologies, SMEs Spaces, Factory and Workplace.

David Perez Ojeda

C2- Lecturer in Radical Co-Design
Design Management, Social Entrepreneurship, Social Innovation, Strategic Design