### Impact Potential of Incubators for Employment and Income Creation

An analysis of the potential of incubators as a part of the development strategy of the Swiss Agency for Development and Cooperation in the SENAP region with a special focus on Tunisia, Tanzania, Zambia and the Occupied Palestinian Territory

> Tobias Bienz 13-606-702 Arian Schül 17-601-238 Samuel Werthmüller 13-201-157

Practical Project in Development Cooperation Supervised by Dr. Urs Heierli Submitted on the 18<sup>th</sup> of May 2018



## **Table of Contents**

Table of figures	3
Index of abbreviations	4
1. Introduction	5
2. Business incubators - different kinds and main functions	6
3. Impact pathway: from business incubation to employment and income creation	9
4. Incubators in the SENAP region	12
5. Quantitative potential of incubators as a tool for employment and income	15
6.1. Tunisia	18
6.2. Tanzania	24
6.3. Zambia	30
6.4. OPT	35
7. Qualitative potential of incubators as a tool for employment and income	40
8. Three potential scenarios and alternatives	45
9. Conclusion	48
Bibliography	50
Overview of Interviews	54
Declaration of authorship	55

## **Table of Figures**

Figure 1: Startup cycle	10
Figure 2: Incubator impact pathway	11
Figure 3: Venture performance	12
Figure 4: Estimated number of incubators throughout the SENAP region	13
Figure 5: Tech hubs and incubators in Africa	14
Figure 6: General impact and risk visualization	18
Figure 7: Impact and risk visualization in Tunisia	24
Figure 8: Impact and risk visualization in Tanzania	29
Figure 9: Impact and risk visualization in Zambia	34
Figure 10: Impact and risk visualization in the OPT	39

## Index of Abbreviations

FDIs	Foreign Direct Investments
GDP	Gross Domestic Product
ICT	Information and Communication Technology
I-SEMER project	Swiss initiative for jobs and rural micro and small enterprises
KPI	Key Performance Indicator
LMI	Low Middle Income
MENA	Middle East and North Africa
OPT	Occupied Palestinian Territory
OYE project	Opportunities for Youth Employment
SDC	Swiss Agency for Development and Cooperation
SECO	State Secretariat for Economic Affairs
SENAP	Southern Africa, East and North Africa, Occupied Palestinian Territory
	Countries: Mozambique, Tanzania, OPT, Tunisia, Egypt, Morocco, Rwanda, Burundi, Democratic Republic of the Congo, Somalia, Ethiopia, Kenya, Djibouti, South Africa, Zimbabwe, Malawi, Zambia, Lesotho and Swaziland
SME	Small and Medium-Sized Enterprises
SNV	Netherlands Development Organization

### **1. Introduction**

"Incubators and their cousins, accelerators, provide hands-on training and mentoring, and often a physical space, to help early-stage business ideas develop" (The Economist, 2017). In the context of the development strategy of the Swiss Agency for Development and Cooperation (SDC), this begs the question what potential the cooperation, respectively the funding of incubators and accelerators may hold. In collaboration with thematic experts of the SDC, the scope of this research project is the evaluation of the potential of incubators for employment and income creation in the SENAP region. To do so, this paper aims at determining what an incubator is and what it can achieve. Furthermore, it strives to determine how an incubator can meet the goal of innovation and ultimately of employment and income creation. The paper also aims at evaluating what the SDC could achieve by supporting specific types of incubator to the tune of CHF 4 million.

This paper has the ambition of being a practice-oriented scientific research. It is based on 38 qualitative interviews – of an average length of 43 minutes – with SDC employees, respectively individuals active in development cooperation, entrepreneurs, incubator affiliates NGO workers and university researchers. Moreover, it builds on over 50 reports and studies and various databases used for quantitative analyses. Thanks to this variety of sources, this paper is expected to deliver a differentiated analysis of the potential of incubators for employment and income in the SENAP region.

The paper starts by giving an overview of the types of business incubators currently in existence. The impact pathway of incubators is then explained, outlining the steps leading from business incubation to employment and income creation. Section 4 gives an overview of the incubators found in the SENAP region, showcasing their number and dynamics. The quantitative potential of incubators is then introduced as a tool for employment and income creation by presenting the methodology used, namely an evaluation of the general external attractiveness and the potential internal impact of incubators. The next section builds on this by painting portraits of the focus countries Tunisia, Tanzania, Zambia and the Occupied Palestinian Territory. For all four focus countries, an analysis of the general external attractiveness is conducted and the internal potential impact and potential risk are evaluated. Based on the conducted interviews, this is followed by an assessment of the qualitative potential of incubators as a tool for employment and income, which helps support the findings of the quantitative analysis. Section 8 presents different implementation scenarios and possibilities for the SDC to collaborate with and engage incubators. The impact of these

scenarios is evaluated and weighed against alternative projects. The paper closes with a final recommendation for the SDC and an overall conclusion.

### 2. Business incubators - different kinds and main functions

### Why do we need to talk about incubators?

Business incubators are becoming more and more popular around the world. Independent of context, most startups fail within the first or second year (Peña, 2004, p. 223). This is exactly where incubators play an important role in supporting startups' development processes. In more general terms, an incubator is seen as a catalyst for SME development (Davies, 2009, p. 6). Business incubators are a quite recent phenomenon in Africa, but are seen as a interesting concept because they can foster entrepreneurship and SME development, which might lead to employment and income creation (Chirambo, 2014, p. 9). Bhabra-Remedius & Cornelios (2003, p. 10) claim that incubators aim at stimulating growth which is measured in terms of employment creation, profit generation and sales growth.

### What exactly is an incubator?

Existing literature mentions different definitions of business incubators. The United Nations Economic Commission for Europe UNECE defines business incubation as a "systematic way to support the establishment and growth of a new company" (UNECE, 2012, p. 13). Hughes, Ireland, and Morgan (2007, p. 156) define an incubator as a facility that supports startups by quickly becoming competitive businesses. Chirambo (2014, p. 17) emphasizes that business incubators help to facilitate growth of young companies by providing a platform to connect with other actors and make use of additional resources. This paper builds on these definitions and – in the geographical context of the SENAP region – an incubator is seen as a vehicle that first, supports the process of becoming an entrepreneur – an economic actor with a clear market orientation – and second, facilitates the growth process of existing small businesses to scale up their activities.

### Are incubators all the same?

Just as the business landscape is very broad and diverse, so are variations of incubator concepts (Davies, 2009, p. 5). Often scholars distinguish different forms only through one perspective, which this paper does not deem useful as there are multiple dimensions involved. A framework with four layers is established to explain different forms of incubators:

- (1) Ownership structure and financing model
- (2) Economic sector focus
- (3) Stage of targeted startups and intended scope of incubation
- (4) Target group and particular requirements

(1) Incubators are often set up by an established institution. The most common forms are university-related, publicly sponsored and privately sponsored by corporations. There are also some hybrid forms and independent forms which continuously depend on donations. (2) Besides the general form, many incubators focus on particular sectors like technology, ICT or agriculture. University-related incubators work on commercializing their research and enable business opportunities for students, whereas private corporations rather try to establish innovation clusters for a particular sector. (3) While some incubators facilitate the startup process from the first idea until the growth process for a couple of years, others only concentrate their incubation on the initiation phase, which aims at understanding the market and creating a business plan that enables startups to manage the subsequent growth process on their own. A third group - often called accelerators - only focuses on existing startups and supports their growth process. These approaches target different scopes of incubation, from creating entrepreneurial mindsets to building medium to large-scale companies. (4) In addition, incubators can vary in the groups they target. As university-related incubators are mainly directed at students, privately-sponsored often focus on educated high-potentials with knowledge in their respective sector. Publicly sponsored incubators often use the opportunity of tailoring their impact on specific target groups (underemployed, youth, women) in specific regions (e.g. rural areas) (Chirambo, 2014, p. 16). Besides these classic physical models, there are also forms of virtual incubators using online coaching.

### What does an incubator actually do?

Depending on its form and respective characteristics, functions of an incubator strongly vary from simply providing co-working office space to offering sophisticated assistance in building a prototype or entering a market. Generally, there are four core functions that every incubator exercises to a certain degree:

- 1) Providing physical infrastructure
- 2) Offering coaching and mentoring
- 3) Generating a community atmosphere
- 4) Serving as a platform

(1) Providing physical infrastructure includes offering office space, Internet and shared equipment like printers, as well as technical support in building a prototype as the minimum viable product. (2) Offering coaching and mentoring is key in the incubation process. Personal mentoring from experienced business people is a crucial mental support in tackling daily challenges throughout the entrepreneurial journey. Specialist counseling by industry experts is of high relevance for young startups to understand the market and how to capture it. Workshops can be offered not only to participants but also to external actors. (4) Providing a platform to connect young startups with different actors is inevitable to become a successful business. This includes enabling business collaborations, access to finance and contact to potential clients, which all supports the growth process of a startup.

### Who is paying for this in the long run?

In theory, there are two financing strategies for incubators: (1) ensuring sponsorship or (2) establishing a business model. The most common ways of financing are sponsorship by public authorities or private corporations in the form of a grant or continuous seeking for donations of foundations. This source of funding is often very restricted in amount and limited in time, which does not make it very sustainable for incubators. Much more sustainable is the establishment of a business model to make the incubator self-sustaining. Potential revenue streams are office space rental, consultancy services of experts offered to external businesses, an equity model (taking minority stakes of 2 to 6 % in incubated businesses), a royalty model (incubatees contribute parts of their future revenues to the incubator), or deferred debt model (incubation fee is deferred for 5 to 10 years). In reality, many incubators in Africa struggle with the establishment of business models for financing as they have to bridge quite a long period of time until cash flows return after the incubation phase. Another option is to establish a fund that invests in incubatees, but this is only attractive for risk-seeking investors. Incubators like iHub in Nairobi established selfsustaining financing models, but as it stands, most incubators in Africa are still donordependent (development cooperation worker, Tanzania, 2018; infoDev, 2010, pp. 28-31; infoDev, 05 Financing an Incubator p. 32).

### What are relevant stakeholders for an incubator?

Incubators have to be understood as a connecting element in the wider economic ecosystem (Chirambo, 2014, p. 16; Ndabeni, 2008, p. 262). Based on a general literature review and the conducted interviews, seven major stakeholders are identified, whose importance varies

depending on the form of incubator. External stakeholders play an especially crucial role with regard to coaching and providing a platform. Those seven major stakeholders include the following: participants (founders), employees, coaches, investors, the private sector, the government, and researchers. The qualification and experience of founders is a fundamental driver of success for a startup. Dynamic, flexible and enthusiastic staff is necessary for all organizational issues and the community atmosphere. Coaches and mentors provide meaningful insights and help founders to grow personally and professionally. Some incubators have own funds, but most rely on external sources of funding to enable their startups to grow. Existing markets with profitable private companies provide many options for cooperation with young startups. The government of a country takes major decisions that influence the legal framework and the general economic ecosystem incubators operate in. Research institutions can provide access to new technology to help startups create marketable innovations.

# **3.** Impact pathway: from business incubation to employment and income creation

In this chapter the underlying logic of an incubator found in the different phases that a typical startup goes through is looked at more closely. The impact an incubator has on each phase of a startup's journey will then be analyzed.

In order to understand the underlying logic of an incubator, one needs to be familiar with the creation process of a startup. This process takes the founders through the ideation phase (1) where the idea is found, the startup phase (2) where the conceptual foundation is laid, the early stage (3) where a first prototype needs to be created, the acceleration stage (4) where the first customer base is attained and the growth phase (5) during which an established company needs to be built. In Figure 1 a typical startup cycle is displayed in a winding manner, illustrating the fact that the construction of a company is not a straight path. During the process of building a startup, it is very common to have iterations and move back and forth between several of the phases multiple times before finding the right fit for the project. Alongside this cycle, a startup needs different forms of funding (seed investment, risk capital, growth capital). The segmentation of the different phases is loosely based on the Startup Navigator by Grichnik et al. (2018).



*Figure 1*: Startup cycle (own creation)

The function of an incubator is to shorten the phases of a cycle and enable the startup to reach profitability earlier on. Figure 2 showcases the functions of an incubator throughout the different startup stages. Additionally, the impact created by these activities are shown in the line below.

In the ideation phase, incubators provide an open space for creative ideas. This is often done through events or workshops. The intention is to bring people together in order to form new business ideas and connect potential cofounders. During the startup phase the foundation for the future business is laid. Incubators provide several tools to teach founders skills like business development or project management. This is often done through seminars or classes, which are led by a coach. The development of classic tools such as a business plan, a pitch deck or a business model canvas enables the founders to build a first prototype. In the early stage, the incubators enable the founders to take the minimum viable product produced in the startup phase and test it together with a first customer base. One way of doing this is to band together with an industry partner that provides the startup with the opportunity of establishing a proof of concept. The goal of this stage is to verify the product-market fit. In the course of the acceleration stage, the newly formed company needs to acquire its first stock of customers and engage in business development. This may be done through hiring the first few employees, acquiring new suppliers who offer better conditions or getting into a first round of financing. The impact of this stage should be to cross the valley of death, (i.e. the phase where a company loses a lot of money and most startups fail), and reach the break-even point. Finally, during the growth stage, the organization needs to transition out of the uncertainty and the constant changes associated with being a startup and become a reputable

company. In order to reach that goal, the startup needs to scale and create growth. Typically, the impact will ultimately be job creation and profitability.



Figure 2: Incubator impact pathway (own creation)

From the investigation into the impact pathway of an incubator, it has become apparent that most employment opportunities are created in the growth stage. That being said, startups in Sub-Saharan Africa have an above average likelihood of employing people early on. This is one of the findings represented in Figure 3.

## Comparison of startup characteristics in the early stage between Sub-Saharan Africa and a global sample

The bars in figure 3 represent a group of Sub-Saharan startups incubated by 12 large organizations (Unreasonable Institute, Village Capital, USADF, etc.; see reference for full list) and compare their performance to a global sample of startups at a similar stage of their life cycle. Furthermore, the visualization shows that startups from Sub-Saharan Africa are more likely to have revenue during the early stages (GALI, 2018). Because labor is relatively cheap and startups create revenues early on, the effect of incubators on job creation is enhanced. These statistics link neatly to the notion of necessity entrepreneur, (i.e. becoming an entrepreneur out of necessity with the intention of generating income quickly), which is an idea that has been repeatedly mentioned by various interview partners.



Figure 3: Venture performance (GALI, 2018, p. 8)

Many founders fail along the startup creation process. However, the probability of success increases exponentially with every failed attempt an aspiring entrepreneur goes through (Bloomberg, 2014).

## 4. Incubators in the SENAP region

The incubator ecosystem is incredibly dynamic, especially on the African continent. The number of new incubators has increased in recent years and new ones are created almost on a weekly basis. The dynamic of the ecosystem is also pictured in the different kinds of incubators, ranging from co-working space to sophisticated acceleration, from university-based to privately managed as well as from general to sector-focused with completely different target groups. The 2016 World Development Report on digital dividends provides an overview of the number of ICT hubs in the respective countries of the SENAP region. Based on interviews, desk research, and approximation, the total number of incubators in all SENAP countries were estimated (Figure 4).

Country	ICT hubs and incubators	Number of active incubators
	(World Development	according to internet research
	<b>Report) - Baseline</b>	and interviews if there were no
		verified numbers available
Region of North Africa		
Tunisia	1	8
OPT	Х	4
Egypt	11	83
Morocco	6	47
Region of the Great Lakes		
and the Horn of Africa		
Tanzania	7	27
Mozambique	1	4
Rwanda	4	18
Burundi	1	4
Democratic Republic of the	2	8
Congo		
Somalia	Х	2
Ethiopia	2	9
Kenya	16	65
Djibouti	X	0
Region of Southern Africa		
Zambia	3	9
South Africa	32	95
Zimbabwe	4	13
Malawi	2	6
Lesotho	Х	6
Swaziland	X	3

Figure 4: Estimated number of incubators throughout the SENAP region (own creation)

Figure 5 showcases the number of tech hubs and incubators can be observed in Africa (as of 2016). This allows for a more industry-specific insight and provides a very good overview of the relative size of the incubation landscape in different SENAP countries.



Figure 5: Tech hubs and incubators in Africa (World Bank, 2016)

# 5. Quantitative potential of incubators as a tool for employment and income

To evaluate the potential of business incubators, a four-step evaluation process was established:

- (1) Evaluation of the general favorability of the external environment (country level)
- (2) Establishment of specific incubator case studies
- (3) Evaluation of the internal potential of a particular incubator model
- (4) Risk assessment of a particular incubator model

As discussed before, an incubator has to be understood as a connecting element in the wider economic environment and therefore depends on several external factors. Following the Startup Meter approach, the external environment is divided into six overarching categories: market, macro, infrastructure, startup scene, finance, and human capital (Enpact, 2018). All categories consist of different indicators, which are derived from publicly available data sources. The following list provides more detailed information about the indicators and their sources:

### (a) Market

- Percentage of real annualized growth in sales: World Bank Enterprise Survey (The World Bank Group, 2018a)

- Percentage of annual employment growth: World Bank Enterprise Survey
- Percentage of annual labor productivity growth: World Bank Enterprise Survey
- Percentage of capacity utilization: World Bank Enterprise Survey
- Trade as percent of GDP: World Bank Data (The World Bank Group, 2018b)
- Logistics Performance Index: World Bank Data (The World Bank Group, 2018c)

### (b) Macro

- Political Stability: World Governance Indicator (The World Bank Group, 2018d)
- Effective Governance: World Governance Indicator
- Regulatory Quality: World Governance Indicator
- Democracy Index: World Governance Indicator
- Corporate Tax: KPMG Corporate Income tax tables (KPMG, 2018)

- Contract Enforcement: Ease of Doing Business (The World Bank Group, 2018e)
- Resolving Insolvency: Ease of Doing Business
- Starting a business: Ease of Doing Business
- Crime as a constraint: World Bank Enterprise Survey
- Informality as a constraint: World Bank Enterprise Survey
- Bribery Depth: World Bank Enterprise Survey
- Corruption Perception Index: Transparency International (Transparency International, 2018)

## (c) Infrastructure

- Overall infrastructure quality: Global Competitiveness Index (World Economic Forum, 2018)

- Water supply quality: World Bank Enterprise Survey
- Electricity access: World Bank Enterprise Survey
- Co-working space cost per day: Coworker (Coworker, 2018)
- Smartphone Penetration: We are social Report (We are social, 2018)

## (d) Startup scene

- Number of incubators (own estimation)
- Activeness of those incubators (own estimation)

### (e) Finance

- Self-financing rate: World Bank Enterprise Survey
- Funding as a constraint: World Bank Enterprise Survey
- Loans rejected: World Bank Enterprise Survey
- FDIs net inflow: World Bank Data

## (f) Human capital

- Workforce as a constraint: World Bank Enterprise Survey
- Skilled workers: World Bank Enterprise Survey
- Number of universities: Uni Rank (Uni Rank, 2018)
- Tertiary education: World Development Report (UNDP, 2016)
- Public Research & Development Expenditure as percent of GDP: World Bank Data
- Labor regulation as a constraint: World Bank Enterprise Survey
- Female participation in workforce: World Bank Data

As it is hard to establish absolute benchmarks, this information is interpreted in relation to geographic peers or other focus groups. This can lead to a conclusion on the general favorability of the overall environment for an incubator. This is a very crucial first step, as many of the conducted interviews highlighted that factors like the regulatory environment or the absence of private sector companies in a certain region can represent a major challenge for startup formation, and in turn for the effectiveness of incubators.

When it comes to the internal analysis, specific incubator case studies are established and analyzed over a four-year period. These case studies as well as all estimations are based on research and interviews with incubator affiliates in the respective countries. The internal potential is evaluated in three categories, namely the impact on the startup itself, the impact on the general entrepreneurial ecosystem, and the potential of incubators as a tool for development. The following list provides detailed information about the different reference indicators in the three categories.

### (a) Impact on participants

- Number of startups founded
- Survival rate of startups
- Number and quality of jobs created
- Profit and sales increase
- Learning experience of participants
- Scaling and growth potential of the startup
- Potential social impact of the startup product or service

### (b) Impact on the general ecosystem

- Effect on general business climate
- Effect on other economic actors (multiplication effect)
- Knowledge cluster creation
- Potential investment opportunities

### (c) Incubator as a development approach

- Sustainability and intensity of impact created
- Costs per person reached

### - Financial sustainability of an incubator

In addition, a risk analysis was conducted, pointing out the three major potential obstacles and how to overcome them. To evaluate the internal potential of the incubator case studies two matrices were established. They showcase the potential (number of people reached relative to the financial investment (4 million CHF), intensity and sustainability of impact) and risk (probability of occurrence, severity of impact).

	Very High	0,8	2,4	5,6	12,8	32	80
	High	0,6	1,8	4,2	9,6	24	60
/ MONEY	Medium 0,4		1,2	2,8	6,4	16	40
OF PEOPLE	Low	0,2	0,6	1,4	3,2	8	20
NUMBER	Very Low	0,1	0,3	0,7	1,6	4	10
	Index Numbers		3	7	16	40	100
	index Humbers		Very Low	Low	Medium	High	Very High
INTENSITY AND SUSTAINABILITY OF IMPACT							



Figure 6: General impact and risk visualization

### 6. Country profiles: Tunisia, Tanzania, Zambia, OPT

### 6.1. Tunisia

### I. Incubators in Tunisia

Tunisia has been described as the next big startup hub and a lot of potential is attributed to its incubator ecosystem. It must however be said that above co-working spaces – whose number is estimated at 10 to 15 – the number of players committed to supporting startups financially is relatively limited. Among those, it is worth citing players such as Wiki Start Up, B@Labs, Open Startup Tunisia, Intilaq as well as the collaboration between Flat6Labs and Le15. Most of the mentioned actors concentrate their activities on training and seed funding startup companies. Financial resources for the growth phase of startup companies is still difficult to find in the country (incubator affiliate, Tunisia, 2018).

### II. External evaluation of the general ecosystem for incubators

In the following paragraphs the previously established external evaluation matrix is applied to Tunisia.

**Market.** At 1.17% in 2016, annual GDP growth has been rather limited in the last years and especially after taking a toll as a consequence of the Tunisian Revolution. In 2013, real annual sales growth was -4.4%, slightly above the MENA average of -6%. Annual labor productivity growth stood at -4.5%, nearly 4% above the MENA average for the same period (-8.3%). Annual employment growth was low, with 0.5%, which was 2.9% below the MENA average. With 62.3%, capacity utilization too was slightly below the MENA value at 64.7%. When it comes to the Logistics Performance Index of 2016, Tunisia reached a better overall result than both other upper middle-income countries as well as the MENA region average. Finally, it must be said that Tunisia is a very small market, which incentivizes startups to have an international orientation early on, both in terms of finance and for the search of a larger customer base (incubator affiliate, Tunisia, 2018).

**Macro.** Both political stability as well as government effectiveness in Tunisia have decreased significantly in the last 10 years, the former clearly below the MENA average and the latter now at about the same level as the rest of MENA. Regulatory quality too has decreased, the country dropping from the 56<sup>th</sup> percentile in 2006 to the 33<sup>rd</sup> percentile in 2016. In that context, one must note that - after the Arab Spring - the current form of government is still new. On the other hand, Tunisia performs better than the MENA average when it comes to the indicators about the rule of law and voice and accountability. Located at the 74<sup>th</sup> rank of the Corruption Perceptions Index in 2017, with a practically unchanged score in the last 6 years, the level of corruption Tunisia is still high. However, the country shows a slightly better picture in that area than Morocco and a significantly better picture than Algeria and Egypt. When it comes to the ease of doing business, Tunisia performs nearly 7% better than the regional average, particularly when it comes to the average days needed to start a company - 11 in Tunisia, 18.6 in MENA overall - and to the cost involved for doing so. The same goes for resolving insolvency, the recovery rate (cents on the dollar) standing at 52% – 26.5% above the MENA average - and the time required situated at 1.3 years, compared to 3% for all of MENA. On the security side, Tunisia is also clearly above the MENA average, with 68.7 firms investing into it (compared to 35.9%). As for informality, Tunisia is on quasi equal footing with the rest of the MENA region, with 28.6% of firms identifying practices of competitors in the informal sector as a major constraint.

**Infrastructure.** In 2017, Tunisia ranked 95<sup>th</sup> out of 138 countries in the Global Competitiveness Index. This points to an infrastructure quality which is not yet ideal, even though data on water insufficiencies or on electricity access is difficult to obtain. The Tunisian Revolution had put certain infrastructure projects on hold (Oxford Business Group, 2018). However, more investments are now being made, partially supported by "western" countries such as France (The Middle East Monitor, 2017). The daily fee to access a co-working space in Tunis is approximately 20 TND (8.03 CHF) (incubator affiliate, Tunisia, 2018). In 2016, 50% of the population had access to the internet, with a strong inclination for further growth.

**Startup scene.** As cited above, there is an approximate number of 25 incubators in Tunisia, including, co-working spaces, for whom a growth tendency is most noticeable. Incubators, who support startups on the financial level are rarer, even though the evolution is positive on that side as well. A few of the incubators also organize public events, often free of charge (incubator affiliate, Tunisia, 2018).

**Finance.** In 2013, 23.9% of Tunisian firms identified access to finance as a major constraint, a value which was 8% lower than the MENA average. A similar image appears for the ratio of firms whose recent loan application was rejected, which stood at 6.6%, clearly below the 10.2% shown by MENA countries. That being said, it must be stated that access to finance is particularly difficult during the growth phase of companies. FDI inflow into the country is low with an annual value of 1.7% of GDP in 2016 (Morocco at 2.2% and Egypt at 2.4%). Here again, this indicates that companies – especially the one with a high potential – often leave the country in the search for finance.

**Human capital.** As of 2018, Tunisia has 75 universities or institutions of higher-education, of which approximately half can be found in Tunis. Between 2010 and 1015, 35% of the tertiary school–age population was enrolled in a tertiary education program, the same rate as Algeria but 10% above Morocco's ratio. In 2013, the proportion of skilled workers (out of all production workers) in Tunisia was 77.8%, thus nearly 10% above the MENA percentage. 29.1% of firms reported an inadequately educated workforce as a major constraint, which is 8.8% higher than the MENA average. In that context, a development cooperation employee interviewed in Tunisia noted that even though unemployment is high, a lot of companies complain about not finding adequate staff, even for simpler jobs, pointing out that Tunisia

may not only have a problem with high unemployment, but also an issue of skills mismatch and underemployment. Furthermore, almost all interviewees in Tunisia lamented that many young talents leave the country for better pay and career opportunities, particularly in the technological sector, where demand for workers is high worldwide. In 2013, 4.2% of companies in Tunisia identified labor regulations as a major constraint, a value that is significantly lower than the 11.8% reported for the MENA region. Research and development expenditures were at 0.632% of GDP (Egypt 0.72%, world 2.28%).

All of these factors indicate that there are plenty of challenges remaining for the smooth operation of incubators in Tunisia, particularly when it comes to the macro environment and obstacles related to human capital. There is reason for optimism though due to the rather dynamic startup scene as well as renewed investments into the country's infrastructure.

### III. Case study: Technology incubator

As seen in previous sections, incubators come in a variety of types. Here, a narrower and more focused analysis is conducted with regard to a technological incubator. In 2013, Tunisia's unemployment rate was at 15.9%. A significant portion of the country's unemployed consists of academics, that is, an estimated minimum of 250,000 individuals (L'Economiste Maghrébin, 2017). The target group of the technological incubator are thus unemployed academics, also referred to as the "educated unemployed" in Tunisia. The broader goal of the incubator is therefore the creation of employment prospects for young and unemployed academics with a focus on the sectors of IT and technology. The activity of the incubator materializes the three first steps of the impact pathway (i.e. ideation, startup, early stage). The requirement for participating in the program are essentially having a university background and an entrepreneurial mindset. A first selection of potential entrepreneurs is then realized on the basis of a week-long boot camp, during which some initial coaching is provided and the ideas and motivations of the candidates are examined. After this, a workshop of one month finalizes the selection by – among others – providing the participants with coaching on business modelling, best practices for business creation, etc. This is also an ideal opportunity for international experts to prepare participants for the acquisition of funds from abroad and for a potential entry in other foreign markets as the Tunisian market is limited. This is followed a further 4 months of coaching and support in the elaboration of prototypes and the access to the market. Office space and further resources are provided. Thus, the full incubation program last for 6 months. Of course, successful startups will only

just have begun their operations and access to more funding during the growth phase will be crucial. The cost for this preincubation and incubation program are estimated at about 15,000 CHF per startup, including 1950 CHF in operating costs of the incubator. With 5 successful startups out of 10 teams (total of 30 participants) as well as costs of 150,000 CHF, a 6-month long incubation program creates approximately 45 stable jobs (including the founders of the startups). One incubator, carrying out eight of these programs in four years is thus able to create about 360 jobs for the total cost of 1.2 million CHF. Therefore, an investment of 4 million CHF over four years can support three to four incubators, leading to the creation of about 1200 jobs.

### IV. Internal evaluation of the potential of the technology incubator

In the following section the internal potential of the technological incubator shall be evaluated based on three overarching impact dimensions:

**Impact 1: Impact on participants.** The experience of incubators in Tunisia has shown that a good initial selection of young entrepreneurs can yield a success rate of approximately 30 to 50% and the creation of about 1.5 stable jobs per participant of the program. Participants benefit by acquiring valuable entrepreneurial and managerial skills and by getting access to an international network. The first beneficiaries of the support are young and highly skilled people with monthly wages of approx. 300-400 CHF. As mentioned above, startups are still quite vulnerable and in need of financial resources after the 6-month program. The number of people reached relative to the financial investment (4 million CHF) is 0.2 and the intensity and sustainability of impact is 40.

**Impact 2: Impact on the general ecosystem.** Besides the support of startups, Tunisia's general ecosystem can benefit from international expertise. The expansion of entrepreneurial and managerial know-how creates positive externalities on the rest of the country's economy. Furthermore, successful startups also represent business opportunities for other Tunisian companies. The number of people reached relative to the financial investment (4 million CHF) is 0.4 and the intensity and sustainability of impact is 40.

**Impact 3: Incubators as a development approach.** The sustainability and quality of the technological incubation program is good, but – as for other incubators – sustainable funding of incubators remains a challenge. Substantial means are necessary for the start and the continuation of operations. Expenses of approximately 3,333 CHF are necessary per created job. Overall, the technological incubator presents high coaching and support costs per person. That being said, it is important to note that these costs can be lowered when collaborating

with other public institutions or private companies, especially through voluntary coaching. The number of people reached relative to the financial investment (4 million CHF) is 0.2 and the intensity and sustainability of impact is 40.

### V. Risk analysis and mitigation recommendation for the technology incubator

### Risk 1: Lack of capital for further growth of initially successful startups

Growth of successful startups depends heavily on access to further financial resources after the incubation phase. Provided there is sufficient access to finance, Tunisian technological startups hold much potential. Since very few actors exist at the national level to support new companies in their acceleration phase, financial resources can be obtained by connecting with foreign investors. The experience of Tunisian incubators shows that innovative technological startups encounter only limited difficulties in accessing finance on the international scene. The probability of this risk to actually occur is estimated to be 40% and the severity of the impact is 100. This risk can be mitigated by establishing or encouraging more accelerators and by supporting the Tunisian government's efforts to attract foreign direct investment.

### **Risk 2: Technological startups leave the Tunisian market to internationalize**

It is difficult to concentrate the positive employment and income effects of a technological incubator on the national economy. Related to the first risk then, is the danger of technological startups leaving Tunisia for other national markets. However, given that – amongst others – the wage level in Tunisia is still significantly lower than in most of the typical destination markets (e.g. U.S.A., Canada, Germany), Tunisian startups tend to keep at least certain operations in their country of origin. The probability of this risk to actually occur is estimated to be 10% and the severity of the impact is 16. This risk can be mitigated by supporting sound labor laws and reforms in Tunisia, making the employment of Tunisian labor more attractive.

### Risk 3: Low skilled workers and unemployed do not benefit from the startups

It is certain that successful startups emanating from technological incubators allow for the creation of high quality employment. However, from when on, and if at all, Tunisia's low skilled workers and unemployed can benefit through further job creation is difficult to assess. Experience of Tunisian technological incubators indicates that hardly any low skilled workers are hired by participating startups, at least in the first four years. Thus, the probability of this

risk to actually occur is estimated to be 40% and the severity of the impact is 40. This risk can be mitigated by stronger collaboration of incubators with educational institutions to prepare people for becoming employees of incubated startups.



### VI. Mapping of potential and risk

Figure 7: Impact and risk visualization in Tunisia

The quality and potential impact of the preincubation and incubation program is of a high standard, but rather limited in total beneficiaries. Whilst initially successful startups are likely to be able to sustain their operations through access to foreign financial sources, there is a risk of "losing" part of the incubator's investment to other countries (e.g. in terms of employment creation or through brain drain), which would would have medium consequences for the technological incubator.

### 6.2. Tanzania

### I. Incubators in Tanzania

Tanzania's incubators landscape is very dynamic and rapidly changing. However, HDIF (2017) identified 27 incubators with very different profiles in 2017. These range from incubators focusing on innovation in the IT, ICT or wider technology sectors to art spaces and living labs, which do not focus all their activities on business development. About two thirds of all incubators receive government or donor support, most of them offer workspaces

and courses, but less than half of them provide true business incubation or acceleration programs. The largest incubators are DTBi, Buni Hub, Kili Hub, Anza Hub and Twende (HDIF, 2017).

### II. External evaluation of the general ecosystem for incubators

In the following paragraphs the previously established external evaluation matrix is applied to Tanzania.

**Market.** In 2013, the real annualized growth in sales was -21.9%, significantly below the Sub-Saharan Africa average of 2.2%. Percentage of annual employment growth was 10.4% and therefore above the Sub-Saharan Africa average of 7.1%. Annual labor productivity growth was -27.4%, again significantly below the Sub-Saharan Africa average of -3.8%. Capacity utilization was 80.8% and therefore above the 69.9% Sub-Saharan Africa average. Trade as a percent of GDP was 42% in 2016, compared to the 60% Sub-Saharan Africa average. In the Logistics Performance Index, Tanzania ranks much better than both, other low-income countries and other Sub-Saharan Africa countries.

Macro. Political stability in Tanzania is quite strong, situated above the Sub-Saharan Africa average and regional peers (Kenya, Rwanda and Uganda). Governance effectiveness and regulatory quality is within the Sub-Saharan Africa average, but below regional peers. The rule of law is stronger than the Sub-Saharan Africa average. With an 18%, corporate tax rate, the country is slightly above the Sub-Saharan Africa average and similar to regional peers. The Ease of Doing Business Index strongly highlights contract enforcement in Tanzania, which ranks 3<sup>rd</sup> out of 48 countries in Sub-Saharan Africa. Furthermore, resolving insolvency is rather uncomplicated compared to other Sub-Saharan Africa countries, whereas starting a business is rather bureaucratic. The latter issue was also named as a major constraint of the ecosystem in many interviews. Furthermore, 80.4% of Tanzanian firms pay for security, compared to only 61.2% in Sub-Saharan Africa. 21.1% of firms see crime as a major constraint, which is slightly below the Sub-Saharan Africa average of 22.6%. In the country, Informality is mentioned as a constraint by companies more often than in Sub-Saharan Africa, reaching 45% and 39.6% respectively. Bribery depth is 15.7%, which is lower than the Sub-Saharan Africa average of 18.3%. Finally, Tanzania ranks 100<sup>th</sup> in the Corruption Perception index, which lies in the upper middle of all Sub-Saharan Africa countries.

**Infrastructure.** The Global Competitiveness Index ranks Tanzania 116<sup>th</sup> out of 138 countries, which illustrates that infrastructure is still a major constraint to the economy. The regular occurrence of water insufficiencies was mentioned by 30.5% (24% in Sub-Saharan Africa) of surveyed companies. Electricity access is seen by 45.8% as a major constraint (40% in Sub-Saharan Africa). The daily fee for a co-working space in Kili Hub amounts to 5,000 TZS (2.19 CHF). Strongly improving, smartphone penetration currently stays at 72% of the total population. However, rural areas still behind in that aspect.

**Startup scene.** The number of existing incubators amounts to roughly 30 in all of Tanzania. That being said, it has to be stressed that the number of incubators increased in recent years. In parallel, more and more events and workshops are being organized in different parts of the country. For instance, the AfriLabs Annual Gathering 2018 is taking place in October 2018 in Dar es Salaam (development cooperation worker, Tanzania, 2018).

**Finance.** 25.8% of Tanzanian businesses are self-financed, compared to 37.4% in Sub-Saharan Africa. Funding as a constraint is mentioned by 43.9% compared to 38.3% in Sub-Saharan Africa. This constraint was also raised multiple times in the conducted interviews. On the positive side, only 2.8% of the surveyed stated that their last loan was rejected, which is significantly better than the 15.3% average in Sub-Saharan Africa. Having seen a steady increase since 2000, but declining substantially since 2013, FDI inflows amount to 1.4 billion USD in 2016.

**Human capital.** Uneducated workforce as a constraint is mentioned by 40.8% of surveyed Tanzanian firms, compared to 19.4% in Sub-Saharan Africa. Skilled workers are present in 84.6% of the cases, which is almost 10% above the Sub-Saharan Africa ratio. There are about 30 universities, which are spread out relatively evenly throughout the country. Only 4% of the population has received tertiary education. This is a really low value, even within the low-income reference group. Research and development expenditures are at 0.53% of GDP, slightly above the Sub-Saharan Africa average. With 34.2% of the firms mentioning labor regulation as a constraint, this ratio almost twice the 17.9% average in Sub-Saharan Africa. Female participation in the whole workforce lies at 49%, thus being slightly above the Sub-Saharan Africa rate of 47%.

This illustrates that there are still many external obstacles to operating an incubator in Tanzania. These pertain mainly to general market dynamics and infrastructure constraints. Nevertheless, current developments in the startup scene and the general stability of the country point to a promising way forward.

### III. Case study: Agricultural incubator

As the concept of an incubator is very broad, a more in-depth analysis of an agricultural incubator is conducted. Poverty in Tanzania is a very rural phenomenon (development cooperation worker, 2018). The population of smallholders in Tanzania amounts to 19.2 million people working on 3.7 million smallholdings. The average farm size is 0.9 hectare and the average income per day is 1.9 international \$ (Rapsomanikis, 2015). The goal of the agricultural incubator is to transform these smallholdings into market-oriented SMEs by focusing on basic agricultural innovations for standardized value chains and business knowledge consultancy. Potential entrepreneurs are selected based on their motivation and existing market knowledge. They then receive coaching by experienced experts and training on implementing their new business model. This incubation program lasts about nine months, but the full transformation into a market-oriented SME might take up to two years. Before installing an incubator, there has to be an assessment of the current market surroundings, the contact with experts and the design of an incubation program. For this one-year assessment period, 50,000 CHF are calculated. After this phase, one incubator can provide coaching programs to 20 smallholdings, with coaching costs of 2,500 CHF over nine months per startup, which also includes continuing operating costs of the incubator. Over the course of four years, 4 million CHF can be used for the creation of 15 incubators at different locations, all running four nine-months incubation cycles. 250,000 CHF are allocated to external consultancy to support the process and legal costs. Overall this would provide incubation to 1,200 smallholdings. Based on the average of 5 workers per smallholding, this would benefit 6,000 workers and their families (incubator affiliate, Tanzania, 2018).

### IV. Internal evaluation of the potential of the agricultural incubator

In the following section the internal potential of the agricultural incubator shall be evaluated based on three overarching impact dimensions:

**Impact 1: Impact on smallholders.** The agricultural incubators would provide support to 6,000 workers in 1,200 smallholdings. The transformation of smallholdings into marketoriented SMEs ensures not only higher profitability, but also productive and stable employment opportunities. Similar projects have shown that a mid-term increase in profitability between 20% and 50% can be expected (The World Bank Group, 2016). This directly increases the income of smallholders and raises their standard of living, but long-term increases in income only follow the structural transformation of businesses. In addition, an entrepreneurial mindset, business hard skills and networking capabilities constitute a very sustainable form of training. The number of people reached relative to the financial investment (4 million CHF) is 0.4 and the intensity and sustainability of impact is 40.

**Impact 2: Impact on the general ecosystem.** Training entrepreneurs and improving businesses has implications for the general economic ecosystems as this leads to a better utilization of existing markets and to the creation of new markets in rural areas. Assuming continuous progress in external factors, these improvements of the economic conditions of smallholders provide the basis for a fundamental bottom-up transformation towards more agro-processing in Tanzania. The number of people reached relative to the financial investment (4 million CHF) is 0.2 and the intensity and sustainability of impact is 16.

**Impact 3: Incubators as a development approach.** The agricultural incubator needs a substantial up-front investment and requires a prototyping phase to discover potential obstacles. However, the impact on participants is very strong and sustainable, because the coaching is tailored and professional. This approach directly tackles poverty in Tanzania. Over the four-year time period, costs per person trained amount to 667 CHF. As mentioned earlier, self-financing remains quite a challenge, especially in the beginning, as smallholders could only contribute a tiny fraction of their additional profits to the incubator and scaling potential is limited. The number of people reached relative to the financial investment (4 million CHF) is 0.2 and the intensity and sustainability of impact is 100.

### V. Risk analysis and mitigation recommendation for the agricultural incubator

## **Risk 1: Difficulties in establishing incubator structure and viable business models in rural areas**

Particularly in the beginning, connecting with the right partners and providing business model templates with a good product-market fit might delay the process as this depends on many external factors. The probability of this risk to actually occur is estimated to be 40% and the severity of the impact is 16. This risk can be mitigated by intense collaboration with existing actors in this sector like the Tanzanian Local Enterprise Development, the Small Industries Development Organization or the World Bank Group.

### Risk 2: Lack of capital to further invest in advanced agricultural technology

This agricultural incubation project is just a first step in a bigger process of economic development in Tanzania. To ensure long-term growth and increasing profitability, the agricultural sector has to integrate more agro-processing to keep added value in the country instead of focusing on exporting unprocessed agricultural products. The probability of this risk to actually occur is estimated to be 20% and the severity of the impact is 40. This risk can be mitigated by establishing better microfinance supply in rural areas and strong networks to technology incubators in urban areas to spread agricultural innovations throughout the country. Recently the new Tanzanian Angel Investor Network has constituted, which can also help to mitigate this risk (development cooperation worker, Tanzania, 2018).

## Risk 3: Participants can not sustain the business operations after the incubation program

Without continuous support of expert coaches, farmers cannot continue the operations after the incubation program and return to their original subsistence production. The probability of this risk to actually occur is estimated to be 10% and the severity of the impact is 100. This risk can be mitigated by installing after-care services (post-incubation care), which ensure further support to the businesses.



### VI. Mapping of potential and risk

Figure 8: Impact and risk visualization in Tanzania

It can be concluded that the potential impact is quite high, but the number of people reached is rather limited. Potential risks are not very likely to occur but would have severe consequences for the agricultural incubator.

### 6.3. Zambia

### I. Incubators in Zambia

Based on the conducted interviews, currently nine incubators are operating in Zambia. Similar to Tanzania, this is number might increase in the near future. Those incubators can be separated into four groups based on the previously presented classification framework: three basic co-working spaces (Beta Space, SandBox, Impact Hub opening soon), two agnostic incubators (BongoHive, Growth Africa, two incubators targeting female entrepreneurs (Wecreate, Jacaranda Hub) and two incubators focusing on agricultural (AgBit) and virtual businesses (GritCube) respectively. Most of them receive external funding from public or private donors (incubator affiliate, Zambia, 2018).

### II. External evaluation of the general ecosystem for incubators

In the following paragraphs the previously established external evaluation matrix is applied to Zambia.

**Market.** In 2013, the real annualized growth in sales was 8.5%, whereas the Sub-Saharan Africa average is 2.2%. Percentage of annual employment growth was 1.5%, therefore lower than the Sub-Saharan Africa average of 6.9%. Annual labor productivity growth was 7.5%, which is higher than the Sub-Saharan Africa average of -3.8%. Capacity utilization is 67.4% and therefore below the 69.9% Sub-Saharan Africa average. At 75% in 2016, trade as a percent of GDP was considerably higher than the 60% average in Sub-Saharan Africa. In the Logistics Performance Index, Zambia ranks 100<sup>th</sup>, which is a slightly lower than other Sub-Saharan Africa countries.

**Macro.** Political stability in Zambia is quite high, significantly above the Sub-Saharan Africa average and regional peers such as Malawi, Mozambique and Zimbabwe. Governance effectiveness and regulatory quality lies within Sub-Saharan Africa and regional averages. The rule of law is slightly above the Sub-Saharan Africa average. At 16%, the corporate tax rate reflects the Sub-Saharan Africa and regional average. The Ease of Doing Business Index indicates that contract enforcement in Zambia lies within the Sub-Saharan Africa average (22<sup>nd</sup> out of 48). Compared to other Sub-Saharan Africa countries, resolving insolvency in Zambia is very uncomplicated (9<sup>th</sup> out of 48) and starting a business is slightly easier (15<sup>th</sup> out of 48). Furthermore, 60.2% of Zambian firms pay for security, similar to 61.2% in Sub-

Saharan Africa. 10.5% of firms see crime as a major constraint, which is slightly below the Sub-Saharan Africa average of 22.6%. Informality as a constraint is mentioned more often in Zambia than in Sub-Saharan Africa, reaching 48.5% and 39.6% respectively. Clearly below the Sub-Saharan Africa average of 18.3%, bribery depth lies at 9.7%. Zambia ranks 96<sup>th</sup> in the Corruption Perception index, which is in the upper middle of all Sub-Saharan Africa countries.

**Infrastructure.** The Global Competitiveness Index ranks Tanzania 118<sup>th</sup> out of 138 countries, which illustrates that infrastructure is still a major constraint to the economy. Regular occurrences of water insufficiencies were mentioned by 27.9% of responding firms (24% in Sub-Saharan Africa) whilst electricity access is seen as a major constraint by 27.1% (40% in Sub-Saharan Africa). Smartphone penetration currently lies at 81% of the total population, which points at a strong improvement. As in Tanzania, rural areas still lack behind in this aspect.

**Startup scene.** The incubator and startup scene in Zambia has grown strongly in recent years, with the organization of numerous events and programs. However, most of the activities are still concentrated in Lusaka (Development Cooperation worker, Zambia, 2018).

**Finance.** 44.7% of Tanzanian businesses are self-financed, compared to 37.4% in Sub-Saharan Africa. Funding as a constraint is mentioned by 27.4% compared to 38.3% in Sub-Saharan Africa. Compared to 15.3% in Sub-Saharan Africa, a much larger number (34.1%) of respondents stated that their last loan was rejected. Having experienced a steady increase since 2000, but declining substantially since 2013, FDI inflows amounted to 0.66 billion USD in 2016.

**Human Capital.** 12.1% of Zambian firms mentioned an uneducated workforce as a constraint, compared to 19.4% in Sub-Saharan Africa. Skilled workers are present in 71.3% of the cases, which is lower than 75% in Sub-Saharan Africa. There are about 40 universities, which are spread out relatively evenly throughout the country. At 0.3% of GDP, research and development expenditures lie within the Sub-Saharan Africa average. 9.4% of the firms mentioned labor regulation as a constraint, compared to 17.9% in Sub-Saharan Africa.

This illustrates that there are still some external obstacles to operating an incubator in Zambia, mainly related to infrastructure constraints and the limited market size. Nevertheless, recent developments nourish hope for a fruitful environment for incubators.

### III. Case study: General incubator

As the concept of business incubation is relatively new in Zambia, the approach of a general business incubator will be evaluated here. A classical Lusaka-based incubator facilitates starting and scaling up businesses. This concept is open to all economic sectors without specific target groups. This incubator offers two main incubation programs, one for earlystage business model development and one for scaling and accelerating existing business concepts. This approach intends to promote entrepreneurship and innovation. In a later stage, further investments in these businesses should support sustainable growth. Potential participants are selected based on their ambition and dedication to their ideas. This incubator acts as the platform to provide general business as well as sector-specific coaching and connections to potential business partners and investors (incubator affiliate, Zambia, 2018). An initial one-year planning period is needed to write a sophisticated business plan, recruit qualified staff and establish a network and requires 50,000 CHF. In addition, the annual operation costs of this incubator with ten full-time employees and coaches amounts to roughly 100,000 CHF. This includes incubation for 30 early-stage startups and 60 existing business concepts. On average, incubation to early-stage startups creates jobs for two founders immediately, whereas accelerating existing business concepts create an average of five jobs after one year. 4 million CHF can be used to set up ten of these incubators with a one year planning period and three additional regular incubation cycles. In total, this creates 90 new startups (180 jobs) and accelerates 180 existing concepts (900 jobs), hypothetically resulting in 1,080 jobs. Based on an estimated survival rate of 30% for early stage startups and 60% for existing business concepts, the outcome has to be adapted to 27 new startups (54 jobs) and 108 existing concepts (540 jobs), which, in sum, amount to the creation of 594 jobs. In addition, 100 people are employed in the incubators, resulting in 694 created jobs.

### IV. Internal evaluation of the potential of the general incubator

In the following section the internal potential of the general incubator shall be evaluated based on three overarching impact dimensions:

**Impact 1: Impact on entrepreneurs.** Entrepreneurship is an innovative and risky experience. On the one hand, this implies that 135 businesses survive and continue to grow

and employ more people in the long run, as four years are not an adequate time frame to evaluate a startup. On the other hand, trained people who failed with their startup are not a lost investment, because the likelihood of being successful with another startup is quite high and the entrepreneurial mentality as well as the innovative spirit are a crucial qualification for whatever job a person takes up next. The number of people reached relative to the financial investment (4 million CHF) is 0.4 and the intensity and sustainability of impact is 100.

**Impact 2: Impact on the general ecosystem.** The general incubator establishes a truly innovative and open ecosystem. Furthermore, created businesses in different sectors will initiate new business opportunities for third parties. The inclusive and bottom-up facilitation of entrepreneurial activities reflects real empowerment (incubator affiliate, Zambia, 2018). Besides incubation programs to participants, the incubator offers services and workshops to external individuals on a regular basis. The number of people reached relative to the financial investment (4 million CHF) is 0.6 and the intensity and sustainability of impact is 40.

**Impact 3: Incubators as a development approach.** The general incubator needs a substantial up-front investment and a certain period of time until first results can be observed. However, once it is ready to function properly and networks are installed, the impact will be fruitful and long lasting. Over this four-year period, the average costs per created job amount to 5.764 CHF. Participants are expected to contribute a part of their profits back to the incubator after the first years of operation and employees can also sell consultancy to external third parties to ensure (partial) self-sustainment after some years. The number of people reached relative to the financial investment (4 million CHF) is 0.2 and the intensity and sustainability of impact is 100.

### V. Risk analysis and mitigation recommendation for the general incubator

### Risk 1: The survival rate will be much lower than expected

Entrepreneurship is a risky endeavor and external shocks like financial crises can easily wipe away sources of funding and ruin new businesses. The younger the business, the more it is vulnerable to external factors. The probability of this risk to actually occur is estimated to be 10% and the severity of the impact is 40. This risk can be mitigated by integrating insurance mechanisms into the incubator or establishing startups in collaboration with existing firms to create industry clusters and shared risks.

### Risk 2: Lack of capital substantially limits growth process

Lack of finance is definitely the biggest and most likely constraint to every young business. However, recent improvements indicate that higher amounts and different sorts of funding will be available (incubator affiliate, Zambia, 2018). The probability of this risk to actually occur is estimated to be 20% and the severity of the impact is 40. Strengthening networks of public and private investors, better communication of startups' potential as well as pooling different diversified startups into a fund might attract more funding.

### Risk 3: Limited market opportunities and infrastructure as a barrier

A population of 14.5 million people does not constitute a huge internal market and the lack of infrastructure and technology, especially in rural areas, can hinder successful business expansion. The probability of this risk to actually occur is estimated to be 20% and the severity of the impact is 16. Better connection and stronger integration of Zambia, Malawi and Zimbabwe can enable better market access.



### VI. Mapping of potential and risk

Figure 9: Impact and risk visualization in Zambia

It can be concluded that the potential impact is quite high, but the number of people reached is relatively limited. Potential risks are not very likely to occur but would have rather high consequences for the general incubator. This general incubator model can also serve as a reference project for other SENAP countries.

### 6.4. **OPT**

### I. Incubators in the OPT

According to the conducted interviews, the OPT currently has nine incubators, focusing on technology (PICTI) on agriculture (Agribusiness Accelerator) and some general incubation and acceleration programs (Arabreneur, Fastforward, Palestine Startup Cup, Mashro3i, PalinnO, MENA-X, and Gaza Sky Geeks). Additionally, there are six centers of excellence which partially work in incubation (inter alia Rawabi and Business and Technology Incubator of the Islamic University). Most of the programs are highly dependent on donors (mainly government donations).

### II. External evaluation of the general ecosystem for incubators

In the following paragraphs the previously established external evaluation matrix is applied to the OPT.

Market. Because of the conflict between Israel and Palestine flaring up, the GDP growth dropped from 4.1% in 2016 to 3% in 2017 and is forecast to stay at about that level for the foreseeable future. Compared to the region at large, the 3% GDP growth is rather good. A similar situation can be observed in the real annualized sales which grew by 1.6% in the OPT while they shrank by 6% in the MENA region. Furthermore the OPT is projected to grow by almost 1% more than Lebanon. The annual employment growth (7.6%) is driven by existing companies and is above average for the LMI group. However, when set in contrast to the annual labor productivity growth (-4.9%), things need to be considered with caution. The OPT is highly import dependent, with three quarters of companies reliant on material input and/or supplies of foreign origin. At the same time 28.5% of firms are exporter firms, which is higher than the MENA average of 23.9%. In the area of logistics, the losses due to theft (1.8%), and breakage and spoilage (4.2%) during the export process are all above average compared to the MENA (theft: 0.5%, breakage/spoilage: 1.4%). The OPT is producing at 62.1% of the possible output feasible with current resources, which is below the MENA average of 64.7%. Overall the dependence on Israel as a source of imports, export market and control entity of commerce poses a problematic dependency relationship.

**Macro.** In 2013, political instability was the main obstacle identified by business of all sizes in the Enterprise Survey and very similar findings are presented by the World Governance

Indicator data (2016). Therefore, it is appropriate to assume that the political stability is the major issue impeding commerce. The OPT are ranked 128<sup>th</sup> in the Ease of Doing Business Index, leading Lebanon (133<sup>rd</sup> rank) but behind the likes of Jordan (103<sup>rd</sup> rank:) or Tunisia (88<sup>th</sup> rank). This rank is composed of contract enforcement (124<sup>th</sup> rank), resolving insolvency (168<sup>th</sup> rank) and ease of starting a business (169<sup>th</sup> rank) among many other factors. In the area of crime, the OPT are slightly above average with 1.9% of sales being lost due to robbery and similar crimes compared to a MENA average of 0.7%. The informality constraint is measured with 80.8% of firms formally registered. The Graft Index, which shows the level of bribery, is at 7.1 which is slightly better than Lebanon which scores a 11.1.

**Infrastructure.** Electricity access in the OPT is a challenge, but with 8.7 outages per month, it is much below the MENA average of 23.5. Surprisingly however, the percentage of sales lost (6.4%) due to power outage is higher than the MENA average (6.1%). The smartphone penetration, at 57%, is higher than in Lebanon (52%) and Jordan (51%).

**Startup scene.** From the interviews it can be concluded that there is a small but steadily growing startup scene in the OPT, which is mostly centred around the university ecosystem. It was mentioned that continuous donor dependence made it hard for some incubators to create long term plans (property rental) and a substantial capacity goes into fundraising instead of the incubator's core activities.

**Finance.** It appears that already established firms have difficulty gaining access to finance. This can be seen in the low percentage of bank finance for investment (6%) in the OPT compared to 10% in the MENA region. Therefore, 53.3% of companies view funding as a major constraint. Many startup finance options appear to be non-existent, which was confirmed by an interviewed development cooperation worker (OPT, 2018) conducting research in this particular area.

**Human capital.** Because, Palestinians generally have a good basic education and many speak English, it appears that those with the opportunity to pursue work abroad will do so and thus the country is suffering from brain drain. Even though the expected years of schooling are 12.8, only 52.6% of workers are considered skilled workers. In terms of gender equality Palestine still has room for improvement. Only 5.6% of full time employees are female, which is significantly lower than the MENA average of 12.4%.

From all this data it can be concluded that the political instability, some infrastructure issues and a lacking financial sector for incubators definitely hinders the flourishing of incubators. Some of the positive factors such as good education, an up and coming startup scene and the presence of international organizations (as finance partners) show that many of the base ingredients for startup creation are available.

### III. Case study: Technology incubator

The case study is modelled after a technology incubator with close ties to a university. The focus is set on technology entrepreneurship aiming at technology diffusion into other economic sectors. Because of the proximity to the university the target group of the incubator is recent graduates, freelancers and other professionals. Having a team with a feasible idea and a market driven approach is a prerequisite for participation. The incubator strives to establishing partnerships and vesting agreements for further investment in the postincubation period. Besides this core activity, the incubator offers co-working spaces for rent and conducts entrepreneurship event. The whole incubator has a total annual overhead cost of 20,000 CHF. For every startup incubated another 31,500 CHF is necessary, whereas one half of this amount goes into coordination, coaching, and mentoring and the other half is seed investment as a grant to startups. The incubator can host 15 startups per year. That results in annual costs of 492,500. The incubator has a survival rate of 60%, thus 9 out of the 15 startups survive and create seven jobs on average, or a total of 63 jobs per year. Assuming a standard budget of 4 million over four years, this would allow to support two incubators, which create a total of 504 jobs. The costs per job created amount to 7,937 CHF. The remaining money is spent on external consultancy and legal fees.

### IV. Internal evaluation of the potential of the technology incubator

In the following section the internal potential of the general incubator shall be evaluated based on three overarching impact dimensions:

**Impact 1: Impact on entrepreneurs.** The incubation program produces a high impact on the individual entrepreneur, but because the program is relatively intense and expensive, the reach of a tech incubator is limited. The number of people reached relative to the financial investment (4 million CHF) is 0.2 and the intensity and sustainability of impact is 40.

**Impact 2: Impact on the general ecosystem.** Supporting the setup of two incubators would help the general ecosystem gain a bit of traction. However, there are larger problems such as financing that would need to be examined in order to create a larger impact. The number of

people reached relative to the financial investment (4 million CHF) is 0.4 and the intensity and sustainability of impact is 40.

**Impact 3: Incubators as a development approach.** As the case study is centred around the university environment it would not target youth and poverty in particular. Financial sustainability is a challenge for (expensive) technology incubators in particular, but the costs could be cut by half if an external investor of the initial seed investment would be found. The number of people reached relative to the financial investment (4 million CHF) is 0.2 and the intensity and sustainability of impact is 16.

### V. Risk analysis and mitigation recommendation for the general incubator

### Risk 1: Change of dual use list to include many goods for tech innovation

The existing ICT incubators in the ecosystem of the local Universities struggle with an everchanging, sometimes arbitrarily assigned, list of dual use goods. Therefore, startups face the reality that their product might become illegal overnight and exporting becomes impossible. Because the OPT is a small market, the startups are cut off from their main market and it becomes impossible for them to survive. The probability of this risk to actually occur is estimated to be 60% and the severity of the impact is 40. In order to mitigate this specific risk, the most common suggestion resulting from the conducted interviews is to engage in lobbying efforts with the Israeli government. This is a very costly solution and might not be doable for a single incubator by itself and might be more realistic to approach via an industry interest group.

#### Risk 2: No business model can be found to make the incubator financially self-sufficient

To become financially self-sufficient as an incubator is already hard in markets with a stable environment and might also require a blended finance approach. Under more tumultuous circumstances this feat will be even more challenging to accomplish and threaten the longevity of the incubator. Donor dependency is an issue that needs to be tackled already in the planning phase of a potential incubator. If this is not taken into consideration, the incubator will vanish as soon as the donor shifts priorities and funding is no longer available. The probability of this risk to actually occur is estimated to be 40% and the severity of the impact is 16. Mitigating this risk might be difficult to achieve as many incubator organizations all over the world still struggle to find a solution. However, closer ties to the private sector and industry support has worked for several organizations.

## Risk 3: There is little investment available for startups. Little is made available by the private sector and international organizations are not willing/able to step in.

While there are few opportunities available to find seed financing in the OPT, there appear to be almost no options available to get access to risk capital. Once the company is established and can present the cashflow, balance sheet and assets accumulated from the previous years in business, growth capital appears to be available. In order for startups to cross the valley of death, risk capital is necessary. The state has neither the resources nor the will to do so and international organizations do not view this as their function. Thus, if risk capital is not provided by the private sector, there is nobody left to do it. The probability of this risk to actually occur is estimated to be 60% and the severity of the impact is 40. Development agencies should collaborate with the OPT's private sector to leverage more financing in early startups.



### VI. Mapping of potential and risk

Figure 10: Impact and risk visualization in the OPT

It can be concluded that the potential impact is medium to high, and the number of people reached is rather limited. Potential risks are quite likely to occur and would have severe consequences for the incubator.

### 7. Qualitative potential of incubators as a tool for employment and income

After the in-depth analysis of the focus countries with specific incubator cases, this section intends to provide a broader overview of the opinions expressed in the conducted interviews regarding the potential of incubators. This complements the integrated evaluation of incubators. First, a deeper insight into why incubators can play an important role in development work is brought forth. Second, potential obstacles when working with or implementing incubators are discussed. Finally, recommendations for a successful collaboration between the SDC and incubators are presented.

### Why should incubators play an important tool in development work?

"Real Empowerment is the biggest benefit of incubator programs – the support structures make you feel like you are a business woman, even though you are just a student with an idea" - Entrepreneur, Uganda

The impact of incubators goes far beyond the immediate number of startups founded and jobs created. In fact, many of the interview partners voiced similar opinions about an observed chasm between the KPI that need to be measured and reported and the real impact that is observed. This issue delves deep into the problem of defining what development is and how to best measure impact. The statement points towards a real impact that is very hard to measure but much more profound than the jobs created. The reason being that the ability to create a startup and scale it creates optimism and self confidence beyond the plain business activities. An entrepreneurial mindset can be a powerful answer to youth unemployment and lack of perspectives.

"The single most important tool an incubator can provide startups with is agency"-Incubator affiliate, Rwanda

During the incubation process entrepreneurs learn how to navigate in the business ecosystem, regulation and networks. Having to handle the process of establishing a company and being supported by competent coaches and mentors enables founders to achieve new heights of understanding how the system they live in functions and how to enact it.

"Working together for us implies getting creative, enjoying an open space, letting everyone make "bigger" decisions, so people feel that they are free and able to do things." - Incubator affiliate, Tanzania

Taking over the responsibility of every aspect for a new startup can be a daunting task but those who manage to work through the process become real entrepreneurs. Measuring creativity and innovation is difficult, but everyone participating in an incubation program once knows the feeling of true empowerment and the drive related to it.

"Incubators should play an important role in development cooperation because it assigns a lot of responsibility to the local population" - Development cooperation worker, Tanzania

Development Cooperation is a bit of a balancing act between doing too little and doing too much. Many projects have good intentions but the strong role of external actors reinforces dependent structures. To be successful, incubators have to be established and run by local people and the open design enables local entrepreneurs to shape the whole concept.

"Incubators can contribute to the local entrepreneurial ecosystem. They have the capacity to foster disruptive innovation, which has a great effect on the whole region. "- Development cooperation worker, Zambia

Disruptive innovation has the potential to change entire regions or industries. Mpesa in Kenya has shown what far-reaching consequences innovative business ideas can have. Incubators can create tremendous impact, because they foster bottom up solutions from the local communities.

### What are critical factors or potential obstacles for incubators?

"It is a priori not possible to sit in Switzerland and decide that we can come up with a solution that will work specifically in Tanzania ... dialogue is the key to find solutions." - Swiss-Nigerian Entrepreneur

Integrating local interest groups into development cooperation is an obvious fact, but it cannot be stressed enough that this interaction be started as early as possible, meaning during the evaluation of potential project ideas or the implementation planning at the latest. In more general terms, it is about splitting up the separation between "us" and "them" to find the right partners to have a successful project.

"The key issue is trust: We demand change in behaviour and for incubators this is only possible on the basis of trust." - Head of a Swiss-Ethiopian NGO & Professor at the University of St. Gallen

The challenge with trust is twofold: first, the SDC has to establish trusting and sustainable relationships with local partners to implement an incubator project, and second, the SDC has to facilitate the process of network formation around an incubator in the beginning.

"It is very complicated to start a new business in Tanzania because all steps are lengthy and complicated." - Development cooperation worker, Tanzania

The reality of starting a business and registering it can be cumbersome. There is the danger that startups will not register with the authorities because the process would take up much of the founders' time and resources. This emphasizes two critical point: the high relevance of the external environment an incubator operates in, and that incubators will not produce quick successes.

"Many hubs receive some seed capital, but fail to become self-sustaining afterwards." -Development cooperation worker, Tanzania

Financing an incubator in the long-run definitely remains a challenge, but there are potential ways of creating a business model for the incubator itself. The stronger the network around an incubator the more diverse potential sources of funding. This illustrates that it will be a simpler world for a technology incubator in a bigger city than for an agro incubator in a rural area.

"I am a little afraid that in the Tunisian context social entrepreneurship structures might be an elegant way to be able to continue business as usual without bringing about the necessary labour market reforms." - Development cooperation worker, Tunisia

Monitoring and evaluating will be a crucial and continuous process for an incubator. It has to be ensured that incubation indeed creates sustainable job opportunities. Incubators can create perspective for their participants, but they cannot compensate for structural economic imbalances in the short run.

"It is absolutely vital to be able to close the cycle of support for startup companies. More support is needed beyond the seed funding phase." - Development cooperation worker, Egypt

For startups to become successful, incubators need to provide support along the whole startup cycle. The most critical point in this regard is access to finance. Besides direct capital supply, it is of help to establish an ecosystem of alumnus that re-invest some of their money into new startups. Next to funding, post-incubation services are necessary to ensure sustainability.

### What is recommended to the SDC for successful collaboration with incubators?

"The SDC could run a Mini-MBA through a technology platform and educate several thousand potential entrepreneurs with relative ease. In combination with some mentoring this could be a model that makes sense." - Impact investor in Africa

The challenge of low levels of business education could be tackled by an online Mini-MBA, which the SDC provides to incubators. This could increase the leverage effect of the incubator programs and enable them to focus on their core competence, which is helping people build businesses and not teaching basic accounting.

"How entrepreneurial a specific culture is, especially the culture of failure and how this is regarded within a society needs to be a core aspect of an involvement with an incubator"-Incubator affiliate, Zambia The analysis of the favorability of the external ecosystem for an incubator is just a starting point. An in-depth feasibility study has to go more into details, by considering cultural, social and historical conditions in a certain country as well.

"There is a huge demand for incubation in Northern Africa. The role of experienced development services should be to ensure quality of services provided" - Incubator affiliate, Northern Africa

The incubator landscape in the whole SENAP region is flourishing and continuously growing, which implies that there is still a lot of experimentation in search of recipes of success. Experience and expertise of the SDC in that process can be of help, but this process most likely will not be a linear one.

"You need a big network with lots of experts, but we established a mentoring system with volunteering experts, that brings down costs." - Incubator affiliate, Zambia

This quote emphasizes that incubator have to be seen as a business in two ways: they need some stable cash inflows to finance their operations, but their strategy and actions can always be adjusted to given circumstances, taking into account all relevant stakeholder.

"There are a lot of people who do not have the heartfelt wish of becoming entrepreneurs, especially from poorer backgrounds. Startups can only flourish when its founders have an entrepreneurial mindset." - Development cooperation worker, Tunisia

Entrepreneurship is not for everyone, it is risky, unstable, and hard work. Nevertheless, no one is born an entrepreneur and most competencies can be learned. That being said, a team has to bring some core skills such as know-how in their field of operation or general openness towards people and ideas. For the SDC this implies that sophisticated selection processes have to be installed.

"When it comes to incubation, the SDC could be most helpful in supporting the involvement of Swiss expertise during the coaching phase." - Development cooperation worker, Egypt Besides supporting incubators directly, the SDC could also foster private sector collaborations between Swiss companies and incubators in the SENAP region for knowledge exchange, risk sharing and new market opportunities.

### 8. Three potential scenarios and alternatives

The analysis of business incubators at large and in the SENAP region, their quantitative and qualitative potential as well as the insight gained through the profiles of the paper's four focus countries, allow for the elaboration of three distinct options for the SDC on how to approach and best use incubators as a tool for development cooperation.

### **Option 1: Setting up incubators autonomously**

This option has the advantage of providing the SDC with a high degree of freedom of conception and control. Every step of the incubation process, the desired level of support as well as elements of the operating costs can be customized to fit the ideal set up for the SDC. Targeted groups and results can be determined most precisely. However, this option holds a high degree of complexity and requires significant investments throughout the process of setting up incubators and operating them. Complexity is also linked to the specifics of a given national environment. Navigating local particularities in terms of market properties, business practices, interaction with authorities and the legal framework requires the inclusion of seasoned incubation and business experts. Naturally, setting up incubators autonomously implies a long-term process and commitment, which should exceed a single program length of four years. In relation to employment and income, estimates suggest that an investment of 4 million CHF over four years can - depending on the target group - bring about between 504 and 1.200 jobs thanks to option 1 (referring to the cases in OPT, Zambia and Tunisia). Cost per job created amount to 3,333 CHF.

### **Option 2: Creation of a fund to finance startups in existing incubators**

The option of setting up a fund corresponds to a large lever for economic promotion and scaling. The SDC could collaborate with bigger incubator networks (like AfriLabs) and supply funding to selected startups. Given that access to finance is one of the biggest constraints to young companies, the 4 million CHF could be paid into an incubation fund that provides funding to startups in two variants: early stage investments of 10.000 - 20.000 CHF in ambitious teams with good ideas and later stage investments of 50.000 - 250.000 CHF in

valid startups with a proof of concept and existing customer base. This would highly accelerate the growth process and allow companies to grow bigger than the usual size of five to ten employees after four years, but it is still a risky endeavor especially for the early stage investments. Furthermore, end target groups for the alleviation of poverty are not reached directly. The early stage investments would allow more startups to reach the later stage, but only the later stage investment will enable companies to employ 20 people after four years. Hypothetically, realizing 150,000 CHF in 30 later stage startups with a survival rate of 50% this would result in 300 jobs after four years with the potential to continue growing in the time thereafter. Cost per job created amount to 13,333 CHF.

### **Option 3: Support existing incubators with coaching and expertise**

This option allows to make use of existing infrastructure, experience and local expertise. Contrary to option 2, target groups can be determined much more clearly by choosing the most suitable partners among the range of incubator types and by defining adequate terms of collaboration with them. The complexity with regard to the national environment, can be addressed more aptly, thanks to pre-existing staff and certain experts who best know how to operate in the local market, business, administrative and legal framework. This option allows to complement existing incubators in a meaningful manner, for example by providing funding or expertise specifically in the coaching process for startups. An idea would be to setup a structured business training with Swiss experts (Mini-MBA). Similar to option 1, this is a long-term process which should be looked at as a program that exceeds a single cycle of four years. Applying an investment of 4 million CHF as for the previous options, option 3 can yield an improvement of the jobs of 8,000 people (Tanzania case without overhead). Cost per job improved amount to 500 CHF.

### **Alternative projects**

In order to better contextualize the attractiveness of investments into incubators, we have selected a reference project pertaining to employment and income for the focus countries Tunisia, Tanzania, and the OPT. Instead of investing in an incubator, one could invest in a comparable follow-up project.

**Tunisia.** The I-SEMER project, which ended in March 2018, had the goal of creating 10,000 jobs for young people in four Tunisian governorates in need over a period of four years. Developed in cooperation with Tunisian partners, Swiss disbursement to date has been CHF 7'835'735. The project has exceeded its aim, by creating nearly 15,000 jobs in a various

sectors, which include catering, tourism, IT services and handicrafts (SDC, 2018). Cost per job created amount to 522 CHF.

**Tanzania.** Since July 2015, SDC contributes to the existing OYE project (OYE) implemented by SNV. For its part, SDC aims to create "employment opportunities in agribusiness, renewable energy, sanitation and hygiene and to improve vocational skills delivery and access to employment" for 6'550 young individuals in the country's Central Corridor, the overall project target for Tunisia being 18'000 youth. A total amount of CHF 4'750'000 is expected to be spent until the end of September 2018 (SDC, 2018). Cost per person trained amount to 264 CHF.

**OPT.** The Improved Access to Markets for Female and Male Fresh Fruits and Vegetable (FFV) Small Scale Producers program, which started in December 2017 is focused on a "private sector-led agriculture and agribusiness". This program pursues systemic change in the agriculture sector and supports business modalities that favor small scale producers in the occupied Palestinian territory. The overall goal is to contribute to build a resilient economy with equitable agricultural growth, whilst contributing to protect small scale producers' entitlements to natural resources and access to markets" The four-year budget totals CHF 3'900'000. The first two phases of the project have already been completed between 2014 and 2017. 9,250 Small Scale Producers (SSPs) have been enabled better market access (SDC, 2018). Cost per producer supported amount to 422 CHF.

### Discussion of different options and alternatives

Option 1 gives the SDC a high degree of control over the implementation of the incubator, which allows for a clear adjustment of the concept according to intended target groups. At the same time, installing an incubator from scratch includes a high level of complexity, high costs and a lot of uncertainty in the beginning. Option 2 has a large lever on the economic performance and development of some startups, but it remains highly risky and it is difficult for the SDC to influence the activities and people employed in those startups. Option 3 builds on existing structures with the possibility to target specific groups or communities, but it is still a long-term project.

Estimated numbers of different incubator projects in terms of employment creation are substantially lower than in other projects, but the effect on individuals is undeniably higher. The cheapest way of employment creation is enabling people to find a job in the existing private sector structures, whereas creating something completely new is definitely the most expensive way. Which strategy seems appropriate has to be elaborated in context, as often private sector is absent or existing structures can simple not offer sustainable and profitable jobs.

### 9. Conclusion

At the beginning of this paper, the research question aimed at exploring what the potential of incubators is for the SDC in its development work. The geographic scope of the SENAP region with a special focus on Tunisia, Tanzania, Zambia and the Occupied Palestinian Territory was chosen by the SDC for the analysis. A short introduction laid out the main concepts, followed by the elaboration of the main functions the an incubator. Afterwards, the concept of the impact pathway was explained, showing the impact of an incubator on a typical startup cycle. A short overview was given with the estimation of how many incubators are active in the SENAP region. Subsequently, the analysis framework for the quantitative potential was explained, followed by the country profiles of the four main states of interest. The qualitative potential was elaborated by means of select interview quotes. Lastly the three main implementation options for an incubator engagement for the SDC were elaborated, with the context of alternative projects.

### What is recommended to the SDC?

The authorship recommends option 3 as it enables the SDC to pick and choose the organizations with whom it wishes to work and which fit its target segment best. The conducted interviews made clear that it does not make sense for the SDC to build its own incubator (Option 1) as there are already many of these institutions in existence. It is also not the core competency of the SDC to provide the structure to accompany firms during their life cycle. Setting up a fund and engaging in venture capitalist daily business is not a classical strength of the SDC either. Option 3 has the potential of creating the most synergies with the SDC as it allows to bring in its experience and expertise, deploy Swiss know how in areas most effective and complement the incubators with its core competencies.

A practical example from Mali shall illustrate that point. Swiss agricultural know how and entrepreneurial expertise could offer perspectives by providing training to smallholder farmers producing milk. A small number of successful farmers who acquire the ability to conserve milk and to produce cheese and other dairy products can serve as a success story and a model which can be disseminated to a much wider group of smallholders and extension of the project (e.g. cold chain technologies) (NGO, Switzerland, 2018).

In terms of understanding and analyzing the total potential of incubators it is strongly recommended to stretch the time horizon to twelve years (which is much closer to the typical investment perspective). In addition, "cost of job created" is not seen as a valuable KPI, because it remains unclear what is meant by "job created". Focusing on the number of people reached and the intensity of impact on each individual seems much more suitable. This would also shine a different light on the comparison between incubators and alternative SDC projects. Investing in incubators is truly a long-term endeavor and success can only be measured with a time lag of some years. Planning an incubator project includes a high level of complexity, in which financial viability is undoubtedly a key component.

Drawing from the interviews, there are two areas where many of the respondents identified synergies between the SDC and incubators. Firstly, in the area of education, coaching and mentoring: Because the SDC has a lot of technical and business expertise within the organization itself but also from Switzerland in general, this knowledge needs to be processed into a form which can be easily accessed and disbursed by the incubator partners. One specific suggestion was a Mini-MBA run through a technology platform. Secondly, pertaining to the financial access which is lacking for many startups: In many startup ecosystems in the SENAP region, investors are largely lacking. Establishing a pendant to the Seco startup fond in SENAP countries (http://www.secostartupfund.ch) or installing instruments to de-risk startup investments are worth considering.

Therefore, it can be stated that the SDC should become active in the startup environment in some form with selected partners. For such a project the time horizon should be enlarged to 12 years and the focus should be set especially on the issue of education and finance. Incubators are linked to entrepreneurship, which in turn is linked to risk. However, it has to be emphasized that the critical time when incubators need support the most is now.

Further research for the evaluation of the potential of incubators is required into the specifics of startup survival rates and its change over time, quality and sustainability of jobs created, impact measurement, understanding local context on a regional level to make a more informed decision.

### **Bibliography**

Aspen Institute, (n.d.). South Africa's Entrepreneurial Ecosystem Retrieved from https://assets.aspeninstitute.org/content/uploads/files/content/upload/ANDE%20ENTREPRE NEUR%20ECOSYSTEM%20MAP%202015.pdf

Bloomberg (2014, July 28). Failed Entrepreneurs Find More Success the Second Time. Retrieved from https://www.bloomberg.com/news/articles/2014-07-28/study-failedentrepreneurs-find-success-the-second-time-around

Chirambo, F. M. (2014). An Exploratory study on the Performance of Business Incubators in South Africa.

Cornelius, B., & Bhabra-Remedios, R. (2003). Cracks in the egg: improving performance measures in business incubator research. University of Wollongong, Australia.

Coworker. (2018). Retrieved 28. 04 2018 from https://coworker.com/

Davies, M. (2009). Mixed-use Incubator Handbook: A Start-up Guide for Incubator Developers. infoDev.

Development Cooperation, (2018). Southern Africa, East and North Africa, Occupied Palestinian Territory Division (SENAP) Retrieved from

https://www.eda.admin.ch/deza/en/home/sdc/organisation/departments/southcooperation/eastern-southern-africa.html

Ease of Doing Business. (2018) Middle East & North Africa Retrieved from http://www.doingbusiness.org/rankings?region=middle-east-and-north-africa

Enpact. (2018). Startup Meter. Retrieved 05. 05 2018 from http://startupmeter.org/#/compare?mode=map&cities%5B0%5D=592

Enterprise Survey A. (2013): West Bank and Gaza Country Profile 2013 Retrieved from http://www.enterprisesurveys.org/~/media/GIAWB/EnterpriseSurveys/Documents/Profiles/E nglish/west-bank-and-gaza-2013.pdf

Enterprise Survey B. (2013) West Bank and Gaza Country Highlights 2013 Retrieved from http://www.enterprisesurveys.org/~/media/GIAWB/EnterpriseSurveys/Documents/CountryHi ghlights/West-Bank-and-Gaza-2013.pdf GALI, (2018). Acceleration in Sub-Saharan Africa Retrieved from

https://www.galidata.org/assets/report/pdf/SSAfrica%20Data%20Summary%20\_Feb%2012 %202018.pdf

Global Economic Prospects. (2018): Broad-Based Upturn, For How Long? Retrieved from http://www.worldbank.org/en/publication/global-economic-prospects#data

Grichnik, D., Heß, M., Probst, D., Antretter, T., & Pukall, B. (2018). Startup Navigator: das Handbuch (Erste Auflage). Frankfurt am Main: Frankfurter Allgemeine Buch.

HDIF. (2017). Tanzanian Innovation Ecosystem mapping and Hub research.

Hughes, M., Ireland, R. D., & Morgan, R. E. (2007). Stimulating Dynamic Value: Social Capital and Business Incubation as a Pathway to Competitive Success. Long Range Planning (40), S. 154e177.

infoDev. (2010). Global Practice in Incubation Policy Development and Implementation.

infoDev. (n.d.). 05 Financing an Incubator. Von Trainee Manual Part 2 : https://www.infodev.org/infodev-files/m5\_traineemanual\_part2\_20101029\_0.pdf

KPMG. (2018). Indirect Tax Rate. Retrieved 02. 05 2018 von https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-ratesonline.html

L'Economiste Maghrébin. (2017, February 21). 632.500 chômeurs dont 33,6% diplômés du supérieur. Retrieved from L'Economiste Maghrébin:

https://www.leconomistemaghrebin.com/2017/02/21/tunisie-632-5-milles-chomeurs-dont-336-diplomes-superieur/

Ndabeni, L. L. (2008). The contribution of business incubators and technology stations to small enterprise development in South Africa. Development Southern Africa, 25 (3), S. 259-268.

Oxford Business Group. (2018). Building on its reputation for stability, Tunisia is in the midst of upgrading its infrastructure. Retrieved from Oxford Business Group: https://oxfordbusinessgroup.com/overview/gearing-building-its-reputation-stability-country-midst-upgrading-its-infrastructure

Peña, I. (2004). Business Incubation Centers and New Firm Growth in the Basque Country. Small Business Economics, 22, S. 223-236. Rapsomanikis, G. (2015). The economic lives of smallholder farmers An analysis based on household data from nine countries. FAO.

SDC. (2018, May 18). Fifteen thousand jobs created in Tunisia since the revolution. Retrieved from Development and Cooperation:

https://www.eda.admin.ch/deza/en/home/activities-projects/projekte-fokus/Projectdatabase.filterResults.html/content/dezaprojects/SDC/en/2011/7F08072/phase1?oldPagePath =/content/deza/en/home/aktivitaeten\_projekte/projekte-fokus/projektdatenbank.html

SDC. (2018, May 18). Improved Access to Markets for Female and Male Fresh Fruits and Vegetable (FFV) Small Scale Producers. Retrieved from Development and Cooperation: https://www.eda.admin.ch/deza/en/home/countries/besetztes-palaestinensisches-gebiet.html/content/dezaprojects/SDC/en/2014/7F08306/phase3.html?oldPagePath=/content/deza/en/home/laender/besetztes-palaestinensisches-gebiet.html)

SDC. (2018, May 18). Opportunities For Youth Employment. Retrieved from Developement and Cooperation: https://www.eda.admin.ch/deza/en/home/activities-projects/projekte-fokus/Project-

database.filterResults.html/content/dezaprojects/SDC/en/2015/7F09348/phase1?oldPagePath =/content/deza/en/home/aktivitaeten\_projekte/projekte-fokus/projektdatenbank.html

The Economist. (2017, April 6). Encouraging African entrepreneurship. Retrieved from The Economist: https://www.economist.com/news/business/21720344-only-one-incubator-continent-profitable-without-grants-encouraging-african

The Middle East Monitor. (2017, April 8). France to lend Tunisia \$143m for infrastructure projects. Retrieved from The Middle East Monitor:

https://www.middleeastmonitor.com/20170408-france-to-lend-tunisia-143-million-forinfrastructure-projects/

The World Bank Group. (2016). Growing Agribusiness SMEs in Tanzania: Lessons from an Action Learning Pilot. Washington, DC.

The World Bank Group. (2018a). World Bank Enterprise Survey. Retrieved 02. 05 2018 from https://www.enterprisesurveys.org/data

The World Bank Group. (2018b). World Bank national accounts data. Retrieved 26. 04 2018 from https://data.worldbank.org/indicator/NE.TRD.GNFS.ZS?locations=ZG

The World Bank Group. (2018c). Logistics Performance Index. Retrieved 26. 04 2018 from https://lpi.worldbank.org/international/scorecard/radar/254/C/TZA/2016/C/UGA/2016#charta rea

The World Bank Group. (2018d). Worldwide governance Indicators. Retrieved 02. 05 2018 from http://info.worldbank.org/governance/wgi/index.aspx#reports

The World Bank Group. (2018e). Ease of Doing Business. Retrieved 02. 05 2018 from http://www.doingbusiness.org/rankings

Transparency International. (n.d.). Corruption Perception Index. Retrieved 02. 05 2018 from https://www.transparency.org/news/feature/corruption\_perceptions\_index\_2017

UNDP. (2016). Human Development Report 2016.

UNECE. (2012). Fostering Innovative Entrepreneurship, Challenges and Policy Options. Geneva: UNECE.

Uni Rank. (n.d.). Retrieved 28. 04 2018 from https://www.4icu.org/

We are social. (2018). Digital in 2018.

World Bank, (2016). Tech hubs and incubators in Africa Retrieved from http://pubdocs.worldbank.org/en/765531472059967675/AFC42460-081716.pdf

World Economic forum. (n.d.). Global Competitiveness Report. Retrieved 28. 04 2018 from https://www.weforum.org/reports/the-global-competitiveness-report-2016-2017-1

Worldwide Governance Indicators. (2016) Country Data Report For West Bank and Gaza,

1996-2016 Retrieved from http://info.worldbank.org/governance/wgi/#reports

## **Overview of Interviews**

	Individuals active in	Incubator affiliates	Entrepreneurs	NGOs	Academia	Total
	development cooperation					
Tunisia	2	3	-	-	-	5
Tanzania	3	3	2	-	-	8
Zambia	1	4	1	-	-	6
ОРТ	3	2	-	2	1	8
Other SENAP countries (Egypt, Ethiopia, Kenya, Rwanda, Uganda)	1	1	-	4	1	7
Non-SENAP countries (Nigeria, Switzerland)	1	1	1	1	-	4
Total	11	14	4	7	2	38

Average length of interview: 43 minutes

Due to the explicit demands by a majority of the interview participants, no transcribed information is included in this paper. However, the core messages are comprised in the corresponding parts of the paper.

### **Declaration of authorship**

"We hereby declare

- that we have written this paper without any help from others and without the use of documents and aids other than those stated in the references,

- that we have mentioned all the sources used and that we have cited them correctly according to established academic citation rules,

- that the topic or parts of it are not already the object of any work or examination of another course unless this explicitly stated,

- that we are aware that our work can be electronically checked for plagiarism and that we hereby grant the University of St. Gallen copyright as far as this is required for this administrative action."

St. Gallen, 18th of May 2018

Tobias Bienz

Arian Schül

S. Werthmuller

Samuel Werthmüller