

Startups' innovation programmes: A food industry versus university cases



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Background: Collaborations with external partners such as startups have been shown to bring agile and consumer-centric advantages to businesses to allow for future-proofing benefits as well as improve the rankings of universities. This type of collaboration can occur through innovation programmes with businesses and universities.

Aim: This study aims to compare the innovation programmes of industry and university that are offered to collaborating startups.

Setting: This study was conducted in South Africa and included two case studies, respectively, from a local university-based incubator and a multinational industry.

Methods: The research methodology follows an exploratory approach, allowing for theory-building research through case studies from industry and a university incubator. The research is qualitative and makes use of interviews from industry, the university incubator and startups to draw comparisons on each innovation programme.

Results: The study's findings confirmed the prominent differences that occur in the communication method, use of third parties in the screening and selection phase, resources offered and onboarding process of the startups. Key benefits and challenges were also identified throughout the collaboration process.

Conclusion: The research has provided insight into the innovation programmes of both industry and university and how each entity can cross-pollinate learnings by reflecting on the challenges, benefits and recommendations highlighted by the study.

Contribution: The study has practical implications that academics and practitioners can use to gain knowledge and further improve their innovation programmes with startups.

Keywords: innovation programmes; open innovation; startups; industry collaborations; university incubators.

Introduction

'In the new world, it is not the big fish which eats the small fish, it's the fast fish which eats the slow fish'. Klaus Schwab, founder and executive chairman of World Economic Forum (Bonzom & Netessine 2016).

In a dynamic and changing world, businesses often battle to innovate to keep up with globalisation and market competitiveness (Beck, Schoenenberger & Schenker-Wicki 2012; Mokhtari Moughari & Daim 2023). Businesses that fail to provide a competitive advantage will eventually become redundant as seen with businesses such as Kodak, Siemens and Motorola (Chesbrough 2003). This has shown that traditional ideation, which only takes place internally, known as 'closed innovation' will no longer sustain businesses and there must be differentiation ('shift') in the methods and ways that businesses bring novel ideas to the market (Chesbrough 2003). Businesses should collaborate externally to advance their innovation capability and improve business performance (Chesbrough 2017; West & Bogers 2014). Therefore, in order for a business to generate diverse ideas that allows them to remain relevant, there is a need for inbound innovation as part of open innovation to collaborate with external partners who can contribute to innovative ideas and solutions (Chesbrough 2017; Gassmann, Enkel & Chesbrough 2010; Zobel, Lokshin & Hagedoorn 2017).

Collaboration with external partners such as startups occurs in industry and university and can happen through innovation programmes. Innovation programmes in industry enable collaboration with external partners such as startups to gain insight into new technologies and create innovative

products or services (Usman & Vanhaverbeke 2017; West & Bogers 2014). Corporate venturing can help finance startups and in turn startups provide innovative solutions to the business partner (Dushnitsky & Lenox 2005). In university, innovation programmes can help to mentor and partner startups with a suitable business partner or firm (Karatas-Ozkan, Murphy & Rae 2005). Universities gain from this collaboration as they become recognised as a trusted partner and driver for innovation, which positions the university as more than a traditional teaching facility (Karatas-Ozkan et al. 2005; Toole, Czarnitzki & Rammer 2015).

From the preceding discussion there is contrast between the innovation programmes in industry and university, that is, the process, the rationale behind the innovation programme and the benefits. A good understanding and implementation of the innovation programmes in both organisations will have a great impact, as startups provide a good external partner as they are agile to change, have insight into local market knowledge, embrace risk and foster experimentation. Better collaboration with startups can lead to better innovative solutions, which can help a business and a university to become sustainable and contribute to economic growth in South Africa. Thus, the main purpose of the study is to understand the innovation programmes in industry and university, draw comparisons and make recommendations of how each programme can be improved. The research study will therefore have both academic and practice-related impact.

Given the aforesaid objectives, the research questions are as follows:

- How does the innovation programme process differ in industry (Business X) versus university incubator?
- What challenges are experienced by industry and university when collaborating with startups during the innovation programme?

Literature review

Innovation programmes

Innovation programmes can be defined as schemes or measures that are intended to promote, support, or stimulate innovation activities (Lengrand 2006). These programmes can operate through the provision of funding, direct or indirect business support and through the facilitation of the innovation process. These programmes can further raise awareness of innovation opportunities to businesses and universities and promote the collaboration and development of new products and technologies (Lengrand 2006). According to Isaksen and Karlsen (2010), innovation programmes can also provide support for small and new businesses active in a new technology and assist to protect their intellectual property. Silicon Valley is a popular example that showcases corporate and university spin-offs and has thriving networks, where high-profile entrepreneurs and venture capitalists interact (Motoyama & Knowlton 2017). Innovation programmes play a key role in the economy and

have various impacts, which can be applied to both industry and university.

Innovation programmes in industry involving startups

Businesses invest in external startups, either directly or indirectly, to enhance their innovation capacity through corporate venturing (Fenwick et al. 2023). Success stories of corporate venturing have been seen in countries such as China and India. One facet of the innovation programmes such as IBM's 'Global Entrepreneur' programme in China, is its 'SmartCamp' which provides startups with an opportunity to pitch their ideas to prospective investors (Prashantham & Yip 2017). In India, Microsoft Ventures has sponsored the '10000 Startups' programme, along with prominent peers such as IBM, Google, and Amazon Web Services (Prashantham & Yip 2017). In addition, Microsoft Ventures has another innovation programme called 'CoInnovate'. The 'CoInnovate' programme has three strategies, namely 'partner in acceleration' initiative, to assist individuals in their startup journey, a 'market access' programme, which assists startups with go-to-market strategies, and lastly a 'high potential' programme that enables key corporate and venture capitalists to select high potential startups to be enrolled in the programme (Prashantham & Yip 2017). Kenosi and Van der Lingen (2021) conducted a study on various aspects of partnerships between large businesses and South African black-owned small, medium and micro enterprises (SMMEs) through incubation programmes as corporate Enterprise and Supplier Development (ESD) initiatives resulting in various benefits and challenges for both parties.

Innovation programmes in universities with startups

Many universities worldwide are driving the development of innovation programmes for promoting new ideas and entrepreneurship and have been seen as a key source of knowledge, innovation and economic growth (Isaksen & Karlsen 2010; Mian 2011). A prominent approach has been the planned development of formal technology business incubation programmes, which include science parks, incubators and related technology and business development support mechanisms (Mian, Lamine & Fayolle 2016). These types of programmes allow for knowledge transfer to the business environment and new business opportunities can additionally be sparked that enhances social and economic growth (Mian 2011; Vandaie Ramin & Zaheer 2014). According to Mian (2011), the overall goal of an innovation programme is to promote economic growth and enhance competitiveness of the region as well as enhancing the university image and gain financial opportunities for its long-term sustainability. The universities also enhance their own competitiveness in international research rankings and attracting funds from global star academics (Charles 2006).

Many economies have established university incubators to promote new innovations (Jamil, Ismail & Mahmood 2015) with the main goal of the university incubator, to provide

support to businesses during the startup years through value-added contributions (Ahmad & Ingle 2011). Forming alliances with startup businesses allows for universities to provide a capable incubation team, provide physical space (i.e., office spaces or labs) and provide social interactions (i.e., relationships and networks) (Mcadam & Mcadam 2008).

It is clear that collaboration with startups in both industry and universities provides many benefits and different benefits to each partner (Kupp, Marval & Borchers 2017; Mcadam & Mcadam 2008). Incubation programmes play a vital role in the economic development in both industry and in university. Little research has been carried out on the comparison between the collaboration of startups with industry versus a university incubator through innovation programmes and the challenges, benefits, and cross pollination of learnings to further improve the programmes in each organisation. A comparison of both programmes in industry and university will help to share learnings and improve practices.

Conceptual framework

The conceptual framework is employed to compare the collaboration with startups in innovation programmes in industry and a university incubator (see Figure 1). Startups are selected during the innovation programmes; thereafter, they collaborate with the industry and/or university partners. Both processes in industry (company X) and university incubator are compared in terms of their knowledge, incubation steps followed, collaborative tools used to drive the incubation process and review the associated resources used in the process. The programmes are compared with understand the similarities, differences, and the challenges.

Research methods and design

This research study follows an exploratory research design. Yin (2014) describes that a case study can 'benefit from the prior development of theoretical propositions to guide data

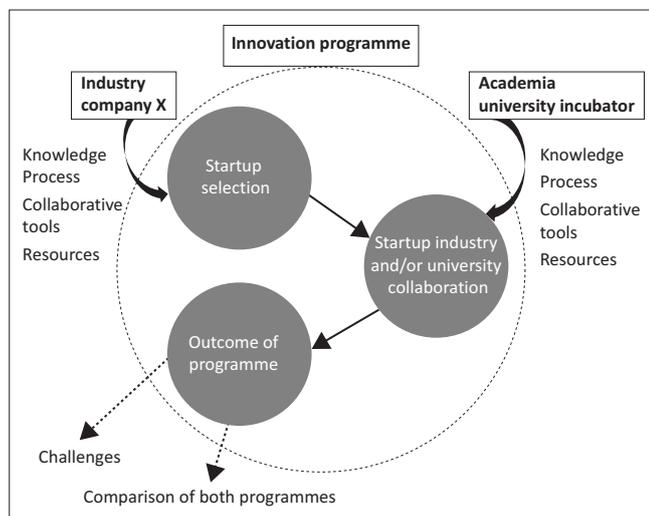


FIGURE 1: The conceptual framework for the study.

collection and analysis'. Therefore, an exploratory research approach using a multicase study seemed most appropriate.

The research was based on a qualitative method with the unit of analysis being two case studies from industry (large food organisation called Business X) and two case studies from a university incubator. The profile of respondents for Business X, the university incubator and the startups can be seen in Table 1. Surveys, questionnaires, business repository data, university data and structured questionnaire interviews were used to gather information from Business X and the university incubator. Research data were also gathered from startups that were accessed via Business X and the university incubator through interviews and questionnaires.

Data analysis

By using a deductive approach to qualitative research, researchers can use theory to guide the design of a study and then the interpretation of results (Easterby-Smith, Thorpe & Jackson 2018). The analysis of the comparative case studies was performed through analytic strategies in the case of textual data. For this research study, thematic analysis was used to identify the common main themes that developed in the study. The transcriptions of the interviews and documentation were analysed for themes and categories. Multiple methods of data gathering allow for the triangulation of data, which improves the validity of the data (Easterby-Smith et al. 2018).

Ethical considerations

Ethical clearance to conduct this study was obtained from the University of Pretoria, Faculty Committee for Research Ethics and Integrity (No. EBIT/255/2020).

Results

Comparison of the collaboration process

The results and findings of the comparison of the collaboration process between Business X and the university incubator

TABLE 1: Profile of the respondents for Business X, the university incubator and respective startups.

Organisation	Respondent	Description
Business X	X-R1	Internal (Ideation to launch lead) in East and Southern Africa
	X-R2	Internal (Research and development accelerator lead) for Central West and East Africa region
	X-R3	External (Venture capitalist director) based in Senegal and Ivory Coast
	X-R4	External (Open innovation lab director) based in South Africa
University incubator	U-R1	Incubator Centre Hub Manager
	U-R2	Incubator commercialisation manager
	U-R3	Ex Incubator Centre Hub Manager
Startups Business X	X-SU1	Director and Founder (South Africa)
	X-SU2	Director and Founder (Ivory Coast)
Startups University incubator	U-SU1	Director and Founder (South Africa)
	U-SU2	Director and Founder (South Africa)

TABLE 2: Key differentiators between Business X and the university incubator in the collaboration process with startups.

Key differentiator	Industry (Business X)	University incubator
Communication style	Unstructured	Structured
External third-party involvement	Co-innovation lab partners	–
Funding	Prize money for the winner	Partnerships and networks
Innovation programme scope and objective of each programme	Ideas and solutions must address the specific business challenge	Any innovative solution can be submitted that solves a market problem
Onboarding process and co-ordination	Onboarded as a supplier by procurement	Commercialisation manager oversees process end to end
Pairing the startups with a business unit or client	Defined once onboarded as supplier	Defined once in the incubator
Pitching phase	Once per year	Once every 3 months
Resources offered to the startup	<ul style="list-style-type: none"> • Financial management • Business acumen • Internal networking • Legal support • Pilot test facilities and/or access 	<ul style="list-style-type: none"> • Financial management • Business acumen • Internal networking • Legal support • Marketing • Intellectual property (IP) (Technology Transfer Office) • Prototyping facilities • Office space • Mentorship programme • Training • External and internal networks for partnerships
Selection panel	Internal executives and specialists	Internal and external experts
Sourcing startups stream	Innovation challenge	Annual innovation challenge, pitching platform and European partnership.

during innovation programmes will be addressed by answering the research questions.

Research Question 1: How does the innovation programme process differ in industry (Business X) versus university incubator?

Innovation programmes in industry and university have several differentiators. The key differing factors highlighted by the study are summarised in Table 2 and discussed according to themes identified.

Each of the themes identified as key differentiators is discussed next.

Communication style: Communication was a key success factor in both Business X and the university incubator. Business X followed a more unstructured approach without prescribed meetings to ensure the business embraced an agile way of working with the startup:

‘[F]lexibility is important and having a closed structure might disable them, instead of enabling them. What really matters is the compromise between two parties and not a single governance of doing things.’ (Interviewee 1)

Interestingly, the startups (X-SU1 and X-SU 2) shared that this type of approach was not beneficial and indicated that Business X was unprepared and new at partnerships with external parties. Recent findings shared that startups need clear guidance and structured communication as they are instable because of their nature (Men, Qin & Mitson 2021). The university incubator was more structured, with formalised monthly check in meetings, performance reporting and routine weekly chats.

External third-party involvement: Screening of the startups in Business X was performed by third party co-innovation lab partners. These third-party actors play a similar role to venture capitalists. Their key role with Business X was to scout and discriminate the most mature startups that were

relevant, accelerate the innovation needs of Business X innovation as well as provide financial investment to help with pilot tests (Weiblen & Chesbrough 2015). Business X also has limited expertise and resources in scouting startups; therefore, this solution helped to alleviate this gap, while still having access to the ecosystem. The third party also helped to prepare the startup candidates for the pitching phase by providing financial, business and project management planning and support. This type of support was also given to the university incubator candidates and if the startups were still incompetent or lacked readiness for the next step, pitching the ideas to the panel – they were offered a free mentorship programme to refine their business plan and market strategies.

Funding provided to the startup by Business X was through winning the innovation challenge competition. The funds would be allocated to the startup to pilot their ideas. In contrast, funding to the startups in the incubator was through networks.

Innovation programme scope: The main goal of the partnership with startups for Business X was to achieve an agile solution to the identified business challenges. Different solutions with ‘outside the box’ thinking were required to elevate the business unit requirements, solve the prescribed challenges competitively and elevate the consumer or customer need (Kushwaha & Puntambekar 2020). In contrast to Business X, that limited the scope of ideas, any idea worthwhile of contributing to change, adding value, and addressing various business and market gaps as well as socio-economic problems (Chesbrough 2003; Kushwaha & Puntambekar 2020), was welcomed into the university incubator. This meant that the agenda of each innovation programme was different. Business X invested into the partnership to gain a competitive advantage and expand their innovative ecosystem like other industry leaders such as Google, BMW, and Netflix (Mercandetti et al. 2017), while the university incubator acted as a service provider and facilitator to drive the development and commercialisation

of the new idea or technology (Lee & Osteryoung 2004). This closely resembles the services offered by a traditional university incubator (Ahmad & Ingle 2011; Karatas-Ozkan et al. 2005; Mcadam & Mcadam 2008). Karatas-Ozkan et al. (2005) reported that during university incubation programmes, two approaches can be followed, that is, activity or client based. This case study showed both approaches followed by the university incubator, as they provide specific activity support in the form of expert networking, business support, legal, financial training, and network funding as well as pairing of clients with a specific corporate partner or investor through specific innovation challenges.

Onboarding process and co-ordination: Onboarding the startups for the university incubator is performed by the commercialisation manager (U-R2) who first ensures that a gap analysis is carried out to refine the market and business strategy to understand the end user or client (Ahmad & Ingle 2011; Karatas-Ozkan et al. 2005). Once the business model is well understood, the university incubator pairs the startup with a suitable client (Karatas-Ozkan et al. 2005) that will make use of the solution, provide funding, networking and help the startup formalise their business.

In Business X, the startup was paired with a specific business unit after being onboarded as a supplier. The startup would provide solutions to the challenges set up at the becoming of the innovation programme, once the solutions were chosen, the business unit(s) that could benefit from the solutions were briefed and could decide to continue with the testing and implementation of the solutions for their business needs. This presented a gap in the programme; if business units did not want to pair with the startups, the collaboration process ended. In contrast, the university incubator tried to pair startups specifically to a corporate partner, depending on the type of technology stream. One type of challenge was a client-based approach that paired the startups with specific partners, similar to corporate venturing (Karatas-Ozkan et al. 2005). Startups that entered the incubator through the Pitching Platform were provided with various business support including access to the network ecosystem. This network ecosystem enabled the startups to find suitable clients and end-users whom they could approach and pair with which literature confirms to be activity-based approach (Karatas-Ozkan et al. 2005). The creation of synergies between partners, corporates, startups and the incubator is one of the main reasons for partnering with the incubator (Patton, Warren & Bream 2009).

Pitching of ideas to a panel was common to both Business X and the university incubator. The process takes place once per year for Business X; there are defined timelines for each innovation programme that takes place yearly and once every 3 months for the university incubator. In the pitching process, each candidate can present their ideas and explain why their idea should be granted access to the business and/or university innovation programme. The panel

evaluating the ideas consists of internal experts and specialists for Business X and a more diverse panel of internal plus external market experts for the university incubator. The outcome of the 'select' phase is very different for both entities. There is only one startup selected for Business X (one startup for one challenge; generally, only one or two startups are chosen yearly), with allocated funds for the pilot tests. The number of startups that enter the university incubator is not defined – as it depends on the amount of funding available to support the new startup. On average 25–30 startups will be in the incubator.

Resources offered to the startups in both Business X and the university incubator were also common as seen in Table 2. The startups had access to various specialised support, trainings, conferences, and networking, consistent with literature findings (Kurpjuweit & Wagner 2020; Lee & Osteryoung 2004; Mcadam & Mcadam 2008; Spender et al. 2017; Wiggins & Gibson 2003). The university incubator supported the startup additionally with the free mentorship programme, office space and external networking opportunities.

Research Question 2: What challenges are experienced by industry and university when collaborating with startups during the innovation programme?

Several challenges experienced by Business X and the university incubator during the innovation programmes with startups were well captured in the study. The key challenges highlighted by the study are summarised in Table 3 and discussed according to themes identified next.

Culture dynamics: 'Developing entrepreneurs from scientists' was a huge mindset shift for the university incubator startups. Being a high technology incubator meant that a lot of focus was placed on the product or service and less on the market or business model. A key challenge was grooming the scientists to understand the end user and the marketing dynamics. Issues can therefore arise during pairing the startups and the client, and sometimes the partnership can be unsuitable. Similar sentiments were shared by Business X, when the startup pairs with the business unit. Clashes can occur when the business unit interacts with the startup and the mindset of innovation and business principles are different (Bigliardi & Galati 2013). Startups typically eschew traditional procedures geared toward rapid market entry, which may also undermine established business policies and internal operational norms. Startups are completely different species from their large corporate partner and thus culture dynamics through the collaborative process can be difficult (Prashantham & Birkinshaw 2008).

Innovation programme scope: A challenge shared by the incubator hub centre manager was that startups often had so many ideas that it was very difficult to get focus and commercialisation on one idea, before it changed into a different business model. It is often difficult for the startup to

TABLE 3: Challenges experienced by Business X and the university incubator during the collaboration with startups.

Challenges	Business X	University incubator
Cultural dynamics	<ul style="list-style-type: none"> • Difficult to communicate • Bridge the gap of 'large corporate' and 'startup' mentality 	<ul style="list-style-type: none"> • Finding 'entrepreneurs' in scientists • A lack of business mindset
Innovation programme scope	-	<ul style="list-style-type: none"> • Too many ideas and sometimes not focused on making at least one a success
Legal	<ul style="list-style-type: none"> • Compliance by design • Manage well to avoid potential legal issues or risks to business reputation 	-
Onboarding as a supplier	<ul style="list-style-type: none"> • All documents required to be a vendor are not available • No historical portfolio 	-
Pairing with the startup	<ul style="list-style-type: none"> • Business units are incompatible with the startup 	<ul style="list-style-type: none"> • Client clashes and incompatibility
Human resources	<ul style="list-style-type: none"> • Limited 	<ul style="list-style-type: none"> • Limited
Pilot phase	<ul style="list-style-type: none"> • IP issues 	<ul style="list-style-type: none"> • Not enough funding
Risk appetite	<ul style="list-style-type: none"> • High risk appetite • Focus on single solution at a time 	<ul style="list-style-type: none"> • High risk appetite • Focus on single solution at a time
Time of incubation	<ul style="list-style-type: none"> • Ability to deliver solution within timeframes 	-

allow for refining of the technology and going into specific markets 'startups need to learn to make hard choices and focus, by taking their product and sticking to it and making a success of it'. If the startup is chasing many opportunities and changing the 'goal post' of their ideas ever so often, this makes the probability for success often difficult.

Legal: IP had to be managed well with Business X to ensure no legal issues that could risk the business reputation (i.e., avoiding unsolicited ideas). IP challenges are common between a large organisation and startups and, if not managed well can become a significant risk that can block open innovation with the business (Enkel et al. 2009). Business X, being a large corporate, there are several levels of compliance processes to be adhered to; this can be a challenge with startups as the ideas may be great but non-compliant 'sometimes there are things we cannot be as flexible as there are rules that we need to follow in the corporate space'. Legal issues and Intellectual Property (IP)-related challenges are solved by having a Technology Transfer Office (TTO) service available to the university incubator. The TTO helps with IP rights, patents and legal issues that may arise in the process.

Onboarding as a supplier: Onboarding of startups in Business X was highlighted as a key challenge as seen in Table 3. This process was a huge barrier to the partnership, which contrasts other common partnership barriers such as IP sharing, knowledge spill over and trust (Bigliardi & Galati 2013). Business X shared frustrations that the startups did not have all the required documents such as business registration to be added as a supplier, nor any historical portfolio to limit risk of the partnership. This caused the onboarding of the startup to be stagnant as the startup had to now process documents and wait for registration and other standard vendor onboarding documents. Similar frustrations were noticed by the startups. Startups do not operate as suppliers (Kurpujuweit & Wagner 2020) and therefore this was a big gap for the large corporate.

Pairing with the startup: Pairing startups through client-based approaches can sometimes be a challenge if there are cultural clashes, personality clashes or just simply an incompatibility with each partner. This is a common barrier of open innovation

to both industry and university partnerships (Gassmann et al. 2010; Shepherd & Ahmed 2000).

People resources: Resources working with the startups appeared to be limited for both Business X and the university incubator. Business X had very limited resources dedicated to the partnership and used outsourced third-party co-lab partners to assist. However, this did not suffice. The startups expressed that after pairing with the business unit, activities were not followed up on with long lead times before assistance was given. This point is interesting as Business X views the startup partnership as 'not another project' and has high expectations for the process. The expectations include that the startup solely manages the project so that the business does not need to invest additional resources to manage the partnership. The university incubator also highlighted that the limited staff complement versus the number of startups in the incubator was also difficult and hard to manage.

Pilot phase: During the pilot phase, legal issues can arise such as IP rights and patent rights once the product or service deems ready for commercialisation. The university incubator may not have enough funding to carry out pilot tests and therefore the link with a suitable client is very necessary to allow for funding and access to market infrastructure to test the new technology (Patton et al. 2009).

Risk appetite: Similar sentiments around risk were observed by both Business X and the university incubator. They appreciated the high-risk appetite from the startups but had challenges with the amount of risk that could be embraced. Business X had to manage the business risk by taking a calculated risk approach by ensuring that before the startup was onboarded as a supplier all the mandatory documents required were available (if the startups are new and the documents are not available, there is a level of risk that the corporate manages through having a short-term contract). In terms of solving the business challenges, Business X was clear from the start of the innovation programme on the type of problem so that the solutions could be 'tailor made' to suit the business and allowed for specific focus for certain outcomes. However, the challenge is that:

'[W]hen you onboard someone with a solution in place and they divert, it becomes a bigger problem, that's why it's important to

keep them focused on what the solution should be and why you need a point of contact that really understands what is required from them and what they need to do.' (Interviewee 2)

Time of incubation: Business X does have high level timelines in terms of implementation of the solutions by the startups, although the business does try to be as flexible as possible to give enough time to the pilot testing. However, sometimes the solutions do not work and the startup contract must be terminated. The university incubator does not have defined timelines for solutions to be implemented as this would be dependent on the client or corporate partner that they assisted the startup to pair with; therefore, this is not a challenge per se. However, time in the incubator is defined by several go or no go criteria and stages, and if the startup ideas are not progressing and the market fit is not justifiable, they will have to exit the incubator.

Conclusion

The study investigated innovation programmes with startups in industry (Business X) and university incubator using the case study methodology. Several differences were identified through the study that showed that each programme acts differently when collaborating with startups. The study also showed several practice contributions that can better help industry and academic partners to evolve their innovation programmes.

The research provided empirical evidence and offers a comparison of each of the programmes and draws similarities and differences that can be used to enhance each programme. The challenges and benefits experienced by each entity offer great insight into how their specific programmes can be amended to provide optimum benefits to all partners involved while reducing the challenges to run more effective programmes. The study has therefore both practical and academic contributions.

Practical contributions

Structured communication with planned catch-up calls aligned between the startups and industry partner can help alleviate concerns on progress and next steps by each party and allow for transparent flow of information. To enhance culture dynamics, companies should embrace an agile way of working mindset and this should be demonstrated. The innovation challenges should come from the business units and should be specific to their needs so that after pilot stages, there is a specific business unit that will take or refine the solution according to their own business needs, which eliminates the need for looking for a business unit to use the solution after piloting tests are conducted.

Sponsoring an innovation lab to startups where they can have access to facilities to refine their ideas. These labs can be opened once or twice a year for a week period allowing a minimum number of mature startups to test their ideas for futuristic ideas. This is a longer-term recommendation.

Enhancing media coverage and raising awareness about the organization's openness to partnering with startups through business challenges could further promote corporate willingness for open innovation. Companies can further explore more avenues to source startups and enlarge their network with external partners. University incubators could be an excellent network partner to help source and collaborate on solutions.

Other types of innovation programmes that promote more diversity in ideas can allow for more different solutions presented to unknown challenges that exist today but might exist in the future. Pilot tests should have clear expectations, activities, outcomes, and post feedback with learnings. Clear deliverables on success and next steps and termination of services timelines should also be agreed upon. A structured channel of communication ensures that startups have access to a compact team capable of offering support and providing guidance throughout the project. This team should also have enough authority to manage the next steps. A streamlined onboarding process tailored for startups should be developed, recognizing that startups operate differently from traditional suppliers.

Academic contributions

The incubator is currently a non-profit organisation. If the business model changes to become a profitable business to have different revenue streams, there is an opportunity to have more funds in the incubator to attract and support more startups. The funds can come from patents or from the client or corporate themselves as the incubator 'sells' the R&D to the corporate partner. This can help to provide an R&D service to the corporates and have the corporate pay a fee for the service. Networking opportunities can be enhanced by partnering and actively seeking more corporates to extend the current client base and invite these corporates to seminars, conferences and bootcamps. Success stories of partnerships should be actively shared with more corporate partners to encourage networking and more partnerships with the incubator.

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Authors' contributions

E.A.G. and E.v.d.L. contributed to the development and writing of the article. E.A.G. conducted the research as part of her Masters dissertation under the supervision of E.v.d.L.

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Data availability

Derived data supporting the findings of this study are available from the corresponding author, E.v.d.L., upon reasonable request.

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