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**Innovation in the Development Cooperation
Framework: Case Study of Finland and Sweden**

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Science, technology and innovation are critical components of the society. In the contemporary development framework, innovation is increasingly incorporated in the development cooperation policies due to its growth-accelerating and transformative characteristics. The rapidly growing regions like Sub-Saharan Africa is undergoing substantial changes due to the fast population growth and urbanisation. The innovation-focused development policies could address these challenges and direct the region's development path towards sustainability. In this study, I examined the role of innovation in the contemporary development framework. I first scrutinised the role of innovation in the development cooperation strategies of Finland and Sweden. I put the research in the context of Sub-Saharan Africa by examining two innovation-focused development programs, *Southern Africa Innovation Support* and *BioInnovate Africa*, supported by Finland and Sweden, respectively. Finally, I contemplated the transformative innovation framework in the context of development cooperation of Finland and Sweden, as well as the challenges and prospects of innovation-focused development.

The research data of this study consisted of twelve policy/position papers related to innovation focused development cooperation as well as five interviews conducted with innovation-experts. The research data was analysed with theory-led content analysis. The research results indicate that innovation is understood as an essential part of development in the strategies of Finland and Sweden, however the approaches regarding actors and activities of innovation somewhat differ. The regional integration and improving the local innovation systems are essential objectives in the strategies. *Southern Africa Innovation Support* as well as *BioInnovate Africa* emphasise demand-side innovation as well as inclusive and local approach that is particularly important in the Sub-Saharan African development. The transformative innovation policy could be extremely convenient in Sub-Saharan Africa for it addresses the exclusive and resource-exhaustive tendencies of the dominant innovation path, and instead emphasises the sustainable and inclusive approaches. Further research regarding the topic is much required to comprehensively understand the mechanisms and outcomes of innovation-focused development.

Tags: innovation, development cooperation, development policy, innovation-focused development cooperation, transformative innovation policy

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Tiede, teknologia ja innovaatiot ovat tärkeitä yhteiskunnan rakenneosia. Innovaatiokeskeisen kehityspolitiikan rooli on kasvanut nykyisen kehitysteorian viitekehyksessä, johtuen innovaation roolista kasvun ja muutoksen moottorina. Nopeasti kasvavilla alueilla, kuten Saharan eteläpuolisessa Afrikassa, pitää sopeutua vauhdikkaaseen väestönkehitykseen ja kaupungistumiseen. Innovaatiokeskeisellä kehityspolitiikalla voidaan vastata näihin haasteisiin ja ohjata alueen kehitystä kohti kestävä suuntaa. Tässä tutkimuksessa käsitellään innovaatiota nykyisen kehitysteorian viitekehyksessä. Tutkin ensin innovaation roolia Suomen ja Ruotsin kehitysyhteistyöstrategioissa ja jatkan Saharan eteläpuolisen Afrikan kontekstiin tarkastelemalla Suomen ja Ruotsin tukemia *Southern Africa Innovation Supportia* sekä *BioInnovate Africa*-kehitysyhteistyöohjelmia. Lopuksi pohdin transformatiivisen innovaation viitekehystä Suomen ja Ruotsin kehitysyhteistyön kontekstissa sekä innovaatiovetoisen kehitysyhteistyön haasteita ja tulevaisuudenkuvaa.

Tämän tutkimuksen aineisto koostui kahdestatoista innovaatiovetoisen kehitysyhteistyön strategia-asiakirjasta sekä viidestä innovaatioasiantuntijoiden kanssa toteutetusta haastattelusta. Aineisto analysoitiin teoriajohtoisella sisällönanalyysissa. Tutkimuksen tulokset osoittavat, että innovaatiot on omaksuttu tärkeäksi osaksi Suomen ja Ruotsin kehitysyhteistyöstrategioita, mutta maiden menettelytavat etenkin innovaatio toimijoiden ja aktiviteettien osalta eroavat toisistaan jonkin verran. Alueellinen integraation lisääminen ja paikallisten innovaatiojärjestelmien vahvistaminen on tärkeä osa molempien maiden strategiaa. *Southern Africa Innovation Support* ja *BioInnovate Africa* painottavat kysyntään kohdistuvia innovaatioita sekä Saharan eteläpuoliselle Afrikalle tärkeää paikallista ja inklusiivista lähestymistapaa. Lisäksi, transformatiivinen innovaatioviitekehys vaikuttaa hyödylliseltä Saharan eteläpuolisen Afrikan kontekstissa sillä siinä huomioidaan hallitsevan innovaatiopolitiikan valikoivat ja resursseja kuluttavat piirteet, ja sen sijaan viitekehyksessä korostuvat kestävät ja inklusiiviset lähtökohdat innovaatioon. Aiheesta tarvitaan lisää tutkimusta, jotta innovaatiovetoisen kehityksen mekanismeja ja vaikutuksia voidaan laajemmin ymmärtää.

Asiasanat: innovaatio, kehitysyhteistyö, kehityspolitiikka, innovaatiovetoinen kehitysyhteistyö, transformatiivinen innovaatiopolitiikka

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1. Introduction

Our world is entering an era of global upheaval and transformation. The international community must work together to face megatrends such as the climate change, technological transformations, and demographic shifts. The global economy grows rapidly; many countries are transforming into middle-income economies and already face challenges arising from the population growth and urbanisation, evident particularly in Africa that remains as the fastest growing continent with a population of 1.2 billion people (The World Bank Data 2019a). To respond to these changes and to successfully achieve sustainable and equal development in the realm of Sustainable Development Goals (SDGs), the world must find consistent long-term solutions that secure a healthy environment and prosperous livelihoods for generations to come in every part of the world. The role of science, research and technology in the development progress often appears indisputable (e.g. Lundvall & Borrás 2005), however we must consider whether it is necessary to go beyond technical solutions and utilise tools that transform the entire system towards a more sustainable and equal society.

The concept of development is an evolutionary process affected by global discourses (Willis & Kumar 2009). Traditionally, the world has been divided to developed and developing countries based on their advancements, and the prosperous countries have then assisted the less-fortunate regions with development aid. However, the line between developed and developing has increasingly blurred over the past decade due to the rapid growth of the countries previously deemed as 'poor' (Quadir 2013; Mawdsley et al. 2014). Also new actors, most importantly the private sector, have emerged as development actors and further ruptured the development cooperation landscape. The dualistic developed-developing world view has unquestionably become outdated, and the emerging economies have implemented new solutions to achieve growth, sustainability and well-being. In the contemporary development paradigm, the development objectives have shifted from poverty alleviation and humanitarian aid towards more multifaceted goals such as enhancing the economic growth and productivity of the development cooperation partners (Gore 2013; Quadir 2013).

All countries, no matter how advanced, have benefitted from transitioning towards the knowledge economy which prioritizes human capital i.e. learning, knowledge and education (Powell & Snellman 2004). The knowledge economy is the latest phase of

global economic development, often interrelated to the development of information technology and industrialization landscape (Lundvall 2016: 108–109). One of the most essential outcomes of knowledge creation is innovation that is generally defined as something *new*: an improved or entirely new idea, a product or a process. Considering how science, technology and innovation contribute to prosperity and growth, development cooperation actors have increasingly included innovation-focused policies in their strategies (e.g. Hooli & Jauhiainen 2017). However, the tools and means to utilise innovation often differ greatly between the regions of the world, and the innovation policies are not universally applicable (Oyelaran-Oyeyinka & Barclay 2003; Kraemer-Mbula & Wamae 2010; Schot & Steinmuller 2018). Thus, the development cooperation actors must carefully consider these aspects in their development cooperation strategies; in this study, I will scrutinise how the development cooperation partners have adapted such policies in the context of Sub-Saharan Africa (SSA).

The country-specific capacities have been further studied in the field of economic geography to understand the processes, systems and outcomes of innovation (e.g. Lundvall 1992). For example, the high-income economies can utilise their vast knowledge base, more feasible mobility of labour and capital as well as efficient infrastructure and favourable political environment in the innovation creation process (Crescenzi et al. 2007). On the contrary, the countries in SSA often lack these characteristics and the innovation capacity has remained rather small (Oyelaran-Oyeyinka & Barclay 2003). For example, SSA has large informal and agricultural sectors that incorporate most of the region's knowledge and innovation capacity (Kim et al. 2009: 2–5; Kraemer-Mbula & Wamae 2010). These sectors are seldom acknowledged for the most dominant approach to innovation is the Science, Technology and Innovation mode that emphasises science and technological solutions. However, innovation in the context of SSA has entirely different grounds and involves approaches such as Doing, Using and Interacting when learning new skills or creating new knowledge and innovations (Hooli et al. (2019), local and grassroots innovation that involves the local communities (Gorjestani 2004), agricultural and biobased innovation (Kim et al. 2009) or ICT-sector based clusters of innovation (Oyelaran-Oyeyinka & McCormick 2007) to name a few. If the innovation-focused policies are not adequately modified to meet the needs of the country, the unsustainable innovation trajectories might cause more harm than good (Cozzens & Kaplinsky 2009; Soete 2013).

How could we avoid the unfavourable paths of innovation but still utilise the possibilities that innovation-focused development brings about? As commonly acknowledged, innovation is indeed essential in the creation of new products, ideas or processes. However, some scholars also theorise that innovation could be the much-needed solution when aiming for transforming societal systems to more equal and sustainable ones (Weber & Rohrer 2012; Schlaile et al. 2017, Schot & Steinmuller 2018). Innovation-focused activity could ultimately leverage the reconstruction of the socio-economic systems in our society, if the policies are properly directed towards systemic change and transformation. The *transformative innovation* paradigm presents a new framework that considers the possibilities of innovation-focused activity and couples it with sustainable and inclusive development (Diercks et al. 2019). Considering the crucial need for sustainable transformation particularly in fast-growing regions such as Africa, the transformative innovation approach could be extremely valuable.

In this study, I first research the role of innovation in the contemporary development landscape to understand why it has been increasingly included in the development cooperation policies. I examine how innovation is incorporated in the development cooperation policies of Finland and Sweden, and what are the main objectives of such activity. I then structuralise the mechanisms and outcomes of innovation particularly in the context of development by putting the research topic in the context of the SSA development cooperation partner countries. To conclude, I follow the research of Diercks et al. (2019) and explore the possibilities of the transformative innovation approach by applying my research data in the transformative innovation framework to study whether it could be applied in the development cooperation landscape in the future.

To achieve these objectives, I have chosen Finland and Sweden as a case study subjects for they both have history with innovation-focused development cooperation. Since the development cooperation incentives and programs are taking place in the partner countries, I focus on empirical examples concerning innovation in the development landscape of Sub-Saharan Africa: *Southern Africa Innovation Support* (SAIS) and *BioInnovate Africa* which are supported by Finland and Sweden, respectively. I policy and program papers relevant to the research topic to understand the role of innovation within the policies and programs, and further complement the research data with expert interviews to compose a comprehensive and up-to-date outlook about the innovation-focused development activities of Finland and Sweden.

My research questions are:

Innovation-focused development policies of Finland and Sweden

1A. What is the role of innovation in the contemporary development cooperation landscape?

1B. How is innovation included in the development cooperation policies of Finland and Sweden?

Innovation in the development programs supported by Finland and Sweden

2A. How is innovation incorporated in the development programs supported by Finland and Sweden?

2B. How do these programs meet the objectives of innovation-focused development cooperation strategies?

Innovation as a tool for development

3A. How innovation-focused development cooperation policies and programs of Finland and Sweden correspond to the transformative innovation framework?

3B. What are the prospects of innovation-focused development cooperation?

With this study, I aim to contribute to the novel research of innovation-focused development cooperation. Range of scholars study the synergy between innovation and development, yet innovation as a development cooperation tool has been researched only little. Further research is crucially needed to understand the new means and methods of development cooperation, particularly the role and possibilities of innovation within it.

This study is structured as follows. In the sections two and three, *The Dynamics of Development and Innovation for Development*, I cover the theoretical framework that includes relevant research regarding development, innovation and innovation-focused development policy. I then continue to *Research Data and Methods* where I introduce my research data consisting of twelve policy and strategy papers and five expert interviews that I analysed with the qualitative content analysis method. The section five, *Case Study Introduction*, covers the subjects of this study i.e. the development cooperation strategies of Finland and Sweden as well as introduces the SAIS and BioInnovate development programs. In the *Results* section, I comprehensively examine the results of this study, and finally the study concludes with section seven, *Discussion*, where I contemplate the results together with the theoretical framework.

2. The Dynamics of Development

2.1. Defining development

The concept of development appears in various fields of study, such as education, psychology, economics or politics (Potter et al: 2018: 4). In geography, scholars generally recognise development as an economic, social or political progress, or more specifically refer to development as a tool to achieve such progress. In this study I assume this viewpoint introduced by Willis & Kumar (2009) that development relates to those efforts that impact the well-being of regions or countries, including the people, environment and structures within them, and focus on the developmental processes, tools and strategies needed to bring about these changes. Over the past decades, global political and economic discourse has influenced the development paradigm, and thus the idea of development has endured several shifts and re-evaluations.

The juxtaposition between developed and developing countries became obvious in 1949 when American President Truman declared some parts of the world, Asia, Africa and Latin America, as 'less developed' (Potter et al. 2018: 4). During the past decades, the definition has become somewhat outdated and in 2016 The World Bank classified countries in four development categories based on their Gross National Income (GNI): low income, lower middle-income, upper middle-income and high-income countries (The World Bank Data 2019b). The bottom of the pyramid is known as 'least developed countries' (LDCs) which all have the lowest Human Development Index (HDI) ratings in the world, majority of them in Sub-Saharan Africa. Despite of the new classification, the dualistic developing vs. developed narrative has persisted in the development paradigm and development appears as an approach to address the differences of the developed and developing countries, assuming the latter require assistance for example by means of aid (Potter et al. 2018: 8–9). Thus, the traditional, prerogative interpretation of development was first established in 'the West' i.e. North America, (Western) Europe, Australia, New Zealand and Japan. These countries viewed their economic, social and technological achievements as an ideal progression of development, and therefore set themselves as an example for the developing countries.

In this study, I apply the viewpoint of a development studies researcher to adequately understand the complex concept of development. However, as a geographer I will

maintain my connection to geographical concepts such as time, place and scale and connect them to the contemporary development framework, which is a multidisciplinary field of study (Madrueño & Tezanos 2018). In this section, I follow the development studies terminology and use terms *(Global) North* and *(Global) South* of the regions previously remarked as developed and developing, respectively. The terms are rather ideological than geographical, for the Global North-South terminology emerges from the multidimensional research of development where the scholars critically study the exploitative processes and hierarchies of colonialism and post-colonialism affecting the North-South interactions (Mawdsley 2017). I further note my role and privileges as a researcher from the Global North, and thus aim to be particularly sensitive and ethical about the topics regarding the Global South. Moreover, although the concept of development often associates with the circumstances and experiences of the Global South, development as a process occurs globally in different regions and scales and is by no means limited to the South (Potter et al. 2018: 9). Countries, regions, peoples and individuals in the Global North also face problems such as inequality, poverty and deprivation, or the consequences of the climate change and global environmental problems. Approaching the concept of development comprehensively through a wider perspective is not only necessary, but also essential.

2.2. From aid to cooperation

The concept of development has been inevitably linked to Western beliefs for it has its roots in the history of Enlightenment era and colonialism (Potter et al. 2018: 9). Moreover, the implementation of development aid programs has long followed the global political regimes which have often been led by Western powers (Murray & Overton 2016). For example, in the Cold War era development manifested majorly in political programs such as the Marshall Plan, when President Truman offered the help of The US to ‘the less fortunate’ nations (Moyo 2009: 9–11; Willis & Kumar 2009). This era also produced the theory of development as modernisation i.e. development was thought as a path for the less-advanced countries to reach western-like, modern civilizations. The Global South countries followed and adopted Western-influenced patterns of industrialization, urbanization and economic policies to achieve growth. The assumption was that the benefits of economic growth would further improve the living standards and benefit the entire population with the ‘trickle-down effect’.

Later in the 1970s the theory of development grew more multi-dimensional, beyond the common economic growth approach (Potter et al. 2018: 10). The focus was on reducing poverty, and foreign aid given to Global South countries by Global North donors shifted towards social services, nutrition and education (Moyo 2009: 14). Many scholars adopted a structuralist approach to development and theorised that the societal, political and economic structures of the Global South were preventing the countries from achieving growth (Willis & Kumar 2009). On the contrary, some assumed a Marxist viewpoint and argued that capitalism and colonialism were the major inequality drivers which the Global North utilized to accumulate its wealth by exploiting the South, hence the 'dependency theory'. In 1980s, the global conditions were heavily affected by the economic crises, namely the Oil crisis turned into a debt crisis; events that reshaped the global financial structures. Neoliberalism was the dominant approach to development and the emphasis was on the private sector, which led to the decline of bilateral and multilateral development aid programmes (Murray & Overton 2016). Neoliberalism emphasizes the importance of free market and therefore minimizes the role of the state, creating a framework for policies such as the structural adjustment programs (SAP) designed to support the Global South countries suffering from economic distress. These programs included strict obligations regarding loan payment conditions, fiscal policies and trade procedures, which led to stagnation and unemployment in the Global South, hence why the 1980s is known as 'the lost decade of development' (Potter et al. 2018: 23).

Criticising how the Western top-down development programs turned out insensitive to local communities and cultures, some scholars began to critically address the issues of global development hegemony, particularly in the 1990s (e.g. Escobar 1995; Rahnema 1997). The post-development school often considers the role of the state and Western up-to-down structures extremely harmful and thus emphasizes the importance of grassroots movements and empowering the people (Potter et al. 2018: 28). Post-development paradigm relates to the post-colonialist theory, which emphasises the empowerment of the Global South by freeing the countries from their colonial-era constraints (Willis & Kumar 2009). The post-development and post-colonialist scholars have been criticized for their exceedingly radical arguments with only little practicality, but their views share similarities to the 'alternative approaches' to development that stress the significance of local participation and empowerment of marginalized people.

The launch of Millennium Development Goals in early 2000s appears as a juncture when international development actors accepted poverty alleviation as the main objective of the development framework (Murray & Overton 2016). Development aid budgets expenditures increased on health, education and sanitation, and aid was also given to improve governance and society of the Global South countries. As Mawdsley et al. (2014) argues, the MDGs were part of a new aid paradigm: instead of remaining as the 'dependent' party, the new development aid landscape allowed recipient countries to take more responsibility of their development and led to global commitment to achieve concrete results. The effectiveness of development aid was re-evaluated due to the poor results in the progress of poorest regions, especially Sub-Saharan Africa (e.g. Moyo 2009). The relationship between donor and recipient countries was critically examined: in traditional development framework, donor countries tended to utilise top-down agendas and projects which were often hard to adopt by the recipient countries for they hold different societal structures. Moreover, aid and its efficiency proved to be hard to monitor and many donor countries failed to do so. The international community further debated on the topic in Paris 2005 and established the so-called aid effectiveness agenda, where development assistance was given more tangible rules and goals than before (Grimm et al. 2009; Mawdsley et al. 2014). The development agendas shifted from aid towards cooperation between the actors, fracturing the traditional roles of aid donor and recipient.

The United Nations' Sustainable Development Goals (SDGs) substituted the MDGs in 2015 and set an example for all the countries, both Global North and South alike, that worldwide implementation sustainable development is crucially needed to face the problems of climate change, inequality and poverty (United Nations General Assembly 2015). Environmental consciousness has been a part of the international discourse since the 1970s when research about the limited carrying capacity of our planet received attention, and the relationship between the human society and the environment has since been rightfully regarded as inseparable. Thus, urgent implementation of the sustainable framework remains necessary: Intergovernmental Panel on Climate Change (IPCC) published its special report on global warming in October 2018 which states that reducing global warming to 1.5°C by 2050 remains obligatory if the world aims to avoid the most severe impacts of climate change i.e. risks to human well-being, death of ecosystems, changes in agricultural productivity, decline of Arctic ice sheet and the rising of sea level (IPCC Summary for Policymakers 2018). Scientific and technological transformations

are widely seen as key solutions to achieve sustainability (Gupta & Vegelin 2016). Without questioning the accomplishments of science and technology-based solutions, we must ponder whether these instruments are enough to make a difference, when the system itself is still based on extracting natural resources and exploitation.

While compelling, the prestige of SDGs is but one phenomenon worth considering in the modern 21st century development landscape. New actors such China, India, Saudi Arabia and South Africa have emerged or re-emerged in the field of development cooperation and established development agendas of their own, partnerships commonly known as ‘South – South cooperation’ (SSC) (Gore 2013; Quadir 2013; Mawdsley et al. 2014). SSC has ruptured the development cooperation landscape which has traditionally been dominated by the OECD (Organisation for Economic Co-operation and Development) countries through multi- and bilateral institutions, such as the Development Assistance Committee (DAC). Opposed to the vertical North-South axis, the SSC framework operates rather horizontally, is often unbiased towards domestic affairs, and targets mutual benefit (de Renzio & Seifert 2014). Many scholars argue that especially after the 2011 Busan High Level Forum on Aid Effectiveness, the international development cooperation trajectory took a drastic turn towards development effectiveness scheme, i.e. re-endorsing the agendas of economic growth and increasing productivity, drawing from the neoliberal policies of the 1980s – 1990s (Gore 2013; Quadir 2013; de Renzio & Seifert 2014; Mawdsley et al. 2014; Murray & Overton 2016). Development effectiveness is now interpreted more multifacetedly than earlier, and the new cooperation narrative includes multiple actors and approaches, leaving room for non-state actors such as the private sector or non-governmental organisations (NGOs). Mawdsley et al. (2014) argues that the Post-Busan 2011 paradigm shift stirs from the Global North’s response to the rising powers of the Global South and SSC. Moreover, the Western development thinking was heavily affected by the 2007–2008 financial crisis and the political discourse that followed. Consequently, the role of private sector has gained more foothold in the development landscape, and the research done on the role of the markets in the new development cooperation landscape has increased significantly (Banks & Hulme 2014).

2.3. The new architecture of development cooperation

Development actors are often placed into a three-dimensional network of state, market and civil society, but several new actors have emerged in the changing development

landscape (Banks & Hulme 2014). Generally, there are five main types of actors supplying development aid in the form of financial assistance and knowledge: DAC countries, non-DAC donors working through development cooperation, global finance, private sector and NGOs. Zimmermann & Smith (2011) further classify the non-DAC donors into three categories: Eastern/Central Europe countries inaugurating development policies that follow the DAC guidelines; South-South development cooperation partners such as China, India or Brazil that do not consider themselves as ‘donors’; or Arab donor countries e.g. Kuwait or Saudi Arabia who regard themselves as donors but do not align with established the DAC standards. In the global finance sector, Multilateral Development Banks (MDB) and other International Financial Institutions (IFI) such as The World Bank or the world’s largest IFI European Investment Bank have arisen to provide development assistance and funding (United Nations 2018a: 87).

DAC countries established the term Official Development Aid (ODA) to describe loans, grants and other financial flows that meet the requirements of DAC and OECD (Gore 2013). Traditionally, ODA has been almost synonymous to development cooperation, because DAC defines the terms for official development assistance and provides the largest portion of development aid resources. Funded by the 30 official DAC countries, ODA gradually grew 30% between 2006 and 2016 before stagnating slightly in 2017 at 161 billion US Dollars (OECD 2018: 267). In 2017, Sub-Saharan Africa remained as the largest recipient region receiving 22,4% of all bilateral ODA, followed with South and Central Asia, and Middle East and North Africa both receiving 11,7% (Figure 1). The share of ODA in the DAC countries’ gross national income decreased slightly between 2015 and 2016, but on the contrary the amount of humanitarian aid from the DAC doubled due to the global refugee crises. The 2018 Development Co-operation Report estimates that development assistance flows from other donors continues to increase and for example, South-South cooperation flows reached approximately 7.6 billion US Dollars in 2016. Yet ODA remains as the largest source of development aid internationally, even though the changes and emerging actors in the new development landscape increasingly ruptures this traditional structure.

As Gore (2013) points out, ODA as an external financing source has declined in the Global South countries, whereas the significance of foreign direct investment (FDI) flows and remittances have escalated. For example, the concept of ‘blended finance’ responds to the complex development financing landscape. Established in the Addis Ababa Action

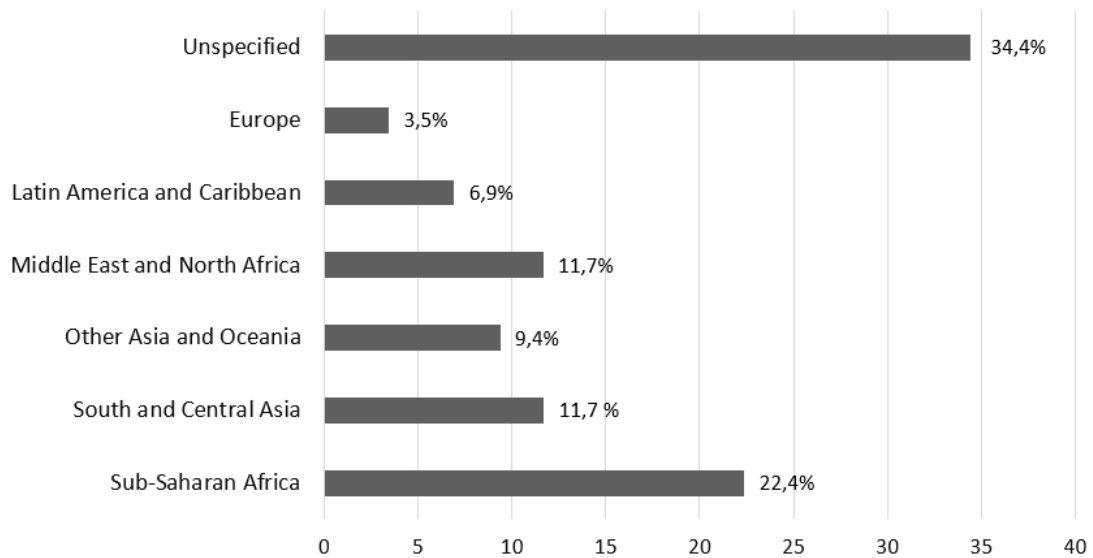


Figure 1: Received Gross Bilateral ODA by region in 2017, 161 billion USD in total. The category ‘unspecified’ is used when the aid benefits several regions. Source: OECD/DAC (2019). Aid at Glance Charts. Available at <<http://www.oecd.org/dac/financing-sustainable-development/development-finance-data/aid-at-a-glance.htm>>.

Agenda 2015, the blended finance framework combines public finance with private investment to enhance the private sector markets and resources, and to support the achievement of SDGs, which would be challenging to reach with public financing like ODA alone (United Nations 2018a: 102–103). The 2018 UN Financing for Development report argues that blended financing improves the effectiveness of assistance, even though it calls for other actions as well. According to the report, donor countries should aim to provide untied development aid i.e. aid that has no condition on the recipient procuring goods and services from the donor. 19 percent of ODA was tied in 2016 (United Nations 2018a: 106). However, as Quadir (2013) notes, the increase in the effectiveness of assistance also requires focus on the constructive needs and social change dynamics of the recipient countries to bring about worthwhile changes in Global South countries.

Due to the changing architecture of development cooperation, along with the critique towards the ineffectiveness of traditional aid in the past, a transition towards ‘beyond-aid’ agenda has emerged in the 2010s (Gore 2013; Janus et al. 2015). According to Janus et al. (2015), in the beyond-aid realm the importance of development aid diminishes while other forms of international cooperation increase. Furthermore, the goals of development are re-evaluated i.e. moving beyond tackling poverty and towards issues such as climate change and inefficient governance. Gore (2013) identifies four vital elements in the

beyond-aid paradigm: (1) providing development assistance in ways that utilize domestic resources and attract FDI; (2) unifying aid policies so that they align with development cooperation objectives; (3) embracing new financing suppliers; and (4) broadening the international development framework including trade, finance, knowledge and sustainability towards more development-friendly landscape. Janus et al. (2015) regard the transformation of development cooperation towards beyond-aid as a learning process which could benefit the international community either by specialisation (development cooperation focuses exclusively on one challenge, e.g. poverty reduction) or by integration (development partnerships target multifaceted global challenges).

Murray & Overton (2016) argue that in the ‘new mission of aid’ poverty alleviation has been replaced by the sustainable economic development targets which are often vaguer and less concentrated than the previous aid objectives and thus leave more space for global interests such as economic growth, investment and trade. Even though development aid has always benefitted the donor as well, the beyond-aid regime appears to explicitly focus on the interests of the donors and private sector more blatantly than before. The paradigm also holds several parallels to the modernisation era in 1950s – 1960s when donors invested greatly in building infrastructure (Murray & Overton 2016; Mawdsley 2017). Now following the example of China, which has vigorously funded infrastructure and energy projects to advance the means for the private sector to thrive, the donor countries utilize the manufacturers and suppliers from their own countries and thus direct a portion of the aid flows to them. This consequently reinforces tied aid agreements, which the OECD simultaneously encourages to abandon.

All development actors, traditional and new alike, have the potential to work as a transformative force in the field of development to achieve equity and equality. The UN Financing for Development report (2018) notes that besides ODA and humanitarian funding, development flows should further concentrate on SDGs and increase the mobilisation of the private sector. The private sector has increasingly engaged in developmental activities especially through public-private partnerships and philanthropic foundations that have emerged in the 21st century, adhering to corporate social responsibility and similar altruistic activities (Banks & Hulme 2014). Even though profit-seeking remains as the main agenda of the private sector, the activities can also foster the inclusion of marginalised groups by promoting democracy, equal access to markets and distribution of affordable goods and services. However, the growing role of the private

sector has raised questions about credibility, and whether the (new) development actors have truly aligned their interests to support the most vulnerable people as well. For example, in a study regarding Finnish private sector development actors, Haaranen (2019) found that the objectives of the private sector often clash with the development cooperation goals and the focus remains on business rather than on developmental impacts. Mawdsley (2017) contemplates whether the beyond-aid era merely provides another narrative of ‘creative destruction’ to the development paradigm, or could the new landscape produce long-lasting results with positive outcomes on livelihoods and well-being. Mawdsley points out the nations’ burgeoning inclination to foster their geopolitical interests through the development cooperation with only little circumstantial evidence indicating the consequences on global issues such as poverty or inequalities. Thus, the focus of development should remain on the marginalized groups and inclusive social institutions to achieve a positive change rather than falling into the destructive thinking of favouring markets over people. As Banks & Hulme (2014: 189) argue, to generate prosperous developmental outcomes we should move towards “*economic and social process that also facilitates redistributions of power, representation and accountability, and more inclusive social, economic and political institutions*”. The role of the state cannot be overlooked, for governments lead the political, social and economic institutions and efficiently allocate the resources of the state. This premise also builds the foundation for the new, innovative landscape of development cooperation framework. However, it remains crucial to comprehend development thoroughly, i.e. over history, objectives, actors and institutions, to contemplate new approaches and solutions to the problems occurring today.

3. Innovation for Development

3.1. Knowledge creation and innovation

Studying the interconnections between economic growth, equality and poverty rates has been the focal point of the post-2015 beyond aid paradigm, with special interest in the role of markets and international relationships. The economy has been growing rapidly in the Global South for the past decade, most strikingly in East and South Asia which recorded nearly half of the global economic growth in 2017, followed by North and East Africa with a GDP growth of approximately 5% (United Nations 2018b). Also, Sub-Saharan Africa achieved the GDP growth rate of 3.3% in 2018, stagnating slightly from the previous year. This rapid growth, along with the paradigm shift towards ‘beyond aid’ and free market-based, technology and science driven development cooperation framework has provoked a great deal of research about the impact of science, technology and knowledge in development (e.g. Lundvall & Borrás 2005). Certainly, the technological development and innovative activities have been fundamental for all economies alike in the past three decades. The world has transitioned towards a knowledge economy that prioritizes human capital, namely learning, knowledge and education (Powell & Snellman 2004). In knowledge economy, the production and service sectors concentrate on human capital-intensive activity that further advance the technological and scientific development. The focus is on intellectual capabilities instead of natural resources or physical assets. The knowledge economy is commonly seen as the latest phase of global economic development, often interrelated to the acceleration of information technology and industrialization (Lundvall 2016: 108–109). Because of the shift towards human capital-focused production, countries and industries increasingly utilized production to respond to the changing international competition (Tödting et al. 2013). The contemporary economic growth theory supports the notion that a solid knowledge base of an economy increases the rate of productivity (Lundvall 2004).

To understand the knowledge economy, one must first define knowledge. In philosophy, based on the thoughts of Plato and Socrates, knowledge can be thought as an “*individual’s own perception of a justified true belief*” (Parikh & Renero 2017). In economics, knowledge represents practical or theoretical skills and/or expertise, or the acquirement (learning) and utilisation of these skills (Tödting et al. 2013). Lundvall (2016: 136)

acknowledges four types of knowledge: know-what, know-why, know-how and know-who, all of which contribute to individual's ability to perceive world, learn new skills and apply their previous knowledge. In economic geography, knowledge creation and application remain a field of interest for it appears essential to understand the processes and resources behind different types of knowledge and how they allocate geographically (Lundvall 2004; Malecki 2010). In geographies of knowledge, it is assumed that knowledge spreads unevenly, and it often concentrates spatially in clusters. Even though knowledge is treated as an economic output or asset in economics, the production of knowledge differs fundamentally from for example production of goods and services because knowledge is intangible, individually interpreted and difficult to transfer. Two distinct modes of knowledge are identified: *explicit* i.e. codified/ written knowledge and *tacit* i.e. experience based knowledge (Jensen et al. 2007; Mahrooian & Forozi 2012). The common definition is that explicit knowledge can be shared from a distance and over territorial borders more effortlessly, whereas the sharing of tacit knowledge requires closer proximity and interaction between individuals. Both modes are essential in the knowledge economy and often appear simultaneously in the learning processes.

There are several approaches to knowledge creation and sharing processes in the field of economics (Ibert 2007; Hautala 2011: 52). Rationalist approach, often appearing as the dominant one in the field of economic geography, regards knowledge as an object or possession, and knowledge is a process of production generated by companies, industries or regions. In rationalist approach, tacit and explicit modes of knowledge are treated rather dualistically. The rationalist approach often concentrates on the explicit mode, since in the rationalist framework knowledge travels when objects travel in material space. In turn, the constructionist framework views knowledge as practice, and knowledge is created through communities and networks. Knowledge sharing occurs in places where individuals engage in the processes of interacting and learning together, and tacit and explicit modes of knowledge exist simultaneously rather than as opposites. For example, Hautala & Jauhiainen (2014) research the spatial and temporal elements of knowledge creation and call for a deeper understanding of knowledge beyond the traditional relational-constructionist approach, for different conditions in space and time create different knowledge creation processes.

3.2. Innovation in geographical landscape

One of the most essential outcomes of knowledge creation is innovation (Lundvall 2004). In economics, the 2018 Oslo Handbook by OECD defines innovation as “*a new or improved product of process (or combination thereof) that differs significantly from the previous products or processes*” (OECD/Eurostat 2018). Thus, in economics, innovation is traditionally thought as a new idea, product or process. Notably, innovation always requires implementation, meaning innovation only becomes innovation when it is put into use (Fagerberg 2005). Knowledge overlaps with innovation, and innovation leverages the creation, use and application of knowledge (Wangwe 2003: 77; Lundvall 2004; Cozzens & Kaplinsky 2009). Essentially, innovation adds to already existing knowledge and on the other hand represents the knowledge on demand, and the increased knowledge consequently promotes competence building, which is a necessary process for innovation to occur. Thus, innovation is a cumulative process that builds onto existing components and sometimes the results replace the existing products or processes – this Schumpeterian process is known as ‘creative destruction’.

Traditionally, innovation was thought to be linear ‘process and product innovation’ model based on science and technology. However, this model has since been complemented with other approaches for many recognise that innovation seldom occurs linearly through research and product development, nor is it always science-based (Caraca et al. 2009). Thus, in economics, innovation is often divided into technological (product and process) and non-technological (institutional and organisational) innovations (Fagerberg 2005). After a Schumpeterian approach, economists sometimes classify innovation based on the improvements or modifications done on the existing product or process (incremental innovation), or whether the innovation is totally new and/or developed to replace the products or processes currently in place (radical innovation) (Fagerberg 2005; Hurmelinna-Laukkanen et al. 2008). Innovation can also be examined based on the source of the innovation: commonly, innovations are argued to be driven by a technological push i.e. research & development based new inventions and technologies to meet the market needs, or by a demand pull i.e. new products and processes developed to meet the consumer needs (di Stefano et al. 2012). In this study, I follow the knowledge and learning-focused approach to innovation that divides innovation into two modes: the STI-mode and the DUI-mode. The STI-mode of innovation commonly refers to product and process types of innovation; for example, R&D departments of research institutes

applying science and technology in the innovation activities (Jensen et al. 2007). Researchers and developers apply their know-what and know-why knowledge to produce know-how, and often the information is further shared. In this mode, the approach to knowledge and learning appears rather rational and the focus remains on the explicit mode of knowledge, for knowledge is argued to “spill over” from R&D activity and further spread through patents or products (Jensen et al. 2007; Malecki 2010). The DUI-mode of innovation, namely doing, using and interacting, is on the contrary based on the know-how and experience-based learning, highlighting constructionist approach to knowledge creation processes and emphasising the tacit knowledge shared and created through human interaction and co-operation.

In economic geography, the spatial differences in innovation capacity and learning are often underlined for several impediments restrict diffusion of innovation and technology (Schot & Steinmuller 2018). First, especially tacit knowledge often appears ‘sticky’, so it rarely diffuses freely over geographical or cultural borders. Furthermore, codified knowledge must be understood before applying it in practice, thus the acquirers of the knowledge need to have enough existing know-what, know-why and know-how to assume new information and skills (Jensen et al. 2007). Second, the knowledge absorptive capabilities of regions differ due to differences in education levels and quality or the opportunities of entrepreneurship (Schot & Steinmuller 2018). Finally, technological change trajectory tends to be cumulative and it reinforces the already existing advantages that the regions have. Therefore, to continue the research on innovation, we must first understand the activities and actors that are involved in the innovation processes.

The term ‘innovation system’ describes such interactions and geographical differences between knowledge, learning, development and growth (e.g. Lundvall 1992; Fischer 2001; Jensen et al. 2007). Lundvall (1992) defined innovation system as “*the elements and relationships which interact in the production, diffusion and use of new, and economically useful knowledge*”. Fundamentally, the innovation system approach studies the flows of knowledge and learning to determine how different knowledge bases contribute to the innovation systems and modes (figure 2). Since institutions are often governed on the national level and the knowledge creation and diffusion vary socio-culturally, many innovation system researchers tend to use the term ‘national’ or ‘regional’ innovation system to highlight the geographical differences (Schot & Steinmuller 2018). Porter (1990) defined Clusters of Innovation (COI) which are concentrations of

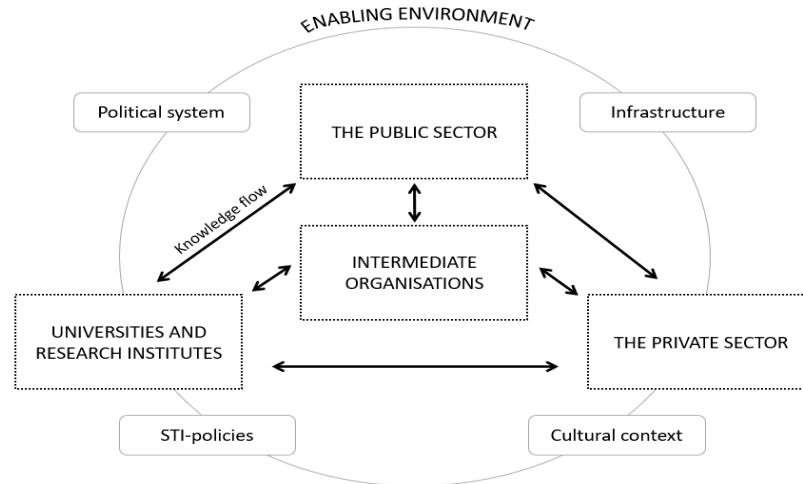


Figure 2: Simplified illustration of the knowledge flows between innovation system framework actors, after Lundvall (2004); Jensen et al. (2007); OECD/Eurostat (2018).

organizations, businesses, universities and other actors that enforce the aggregation of expertise and specialisation. Engel & del Palacio (2009) build onto this definition and argue that COIs foster the mobility of resources, especially human capital, and enable global networks between businesses and communities. COIs are prone to start-ups and emerging businesses because of the level of mobility and increased development velocity, which in turn boost innovation and knowledge creation.

In the narrow framework, the five main actors in the (national) innovation systems are governments, private sector and finance, universities, research institutions and other organizations supporting innovative activities (Feinson 2003; Diercks et al. 2019). The narrow approach to innovation system highlights the STI-mode of innovation and written knowledge, producing principally codified technical and scientific results in R&D type laboratory settings that base on linear innovation model. On the contrary, the broader innovation system approach includes all social, economic and political institutions that affect research and learning activities are part of the innovation systems. In the broad innovation system narrative, not only STI but also DUI mode of innovation is utilized and the knowledge producing network appears wider than in the narrow approach. Thus, several non-technological innovation processes are affiliated with the broad innovation system scheme, such as open innovation (Chesbrough 2006), shared workspaces and innovation hubs (Schmidt et al. 2014), living labs (Hooli et al. 2016) or user-driven innovation (von Hippel 2005). Further contradicting the regional approach to innovation processes, relational approaches to innovation and knowledge have emerged to explain the processes that do not occur in material space (Bathelt & Glücker 2011). Such

approaches consider the virtual networks, changing working culture and new mobilities fostered by globalisation. The lines between territories are blurred when global networks of people and ideas travel over material boundaries, and human interactions are influenced by, but not tied to, time and space.

Tödting et al. (2013) argue that countries with prosperous innovation systems share similar socio-economic characteristics, such as robust knowledge creation foundations especially in the field of science, technology and business, high level of knowledge commercialization, along with good education system, flexible labour market and significant venture capital investments. Consequently, the spatial differences are evident when comparing innovation globally. According to the *2018 Global Innovation Index Report* (Cornell University et al. 2018), all 20 of the global innovation leaders come from the Global North. For example, European countries have benefitted not only from their competent socio-economic structures but also from the close proximities of different innovation regions inside the continent, as well as utilizing mobility of inter-regional knowledge made possible by the free movement of labour and capital within the EU (Crescenzi et al. 2007). In the US, innovation appears more regional and occurs in spaces that foster R&D activities and skilled labour, hence for example the Silicon Valley cluster of innovation. In East Asia, the exceptional economic growth of the so-called ‘Asian Tigers’, i.e. South Korea, Taiwan, Singapore and Hong Kong, in the second half of 20th century drew attention towards technological advances for the Tigers underwent rapid industrialization and technological revolution between 1970–1980s and as a result became part of the world’s economic leaders (Kim & Nelson 2000). These countries have been followed by China and India that have been able to build successful systems of innovation based on production and utilization of advanced technologies (e.g. Lundvall et al. 2006). The African low-income or the lower-middle income countries have seldom made their way to similar lists of global innovation leaders and from this point of view, the development of African innovation appears rather weak. However, there are many opportunities arising from the Africa in the field of innovation, knowledge and development – perhaps the dominant innovation approach is merely too limited?

3.3. Innovation in African context

The African innovation systems are indeed drastically different when compared to the Global North countries. Only recently have African countries been able to increase their

GDP and productivity, yet there are inter-continental differences between regions in the acquired growth: Northern Africa has grown rather rapidly whereas Sub-Saharan Africa has remained the poorest region of the world (The World Bank Data 2019a). Many factors have stagnated the growth of in the region, such as the impact of foreign aid, high levels of poverty or the effect of colonial era that interrupted the domestic learning processes (Wangwe 2003: 78–79). In many ways Africa is a newcomer in science, technology and innovation and the science, technology and innovation processes are based on adapting, imitating or improving imported technologies. During and after the colonial period, science & technology policies in Africa manifested mainly in the technical departments of governments such as health care, agriculture or mines and industry (Lall & Pietrobelli 2003). Private sector-led innovation activity remained limited, and many innovative institutions such as R&D departments were funded by the public sector. Moreover, the R&D laboratories in Africa have traditionally focused in agriculture rather than manufacturing, and the R&D activity was directed mainly towards problem-solving. Since then, the manufacturing sector strengthened especially due to increased FDI in SSA, however the impact on growth remained relatively small (Kraemer-Mbula & Wamae 2010: 66). Another stagnating factor has been the lack of economic integration and solid innovation systems within the continent, for most of the growing economies have been unable to attain the financial or technological transfers on their own and would therefore benefit greatly from more profound cooperation between each other (Hartzenberg 2011). Scerri (2013) notes that to create a dynamic innovation ecosystem in Africa, policies must be directed towards inter-regional innovation systems, economic co-operation and integration.

In the future, Africa is set to face more socio-economic issues due to the rapid urbanisation and population growth that is estimated to reach 2.5 billion, along with challenges such as poverty and illiteracy (United Nations Economic Commission for Africa 2016: vii–ix). Thus, the African societies must find coherent, long-lasting solutions to achieve sustainable growth and change, and the innovation-focused development could perhaps be the path to positive transformation. We must contemplate, however, what are the circumstances that innovation-focused policies are to be applied in? The neoliberal innovation-focused STI-policies tend to dismiss the cultural contexts of African regions, countries and people and often overlooks the opportunities that innovation-focused policies in Africa could have (Kraemer-Mbula & Wamae 2010). Absorption of advanced

technologies also requires existing knowledge and human competence; thus, it is necessary to strengthen the knowledge creation processes prior to adopting high technology (Lundvall et al. 2003; Hooli et al. 2019). Attempting to implement new technologies onto regions that are not capable of fully utilizing them yet might in the long run create more harm than good. Instead of attaining the technologies and innovations developed in the Global North, the African innovation-focused development trajectory must concentrate on home-grown solutions that are specialised to meet the continent's advantages and needs. Hooli et al. (2019: 2) notes three important characteristics important in African innovation development: (1) a need for demand-side driven, affordable innovations that could benefit the vast amount of people living in poverty, (2) a large aspiring market of young Africans that are progressively attaining digital technologies and (3) the increasing levels of education linked with the population growth will increase the need for new innovations and solutions that could eventually scale up to global markets.

Considering the rich diversity of cultures and languages in Africa, as well as the existing innovation capacity of the continent, the DUI-mode of learning appears more convenient compared to the STI-mode for it utilises tacit knowledge i.e. experience based learning and human interaction more than the STI-mode of innovation and thus enhances the knowledge creation processes (Hooli et al. 2019). However, the STI and DUI-modes best work simultaneously rather than separately, and combining the local, tacit knowledge with external explicit knowledge could bolster the acquirement of new skills and technologies (Hooli & Jauhiainen 2017). Hooli et al. (2019) further identify four main actors in the African innovation development: the private sector, co-creation hubs, high-education institutes and non-government institutions/civil society. The private sector innovation actors in Africa are often multinational corporations that develop high-tech supply-driven innovations, however the role of the emerging private sector and especially small and medium-sized businesses has increased. Start-ups and co-creation hubs remain critical, for they answer to local needs by developing demand-driven innovations as well as by applying local knowledge to the innovation processes. For example, Hooli et al. (2016) found that living labs as a form of co-creation hub appear to be an important innovative platform for local communities, for in the living labs local people can work together and develop meaningful solutions to everyday problems. NGOs and civil society actors are also important intermediary organisations that link innovation with the local

people, and for example many co-creation hubs are supported or run by NGOs. Furthermore, high-education institutes such as universities are important actors in the African innovation landscape for they enhance the knowledge creation and provide skilled labour (Hooli et al. 2019). Most importantly, universities produce high-quality research which currently is scarce in the region.

The roles of local, indigenous and traditional knowledge, as well as the importance of informal and low-tech sectors in the African innovation system remains essential for considerable amount of knowledge and skills exists in these fields and because knowledge is often the main asset of social capital of the poor (Kraemer-Mbula & Wamae 2010; Gorjestani 2004). For example, agriculture remains as an important economic sector in the region, where its share of employment was nearly 50% in 2016 (African Development Bank 2018: 8–9). New markets, innovations and the relationships between public and private sector have changed the dynamics of agriculture, and a great deal of innovative activity in Africa is increasingly fostered in agribusiness laboratories. Kim et al. (2009) examine the ‘agricultural innovation systems’, a term that addresses the knowledge and innovation creating processes in the field of agriculture in order to add value, income and employment to farming especially in the rural areas where productivity has been low. Alongside agriculture, the ICT sector has been growing rapidly in Africa and various industrial clusters have emerged, mostly in cities or large towns. Oyelaran-Oyeyinka & McCormick (2007: 10–15) introduce several examples of these clusters, considering their different dynamics. The Otigba computer cluster in Nigeria or Lake Victoria fish cluster are examples of clusters that have developed ‘spontaneously’ in Africa through agglomeration of specific skills and now create a local knowledge base for future innovations and remain a vital part of the innovation systems in SSA. These spontaneous clusters have emerged without government support and continue to thrive, facilitating early-stage entrepreneurs and start-ups. There are also examples of so-called ‘constructed’ clusters initiated by governments to foster business activity, one example being the Mwenge and Gerezani clusters in Tanzania.

The technological change and innovation-focused development has undoubtedly played a role in the rapid growth of the countries in the knowledge economy era (Lundvall & Borrás 2005; Schot & Steinmuller 2018). Based on the Schumpeterian assumption about the creative destruction, innovation and knowledge creation can bring about positive outcomes in the long term, such as higher quality jobs or higher productivity. Yet, because

innovation trajectory and competence building are often cumulative, and technological change contributes to the unsustainable and resource-exhaustive mass production, many researchers have since pointed out the negative externalities of the dominant innovation paths (Cozzens & Kaplinsky 2009; Soete 2013). Scholars note that this development often appears unequal in the long term and benefit only small portion of population, excluding the rest from the accelerated well-being. Kaplinsky (2011) argues that in the dominant innovation approach, product and process innovation e.g. R&D, was principally utilized to target high-income consumers in the Global North to answer the ever-increasing mass-consumerism. The development of new technologies has depended on the available large-scale infrastructure, cheap energy resources and skilled labour. Scholars argue that the dominant innovation trajectory contributes to the ever-growing disparity between growth and development and innovation has perhaps become the very opposite of Schumpeterian creative destruction, and instead appear a part of the ‘destructive creation’ (Soete 2013; Chataway et al. 2014). Therefore, the development policies that apply innovation must be extremely considerate of the unfavourable development trajectories of innovation, particularly when the policies are applied in already vulnerable regions such as SSA.

There are several approaches to innovation that aim to address the unfavourable externalities of innovation processes and forge innovation towards inclusivity and responsivity. The term ‘inclusive innovation’ emerged to reduce the negative externalities of the innovation trajectory and forge it into a tool for constructive and equal development (Johnson & Andersen 2012: 17–18; 41, Chataway et al. 2014). Scholars often incorporate inclusive innovation with the inclusive growth paradigm, in which growth is combined with social inclusion. This strategy is sometimes called ‘pro-poor development’ for it targets the most marginalized people and supports policies which mobilise the people in poverty and includes them in the economic activity. Thus, inclusive innovation utilises innovation *for* the poor and *by* the poor, contradicting the idea that innovation should always target profit accumulation. Grassroot innovations movement closely relate to the inclusive innovation narrative for it aims to mobilize the local communities to utilize their knowledge to create innovative spaces (Smith et al. 2014). Grassroot innovation appears as a response to the large-scale technology and science driven innovation models where marginalized groups are prone to be excluded. Inclusive and grassroot innovation approaches are extremely important when aiming for positive and sustainable

transformation particularly in Africa where the development objectives should always consider the disadvantaged people.

The population growth and rapid urbanisation set several challenges that must be met with long-term, coherent solutions that can only be achieved with strong political will and adequate innovation-focused policies (Schot & Steinmuller 2018). Instead of replicating the often unsustainable, resource-exhaustive and inequal innovation paths often dominant in the Global North, the African innovation-focused development trajectory would benefit from context-specific and specialised innovation policies that support sustainable development and growth. Thus, the ‘next generation’ of innovation policies that focus on transforming and changing the systems and societies to more equal ones should be thoroughly studied.

3.4. Transformative innovation policy

Recent innovation-focused research has further explored the transformative capabilities of innovation systems and processes (Kaplinsky 2011; Schot & Steinmuller 2018; Diercks et al. 2019). In the post-2010 era of development cooperation and the Sustainable Development paradigm, utilizing innovation processes to achieve international well-being seems necessary due to its potential to shape the existing socio-economic structures (Cozzens & Kaplinsky 2009). The launch of SDGs was perhaps the most significant motivator for policymakers to perceive innovations as a potential solution for environmental or societal issues (Diercks et al. 2019). However, it is becoming evident that the socio-economic structural transformations are necessary to achieve genuine sustainable development instead of relying on the results gained by the technological change of industry (Chataway et al. 2017). As noted in the previous section, this trajectory of development is often expensive, relies on STI-mode of knowledge and technological transfers and appears resource-exhaustive (Kaplinsky 2011). These characteristics make the dominant innovation policies difficult to adopt in regions such as SSA that has only little resources and capacity to do so. Moreover, SSA that must now find sustainable solutions that can foster equality and well-being in the societies where the population growth rate, urbanisation, poverty and climate change generate several challenges.

Whereas the dominant innovation system approach often emphasises the creation of new products or processes that support change, the framework appears too limited when strategic, long-term solutions are needed to transform the entire production and

consumption systems towards sustainability (Weber & Rohracher 2012; Schlaile et al. 2017). Thus, the *transformative innovation* approach aims to direct the innovation system-based activity towards multifaceted socio-economic changes. Proposed by Schot & Steinmuller (2018), the transformative innovation policy approach aims to avoid the anti-developmental destructive creation path, and instead focuses on the transformative possibilities of innovation and knowledge. Schot & Steinmuller (2018) theorise that contemporary innovation policies aim for technological change of industries which can lead to, for example, designing electric cars with longer battery lives, following the incremental innovation path. However, the mobility system would still be dominated by private automobiles and the industry would thus remain unsustainable. Yet, in the transformative innovation framework, the innovation policies would be directed towards transforming the mobility system itself rather than transforming the vehicles per se, applying the radical innovation approach. Policymakers would instead aim for a system where public transport, ride sharing or walking and cycling become the dominant ways of transportation, whereas the significance of private cars decreases. Weber & Rochracher (2012) note that the transformative approach should remain goal-oriented, consider the production and consumer use besides the supply side of innovation, include wider range of research done also outside of the STI policy, and embody reflexivity to gain long-term results.

The *transformative innovation policy* presents a new policy framework that considers the possibilities of innovation-focused activity and couples it with sustainable and inclusive development (Diercks et al. 2019). The policies that favour transformation appear to be increasing, however the transformative innovation framework coupled with development has been researched only little in the 2010s: Leach et al. (2014) examined the transformative innovation policy in the context of SDGs and emphasised sustainable innovation solutions initiated by grassroot actors and underlined the importance of policies and governance that favour such activity. Kivimaa & Kern (2016) argue that transitions towards sustainability require policy mixes favouring such a shift, and innovation policy instruments could drive the change in the policy mixes. Chataway et al. (2014) contemplated the possibility of inclusive innovation trajectory where the innovation activities could benefit the poor by empowering the bottom of the pyramid through pro-poor growth. However, this approach appears to be rather reorienting the

existing innovation trajectory towards poverty alleviation rather than suggesting transformative and structural changes.

In the study on the transformative innovation policy, Diercks et al. (2019) compare two global initiatives, *Mission Innovation* and *The Global Covenant of Mayors for Climate and Energy* (GCMCE), which were born in the realm of SDG to drive innovative change, examining first the policy agenda of the initiatives and then the way the innovation processes are understood. When researching the policy agendas of Mission Innovation and GCMCE, Diercks et al. distinguishes to dominant agendas: economic and societal. Economic agendas often target private sector and economic growth, whereas societal agenda is often seen as the public sector benefits and other global goals such as poverty alleviation and fighting climate change (Kallerud et al. 2013). As Kallerud et al. (2013) note, these agendas should not appear as opposites but rather as a coexisting item, since in multi-objective policies such as the transformative innovation policy the ends and means are multifaceted, and economic approaches are often needed to meet the societal needs. Under the framework of the transformative innovation policy, Diercks et al. (2019) apply this division to differentiate the objectives and innovation approaches of Mission Innovation and GCMCE and study whether these programs fit in the transformative innovation narrative. To examine the understanding of innovation process, the actors, activities and modes of innovation of Mission Innovation and GCMCE are put into narrow vs. broad understanding axis (figure 3). Narrow understanding refers to smaller number of innovation actors (triple helix), emphasising supply-side activities and technological change, and STI-mode of innovation. In turn, broader understanding includes variety of different actors in addition to the triple helix, utilising systemic innovation activities and emphasising end-use domains, and involving the DUI-mode of innovation. Thus, Diercks et al. were able to research how Mission Innovation and GCMCE place in the transformative innovation paradigm and whether these projects suggest concrete approaches to the emerging policy paradigm. Acknowledging the influence and efficiency of this type of research, as well as its importance in the transformative innovation policy framework, figure 3 presents similar fourfold framework for the purposes of this study.

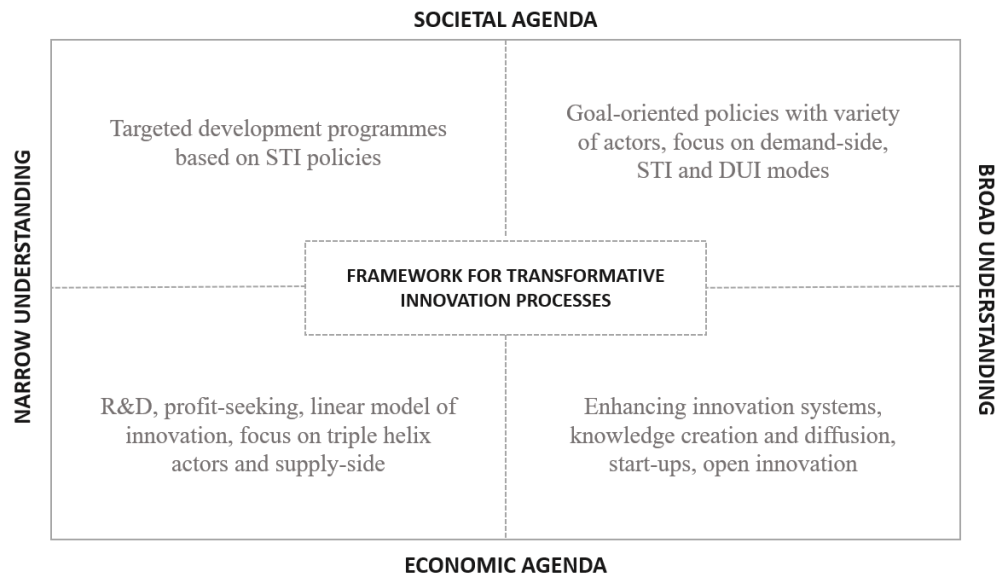


Figure 3: Comparative framework for the transformative innovation approach, after the framework by Diercks et al. (2019).

Since the transformative innovation policy present a framework that could, at best, foster sustainable development, it appears meaningful to consider it within the landscape of development and development cooperation policies to understand whether it could be, or even should be, applied in the development framework. The transformative innovation policies could be beneficial particularly in the fast-growing regions such as the SSA, however the mechanisms that affect the development policy paradigms are seldom explicit and rather occur dynamically in the ever-changing global development landscape. Before suggesting a new policy framework, we must first understand the history, contexts and mechanisms of such paradigms.

3.5. Innovation in the development policy framework

Activities fostering innovation have long been included in the country specific policies, often influenced by OECD (Lundvall & Borrás 2005). After the World War II, a breakthrough of ‘science policy era’ occurred when public investment was directed towards science and R&D activities. Science and innovations were widely seen as a tool for growth, and much like in the development as modernisation theory paradigm, Global North countries focused on enhancing industrialization, mass production and increased productivity (Lundvall & Borrás 2005; Schot & Steinmuller 2018). Consequently, the era of technology policies peaked in the 1960s–1970s when the Cold War drove the superpowers into the arms race, and growth policies concentrated on technologies and

sectors. In the realm of neoliberal development policies of 1980s, innovation processes were incorporated into the technological change to enhance countries' capacity to produce new technologies, which would then foster the private sector and markets. Innovation activities were then recognised as a part of official political strategies, hence the umbrella term Science, Technology and Innovation (STI) policy, which describes the strategies and actions governments undertake to improve their performance in these fields. Similar policies have gradually been adopted internationally; the African Union has only recently answered to the crucial need for coherent STI-policies that strengthen the innovation systems especially in SSA by establishing the 'Science, Technology and Innovation Strategy for Africa 2024' strategy (African Union 2014).

The STI-policies have also been included in the development cooperation framework, earliest known as 'Technical Assistance' for Global South countries (Wilson 2007). Because the new beyond-aid paradigm highlights mutual interests between development cooperation partners, it allows the donor countries incorporate their own manufacturers and producers in development activities (Banks & Hulme 2014; Murray & Overton 2016). Thus, Global North actors have increasingly targeted development cooperation towards science, technology and innovation focused programs in the partner countries and regions like SSA to enhance the economic growth and competence building in the area, particularly now in the beyond-aid paradigm era that draws from the economic and private sector driven objectives of neoliberalism (Janus et al. 2015; Hooli & Jauhiainen 2017). Thus, innovation-focused development agendas appear to be at the juncture of innovation policy and development policy paradigms (table 1).

Table 1: Evolution of innovation and development policy paradigms, after Hooli (2019) Powerpoint presentation: 'Development policy 3.0 Towards Innovation focused development policy'.

	Innovation policy paradigms	Development policy paradigms
1950 – 1990	1. Research & Development - New technologies, science & technology, mass production	1. Modernisation & neoliberalism - Industrialization, technological change, free market, enhancing private sector
1990 – 2010	2. Innovation systems - Triple helix, knowledge creation, competence building	2. Poverty alleviation, MDGs - Aid targeted for health care, education, people in poverty
2010 –	2. Transformative innovation - Structural change, societal goals, sustainability	3. Beyond aid - Blended finance, rise of the private sector, innovations & technology for sustainable development

However, policy paradigms rarely occur explicitly one after another nor have clean-cut frames, but instead represent an evolutionary process where multifaceted policies co-exist and evolve (Hall 1993: 273; Schmidt 2011). Kern et al. (2014) note that novel policy paradigms emerge when the current, dominant policy paradigms fail to answer challenges or crises occurring in the society and thus new alternative solutions are required. As the global community is facing such crises now, considering the climate change or the global socio-economic inequalities (IPCC Summary for Policymakers 2018; The World Bank Data 2019a), thus the rise of the transformative innovation policy appears much-needed. Hall (1993: 273) defined policy paradigm as *“a framework of ideas and standards that specifies not only the goals of policy and the kind of instruments that can be used to attain them, but also the very nature of the problems they are meant to be addressing”* to research the spaces, ideologies and frameworks under which policymakers make decisions and solve socio-economic problems. For example, the transformative innovation policy framework represents such a paradigm shift where innovation policies appear to be fostering transformative processes and understanding of broader innovation systems (Diercks et al. 2019). In the 2017 study, Chataway et al. comparatively analyse the innovation policies of five countries – Colombia, Finland, Sweden, South Africa and Norway. The study finds that each of these countries are showing movements from R&D and innovation systems approaches towards the transformative innovation paradigm, however the transformative innovation appears to be pursued by the R&D and innovation system instruments and the paradigms occur as layered upon each other.

Nevertheless, including innovation in the development policies appears more a rule than an exception. For example, OECD promotes innovation as an important instrument for development especially in Global South and has launched a policy framework in support for innovation fostering decision-making (OECD 2012). United Nations Development Programme (UNDP) notes the importance of innovation especially in the context of SDGs and how technology and innovation fostering policies are needed to reach such ambitious goals (UNDP 2017). In 2015, European Commission introduced ‘Science, Technology and Innovation for Sustainable Development’ (STI4SD) agenda, which includes a framework in which *“research and innovation policy and related implementation measures are seen as engines of a transformative agenda built around universally applicable sustainability goals”* (European Commission 2015: 1). STI4SD offers several recommendations for innovation focused EU policies, such as focusing on building

innovation capacity, orientate STI investments towards transformative sustainability, to strengthen aid flows for STI purposes, and enhance coherent SDG supporting policy (European Commission 2015: 24–31).

Even though the innovation-focused development trajectory appears promising, only little research has been done regarding the subject (e.g. Hooli & Jauahinen 2017). Thus, several intriguing questions arise regarding the subject: is the current innovation trajectory fostering ‘destructive creation’ as Kaplinsky (2011) or Soete (2013) suggest, or could it be turning towards inclusive innovation agendas (Chataway et al. 2014) or the transformative innovation process (Schot & Steinmuller 2018)? Moreover, it is one thing to implement innovation-focused policies domestically and another to apply them to development cooperation policies that target relations between multiple countries. Since this study remains rather novel in the field of development research, no clear-cut framework exists that would could comprehensively be applied in this study. Therefore, several aspects need to be considered when researching the complexity of innovation-focused development cooperation in the Sub-Saharan African context.

First, as noted in previous sections, African innovation systems and processes have different grounds than for example Europe does. Agricultural and informal sectors are essential for African production system, knowledge creation and innovations and many smaller communities benefit from local, DUI mode of learning-based activity (Wangwe 2003; Kraemer-Mbula & Wamae 2010; Hooli et al. 2019). Second, many African countries still rely on FDI and ODA especially when it comes to large-scale STI and infrastructure projects, creating a structural dependence on foreign funding and affecting the African innovation ecosystems (Scerri 2013). Finally, the role of the private sector as a development cooperation actor has been researched only little even though its role is increasing rapidly in the Global South countries (e.g. Murray & Overton 2016; Haaranen 2019). It remains necessary to acknowledge these characteristics particularly in the context of this study that focuses on development policies initiated in the European Global North countries but applied in the Global South, SSA. With this premise, I scrutinise my research through empirical examples that contributes to the novel research of innovation-focused development cooperation.

4. Research Data and Methods

4.1. Case study

To understand the dynamics, practices and prospects of the contemporary innovation-focused development cooperation, I chose to research two European countries: Sweden and Finland. These two countries were chosen for several reasons. First, both have earned a significant status in the field of innovation and are considered a part of ‘innovation leaders’ in European Union (European Commission 2018: 8, 13) based on the innovation performance examination of EU countries measured with three-dimensional framework that includes human resources, attractive research systems, and innovation-friendly environment. Second, both countries have a long history with development cooperation in the Global South. Moreover, both have increasingly included innovation in their development cooperation policies and therefore enforced several innovation-focused development cooperation projects in their partner countries. This study targets development cooperation activity in Sub-Saharan Africa and therefore two innovation-focused regional development projects, operating within this region were chosen: Southern Africa Innovation Support 2 (later SAIS 2) supported by Finnish development cooperation agency/Ministry of Foreign Affairs, and BioInnovate Africa (later BioInnovate) supported by Swedish International Development Cooperation Agency Sida. These are not the only programs initiated by Finland and Sweden but considering the theoretical framework, they are extremely interesting and relevant. The programs have same similarities that allow a meaningful comparison and analysis: both are based on funding innovative activity and currently in the middle of their second phases. Lastly, I aimed to avoid exceedingly broad research data and thus wanted to keep the research discreet. Furthermore, considering the schedule for this study, it was sensible to focus on two countries to ensure an exhaustive analysis of the research data.

This research represents a case study (Johansson 2003; Baxter & Jack 2008) for it focuses on individual cases of the innovation-focused development cooperation policies and the development cooperation projects of Finland and Sweden. With this multiple-case study, I aimed to explore the similarities and differences between the cases to achieve contrasting results that can then be set in the context of the theoretical framework of this study. Under these circumstances, the ‘cases’ appear extremely multifaceted, for I

researched not only the policies of each country in question but also the specific development cooperation projects. However, the innovation focused development cooperation policies remained at the core of this study and the innovation projects initiated in the realm of these policies served as empirical examples of innovative activity within a development project.

Acknowledging the contextuality and risks of a case study remained important throughout the research: when working with case studies, some information inevitably gets left out. While making generalisations based on case studies remains under debate (e.g. Yin 2013), I followed the general assumption that case studies can be linked in the general discussion regarding similar research, especially because research targeting innovation focused development cooperation remains extremely novel and should be therefore examined through a wider perspective. Some empirical generalisations can be made with an adequate methodology and framework; however, these types of generalisations are not 'fixed'. In my study, the cases were analysed somewhat comparatively to consider the differences and similarities between the cases. However, since the development cooperation assistance capacities of Finland and Sweden are substantially different for Sweden has remained a major donor for decades whereas Finland appears as rather intermediate development cooperation actor, the aim of the analysis was not to scale or juxtapose Finland and Sweden but to rather simultaneously examine their activity through empirical examples.

Few limitations regarding this type of case study must be acknowledged. Finland and Sweden represent only a narrow percentage of the development assistance donors and therefore cannot be fully used to generalise the development cooperation trajectory of for example Europe or the Global North – yet, since the development paradigms often affect the international political climate and thus the policymaking of the global community, some assumptions and conclusions can be made based on this research regarding the current state and future of innovation in development cooperation. Furthermore, this study does not cover the impacts or 'success' of the development programmes, for that kind of research requires intense co-operation and field work with and within the programmes and would therefore be beyond the capacity of this study. Instead, the analysis and results focus on the program strategies and objectives.

4.2. Policy papers and expert interviews

The research data of this study consisted of twelve policy/position papers or project summaries, complemented with five expert interviews. The official documents were chosen as a research data because of their relevancy to the research topic (table 2). The policy papers and program documents were carefully chosen and examined in the context of the theoretical framework of this study.

Each document varied between 21 and 270 printed pages, was available online and accessible either in Finnish, Swedish or English. One document was only available as a www-page and thus had no printed pages. The official documents are often prepared by various government officials and other parties involved in the development cooperation

Table 2: Official documents as research data

<i>Country</i>	<i>Document title</i>	<i>Published by</i>	<i>Language</i>	<i>Pages</i>
Finland	- Kehityspolitiikan tulospöytäkirja 2018 [Finland's Development Policy Report 2018]	Finland Ministry for Foreign Affairs	Finnish	108 pp.
	- Suomen kehityspolitiikka 2016 [The development policy of Finland 2016]	Finland Ministry for Foreign Affairs	Finnish	49 pp.
	- Suomen kehityspolitiikan tila 2018 [The state of Finland's development policy 2018]	Finland Development Policy Committee	Finnish	77 pp.
	- SAIS2 Call for Proposals 2/2018	SAIS	English	23 pp.
	- SAIS2 Summarised programme document and results 2018	SAIS	English	21 pp.
	- SAIS2 Call for Proposals 1/2018 projects	SAIS	English	28 pp.
Sweden	- Sidas Årsredovisning 2018 [Sida annual report 2018]	Sida	Swedish	270 pp.
	- Support to Innovation and Innovation systems 2015	Sida	English	23 pp.
	- Policy Framework for Swedish development cooperation and humanitarian assistance 2016,	Sweden Ministry for Foreign Affairs	English	63 pp.
	- BioInnovate Africa programme implementation manual 2018	BioInnovate Africa	English	27 pp.
	- BioInnovate Africa Programme Phase II: Second call for concept notes	BioInnovate Africa	English	-
	- BioInnovate Africa Phase II projects	BioInnovate Africa	English	22 pages (combined from individual files).

policy preparation and evaluation. Official development cooperation policy documents included recent information regarding the development cooperation policies of Finland and Sweden and they are published either by each government's foreign ministry or the development cooperation agency. I chose three reports or policy papers from both countries each: Finland's Development Policy Report 2018, The Development Policy of Finland 2016, The state of Finland's development policy 2018, Sida annual report 2018, Sida's support to innovation and innovation systems 2013 and Policy Framework for Swedish Development Cooperation and Humanitarian Assistance. Unlike Sweden, Finland is yet to publish a position paper regarding innovation policy strategy but currently it is included to a certain extent in the reports listed in the table 2. Through official policy reports and strategies, I examined how development and innovation are defined and understood in the context of each country's development cooperation, and further considered the evolution and prospects of the development cooperation policies (e.g. Hooli & Jauhainen 2017).

The development cooperation project documents included SAIS 2 project summary paper and BioInnovate Africa programme implementation manual, as well as Calls for Proposal papers and introduction of grantees from each project. The programme summaries were chosen for their relevancy and overall description of the projects, whereas the Calls for Proposal papers hold empirical information about the implementation of the projects as well important definitions regarding innovation and development. These papers were published directly by either SAIS, BioInnovate or their partner organisations. By using these documents, I was able to evaluate the role innovation plays in each program and furthermore how innovation is implemented within the programs, similar to the approach used with the policy papers published by the Finland and Sweden's development agencies. By examining the already established projects funded by SAIS 2 and BioInnovate, I was able to gain insight about the practical work of the programmes.

The research data was complemented with interviews. Interview is a common way of acquiring data for research and is often used in both quantitative and qualitative research (Tuomi & Sarajärvi 2018: 87). Interviews allow the researcher to gather data through interaction with the interviewee. Interview types vary from structured interview to unstructured interviews and generally researchers use one of the three approaches to interviews: structured interview, theme interview or open (unstructured) interview (Tuomi & Sarajärvi 2018: 87–88). Sometimes a combination of these is used. Semi-

structured interview is often considered as a sub-category of a themed interview, for it holds more freedoms than a structured interview but leaves room for free interaction and additional questions between the researcher and the interviewee. For this study, I chose to use a semi-structured interview for I aimed to gather information on specific theme relating to the theoretical framework of the study, but I also recognised the opportunity of receiving additional, important information that might appear outside of the structured interview questionnaire.

According to Bogner et al. (2009), interviewing experts remains a concentrated and effective way of collecting data especially if the researcher considers the experts as an epitome of knowledge of their respective field. Experts often offer the best access to the information and structures of the institutions behind them, and interviewing experts often allows the researcher to obtain good quality results in short amount of time. However, Bogner et al. (2009) argue that the information gained through expert interviews is never truly objective and must therefore always be adequately reflected to a coherent theoretical background by the researcher in order to analyse the collected information scientifically. I followed the systemizing expert interview approach introduced by Bogner & Menz (2009: 46). In this widely used approach, the interviewee provides information as objective as possible for the researcher regarding research topic. The expert is principally *“a guide who possesses certain valid pieces of knowledge and information, as someone with a specific kind of specialized knowledge that is not available to the researcher”* (Bogner & Menz 2009: 47). In this study, an ‘expert’ represents a person who is well familiar with the subject and interested in objective information and knowledge regarding the research topic in question. The interviews were very context specific so vague generalisations cannot be made solely based on the interviews, however the information provided by experts can be further linked in the larger theoretical framework.

For this study I conducted five semi-structured expert interviews, and the length of the interviews varied from 38 to 57 minutes (table 3). To acquire scientific research data through interviews, I followed the common scientific guidelines on interview regarding the questions, keeping in mind the phrasing of the questions and the language used, and avoiding ambiguity or leading questions (Dunn 2010: 105). The interviews were semi-structured, so as a researcher I led the interview but aimed to a natural flow of interaction between myself and the interviewees. I applied two different questionnaire structures in

Table 3: Interviews data sheet

<i>Interview reference code</i>	<i>Organisation</i>	<i>Language</i>	<i>Length</i>	<i>No. of participants</i>	<i>Technique</i>
<i>A1</i>	Finland MFA	Finnish	57 min.	1	Face-to-face
<i>A2</i>	SAIS	English	50 min.	3	Skype
<i>B1</i>	Sida	English	51 min.	2	Skype
<i>B2</i>	BioInnovate	English	38 min.	1	Skype
<i>C1</i>	The World Bank	Finnish	50 min.	1	Skype

my interviews based on the expert's background, namely whether they are working in the field of political affairs as advisors/specialists or within the management of the innovative development projects. The questions in both questionnaire structures were similar but focused either on innovation-focused development policies or innovative development projects to fully gain access to the unique expertise of each interviewee. All interviews were first recorded and then transcribed for further analysis. The experts interviewed come from various fields and have diverse backgrounds but are nevertheless all working in the field of development and/or possess knowledge about innovations in development: they are specialists, advisors or program executives. Some interviewees chose to stay anonymous and thus I only refer to the experts by their profession in the results and conclusions sections if necessary.

4.3. Content analysis

Content analysis is qualitative method tool used to analyse data such as text, images or videos through their content (Julien 2008; Tuomi & Sarajärvi 2018: 117). The exact means of analysis depend on the nature of the research, but content analysis is often adequate to find recurring themes, different categories, relationships between the contents, and other essential elements from the research material. With content analysis, the research material can be described coherently and comprehensively, and classified or summarised effectively without losing the information it holds (Tuomi & Sarajärvi 2018: 117). Content analysis is always subjective, for it displays the researcher's own interpretation of the subject (Julien 2008). Traditionally, there are three major approaches to content analysis: conventional, directed and summative content analysis. In conventional content analysis the themes or categories derive from the research material, whereas in directed content analysis the categories are based on the theoretical

framework. Summative approach differs from these two, for it is often used to focus on small parts of the data, e.g. single words, and then to create patterns based on the text. Content analysis can be either theory-based or material-based, however, these two approaches are not fixed and often overlap. Tuomi & Sarajärvi (2018: 120–135) introduce a theory-led approach to content analysis which combines both approaches and applies theoretical framework together with information gathered from research data. In theory-led content analysis, theoretical framework creates a basis for the analysis, but does not necessarily define all themes or categories used, and instead research material is also applied in order to find important themes. In this study, I chose the directed & theory-led approach to content analysis.

To analyse a large amount of diverse data, I used thematic qualitative content analysis (Kuckartz 2014: 74–89). This approach includes the construction of main topical categories (themes) followed by sub-categories, coding the data based on the established themes, and then analysing the data based on the categories. Since my approach to content analysis was theory-led, I constructed main topical categories along with the questionnaire used in expert interviews to create a solid theoretical base for both, the interview and analysis phases. Development studies framework along with innovation, i.e. innovation processes, actors, modes and types, remained at the core of the thematic area when constructing the analysis categories. The transformative innovation policy framework introduced by Diercks et al. (2019) also remained important throughout the analysis as a strong theoretical reference for it effectively couples development with innovation. The initial topical categories were (1) beyond aid, (2) development objectives, (3) actors of innovation, (4) processes of innovation, (5) types of innovation, (6) modes of innovation, (7) transformative innovation, (8) innovation policy, (9) benefits and (10) challenges. Each category included several sub-categories to further specify and differentiate the content.

To enhance the analysis phase I utilized NVivo 12 software to organize and scrutinize the research data. I benefitted from the large set of qualitative data analysis tools of NVivo 12, for example by efficiently coding the research data into categories, visualising the most commonly used words in the research data or by comparing the hierarchy of each theme within the data. The main categories, known as ‘nodes’ in NVivo 12, remained the same I established prior to the analysis phase, however a few subcategories emerged during the analysis – this is what Kuckartz (2014: 74) regards as ‘a second coding

process'. I first categorized the content of policy papers in NVivo 12 and then proceeded to the transcribed interviews. Then I compared, combined and evaluated the data within and between each category and sub-category to create scientific and relevant results. In addition to contrasting the results between Finland and Sweden, I reflected the development cooperation programs to their respective countries' development cooperation policies.

5. Case Study Introduction

5.1. Development cooperation policy in Finland

Development policy is an essential part of the foreign policy of Finland. The development cooperation strategies and objectives are administered by the Finland Ministry for Foreign Affairs. The Official Development Assistance program of Finland first started in 1962 in the realm of the Cold War, when development cooperation was extremely intertwined with politics and foreign affairs (Virtanen 2013: 23). In 1965, Finland established its first Development Cooperation Agency. At this time, approximately 90% of the ODA was directed multilaterally through the UN. The development cooperation policy of Finland has evolved through decades along with the development paradigm shifts and has often followed the international trends in the development cooperation landscape. During the structuralism and neoliberalism era in the 1970s–1980s the development assistance was primarily commercial and had its grounds in the Finnish expertise and technology (Laakso & Iso-Markku 2012). The common agenda was to promote development through growth, technological advancements and education. During this era, Finland's development aid budget quadrupled, and the assistance was generally implemented through cyclical development projects.

In 1975, Finland joined DAC and committed to meet the common target of ODA being 0.7% share of the national GDP. The ODA momentarily reached the targeted 0.7% share of GDP, but the recession in the early 1990s later plummeted the Finnish ODA budget. In 1990s–2000s the global community started to re-evaluate the means of development assistance and thus the exports of Finnish technologies and expertise to the partner countries decreased significantly. In 1995 Finland became a part of the European Union which integrated the Finnish development cooperation agendas with the strategies of the EU, and the development assistance centralized explicitly to fewer countries. The development assistance of Finland remains multifaceted, and includes bilateral and multilateral cooperation, regional development assistance, as well as funding the EU development sector, NGOs and other international organisations such as the World Bank (Finland Ministry for Foreign Affairs [MFA] 2019a). Private sector has increasingly been included, most notably the development financier Finnfund that offers funding and assistance for Finnish businesses seeking to invest in the developing economies. Finland

has consistently targeted primarily Sub-Saharan African and Southeast Asian countries in its development assistance and the objective is to support the ‘most vulnerable regions’. The multilateral partner countries of Finland from SSA are Ethiopia, Kenya, Tanzania, Mozambique, Somalia and Zambia. The disbursements to least development countries out of the total ODA of Finland was 264 million euros in 2018 (Development Cooperation Statistics 2018).

Currently, the implementation of development cooperation in Finland is based on the 2016 Finnish Government’s Report on Development Policy, and these development cooperation activities follow the Agenda 2030 sustainable development goals. The Finland Ministry for Foreign Affairs states (2019b): that “*the goal of Finland’s development policy is the eradication of poverty and inequality and the promotion of sustainable development*”. Finland has set four priorities in its development assistance: the rights and status of women and girls, the growth of development countries’ economies, democratic and functioning societies, and food security, access to water and energy, and sustainable use of resources. The Minister for Trade and Development who runs the Ministry for Foreign Affairs for four years defines the framework for development cooperation in Finland, and therefore the Finnish development cooperation strategies are particularly prone to change after each governmental season (Hooli & Jauhiainen 2017); however, there is some continuity in terms of development cooperation for many projects and partnerships are set to run beyond the seasons and thus cannot be disrupted after new elections. Finland grew the development assistance budget consistently in the 21st century until 2015, when the development assistance appropriations decreased significantly due to the budget cuts of the 2015–2019 central-right wing government (figure 4). 130 million euros of grant aid was remodelled to loans or investments that Corporate Social Responsibility-committed enterprises could channel to the partner countries. The appropriations have since increased, however the disbursements’ share of GNI remained at 0.38% in 2018. Finland has vigorously directed its development cooperation strategy to a direction that generates benefits not only for the Global South partner countries but for the Finnish enterprises as well (Hooli & Jauhiainen 2017).

In the context of innovation-focused development cooperation, Finland has applied innovation in its development policies and programs since the early 21st century (Hooli & Jauhiainen 2017). One of the first development projects emphasizing innovation was

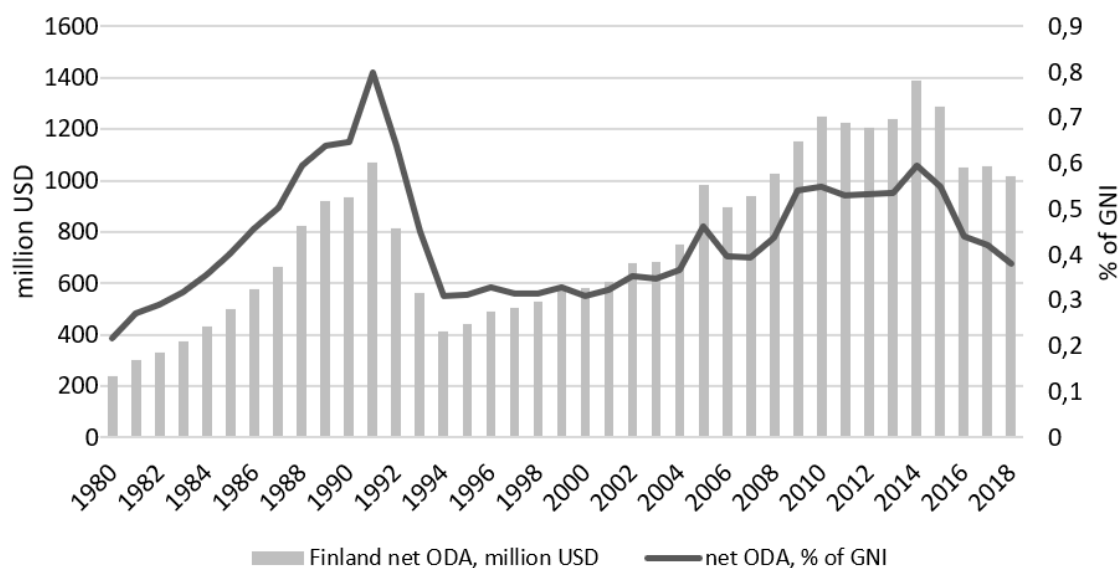


Figure 4: Finland's Official Development Assistance (ODA), million USD and its share of GNI (%) 1980–2018. Source: OECD (2019). Net ODA. Available at <<https://data.oecd.org/oda/net-oda.htm>>.

Cooperation Framework on Innovation Systems between Finland and South Africa, COFISA. After this project, several similar projects focusing on innovation systems and knowledge creation were initiated between Finland and cooperation partners. During the beyond-aid era, Finnish development assistance has been increasingly directed towards private sector, ICT and business-oriented programs, including a recent innovative ‘flagship-program’ Business with Impact (BEAM) program (Haaranen 2019). BEAM offers funding for innovative enterprises to co-operate with partners in Global South, highlighting the role of the private sector, loans and capital investment. In general, developing innovative activity and improving the knowledge society in the Global South has become much more apparent part of Finnish development cooperation strategy.

5.2. SAIS 2

Amongst the other innovation-focused development programs initiated by Finland, Southern Africa Innovation Support (SAIS) was established in 2011 to support the national and macro-regional innovation systems in Southern Africa (Hooli & Jauhiainen 2017). The main objectives of SAIS are to inaugurate new regional knowledge-sharing networks, enhance human skills and capacity and establish institutions or operations that foster and reinforce innovation systems. The first phase of SAIS ran for four years from 2011 to 2015 and successfully took part in launching macro-regional innovation systems and networks. SAIS was followed by a second phase called SAIS 2, a program chosen

for further examination in this study. SAIS 2 was launched in 2017 and is set to operate until 2021 (SAIS 2019). The Government of Finland has funded SAIS 2 with 8.7 million euros (MFA 2019c). Finland Ministry for Foreign Affairs administers the funds, follows the progress of the project and confirms that the regulations and procedures are complied with (SAIS 2019). The program currently operates in Botswana, Namibia, Tanzania, South Africa and Zambia. The ministries of the countries in question act as strategic implementation agencies (Focal Points) in the program alongside with FMA and The Secretariat of Southern African Development Community (SADC).

As stated in the SAIS 2 website, it is “*a regional initiative that supports the growth of new businesses through strengthening innovation ecosystems and promotion of cross-border collaboration between innovation role-players in Southern Africa*” (SAIS 2019). SAIS 2 aims to create networks between the partner countries and regions and focuses on early-stage businesses and young entrepreneurs and supports projects with a positive impact especially on marginalised people and excluded communities, and it aims to share knowledge and create networks between the people. The SAIS 2 Innovation Fund grants funds to innovation-focused projects, businesses and entrepreneurs that are operating in multiple countries to promote the networking between the regions. SAIS 2 has three distinguished project trajectories, referred to as Call Windows within the project, which each have a specific target: (1) to build stronger ecosystems, (2) enhancing innovation in enterprises and (3) inclusive innovation. Potential applicants are for example innovation hubs and labs, research groups, technology transfer offices, NGOs or private sector actors. In early 2018, the first Call for Proposals were made after which 12 projects received grants to support the project (SAIS 2 Call for Proposals 2018/1 2019). Funded projects include for example a regional open innovation platform project, a soil health advisory system project, a future education project, and IT & online training incubator for women projects. Even though these projects come from various sectors, they all focus on one of the three Call Window. The second Call for Proposals closed in January 2019. Because the activities of SAIS 2 differ from the activities of the first phase of SAIS, this study will focus on the second phase. However, since SAIS 2 is relatively new program as of 2019, there are some limitations regarding this study; for example, comprehensively contemplating the effects and influence of the activities of SAIS 2 before the completion of the project appears challenging. Thus, this study will focus on the activities and agendas of SAIS 2.

5.3. Development cooperation policy in Sweden

Sweden has a long tradition as a major donor in the development cooperation assistance landscape. The official foreign assistance of Sweden also began in 1960s with a main target of reducing poverty and promoting growth in the Global South (Bigsten et al. 2016). Swedish International Development Authority SIDA, now known as Swedish International Development Cooperation Agency (Sida), was formed in 1965. Following the global agendas, also the Swedish aid was initially focused on infrastructure and social development of developing countries. Following the global development paradigm in the 1970s, donor countries including Sweden re-established their agendas and under the realm of neoliberalism. The development cooperation agenda of Sweden remained to provide aid that answers to the need of the recipient, and the new sub-goals for development cooperation assistance were resource growth, economic and social development, economic and political independence and democratic development of the society (Bigsten et al. 2016: 3). From early on, Sweden agreed to reach the ODA share of 0.7% from the GNI and remains one of the few countries to reach the targeted goal. When global net aid stagnated or even declined in the 1990s, also the budget of Sweden's development assistance was cut (figure 5). Whereas the structural adjustment programmes in the neoliberal era had shifted the responsibility of implementing the development assistance away from the recipient, Sweden now aimed towards the recipient-focused assistance once again. Sweden then focused its aid increasingly on

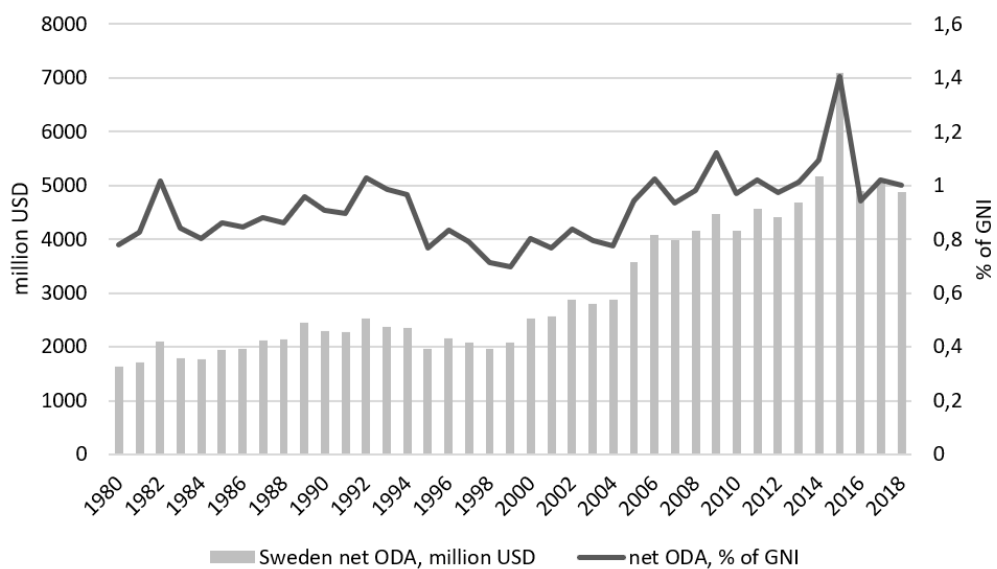


Figure 5: Sweden's Official Development Assistance (ODA), million USD and its share of GNI (%) 1980–2018. Source: OECD (2019). Net ODA. Available at <<https://data.oecd.org/oda/net-oda.htm>>.

development aid projects and emphasised the importance of having dialogue between the donor and the recipient.

Sweden joined the European Union in 1995 and it has been considered a major development assistance donor from early on (Danielson & Wohlgemuth 2003: 11). Sweden has been involved in the EU decision making process regarding the development cooperation strategies, and Danielson & Wohlgemuth (2003) argue that in many cases the country has been the forerunner regarding the development cooperation strategies and thus seen somewhat as an example for the other donor countries within the EU. They note that even though the EU membership has affected many practicalities within the EU, Sweden has nevertheless maintained their own strategies throughout the EU membership and the development cooperation agendas of the EU have had only little influence of Swedish national aid strategies. In early 21st century, influenced by the MDGs and the paradigm shift towards humanitarian goals in the global development cooperation landscape, Sweden increased its efforts to alleviate poverty and create better livelihoods in the partner countries (Bigsten et al. 2016). Sweden's policies were composed by strongly following the MDGs and the effectiveness of aid was reconsidered within the policy agendas. In mid-2000s, a centre-right wing government tightened the control over development assistance and aimed for more clear-ended development cooperation projects. However, in 2014, a social-democratic/green government refocused the development assistance agendas within the realm of the SDGs.

The Swedish development cooperation strategies are implemented by Sida which also governs most of the development cooperation budget – out of the 4.85 billion USD development assistance budget in 2019, Sida manages 4.57 billion (Sida 2019a). Sida operates within the Government of Sweden guidelines and currently follows the 2016 Policy framework for development cooperation and humanitarian assistance. In this policy framework, the thematic areas of development cooperation include human rights & democracy, global gender equality, environmental sustainability, peaceful & inclusive societies, inclusive economic development, migration & development, equal health and education & research. Sweden has targeted to ODA share of 1% from GNI and has succeeded in doing so, excluding a temporary decrease in 2016, ranking Sweden as the largest ODA donor based on GNI IN 2017 (Gårdemyr 2018). Sida's development cooperation remains extremely multifaceted and includes bilateral, multilateral, regional cooperation alongside with global partnerships with international institutions such as The

World Bank, The UN, NGOs and the funding the development cooperation of the European Union. Sida also creates partnerships with the private sector the civil society, however Sida defines these partnerships as ‘methods’ rather than distinct programmes (Sida 2019b). Out of the 33 bilateral partner countries of Sida, 15 are in Sub-Saharan Africa: Burkina Faso, Democratic Republic of Congo, Ethiopia, Kenya, Liberia, Mali, Mozambique, Rwanda, Somalia, South Sudan, Sudan, Tanzania, Uganda, Zambia and Zimbabwe (Sida 2019c).

Sida has a long history of combining innovation with development cooperation, earliest innovation-focused starting in the beginning of the 21st century, for example BIO-EARN project initiated in 1998 in Ethiopia, Kenya, Tanzania and Uganda to develop the countries’ capacity in agricultural technology and biotechnology (Sida 2012). Sida and the Sweden Foreign Ministry have acknowledged the role of innovations in development and for example published an evaluation report “*Evaluation of Sida’s Support to Innovation Systems and Clusters*” that covers a period from 1997 to 2011 to contemplate the achievements and negativities of innovation activity in Global South. Following this report, Sida has composed a “*Support to innovation and innovation systems*” position paper to define the vital elements of innovation-focused activity in development cooperation which will also be analysed in this study.

5.4. BioInnovate Africa

One of the innovation-focused development cooperation programs supported by Sida is BioInnovate Africa (later BioInnovate), a programme that supports “scientists and innovators in the region to link biological based research ideas and technologies to business and the market” (BioInnovate 2019). The objectives of BioInnovate include capacitating scientists, innovators, entrepreneurs and researchers to find bio-based research ideas, innovations and technologies that can be further developed in the markets, aiming to improving the livelihood of local farmers and communities. After the completion of the first phase in 2014, BioInnovate is currently in its second phase, set to run from 2016 until 2021. Currently, the partner countries engaged in the BioInnovate project are Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda. However, the roots of BioInnovate trace even further back for it evolved from the Eastern Africa Regional Programme and Research Network for Biotechnology, Biosafety and Biotechnology Policy Development (BioEARN) that run from 1999 to 2009, which was a forerunner in

the Eastern Africa bioscience research. The Programme Management Office of BioInnovate resides in Nairobi, Kenya, where another co-partner International Centre of Insect Physiology and Ecology (Icipe) also operates. Sida is funding the second phase of BioInnovate with approximately 15 million US dollars (Icipe 2017a).

In the first phase, BioInnovate program aimed for example to build innovation platforms on new technologies, increase production values and establish new bio-science innovation policies by granting funding and support to nine innovation-focused projects (Icipe 2017b: 7). The program highlighted regional collaboration and networking between scientists, public sector and private investors. These are a vital part in the second phase of BioInnovate as well, however now the program aims to increase the linkages between bio-science innovation and the market. Main objectives of BioInnovate Phase II are to (1) generate bio-science innovations that meet the needs of small farmers and agro-processors in the region, (2) evaluate relevant policy options to support scientists working with bio-science innovation, and (3) establish BioInnovate as an independent NGO (Icipe 2017b: 7–8). The thematic areas of the second phase include adding value to agro-production, agro-business and agro-waste, and developing policies, capacities and tools that promote bio-science innovations to the farmers and agroprocessors. BioInnovate aims to create stronger base for the regional bio-economy in Eastern Africa by increasing the value of biological resources that in turn enhance the socio-economic performance and environmental sustainability in the regions (BioInnovate 2019). The second call for concept notes in the BioInnovate Phase II closed in early February 2018. Like SAIS, BioInnovate is also in the middle of its second phase and thus some limitations occur in the context of this research. Few observations can be done based on the descriptions of the first phase of BioInnovate, however evaluating the program results before it has been successfully finished remains inadequate. Therefore, this study focuses on the objectives and activities of BioInnovate to understand the role of innovation within the project.

6. Results

6.1. The private sector and innovation in the development cooperation policies

The increased role of the private sector in the development cooperation landscape is evident throughout the research data, not only in the development cooperation strategies but also heavily underlined by the interviewed experts. New funding instruments and means of co-operation have emerged and the cooperation with the private sector has expanded significantly. The common rationale behind involving more private sector actors is the demand for new ways of expanded funding to reach the development goals in the Global South. The assistance is noted to create new spaces and business models for entrepreneurs to work within in the Global South partners. Corporate Social Responsibility is underlined in the new landscape for it requires private sector to evaluate their impacts and thus work more efficiently as a development actor.

The research data initiates that Finland and Sweden have taken a different approach when it comes to collaborating with the private sector. Finland as a development actor is more eager to explore the possibilities to engage with or facilitate the private sector itself, whereas Sweden would rather influence the framework in which the private sector operates. Finland has increased the funding of Finnish private sector development actors, and for example the development financier Finnfund was granted 130 million euros in 2016 (The 2018 Development Cooperation Results Report of Finland: 17). The Finland Ministry for Foreign Affairs underlines that development must remain at the core of the development financiers' activity. For example, Finnfund has determined that at least 75% percent of its funds must be directed to the lower-middle income or low-income partner countries. Other Finnish private sector actors include the Business with Impact (BEAM) and Finnpartnership programs that both seek to connect Finnish companies with new partners in the Global South countries to create development impacts.

“Several countries, Finland included, have started to strengthen their national interests and it’s extremely apparent in terms of business support and the meaning is supposed to be that when we fund businesses we advance development.” – Innovation specialist (A1, translated).

Sida has also committed to work with private sector partners but does not aim to prioritise Swedish businesses over other nationalities. Rather, Sida's priority with the private sector lies on finding new efficient ways to cooperation or funding, and these strategies include for example Public-Private-Partnerships, blended finance, challenge funds that grant financing for entrepreneurs supporting sustainable development, or 'Innovative Finance' guarantee instrument that through which Sida issues guarantees to loans taken by early-stage entrepreneurs in the Global South.

“I think the rationale for collaborating with private sector now is Agenda 2030, and not that we should give them aid money to do projects, but rather to look at their value change, the norms and the rules and regulations that govern their behaviour.” – Innovation advisor (B1).

In the new development cooperation landscape, science, technology and innovation have a special role for they are regarded to be the key drivers of growth. The role of innovation in the development cooperation policies has grown substantially over the recent years, not only in Finland and Sweden but internationally as well. The experts agree that the change has taken place rapidly over merely five years, and pre-2015 innovation-focused development cooperation had remained rather small scaled.

“Suddenly over the past five years [innovation] has become mainstream and now it is hard to find a development financier that wouldn't somehow fund innovations or be active in that field.” – ICT specialist (C1, translated).

The research data indicates that Sweden has a more systemic approach to the innovation-focused development policy than Finland. Sida's innovation-focused development agenda becomes evident in the 2015 position paper which specifies the role of innovation and how innovation can be supported, and it further addresses the challenges that occur in the innovation-focused development paradigm. The paper (Sida Position Paper to Support Innovation 2015: 11) defines two major approaches Sida has assumed to include innovation in its development cooperation agenda: first by supporting the growth and enhancement of local innovation systems in the Global South, and second by supporting the research regarding the innovation processes and development. The Development Policy Framework Report of Sweden (2016: 7, 12, 32) further notes the social, inclusive and demand-side needs of innovation development. The innovation-support paper of Sida follows similar objectives (2015: 7–9). It also points out the need to assist research in

high-education institutes to increase the amount of domestic knowledge in the Global South to further advance the local knowledge society, and for example the role of the universities is particularly highlighted for they produce skilled labour and scientific research for the innovation systems to benefit from. According to the innovation support report, innovation is included in each of the bilateral partner programs of Sida and the support is directed particularly towards innovation clusters to enhance the innovation systems in the Global South, few examples being the Zanzibar seaweed cluster or Morogoro metal works cluster in Tanzania (Sida Position Paper to Support Innovation 2015: 11–13). Sida’s regional development cooperation also applies innovation, and in addition to BioInnovate, Sida supports for example BecA-ILRI research hub in Central Africa or The Pan African Competitiveness forum PACF.

“Sida channels support to innovation through the bilateral, regional and international systems, to universities, research and innovation councils, research and innovation institutions, ministries and international organisations.” – Sida Support to Innovation and Innovation Systems 2015: 11.

In the development cooperation strategy of Finland, innovation remains more abstract. The strategy of Finland applies innovation mostly within Finland’s development cooperation objective number two i.e. supporting the growth of economies in the Global South partner countries. The Development Cooperation Results report of Finland (2018: 32) remarks the role of Finnish know-how, expertise and investment when increasing the innovation capacity of a partner country in the Global South. Finland also accentuates its role as an important member of the global development cooperation community for the successful innovation-focused development cooperation executed in the past (The Development Cooperation Results report of Finland 2018: 34, 78–79). Besides enhancing the economies in the partner countries, Finland seeks to find new market opportunities for Finnish companies from the Global South partner countries and for example the BEAM program represents such agenda (Finnish Government Report on Development Policy 2016: 40; The Development Cooperation Results report of Finland 2018: 32). Finland also concluded an innovation-focused partnership IPP2 that developed start-up landscape and innovation policies in Vietnam that resulted in the launching of innovation activity within Vietnamese universities. In addition to SAIS 2, other regional development cooperation projects funded by Finland also appear to have innovation focus; The Southern Africa Network for Biosciences SANBio or Energy and

Environment Partnership Programme in Southern and East Africa (EEP S&EA) are both remarked to apply innovation. In the results report of Finland, Finland’s innovation-focused development funding seems to be linked mostly with the private sector. For example, the Finnish development financier Finnfund facilitates such activity and has steadily increased its investment in the Global South during the past years (Finnish Government Report on Development Policy 2016: 41; The Development Cooperation Results report of Finland 2018: 13, 17).

“Finland has made substantial inputs into the expansion of the innovation capacity of the private sector in developing countries, use of Finnish expertise and solutions, and the support of climate sustainable business” – The 2018 Development Cooperation Results Report of Finland: 32.

Based on the research data, the most common approach to innovation are product and process innovations which provide a new product or solution in the Global South partner countries that are assumed to advance development objectives; particularly the Finnish development cooperation strategy as well as appears to focus more on the product and process approach. However, institutional or organisational innovations are driven through the knowledge creation and cooperation processes are very apparent in the strategies of Sweden. The development cooperation strategies of Finland and Sweden both emphasise the need to enhance innovation capacity and competence building in the partner countries (Sida Position Paper to Support Innovation 2015: 10; Finnish Government Report on Development Policy 2016: 18; Sidas årsredovisning 2018: 99; The Development

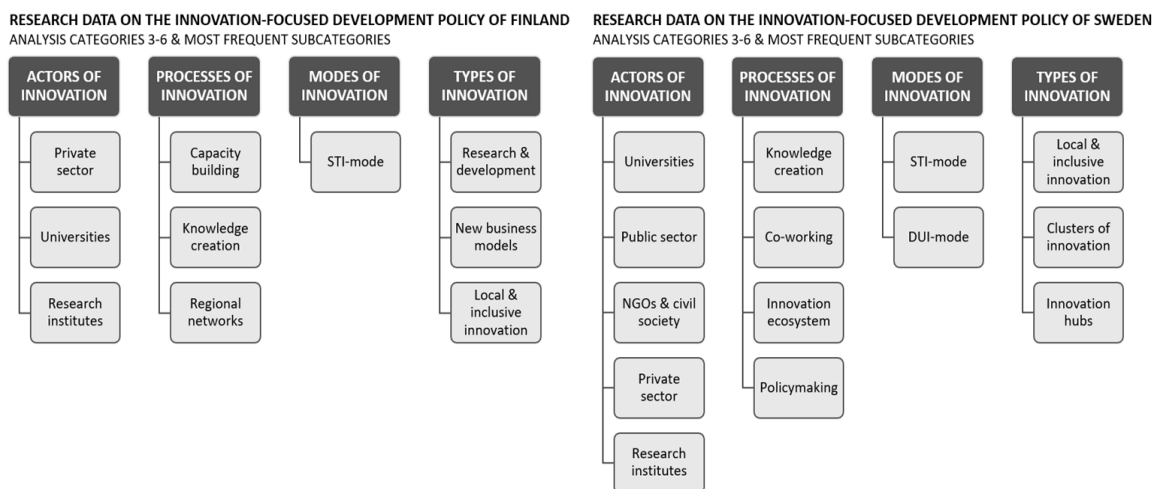


Figure 6: The main topical categories and most frequent subcategories based on the research data on the development policies of Finland and Sweden.

Cooperation Results report of Finland 2018: 32, 34), however after the analysis it is evident that the Swedish policy papers describe innovation in greater detail and include a multifaceted set of innovation actors, processes, modes and types (figure 6). This is mostly due to the detailed innovation-focused strategy paper Sida has published, as such comprehensive paper is absent in the Finnish development cooperation framework. The understanding of innovation also differs between the policies, for the Finnish papers often treat innovation as an outcome i.e. process and product innovation, whereas Swedish policy regards it rather a tool than an objective. Furthermore, in the Finnish development cooperation framework, innovation is set to arise primarily amongst the private sector where also most of the innovation capacity support is directed. The strategies of Sweden alongside with Swedish experts emphasise the all-around actor framework when it comes to innovation support.

“When you talk about innovation, many times everyone thinks they’re talking about the private sector -- it can be involved but it’s not mandatory, so I think some of us are still stuck there and especially our partners thinking a lot about technological innovations and so on and [Sida] really want to push that it’s something else.” – Research advisor (B1).

When it comes to the formulation of innovation, knowledge creation is acknowledged as a vital part of innovation ecosystems throughout the policy papers. Sida distinguishes means to advance the knowledge creation and the transfer of knowledge in its policy papers (Sida Position Paper to Support Innovation 2015: 5 – 8; The Development Policy Framework Report of Sweden 2016: 34, 40–41) and Finnish strategy focuses more on the capacity building and facilitating innovative enterprises (The Development Cooperation Results report of Finland 2018: 30–32, 35). The support to small and medium scale enterprises and start-ups is particularly highlighted, for local businesses are noted to advance the prosperity and growth in the region. On the contrary, the modes of innovation appear not to be straightforwardly distinguished in the policy reports. However, the science, technology & research activity as innovation-creating process is especially pointed out, and technology and innovation as concepts are often mentioned simultaneously. The innovation support report of Sida particularly remarks the importance of co-working and human interaction, thus indicating towards the DUI-model or learning (Sida Position Paper to Support Innovation 2015: 4–5, 8), whereas the result report of Finland indicates a greater focus towards product and process innovation e.g.

R&D activity and new business models (The Development Cooperation Results report of Finland 2018: 30).

In general, gender equality and women's rights are underlined throughout the research data; including local entrepreneurs and women into the value chain remains as critical part of development objectives and thus implies the usage of local, inclusive innovation (Sida Position Paper to Support Innovation 2015: 8, 20; The Development Policy Framework Report of Sweden 2016: 32; The Development Cooperation Results report of Finland 2018: 24, 35; The state of Finland's development policy 2018: 60–61). Finland development cooperation results point out the new opportunities women entrepreneurs have gained through the development advances; however, the activity is not defined as 'inclusive innovation'. Sida's innovation support report straightforwardly defines the concept of inclusive innovation, and it consequently appears the most emphasised objective throughout the data on the development cooperation policy of Sweden. The report also takes note on the bottom-up approach and mentions both, informal and formal sector as innovation capacity building grounds (Sida Position Paper to Support Innovation 2015: 4). The policy reports of Finland do not straightforwardly demonstrate similar focus. Yet, several regional development cooperation projects supported by Finland have an innovation focus and thus have a positive effect on the regional innovation systems, which in turn is one of the Finnish development cooperation objectives (Finnish Government Report on Development Policy 2016: 36–38).

All experts working with the development cooperation organisations distinguish challenges that innovation, technological change and digitalisation can create. The advancements happen extremely rapidly, and the experts note that research regarding the topic cannot keep up with the progress. If not adequately prepared to, digitalisation can bring about undesirable outcomes, and since the Global South countries often have weaker institutions and little resilience, addressing the consequences of digitalisation in the Global South appears particularly crucial. However, the most conspicuous challenge based on the research data is the disparity amongst development actors, policy makers and other entities regarding the understanding and definition of innovation. Private sector actors have often different perspective on innovation than for example governments, and sometimes the knowledge about innovation appears completely absent in the strategies of the public sector entities. The experts also recognise some unclarity regarding the roles the different actors, i.e. private sector, governments or NGOs, have in the field of

innovation-focused development. The experts that discussed about innovation in the Finnish development policy pointed out the absence of coherent innovation-focused understanding and definition within the country's development framework. The Swedish experts did not pinpoint Finland amongst other countries but agreed that many of Sida's partners have a somewhat narrow understanding of innovations, whereas Sida aims for a broader perspective.

“Many other countries have defined the differences between enhancing private sector, international trade, sustainability and innovation support whereas we [Finland] haven't done it at all and that's why our field is somewhat chaotic.” – Innovation advisor (A1, translated).

The weak innovation ecosystems of Global South were also noted to be a challenge. The unstructured markets and weak private sector, lack of financing systems, as well as the poor absorption capability to use new knowledge are identified as stagnating factors when it comes to the usage of innovation. Moreover, since the Global North innovation processes are not straightforwardly applicable in the Global South, the lack of solid understanding of innovation further complicates the policymaking processes. When concentrating on innovation-focused economic growth, the lack of research and evidence could lead to increased inequality and inequities between regions especially when it comes to technological development, employment and income. Thus, the experts determine a need for exhaustive research regarding the fundamental processes of innovation as a development tool, to deepen the understanding on the actual mechanisms of innovation processes.

“There is a need for better information and evidence regarding what are the mechanisms affecting development, and in general what kind of investments and incentives are effective to advance development. – When developing countries are entering the innovation-focused economic development paradigm, it can actually increase the inequality between the growing cities and the countryside... So, there are many risks.” – ICT specialist (C1, translated).

6.2. Innovation in the development cooperation programs

SAIS and BioInnovate are both regional development programs targeting Sub-Saharan Africa, however the operative region of SAIS 2 is the Southern Africa whereas the partner

countries of BioInnovate are in the Eastern Africa. BioInnovate operates mostly in low-income countries i.e. Tanzania, Uganda, Rwanda, Ethiopia and Burundi excluding lower-middle income country Kenya, whereas SAIS operates in upper-middle income countries South Africa, Botswana, Namibia, lower-middle income country Zambia and low-income country Tanzania (figure 7). Both programs have similar goals targeting regional integration within the African continent as well as increased innovation-focused development activity, prosperity and growth.

When moving on to the development cooperation program level and examining the innovation-focused activities of SAIS 2 and BioInnovate, innovation appears more empirical than on the development cooperation policy level. Essentially, the objective in both programs is to support regional and local innovation activity to create new business models, products or new ways and tools of working that then foster employment, growth, social inclusion and opportunities within the region. This is achieved by funding teams, organisations or consortiums that foster the innovation-focused activity and meet the high-standard eligibility criteria of SAIS 2 or Bioinnovate. SAIS 2 offers funding to innovation support organisations that endorse new entrepreneurships, educate and support early-stage entrepreneurs or start-ups and create new regional networks within the

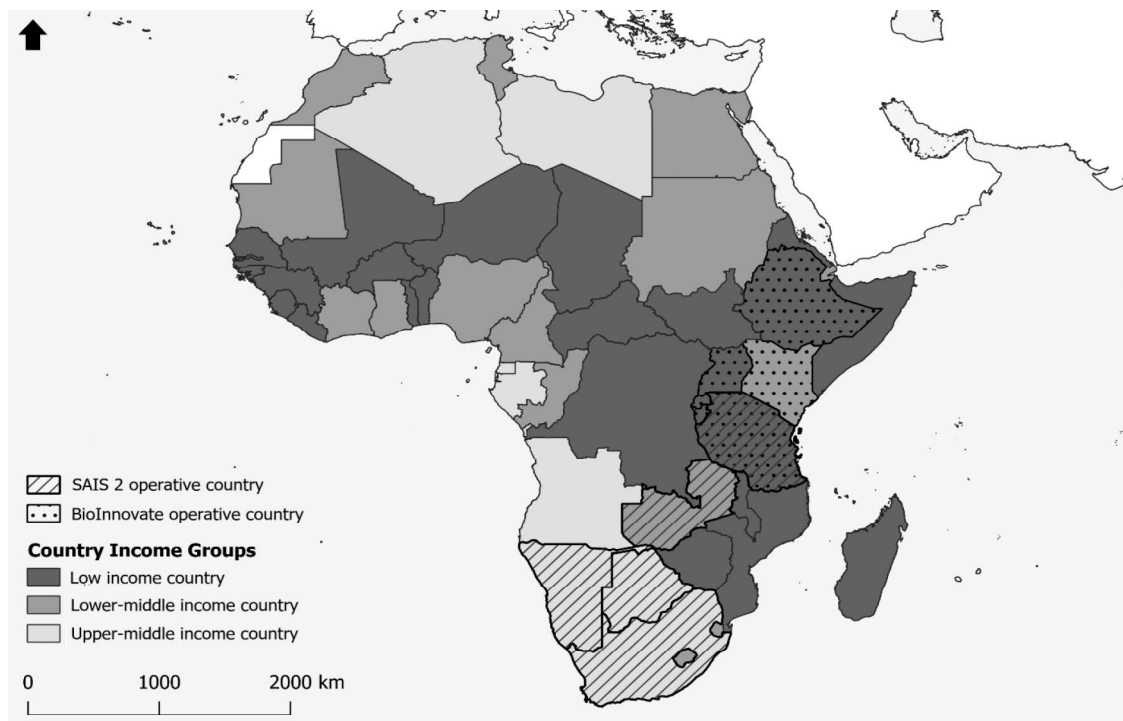


Figure 7: SAIS 2 and BioInnovate operative countries with The World Bank country income classifications. Source: The World Bank (2019a) <<https://databank.worldbank.org/data/source/world-development-indicators>>.

operative area. The most emphasised goal of SAIS 2 is to enhance the regional innovation system through new partnerships, cooperation and networks, however it also aims to scale and facilitate new enterprises and enhance inclusive innovation activity (SAIS 2 Summarised programme document and results 2018: 5–6). The actors in the SAIS 2 framework appear extremely multifaceted, for the funded organisations can be public or private actors, research and academia entities or civil society operators. To achieve regional cooperation, the organisation or consortium applying for SAIS 2 funding must include partners from at least two of the operative countries of the program (SAIS 2 Call for Proposals 2/2018: 16). Essentially, the main beneficiaries in the SAIS 2 framework are local, early-stage enterprises that need support in scaling-up, piloting new products in the markets or networking with new partners.

“The idea [of SAIS] is to network entrepreneurial organisations or organisations forming entrepreneurs, so they can share the best practice what they been done, they can put together new instruments that could benefit entrepreneurs in many different countries.” – Expert (A2).

The funding method of BioInnovate is similar than the one of SAIS 2, for it also grants funds to teams with multifaceted spectrum of actors from private sector, public sector, research, academia or civil society (BioInnovate Africa programme implementation manual 2018: 7–8). Alongside with innovation, the main objective of BioInnovate is to enhance and support bio-based solutions that create value and new opportunities in the agricultural sector and benefit particularly the smallholder farmers in the region. This is done by developing new biobased products or technologies, incubating early-stage biobased businesses and enhancing the innovation ecosystem within the region. Like SAIS 2, also BioInnovate aims for regional integration and networking, and thus requires the funded teams to involve initiatives from at least three operational countries of BioInnovate (BioInnovate Africa programme implementation manual 2018: 14–15). BioInnovate has product and process-based approach to innovation because the program objective is to develop new technologies, products or methods that add value to the production and increase sustainable farming solutions or techniques. It also has an economic objective for the program aims to put the new innovations on the markets and thus attain revenue for the stakeholders.

“The whole idea of Bioinnovate is that we can help Eastern Africa to leverage the rapid advancements in biosciences to add value to biological resources and contribute to sustainable development in the long term.” – Expert (B2).

The objective to increase regional integration within the operative areas of the programs is evident in the research data. The rationale behind this is multifaceted and includes the efforts to enhance the regional economy, innovation ecosystem and cooperation, as well as to allow easier mobility of knowledge, skills, human capital and technologies. The research data indicates that the innovation production mechanisms are broadly understood in the operational strategies of both programs, and several innovation actors, activities and modes of innovation can be identified when examining the projects that have gotten funding from BioInnovate or SAIS 2 (table 4).

Whereas the projects funded by SAIS 2 focus majorly in capacity building and knowledge creation, BioInnovate projects lean heavily towards research & development activities. This was noted already in the pre-analysis phase for BioInnovate represents a bioscience/agricultural innovation program that targets to improve livelihoods of smallholders whereas SAIS 2 aims to offer platforms and increase networking. Yet, SAIS 2 also funds R&D activity and BioInnovate in turn aims to increase the understanding of innovation amongst the policymakers to create more functioning innovation ecosystem for biobased innovation solutions, thus ultimately the main objectives of the programs seem similar based on the research data, even if the means and methods differ. Research institutes, universities and the private sector appear as the most common innovation actors in the programs’ framework, however other actors such as the public sector, NGOs or civil society are increasingly included. Knowledge creation, networking and enhanced innovation system are recognised as vital parts of the innovation process particularly on the regional scale, however incubating and scaling-up new stage enterprises or researchers with valuable ideas are equally significant to reach the objectives of the programs. The modes of innovation and learning appear somewhat challenging to identify based on the program strategy papers. However, the projects funded by SAIS 2 often emphasise the co-learning, co-working and interaction as a vital part development, whereas the R&D focus of BioInnovate indicates towards the STI-mode or learning. In general, STI-mode and policies are more distinguishable throughout research data whereas the DUI-mode is only seldom described.

Table 4: Examples of projects funded by SAIS 2 and BioInnovate with a simplified description of the innovation actors, activities and modes within the projects.

SAIS 2			
Project	Actors	Activities	Modes
Biotech incubator	Entrepreneurs, start-ups, research institutes, science parks	Knowledge creation, capacity building, co-working	DUI-mode, STI-mode
Digital open innovation platform	Public sector, private sector, research institutes, individuals	Knowledge creation, problem solving, business incubation, networking	DUI-mode, STI-mode
Soil health advisory service	Farmers, entrepreneurs, research institutes	R&D, problem solving, networking, product development	STI-mode
Economic inclusion incubator	NGO/civil society, innovation hub, private sector	Education, knowledge creation, human competence mobilisation	DUI-mode
BioInnovate			
Project	Actors	Activities	Modes
Insect-based agribusiness	Private sector, research institutes	Problem solving, scaling up, product development	STI-mode
Bioscience-innovation policy consortium	Public sector, universities, research institutes	Knowledge transfer, networking, policy building	DUI-mode
Improving smallholder access to biopesticides	Universities, research institutes, private sector	R&D, scaling up, product development	STI-mode
Technology to preserve bioproducts	Private sector, universities, research institutes, public sector	R&D, problem solving, value creation, product development	STI-mode

“Knowledge exchange or peer-learning is a powerful way to share, replicate, and scale what works in development and connect practitioners to learn from the practical experience of others who have gone through similar challenges.” – SAIS summarised program document 2018: 6.

“Innovation is an engagement, so close engagement with our partners is the key to the outcome of any innovative process that we take.” – Expert (B2).

Innovation laboratories and hubs appear the most common innovation platform, especially in the context of local innovation. Local innovation and problem-solving based solutions are apparent baselines for both programs. Both programs have also identified the most critical demand-side needs in their respective fields, for example gaining access to entrepreneur support or developing more sustainable farming solutions. Thus, the

activities appear more market-pull and end-use driven rather than emerging from a technological push or supply side. However, the role of technological advancements and digitalisation is also noted in the innovation process, so there is evident synergy in the push and pull sources of innovation within the programs.

Local communities as a major beneficiary group is apparent in the research data, for the program strategies emphasise the positive regional effects once the innovation-focused projects have successfully launched their proposals. Local innovation strongly unites with the inclusive innovation agenda, because in most of the projects the target is to mobilise and incorporate excluded groups that cannot access the growth and value chains. Applying local people and local innovation is reinforced in both programs by restricting the project eligibility to organisations and teams that operate within the partner countries of the programs.

“For purposes of promoting local and regional ownership, scientists and researchers from international research centres and organisations in the region may apply only as co-applicants and NOT as lead applicants.” – BioInnovate Africa programme phase II 2019, Second call for proposals: 2.

“The Programme emphasises actions that aim to impact the ‘Base of the Pyramid’ (BOP), enhancing the capacities of innovation support organisations to assist enterprises and other role-players to deliver innovation to socially or economically excluded communities and disadvantaged groups.” – SAIS summarised program document 2018: 6.

Both programs operate within the Agenda 2030 framework for Sustainable Development Goals (SAIS 2 Summarised programme document and results 2018: 9; BioInnovate Africa programme implementation manual 2018: 7). When considering the programs in the context of their respective supporting countries’ development cooperation policies, the activities of the programs appear to meet the objectives of the countries’ development cooperation targets. The innovation-focused objectives of the development cooperation policy of Finland highlighted the need to increase regional integration and networks, as well as to offer new business models and opportunities for local entrepreneurs (The Development Cooperation Results report of Finland 2018: 30–32, 35). The principles of SAIS 2 go along with these targets; however, the aspects of inclusive and local innovation are specified more carefully in the SAIS 2 strategy than in the Finnish policies (SAIS 2

Summarised programme document and results 2018: 7, 19). SAIS 2 supports entrepreneurship within the framework that resembles the second goal of Finnish development cooperation, enhancing the economies in the partner countries. Supporting women is crucial, and SAIS 2 takes specific note on the number of women working in the projects it funds (SAIS 2 Call for Proposals 2/2018: 17). This also serves the first thematic objective of Finnish development cooperation, the rights of women and girls. Environmental sustainability also remains as a specified objective of the Finnish development cooperation and the strategies of Finland note the role of new innovations when producing sustainable technologies or products (The Development Cooperation Results report of Finland 2018: 31). Since SAIS 2 also commits to support projects that promote sustainability for example in agriculture, it contributes to this objective to a certain extent (SAIS 2 Summarised programme document and results 2018: 9). Moreover, SAIS 2 aims to increase the research and available data regarding the economic process and innovation systems in the region, which is meant to assist policymakers and allow the replicability of similar projects in the future (SAIS 2 Summarised programme document and results 2018: 5–7). Finland has set development cooperation goals that support the efficient institutions and governments (Finnish Government Report on Development Policy 2016: 14–15), and SAIS 2 offers valuable knowledge and data to fill such gaps.

“I think there is a fairly happy marriage between the goals of the Finnish development policies as well as the goals that the partner countries of [SADC] are trying to achieve.” – Expert (A2).

Gender equality, inclusive economic development and inclusive societies are some of the main objectives of the development cooperation targets of Sweden (The Development Policy Framework Report of Sweden 2016: 27, 30), and as such, the inclusive innovation aspects of BioInnovate support the achievement of such targets. Furthermore, the economic and environmentally sustainable biobased products and processes that are at the core of Bioinnovate support the Swedish target of working in the environmentally sustainable framework of Agenda 2030 (Sidas årsredovisning 2018: 45). The innovation support report of Sida acknowledges the contextuality of innovation and the differences in the innovation landscape in the Global South countries by for example noting the role of both, informal and formal sectors, as well as agriculture and Clusters of Innovation (Sida Position Paper to Support Innovation 2015: 4, 6, 11–13). BioInnovate aims to utilize

the immense amount of resources emerging from the biobased sector of Eastern Africa, and the program also identifies need to intensify the competence building and human capital in such areas (BioInnovate Africa programme implementation manual 2018: 7–8) and therefore provides a platform for an activity that Sida’s report calls for. As a regional program aiming for integration and regional cooperation, BioInnovate also conforms to the regional integration objectives set by Swedish development cooperation goals.

The experts working with the SAIS 2 and BioInnovate programs identify similar challenges as their colleagues working in the field of policymaking and research. The experts particularly point out the weak and disordered understanding of innovation between different cooperation partners. Thus, they identify a need to deepen the understanding regarding innovation in development, especially in terms of the mechanisms and adequate incentives behind innovation processes as well as the actual impacts on development and growth. However, these are simultaneously the challenges that the program objectives try to confront and answer by providing more information about innovation as a development tool and by increasing the data based on empirical examples.

“Countries, institutions are struggling about what kind of incentives we should put in place to support or drive innovation in some direction. So that’s why we work with governments and see what kind of policy incentives we can put in place to drive innovation.” – Expert (B2).

6.3. Research data and the transformative innovation framework

Considering first the development cooperation policies on the broad-narrow axis of transformative innovation framework, it is apparent that the development cooperation and innovation policy papers published by Sida and the Government of Sweden represent a highly broad understanding whereas the Finnish policy papers leave a lot more space for interpretation and suggest a somewhat narrower approach (figure 8).

In the Finnish policies, the private sector appears emphasised over other actors of innovation and the innovation process itself is linked with the private sector R&D activity, suggesting towards the linear model of innovation and representing a narrow understanding of the transformative innovation framework. The Finnish policy papers point out the triple helix i.e. universities, research institutes and the private sector as

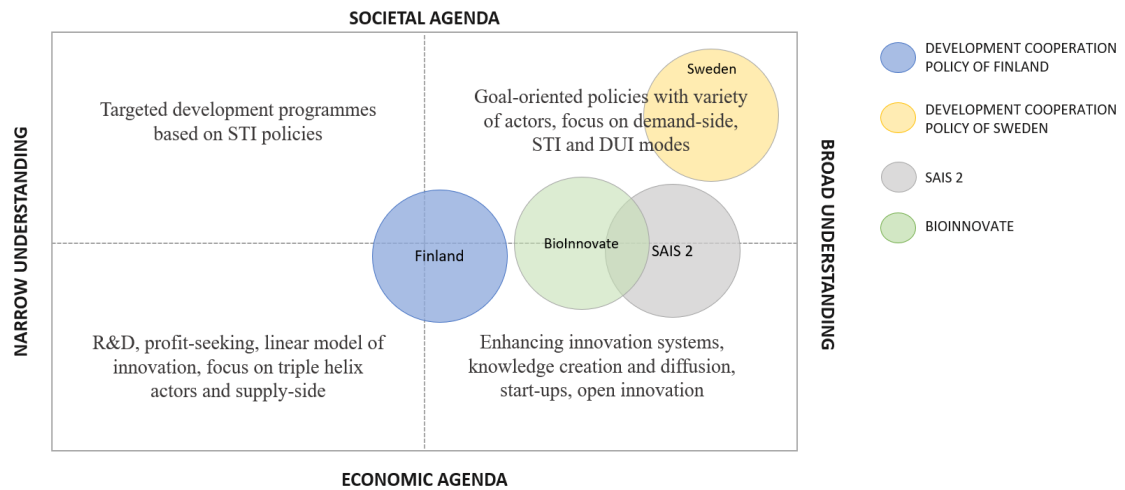


Figure 8: Illustration on how the development cooperation policies and programs could be positioned in the transformative innovation policy framework.

initiatives for innovation (The Development Cooperation Results report of Finland 2018: 31). However, knowledge creation processes and innovation systems have been included in the development cooperation policies of Finland which in turn indicates a broader understanding than merely focusing on linear model of innovation and R&D activity happening in the private sector. The economic agenda of the innovation-focused development policies of Finland is apparent in the research data, for the support for innovation is driven through the private sector, and the rationale is to support private sector actors such as early stage entrepreneurs and start-ups that in turn foster and boost innovation. This creates more opportunities in terms of employment, income and growth which then benefit the whole region; however, innovation appears to be rather an economic outcome or a positive externality rather than a tool itself. In the context of environmentally sustainable solutions, innovations appear a new sustainable outcome i.e. a new product or technology that could support the sustainable development. However, since the specific strategy paper regarding innovation-focused development is absent in the Finnish development cooperation strategy, the innovation in this context appear abstract as well.

“Finland supports harnessing the new sustainable development supportive know-how, technologies and innovations arising from universities, research institutions and companies.” – Finland’s Development Policy Results Report 2018: 31.

The Finnish development cooperation strategies are particularly prone to change after each governmental season; however, there is some continuity in terms of development

cooperation for many projects and partnerships are set to run beyond the seasons and thus cannot be disrupted after new elections. Nevertheless, the innovation-focused development strategies of Finland crucially need a more concrete definition of innovation and innovation systems to better determine the role of innovation in the development framework, especially in the long term if the transformative innovation policy is to be applied.

“If [Finland] don’t commit to a long-term strategy to advance things and find new ways of working, we will remain at the current short-sighted stage.” – Innovation specialist (A1).

In the Swedish innovation-focused development cooperation model, innovation appears as a part of both, economic and societal processes. The innovation support paper of Sida that emphasises the utilisation of actors from all sectors and fields of society; the triple helix actors are not deemed as the only entities that foster innovation activity (Sida Position Paper to Support Innovation 2015: 4). The innovation support paper further notes that NGOs and similar organisations have a particularly important role to work as the intermediates who translate the know-how and skills from one side of the network to another. Most importantly, the strategies and experts acknowledge the transformative aspect of innovation, suggesting towards extremely broad understanding of innovation. The innovation focus remains on the demand-side for the Swedish strategy aims to acknowledge the needs of the local people and utilise particularly the local knowledge and innovation to achieve sustainable results in all areas of development (Sida Position Paper to Support Innovation 2015: 7–8). The different modes of learning are defined in the innovation-support paper (Sida Position Paper to Support Innovation 2015: 8) and the DUI-mode i.e. learning through interaction is highlighted to be essential to utilise local innovation but also to understand and preserve the local culture. The importance of the informal sector is also pointed out.

“Innovations take place in the entire society, and in low- and middle-income countries a large proportion of the innovations take place in the society and the informal sector.” – Sida Position paper to support innovation 2015: 5.

The societal benefits of innovation are acknowledged in the innovation support paper of Sida, and the strategy reaches beyond the economic outcomes, supporting the societal understanding of the transformative innovation framework. The paper also indicates a

focus towards a systemic change through innovation activity (Sida Position Paper to Support Innovation 2015: 6), and this approach is further supported by the experts. The transformative innovation policy framework also underlines the long-term engagement to achieve concrete results and create meaningful change, and Sida has particularly committed to this approach. In the Swedish policy, innovation appears broadly understood in terms of using it not only as an outcome i.e. a new product but as a tool in a learning or knowledge sharing process.

“-- Acknowledging the fact that development problems are complex and there are no easy solutions, there’s no international best plans that can just be transplanted by donors, but rather something that you need to have a theory of change. It is essentially just a theory and then you test that theory against the sort of the context and if that doesn’t work you try something else and we don’t call that innovation, but it is.” – Research advisor (B1).

The development cooperation programs are somewhat more challenging to position on the transformative innovation framework for their strategies and objectives appear highly multifaceted. However, considering the variety of actors included in the activities of both programs, BioInnovate and SAIS 2 represent both a broader approach to the transformative innovation framework. Based on the program implementation strategies and the projects funded by the programs, the approach of SAIS 2 appears broader for it includes several actors from different sectors in the innovation activity, and further advances mechanisms that support the DUI-mode of learning such as innovation labs and hubs or other education-based solutions (SAIS 2 Summarised programme document and results 2018: 6, 8). Furthermore, SAIS 2 notes the importance of interaction and networks in knowledge creation, targeting to influence the ways people are currently working and interacting to create new spaces to early stage entrepreneurs to operate in. The projects funded by BioInnovate are based on R&D activity which often highlights the utilisation of new technologies and the linear model of innovation. However, the products and services developed by BioInnovate projects are almost exclusively focused on the demand-side rather than the supply side, suggesting towards a societal implementation of innovation and utilisation of the local skills and knowledge. The role of the DUI-mode of learning does not come across in the data considering BioInnovate, yet in the absence of field work and further study it cannot be ruled out. Both programs aim to contribute to the regional integration of African countries and economies in order to enhance the

economic cooperation, networking and innovation ecosystems within the continent. This implies a broad understanding on the innovation mechanisms especially by highlighting the importance of co-operation and networking in the regional innovation systems.

Since SAIS 2 and BioInnovate are fundamentally development programs, the societal aspect is present in the strategies of both programs. The activities of SAIS 2 appear to be more on the economic side of the axis rather than societal for the program targets entrepreneurship and start-up support, however the growth in these areas is noted to benefit the local community in the long run and thus include the societal aspect as well. The activities of BioInnovate particularly target smallholder farmers that are in a disadvantaged position in terms of the economic growth and access to value chain, thus the demand-side directs the activity of BioInnovate to the societal direction. Moreover, both programs underline the local and inclusive innovation approaches, creating a societal focus for both strategies. Yet, since accessing the markets, increasing product value and/or building up new enterprises also remain at the core of both programs, the economic and societal approaches are extremely linked to one another and co-exist synergistically. The experts working within the programs also emphasise the need to educate the policymakers in terms of innovation-focused development, indicating towards the systemic transformation and change in practices and processes that are currently taking place.

7. Discussion

7.1. The synergy of innovation and the beyond-aid landscape

In the beyond-aid development paradigm, new forms of international cooperation have expanded while the importance of traditional development assistance has decreased (Janus et al. 2015). In the beyond-aid landscape, the development cooperation targets mutual benefit between the partners and this approach is particularly evident in the development cooperation strategy of Finland. Moreover, the South-South development cooperation (SSC) has increased and further ruptured the traditional development cooperation landscape (Quadir 2013; Mawdsley et al. 2014). The results of this study also indicate that the development cooperation policies have transitioned towards a more multifaceted development cooperation architecture where the private sector has gained more foothold as a development actor, however the research data gives only little recognition towards the SSC actors as influencers in the overall development cooperation landscape. On the contrary, this study was based on activities of Finland and Sweden and therefore the research data does not focus on South-South actors.

The beyond-aid paradigm also holds several parallels to the modernisation and neoliberalism eras when countries invested in transferring technology and infrastructure to the Global South partner countries, and when the private sector funding increased (Murray & Overton 2016; Mawdsley 2017). The beyond-aid paradigm and the STI-focused development also have apparent synergy, for innovation activity has been traditionally associated with the private sector. If the political will and regulatory framework is adequate, the private sector offers new-possibilities in the Global South by for example increasing the funding towards innovations and sustainable technologies as well as by promoting democracy or enhancing the entrepreneurs' access to the markets (Banks & Hulme 2014). In the low-income regions such as SSA the size of the private sector has been extremely small (Kraemer-Mbula & Wamae 2010; Hooli et al. 2019) and the region would certainly benefit from the increased private sector capacity, particularly considering the characteristics of current demographic development of SSA where increasing young population, technical and digital change as well as the growing need for affordable demand-side products are at the focal point of innovation activity.

However, the negative aspects of the dominant STI-driven and resource-exhaustive innovation trajectory must be taken into careful consideration when promoting innovation through the private sector (Cozzens & Kaplinsky 2009; Soete 2013). If the innovation activity is driven by the supply-domain and focuses only to certain areas, the contribution to development remains perhaps small or in the utmost case, the economic growth might even jeopardize the development objectives (di Stefano et al. 2012; Chataway et al. 2014). On the contrary, the development cooperation strategies of Finland and Sweden both emphasise the partnerships with businesses engaged in the Corporate Social Responsibility that acknowledges the societal and environmental impacts of business activities. As Haaranen (2019) notes, this does not always guarantee the prioritisation of development agendas over profit-seeking objectives. Nevertheless, the CSR framework could at best set the private sector actors on the right path.

Thus, understanding the risks of innovation-focused growth paths, the outcomes of mobilising the innovation through the private sector must be exhaustively researched to find *why*, *how* and *for whom* innovation-focused development cooperation is initiated in the first place. For example, as Haaranen (2019) also noted, the private-sector focused development cooperation leveraged by the Finnish policy often underlines the Finnish expertise, innovation and technology in terms of development assistance, much like it did in the 1970s–1980s (Laakso & Iso-Markku 2012). Not only does the STI-driven up-to-down innovation trajectory often contribute to the destructive creation (Soete 2013), but also the technology transfer capacity in the poorest Global South regions like SSA has proven to be minimal in the past (Wangwe 2003). Thus, we must contemplate whether innovation in the Finnish development cooperation landscape is comprehensively understood as a part of development process or is it merely an outcome emerging from the private sector. The Finnish development landscape would therefore benefit greatly from a more detailed strategy that defines the objectives of innovation-focused activity and addresses the exact role of private sector in development.

When examining the Swedish development cooperation strategy, beyond-aid and innovation, the landscape appears entirely different because Sida does not aim to finance the private sector directly or even to promote Swedish actors over others and neither is the innovation-focus tied to the private sector as strongly as it is perhaps in the Finnish landscape. The role of the private sector is well-defined in the strategy of Sida and it leaves no questions regarding the beneficiaries of the private sector-led development

activity: the focus remains first and foremost in the people and communities of the Global South partner countries. The experts note that the private sector provides an entirely different, often optimistic mindset to the innovation landscape that is sometimes often needed. However, the Swedish strategy appears particularly considerate on avoiding the dominance of the private sector for it sets clear boundaries for private sector development actors in terms of what kind of outcomes are expected. There is a strong will to utilise innovation as a tool for actors in all sectors, including the public sector, NGOs and civil society that work as intermediates in the knowledge flows between different actors as well as the local communities and people (Hooli et al. (2016). This approach sets positive prospects for the future that a sustainable approach to innovation-focused development cooperation is indeed possible if the proper operational framework is in place.

7.2. Growth through stronger innovation ecosystems and regional integration

In general, the innovation systems in SSA are acknowledged to be weak due to inefficient institutions, low technology and knowledge absorption capabilities as well as small private sector and the absence of financing instruments (Kraemer-Mbula & Wamae 2010). Since knowledge creation, competence and learning are crucial within the innovation system framework (Lundvall 2004; Tödting et al. 2013), and in the context of SSA, economic integration and networking are critical to enhance the African innovation ecosystem further (Hartzenberg 2011; Scerri 2013). The low-capacity regions such as SSA has specific innovation characteristics, and despite of the growing digitalisation and technological change, the informal sector (Kraemer-Mbula & Wamae 2010) as well as agricultural innovation systems (Kim et al. 2009) are nevertheless an essential part of the innovation system of SSA. Regional integration enhances the relationships between the countries and eases the mobility of labour, capital, technologies and therefore also knowledge and innovation. For example, the European Union countries have benefitted greatly from the regional integration and sharing knowledge, skills and technology between different countries and innovation systems (Crescenzi et al. 2007). Currently, the level of integration in SSA needs improving and the efforts to do so have been enforced by organisations such as African Union and the South African Development Community. Also, the research data indicates that the networks between regions and countries are somewhat weak, and often the efficient products and practices

of one country are not making their way to another. Therefore, these conditions should be considered in the innovation-focused development support as well.

The development cooperation strategies of Finland and Sweden both aim to enhance the innovation systems and regional networks in the partner countries, however the support appears to be directed towards different actors and activities. Based on the research results, the development cooperation strategy of Finland aims to enhance the innovation capacity of the private sector in the partner countries. Universities and research institutes are acknowledged in the strategy, but the concrete mechanisms that Finland utilises to support such institutes remains somewhat unclear and the advancements of the private sector is perhaps expected to eventually 'trickle down' to other sectors as well. The role of the private sector is undoubtedly critical in the efficient when supporting innovation systems and knowledge creation processes; however, the outcomes highly depend on what kind of actors and activities are supported. The high-end technical innovation supported by multinational corporations are not as effective in SSA as for example the bottom-up, local innovators such as innovation hubs and start-ups are argued to be (Hooli et al. 2019). The research data indicates that Finland supports the latter actors at least to a certain extent, since programs such as SAIS 2 or IPP2 in Vietnam involve local stakeholders such as early-stage enterprises. Also, considering the amount of knowledge and skills that exist outside of the formal sector in SSA (Kraemer-Mbula & Wamae 2010), it would be sensible to expand the efforts to improve knowledge and innovation capacity beyond the private sector as well to support the innovation systems as comprehensively as possible. At least the IPP2 program supported by Finland in Vietnam provided assistance to universities as well, and the outcomes were positive based on the Finnish Development Cooperation results report.

The innovation support paper of Sida highlights universities and innovation clusters as necessary components of the innovation systems. Universities produce not only highly-skilled labour but also home-grown scientific research that both contribute to the knowledge assets of the communities and eventually to the entire innovation system (Feinson 2003). Clusters of innovation are extremely critical in efforts to enhance the regional integration for they enhance the mobility of human capital and knowledge through global networks involving other clusters (Engel & del Palacio 2009). The rationale to support clusters in the position paper by Sida follows these objectives for it targets to enhance the platforms for innovation and employment to emerge from. Since

COIs are particularly prone to facilitate start-ups and early-stage entrepreneurs (Engel & del Palacio 2009), they are extremely beneficial for the low- and lower-middle income countries (Oyelaran-Oyeyinka & McCormick 2007). On the contrary, Kaplinsky (2011) argues that technology, science and innovation concentrating only on certain areas could increase the inequalities between regions and lead to destructive creation path of innovation. However, Crescenzi et al. (2007) note that for example in the US the COIs leverage growth by supporting regional specialization that allows different regions to gain competitive advantage on certain sectors. Certainly, this approach requires more networks, cooperation and trade between the regions.

The SAIS 2 and BioInnovate programs are remarkable examples of integration-increasing activity, but whereas BioInnovate operates mostly in low-income countries, SAIS 2 has several middle-income country partners and therefore the levels of integration capacity are perhaps not fully comparable. Nevertheless, since the mechanisms and outcomes relating to innovation systems and regional integration remain extremely context-specific, the best outcome is achieved when the solutions are forged into the local conditions. Thus, development programs with mainly local stakeholders should be prioritised. Since the SAIS 2 and BioInnovate programs involve stakeholders from several regions of the operational areas, the cooperation and networking enable cross-border transfers of knowledge, technologies and skills. Moreover, the focus of BioInnovate on agricultural sector is set to enhance the agricultural innovation systems that are essential in the African economies and regional innovation systems (Lundvall et al. 2003; Kim et al. 2009: 2–5). SAIS 2 in turn supports and incubates small and medium-size enterprises that contribute to the local growth, knowledge creation and thus eventually to the innovation systems in Southern Africa. The result reports published after the conclusion of the programs will most likely give an insight on how successfully the regional integration was reinforced through the programs' activities.

7.3. The critical role of inclusive, local innovation

Inclusive and local innovation appear as a sustainable option opposed to the up-to-down innovation path for it takes into consideration the disadvantaged groups that are often excluded from the dominant innovation trajectory (Chataway et al. 2014). Instead of utilising technologies or solutions transferred from elsewhere, these approaches allow the local communities to contribute and forge their own development solutions and paths.

Focus towards local and inclusive innovation is indicated throughout the research data, especially in the innovation support paper by Sida as well as in the strategies of SAIS 2 and BioInnovate. Inclusive innovation is always end-user driven and therefore answers to the needs of people rather. In the research data, inclusive innovation is highlighted in the efforts to support and include women in entrepreneurship, decision-making and research, but also by offering education platforms for unemployed youth or by developing affordable products that the smallholder farmers can utilise. Particularly the marginalised groups in SSA benefit from the local and inclusive innovation approaches on the grassroots level for they provide end-user solutions such as affordable products to the disadvantaged people (Hooli et al. 2019). Therefore, the innovation-focused development cooperation frameworks should prioritise local and inclusive innovation approaches (Johnson & Andersen 2012: 17–18).

Agriculture remains as the largest economic sector in the SSA and holds enormous assets of knowledge in it (e.g. Kim et al. 2009). However, agricultural sector alongside with the informal sector are often excluded from the dominant innovation system framework (Kraemer-Mbula & Wamae 2010). Particularly the BioInnovate program dives into this topic for it utilises the biobased resources in the Eastern Africa to create prosperity and value to local smallholders. This allows the smallholder farmers to be included in the innovation systems and value chains, which leads to increased incomes and eventually to poverty acceleration. When the knowledge of the informal sector is increasingly incorporated in the innovation system it further benefits the regional competence and capacity in the long term. Incubating and scaling-up locally developed products and processes or local start-ups and entrepreneurs is crucial to expand the breadth of the innovation to allow it to reach more people. However, BioInnovate has a strong focus on R&D activity, therefore the STI-mode of learning and constructionist approach to knowledge are indicated. This approach is perhaps not the most efficient one considering the importance of tacit knowledge and DUI-mode of learning in the context of SSA (Hooli & Jauhiainen 2017). Although, it must be noted that the R&D activity of BioInnovate is extremely localised and user-driven, and it represents a bottom-up approach rather than applying large-scale transfers of technology and infrastructure.

In turn, SAIS 2 appears to have a rationalist approach to knowledge creation and transfer (Ibert 2007). This is evident in the innovation activities initiated by SAIS 2, for the program reinforces the knowledge creation mechanisms by utilising the DUI-mode of

innovation, and by facilitating learning institutes and innovation labs that increase learning and co-working amongst early-stage entrepreneurs. Living labs and learning by doing is particularly beneficial in terms of local innovation because a region such as SSA with vast diversity of cultures, languages and customs benefits from the diffusion of tacit knowledge (e.g. Hooli et al. 2016). The SAIS 2 has several competence building aspects as well because it contributes to the incubation and scaling-up processes. However, since SAIS 2 operates mostly in middle-income countries, the applicability of the program into low-income or least developed countries must be carefully evaluated. Most importantly SAIS 2 increases the amount of research and data regarding the innovation-focused development that concentrates on knowledge creation and learning as well as to regional integration and local inclusion.

The innovation-support paper by Sida includes several focal points concerning the inclusive, home-grown innovation. Supporting innovation in multiple sectors such as healthcare, education, sanitation and energy remains important in the Swedish strategy, and the innovation in these sectors is considered extremely bottom-up for the objective is to bring the local community together to produce solutions to the local problems – hence the innovation *for* the poor *by* the poor approach (Chataway et al. 2014). In the strategy of Finland, inclusion and enhancing the local innovation activity comes across as supporting gender equality and local enterprises. Considering how important the homegrown businesses and innovation is in terms of growth and development in SSA, Finnish enthusiasm to utilise of Finnish innovation, technology and know-how in the partner countries appears rather paradoxical. The two agendas can coexist, particularly if attention is given to coupling the local knowledge assets with the tacit or explicit knowledge base of the partner country (Hooli & Jauhiainen 2017), which is true in the case of SAIS 2. However, for example the BEAM project supported by Finland also incorporates innovation, but it appears quite different as opposed to SAIS 2 in terms of utilising primarily Finnish enterprises and skills (Haaranen 2019). Thus, two relevant questions must be asked: *by whom* is the innovation initiated, and *for whom* is it directed to? In case the local context is ignored and the (domestic) private sector of the donor country is prioritised over the communities in the partner countries, the development cooperation results get inevitably undermined.

7.4. Systemic change and the prospects of innovation-focused development cooperation

In the future, the multifaceted in SSA such as the rapid population growth, along with digitalisation and technological change must be met with long-term, sustainable solutions (United Nations Economic Commission for Africa 2016: vii–ix). Ideally, the best outcome to address such changes appears to arise from the broad, societal understanding of transformative innovation framework (Schot & Steinmuller 2018). In many African regions the state capacity and institutions are following the commodity-driven, resource-dependent path that is also dominant in the Global North (Oyelaran-Oyeyinka 2015). The rapid digitalisation and technological present numerous opportunities for SSA but might also bring about negative externalities if not adequately prepared to. Thus, the transformative innovation framework could offer a more sustainable solution to growth and innovation capacity building because it aims for the structural transformation that Oyelaran-Oyeyinka (2015) argues is crucially needed in SSA. As Weber & Rochracher (2012) and Schot & Steinmuller (2018) argue, the transformative innovation framework requires goal-orientation and determination from policymakers and this might be a challenge in Africa where the institutional capacity is often weak. However, the research regarding the framework remains novel and highly theoretical. Chataway et al. (2017) found that the global community appears to gradually shift towards transformative policies, but for example the innovation instruments applied in the new paradigm are similar to the already existing ones i.e. utilising R&D-based innovation or enhancing the innovation systems. Similar results are indicated in the results of this study: As the shifts in policy paradigms evolve in layers (Schmidt 2011), we are perhaps facing a transitory phase where the objectives of the transformative approach are increasingly applied in the innovation policies, but the definitive working methods and strategies are yet to be comprehensively defined. Yet, the research data of this study is too narrow to make generalisations about the development policy trajectories in SSA, let alone in the global development paradigm. Nevertheless, considering the characteristics of the transformative innovation policy such as the social inclusivity, sustainable development goals and the aim for long-term solutions, I argue that the approach offers a solution that guides the path of innovation-focused development towards a systemic change that is needed not only in SSA but internationally as well.

The Swedish development cooperation framework represents the broadest understanding of transformative innovation framework, based on the narrow–broad axis introduced by Diercks et al. (2019). Strong will from policymakers as well as goal-oriented, long-term development strategies are required to achieve large-scale systemic changes (Weber & Rohrer 2012; Schot & Steinmuller 2018). There appears a strong focus towards such activity in the Swedish development cooperation framework and it is also emphasised by the Swedish experts. Based on the research data, Sweden has a great opportunity to be a forerunner in the transformative innovation-focused development for the Swedish strategies have already broadly incorporated the transformative elements of innovation. The Finnish development cooperation strategy represents a narrower approach in the transformative innovation framework particularly when compared to Sweden, however in the absence of a detailed innovation-focused development policy, the analysis is based on the general development cooperation reports and the expert interviews. The development cooperation strategies remark the role of Finland to be an important one in the international development community and describes Finland as a vanguard amongst the partners and now such influence is extremely valuable considering the efforts required on the global policymaking level. To fully deploy such influential position, Finland should express reflectivity and respond to the changing paradigm of development cooperation by creating up-to-date strategies that address the roles of innovation and the private sector.

When examined in the transformative innovation framework of Schot & Steinmuller (2018) or Diercks et al. (2019), the SAIS 2 and BioInnovate programs indicate characteristics from both, societal and economic approaches for entrepreneurs and businesses remain at the core of the programs, however the aim is also to apply innovation through new networks and platforms. The programs contribute to the much-needed database of transformative innovation by introducing new ways of working and by providing more experience-based research regarding the tools and outcomes of activity which can be replicated in the future. The programs involve local stakeholders and prioritise local knowledge over imported technology and skill, however regional and international networks are noted in the process. Most importantly, the programs also target to influence the policymakers and societal structures to create more innovation-friendly spaces.

The common objective arising from the research data is to initiate a structural change to transform the partner countries' societies to knowledge economies with enhanced industrial and private sectors. There is a strong focus towards developing demand-side products and processes as a mean to solve the challenges in the partner countries. These are beneficial solutions especially when inclusive and local innovation is applied, but if the systemic change is primarily economic growth driven it might bring about several negative externalities as well. Thus, the development cooperation actors must remain extremely cautious about the effects of the supply-side driven and resource-exhaustive innovation trajectory, particularly in the beyond-aid landscape that emphasises mutual benefit, the private sector and economic growth (Cozzens & Kaplinsky 2009; Soete 2013; Quadir 2013; Mawdsley et al. 2014). Moreover, structural change rarely happens rapidly particularly when the objective is to transform entire societal systems, and it is certainly never easy to execute through politics and strategies when the dominant trajectories are directing the development paths to a different direction. The global community certainly needs not only resources and adequate policies but also immense amount of determination to achieve such ambitious objectives.

Innovation offers many possibilities in the development landscape, but as noted, there are several pitfalls as well. Fundamentally innovation is a process, a tool or a product, not an uncontrollable natural force. Thus, the convenience of it depends a lot upon the objectives and goals that are set to be achieved with the innovation-focused activity. The innovation-focused policies play a crucial part because essentially the strategies determine the paths innovation directs to, and the best outcomes require strong political will and long-term commitment. Therefore, I propose that research regarding innovation must unquestionably be appreciated and increased. Particularly the policymakers must access the said research so that they can comprehensively understand the possibilities and challenges of the innovation-focused development. It is evidently fruitless to incorporate innovation that contributes to unsustainable economy or excludes the most marginalised groups that are supposed to benefit from the development cooperation. Quite paradoxically, the research regarding innovation should be an innovative process that involves variety of actors from all sectors of the innovation system, from local communities to international entities.

“There is no development without innovation.” – Expert (B2).

8. Conclusions

With this study, I aimed to contribute to the novel research regarding the role of innovation in the contemporary development cooperation framework by researching how innovation is incorporated in the development cooperation policies of Finland and Sweden, and furthermore in the Sub-Saharan African development cooperation programs supported by the two. With a comprehensive theoretical framework, I was able to consider the understanding of innovation in the development cooperation strategies and determine the approaches, benefits and challenges surrounding the innovation-focused development in Sub-Saharan African landscape. Moreover, I considered the possibilities of the transformative innovation framework by inserting my research data into similar context.

To answer the first research questions, I conclude that innovation has rapidly become a part of the contemporary development cooperation landscape. Considering the rapid societal changes happening in Sub-Saharan Africa, innovation-focused trajectory could benefit not only the economic growth in the region but the inclusion of the marginalised people as well if the innovation trajectory is specialised in the context of African societies. Generally, innovation is seen as a tool or outcome to advance development; however, the framework has broadened to include variety of activities beyond the product and process innovation, as well as actors from civil society and NGOs to universities and public sector institutes. The approaches of Finland and Sweden differ regarding how innovation is incorporated within the development cooperation strategies of the two countries. Generally, both countries aim to enhance the innovation capacity and systems in their partner countries. However, the approach of Sweden is broader than Finland's for it does not prioritise the private sector as a leader in the innovation activity, whereas in the Finnish framework innovation is strongly coupled with the private sector or research institutes. The innovation-focused framework of Sweden is more detailed because of the innovation-support paper published by Sida, and the development cooperation framework of Finland would most likely benefit from similar publication.

I examined two innovation-focused development programs, SAIS 2 and BioInnovate Africa, supported by Finland and Sweden respectively. Answering the research questions of the second thematic area, I found that innovation is comprehensively incorporated in the programs through variety of actors, activities and modes of innovation. SAIS 2 particularly targets to support early-stage entrepreneurs through knowledge creation,

incubation, networking and inclusive innovation. BioInnovate aims to fully utilise the biobased resources of Eastern Africa through R&D targeting sustainable and accessible products that the local smallholder farmers could benefit from, eventually contributing to poverty alleviation and better livelihoods. Local and inclusive innovation is the key to achieve sustainable development results because they involve and mobilise the local stakeholders and communities that often call for low-end, inclusive innovations to match their needs. Both programs also emphasise the need to increase the regional integration in SSA to enhance the regional innovation systems and networks. The programs respond well to the innovation-focused development objectives of Finland and Sweden and often go beyond the objectives set in their respective countries' strategies.

I then considered the risks of dominant innovation trajectory and contemplated whether the transformative innovation framework offers a more sustainable alternative compared to the often resource-exhaustive and exclusive innovation path. Answering final research questions, I agree with the assumption presented in the theoretical framework that when the understanding of innovation is broad, the focus is on societal benefits. With strong political will as well as adequate policies in place, the transformative innovation framework advances the development objectives. Yet, the understanding of innovation amongst the innovation actors is often scattered and there is a need for science-based information regarding innovation as a development tool. Based on the research data, the development cooperation policy of Sweden represents the broadest and societally focused approach to innovation. Also the strategies of Finland as well as SAIS 2 and BioInnovate indicate that they have incorporated instruments that correspond to the broad and societal approach. However, the research regarding the matter remains novel and the study results are highly theoretical. Thus, I conclude that the mechanisms of innovation as well as the possibilities of the transformative innovation policy should be exhaustively researched in the future to improve the innovation-focused development framework.

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References

- African Development Bank (2018). African Economic Outlook 2018. 200 pp. Available at <https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/African_Economic_Outlook_2018_-_EN.pdf>.
- Banks, N. & D. Hulme (2014). New development alternatives or business as usual with a new face? The transformative potential of new actors and alliances in development. *Third World Quarterly* 35: 1, 181–195.
- Bathelt, H. & J. Glücker (2004). *The Relational Economy: Geographies of Knowing and Learning*. 300 pp. Oxford University Press, Oxford.
- Baxter, P. & S. Jack (2008). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *The Qualitative Report*, 13: 4, 544-559.
- Bigsten, A., A.-S. Isaksson & S. Tengstam (2016). *The Changing Structure of Swedish Foreign Aid*. University of Gothenburg Working paper No 651. Accessed 15 April 2019. Available at <https://gupea.ub.gu.se/bitstream/2077/42371/1/gupea_2077_42371_1.pdf>
- BioInnovate Africa (2019). *About us*. Accessed 15 April 2019. Available at <<https://bioinnovate-africa.org/about-us/>>.
- Bogner, A. & W. Menz (2009). The Theory-Generating Expert Interview: Epistemological Interest, Forms of Knowledge, Interaction. In Bogner, A., B. Littig & W. Menz (eds): *Interviewing Experts*, 43–80. Palgrave Macmillan, New York.
- Bogner, A., B. Littig & W. Menz (2009). Expert Interviews – An Introduction to a New Methodological Debate. In Bogner, A., B. Littig & W. Menz (eds): *Interviewing Experts*, 1–16. Palgrave Macmillan, New York.
- Chataway, J. Hanlin R. & R. Kaplinsky (2014). Inclusive innovation: an architecture for policy development. *Innovation and Development* 4: 1, 33–54.
- Chataway, J., C. Daniels, L. Kanger, M. Ramirez, J. Schot & E. Steinmuller (2017). *Developing and enacting transformative innovation policy: a comparative study*. Paper presented at the International Sustainability Transitions 2017. Available at <<http://www.transformative-innovation-policy.net/papers/developing-and-enacting-transformative-innovation-policy/>>.
- Chesbrough, H.W. (2006). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. 227 pp. Harvard Business School Press, Boston.
- Common African Position (2014). African Union, Addis Ababa. 30 pp. Available at <https://au.int/sites/default/files/documents/32848-doc-common_african_position.pdf>
- Cornell University, INSEAD & WIPO (2018): *The Global Innovation Index 2018: Energizing the World with Innovation*. 384 PP. Ithaca, Fontainebleau, and Geneva.
- Cozzens, S.E. & R. Kaplinsky (2009). Innovation, poverty and inequality Cause, coincidence, or co-evolution? In Lundvall, B.-Å. (eds.) *Handbook of Innovation Systems and Development Countries*, 54 –77. Edward Elgar Publishing Limited, Cheltenham, UK.
- Crescenzi, R., A. Rodríguez-Pose & M. Storper (2007). The territorial dynamics of innovation: a Europe-United States comparative analysis. *Journal of Economic Geography* 7: 6, 673–709.
- Danielson, A. & L. Wohlgemuth (2003). *Swedish Development Cooperation in Perspective*. Lund University Department of Economics Working Papers 2003:8. Accessed 15 April 2019. Available at <https://ideas.repec.org/p/hhs/lunewp/2003_008.html>.
- de Renzio, P. & J. Seifert (2014). South–South cooperation and the future of development assistance: mapping actors and options. *Third World Quarterly* 35: 10, 1860-1875
- Development Cooperation Statistics (2018). The Finland Ministry for Foreign Affairs. Accessed 10 April 2019. Available at <<https://um.fi/documents/35732/0/Tilastoliite+2018%2C+osa1+en+%281%29.pdf/ad76de12-5347-83c1-8bc8-acc7fca58c05?t=1555066451008>>.

- di Stefano, D., A. Gambardella & G. Verona (2019). Technology push and demand pull perspectives in innovation studies: Current findings and future research directions. *Research Policy* 41: 8, 1283–1295.
- Diercks, G., Larsen, H. & F. Steward (2019). Transformative innovation policy: Addressing variety in an emerging policy paradigm. *Research Policy* 48: 4, 880–894.
- Dunn, K. (2010). Interviewing. In Hay, I. (ed.): *Qualitative Research Methods in Human Geography*, 102–138. 3rd edition. Oxford University Press, Oxford.
- Engel, J. S. & I. del Palacio (2009). Global networks of clusters of innovation: Accelerating the innovation process. *Business Horizons* 52: 5, 493–503.
- Escobar, A. (1995). *Encountering Development: The Making and Unmaking of the Third World*. Princeton University Press, Princeton.
- European Commission (2015). *The Role of Science, Technology and Innovation Policies to Foster the Implementation of the Sustainable Development Goals*. 57 pp. European Commission, Brussels.
- European Commission (2018). *European Innovation Scoreboard*. 100 pp. Accessed 2 April 2019. Available at <<https://ec.europa.eu/docsroom/documents/33147>>.
- Fagerberg, J. (2005). Innovation: A Guide to the Literature. In Fagerberg J., D. C. Mowery & R. R. Nelson (Eds.): *The Oxford Handbook of Innovation*. 1–26. Oxford University Press, New York.
- Feinson, S. (2003). *National Innovation Systems Overview and Country Cases*. Knowledge Flows and Knowledge Collectives Vol 1: Understanding the Role of Science and Technology Policies in Development. Columbia University.
- Finland Ministry for Foreign Affairs (2019a). Partner's in Finland's development policy. Accessed 10 April 2019. Available at <<https://um.fi/partners-of-finland-s-development-policy>>
- Finland Ministry for Foreign Affairs (2019b). Goals and principles of Finland's development policy. Accessed 10 April 2019. Available at <<https://um.fi/goals-and-principles-of-finland-s-development-policy>>
- Finland Ministry for Foreign Affairs (2019c). Regional Development Cooperation. Accessed 10 April 2019. Available at <<https://um.fi/regional-development-cooperation>>
- Fischer, M. (2001). Innovation, knowledge creation and systems of innovation. *The Annals of Regional Science* 35: 2, 199–216.
- Gårdemyr, L. (2018). Mer bistånd till fattiga länder – Sverige toppar givarlistan. [*More aid for poor countries –Sweden at the top of the donor list.*] Om Världen. Accessed 15 April 2019. Available at <<https://www.omvarlden.se/Branschnytt/nyheter-2018/mer-bistand-till-fattiga-lander-sverige-toppa-givarlistan/>>
- Gore, C. (2013). The New Development Cooperation Landscape: Actors, approaches, architecture. *Journal of International Development* 25, 769–786.
- Gorjestani, N. (2004). Indigenous Knowledge for Development: Opportunities and Challenges. In Twarog, S. & P. Kapoor (eds.): *Protecting and Promoting Traditional Knowledge: Systems, National Experiences and International Dimensions*, 265–271. United Nations, Geneva.
- Grimm, S., Humphrey, J., Lundsgaarde, E. & S.L.J. de Sousa (2009). *European Development Cooperation to 2020: Challenges by New Actors in International Development*. EDC 2020 working paper 4. Accessed 29 November 2018. Available at <<http://www.edc2020.eu/69.0.html>>
- Gupta, J. & C. Vegelin (2016). Sustainable development goals and inclusive development. *International Environmental Agreements: Politics, Law and Economics* 16: 3, 433–448.
- Haaranen, A. (2019). *Private sector-led development cooperation – Case study of BEAM programme in Finland*. Master's thesis, University of Turku. <<http://urn.fi/URN:NBN:fi-fe201902195427>>
- Hall, P.A. (1993). Policy paradigms, social learning, and the state: the case of economic policymaking in Britain. *Comparative Politics* 25: 3, 275–296.
- Harzenberg, T. (2011). *Regional Integration in Africa*. Trade Law Centre of Southern Africa Working Paper ERSD-2011-14. Accessed 20 April 2019. Available at <<https://www.econstor.eu/bitstream/10419/57595/1/669412368.pdf>>

- Hautala, J. & J. S. Jauhiainen (2014). Spatio-temporal processes of knowledge creation. *Research Policy* 43: 655–668.
- Hooli, L. & J. S. Jauhiainen (2017). *Development Aid 2.0 – Towards Innovation Centric Development Co-operation: The Case of Finland in Southern Africa*. Paper presented at the IST-Africa 2017 Conference, Windhoek, Namibia.
- Hooli, L., J. S. Jauhiainen & K. Lähde (2016). Living labs and knowledge creation in developing countries: Living labs as a tool for socio-economic resilience in Tanzania. *African Journal of Science, Technology and Development* 8: 1, 61–70.
- Hooli, L., J. S. Jauhiainen, A. Järvi, E. Nkonoki, V. Taajamaa & N. Käyhkö (2019). *Contextualising Innovation in Africa: Knowledge Modes and Actors in Local Innovation Development*. Paper presented at the IST-Africa 2019 Conference, Nairobi, Kenya.
- Hurmelinna-Laukkanen, P., L-M. Sainio & T. Jauhiainen (2008). Appropriability regime for radical and incremental innovations. *R&D Management* 38: 3, 278–289.
- Ibert, O. (2007). Towards a geography of knowledge creation: the ambivalences between 'knowledge as an object' and 'knowing in practice'. *Regional Studies* 41(1): 103–114.
- Icipe (2017a). *BioInnovate Africa phase II launched*. International centre of insect physiology and ecology. Accessed 15 April 2019. Available at <<http://www.icipe.org/news/bioinnovate-africa-phase-ii-launched>>.
- Icipe (2017b). *BioInnovate Africa Programme Implementation Manual (2016–2021)*. 27 pp. International Centre of Insect Physiology and Ecology, Nairobi, Kenya.
- IPCC Summary for Policymakers (2018). In V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor & T. Waterfield (eds.): *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. 32 pp. World Meteorological Organization, Geneva.
- Janus, H., S. Klingebiel & S. Paulo (2015). Beyond Aid: A Conceptual Perspective on the Transformation of Development Cooperation. *Journal of International Development* 27: 155–169.
- Jensen, M. B., Johnson, B., Lorenz, E. & B-Å. Lundvall (2007). Forms of knowledge and modes of innovation. *Research Policy* 36: 5, 680–693.
- Johansson, R. (2003). *Case Study Methodology*. In the International Conference Methodologies in Housing Research. Royal Institute of Technology & International Association of People–Environment Studies, Stockholm. September 2003, 22–24.
- Johnson, B. & A. D. Andersen (2012). *Learning innovation and inclusive development – New perspectives on economic development strategy and development aid*. 73 pp. Aalborg University Press, Aalborg.
- Kallerud, E., E. Amanatidou, P. Upham, M. Nieminen, A. Klitkou, D. Sutherland-Olsen, M. Lima Toivanen, J. Oksanen & L. Scordato (2013). *Dimension of Research and Innovation Policies to Address Grand and Global Challenges*. NIFU Working Paper 2013: 13.
- Kaplinsky, R. (2011). Innovation for pro-poor growth: from redistribution with growth to redistribution through growth. In *Conference in Honour of Sir Richard Jolly - “From structural adjustment to human development: impact on poverty and inequality”*. 17-18 November 2011, Brighton.
- Kim, L. & R. R. Nelson (2004). *Technology, Learning and Innovation – Experiences of Newly Industrializing Economies*. 366 pp. Cambridge University Press, Cambridge.
- Kim, R., K. Larsen & F. Theus (2009). Introduction and Main Messages. In Larsen, K., R. Kim & F. Theus (eds.): *Agribusiness and Innovation Systems in Africa*, 1–14. The World Bank, Washington DC.
- Kivimaa, P. & F. Kern (2016). Creative destruction or mere niche support? Innovation for sustainability transitions. *Research Policy* 45: 1, 206–217.

- Kraemer-Mbula, E. & W. Wamae (2010). Adapting the Innovation Systems Framework to Sub-Saharan Africa. In Kraemer-Mbula, E. & W. Wamae (eds.): *Innovation and the Development Agenda*, 65–86. OECD Publishing, Ottawa.
- Kuckartz, U. (2014). *Qualitative Text Analysis: A Guide to Methods, Practice and Using Software*. 174 pp. Sage Publications, London.
- Laakso, T. & P. Iso-Markku (2012). Passiivista avunsaajista yhteistyökumppaneiksi – kehitysyhteistyön lyhyt historia [*From passive aid recipients to cooperation partners – the short history of development cooperation*]. Global Finland. Accessed 10 April 2019. Available at <<http://global.finland.fi/public/default.aspx?contentid=138259>>
- Lall, S. & C. Pietrobelli (2003). Manufacturing in Sub-Saharan Africa and the Need of a National Technology System. In Muchie, M., P. Gammeltoft & B.-Å. Lundvall (eds.): *Putting Africa First – The Making of African Innovation Systems*, 267–286.
- Leach, M., J. Rockström, P. Raskin, I. Scoones, A.C. Stirling, A. Smith, J. Thompson, E. Millstone, A. Ely, E. Arond, C. Folke & P. Olsson (2012). Transforming innovation for sustainability. *Ecology and Society* 17: 2, 11.
- Lundvall, B.-Å. & S. Borrás (2005). Science, Technology and Innovation Policy. In Fagerberg, J., Mowery, D. C. and R. R. Nelson (eds.): *Innovation Handbook*, 599–631. Oxford University Press, Oxford.
- Lundvall, B.-Å. (1992). *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. 342 pp. Pinter Publishers, California.
- Lundvall, B.-Å. (2004). The Economics of Knowledge and Learning. In Christensen, J. L. & B.-Å. Lundvall (eds): *Product Innovation, Interactive Learning and Economic Performance (Research on Technological Innovation, Management and Policy. Volume 8, 1 - 42*. Emerald Group Publishing Limited.
- Lundvall, B.-Å. (2007). National innovation systems – analytical concept and development tool. *Industry and Innovation* 14: 1, 95–119.
- Lundvall, B.-Å. (2016). From the Economics of Knowledge to the Learning Economy. In Lundvall, B.-Å. (eds): *The Learning Economy and Economics of Hope*, 133–151. Anthem Press, London.
- Lundvall, B.-Å., P. Intarakumnerd & J. Vang (2006). *Asia's Innovation Systems in Transition*. 122 pp. Edward Elgar Publishing Limited, Northampton MA.
- Madrueno, R. & S. Tezanos (2018). The Contemporary Development Discourse: Analysing the influence of development studies' journals. *World Development* 109: 334–335.
- Maharajh, R. & E. Kraemer-Mbula (2010). Innovation Strategies in Developing Countries. In Kraemer-Mbula, E. & W. Wamae (eds.): *Innovation and the Development Agenda*, 133–147. OECD Publishing, Ottawa.
- Mahroeian, H. & A. Forozia (2012). Challenges in Managing Tacit Knowledge: A Study on Difficulties in Diffusion of Tacit Knowledge in Organizations. *International Journal of Business and Social Science* 3: 19, 303–308.
- Malecki, E. J. (2010). Everywhere? The Geography of Knowledge. *Journal of Regional Science* 50: 1, 493–513.
- Mawdsley, E. (2017). Development Geography I: Cooperation, competition and convergence between 'North' and 'South'. *Progress in Human Geography* 4: 1, 108–117.
- Mawdsley, E., L. Savage and Sung-Mi Kim (2014). A 'post-aid' world? Paradigm shift in foreign aid and development cooperation at the 2011 Busan High Level Forum. *The Geographical Journal* 180: 1, 27–38.
- Moulaert, F. & F. Sekia (2003). Territorial Innovation Models: A Critical Survey. *Regional Studies* 37: 3, 289–302.
- Moyo, D. (2009). *Dead Aid. Why aid is not working and how there is another way for Africa*. Allen Lane, London.

- Murray, W.E. & J. Overton (2016). Retroliberalism and the new aid regime of the 2010s. *Progress in Development Studies* 16: 3, 244–260.
- OECD (2012). *Innovation for Development*. Accessed 27 February 2019. Available at <<https://www.oecd.org/innovation/inno/50586251.pdf>>
- OECD (2018). *Development Co-operation Report 2018: Joining Forces to Leave No One Behind*. 471 pp. OECD Publishing, Paris.
- OECD/Eurostat (2018). *Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation. 4th Edition. The Measurement of Scientific, Technological and Innovation activities*. Available at <<http://www.oecd.org/sti/inno/oslo-manual-2018-info.pdf>>.
- Oyelaran-Oyeyinka, B. & D. McCormick (2007). *Industrial clusters and innovation systems in Africa. Institutions, markets and policy*. 323 pp. United Nations University, Hong Kong.
- Oyelaran-Oyeyinka, B. & L. A. Barclay (2003). Human Capital and Systems of Innovation in African Development. In Muchie, M., P. Gammeltoft & B.-Å. Lundvall (eds.): *Putting Africa First – The Making of African Innovation Systems*, 93–108.
- Oyelaran-Oyeyinka, B. (2015). The state and innovation policy in Africa. *African Journal of Science, Technology, Innovation and Development* 6: 5, 481–496.
- Parikh, R. & A. Renero (2017). Justified True Belief: Plato, Gettier, and Turing. In J. Floyd & A.B. Bokulich (eds.): *Philosophical Explorations of the Legacy of Alan Turing*. 93–102. Springer, Cham, Switzerland.
- Potter, R., T. Binns., J.A. Elliott, E. Nel & D.W. Smith (2018). *Geographies of Development. Introduction to Development Studies*. 4th ed. 636 pp. Routledge, New York.
- Powell, W.W. & K. Snellman (2004). The Knowledge Economy. *Annual Review of Sociology*: 30, 199–220.
- Quadir, F. (2013). Rising Donors and the New Narrative of ‘South–South’ Cooperation: what prospects for changing the landscape of development assistance programmes? *Third World Quarterly* 34: 2, 321–338.
- Rahnema, M. (1997). Towards Post-Development: Searching for Signposts, a New Language and New Paradigms. In Rahnema, M. & V. Bawtree (eds.) *The Post Development Reader*, 377–403. Bawtree, London.
- SAIS (2019). *About Sais*. SAIS – Southern Africa Innovation Support. Accessed 10 April 2019. <<https://www.saisprogramme.org/about-sais>>
- SAIS 2 Call for Proposals 2018/1 (2019). SAIS - Southern Africa Innovation Support. Available at <<https://www.saisprogramme.org/storage/app/media/projects/SAIS%20Innovation%20Fund%20FP%201%20Grantees.pdf>>.
- Scerri, M. (2013). Modes of Innovation and Prospects for Economic Integration in Africa. *Africa Insight* 43: 3, 80–97.
- Schlaile, M.P., S. Urmetzer, V. Blok, A. Dahl Andersen, J. Timmermans, M. Mueller, J. Fagerberg & A. Pyka (2017). *Innovation Systems for Transformations towards Sustainability? Taking the Normative Dimension Seriously*. *Sustainability* 9: 12, 2253.
- Schmidt, S., V. Brinks & S. Brinkhoff (2014). Innovation and creativity labs in Berlin. Organizing temporary spatial configurations for innovation. *Zeitschrift für Wirtschaftsgeographie* 58: 4, 232–247.
- Schmidt, V.A. (2011). Ideas and discourse in transformational political economic change in Europe. In Skogstad, G. (eds.): *Policy Paradigms, Transnationalism, and Domestic Politics*, 36–63. University of Toronto Press, Toronto.
- Schot, J. & E. W. Steinmuller (2018). Three frames for innovation policy: R&D, systems of innovation and transformative change. *Research Policy* 47: 9, 1554–1567.
- Sida (2012). *Sida evaluation 2012/5: Evaluation of Sida’s Support to Innovation Systems and Clusters, a Research Cooperation Initiative*. Sweden International Development Cooperation Agency. Available at <<https://www.sida.se/contentassets/a8dc2cd889124f1c903ee586400b6b03/evaluation->

of-sidas-support-to-innovation-systems-and-clusters-a-research-cooperation-initiative---main-report_3410.pdf>.

- Sida (2019a). *Development cooperation budget*. Sweden International Development Cooperation Agency. Accessed 15 April 2019. <<https://www.sida.se/English/About-us/Budget/>>
- Sida (2019b). *Approaches and Methods*. Sweden International Development Cooperation Agency. Accessed 20 April 2019. <<https://www.sida.se/English/how-we-work/approaches-and-methods/>>
- Sida (2019c). *Where we work?* Sweden International Development Cooperation Agency. Accessed 15 April 2019. <<https://www.sida.se/English/where-we-work>>
- Smith, A., M. Fressoli & H. Thomas (2014). Grassroots innovation movements: challenges and contributions. *Journal of Cleaner Production* 63, 114–124.
- Soete, L. (2013). From Emerging to Submerging Economies: New Policy Challenges for Research and Innovation. *Science technology and policy review* 4: 1, 1–13.
- The World Bank Data (2019a). *World Development Indicators*. Accessed 12 February 2019. Available at <<https://databank.worldbank.org/data/source/world-development-indicators>>
- The World Bank Data (2019b). *Poverty & Equity Data Portal*. Accessed 12 February 2019. Available at <<http://povertydata.worldbank.org/Poverty/Home>>.
- Tödtling, F., Asheim, B. & R. Boschma (2013). Knowledge sourcing, innovation and constructing advantage in regions of Europe. *European Urban and Regional Studies* 20: 2, 161–169.
- Tuomi, J. & A. Sarajärvi (2018). *Laadullinen tutkimus ja sisällönanalyysi* [Qualitative research and content analysis]. 204 pp. Tammi, Helsinki.
- United Nations (2018a). *Financing for Development: Progress and Prospects 2018*. 181 pp. United Nations Publications, New York.
- United Nations (2018b). *World Economic Situation and Prospects 2018*. 187 pp. United Nations Publications, New York.
- United Nations Development Programme (2017). *Innovation for Sustainable Development Goals*. 70 pp. United Nations, New York.
- United Nations Economic Commission for Africa (2016). *Economic Report on Africa 2016: Greening Africa's Industrialization*. 229 pp. Addis Ababa, Ethiopia.
- United Nations General Assembly (2015). *Transforming Our World: The 2030 Agenda for Sustainable Development*. 21 October 2015, A/RES/70/1.
- von Hippel, E. (2005). Democratizing innovation: The evolving phenomenon of user innovation. *Journal für Betriebswirtschaft* 55: 1, 63–78.
- Wangwe, S. M. (2003). African Systems of Innovation: Towards an Interpretation of the Development Experience. In Muchie, M., P. Gammeltoft & B.-Å. Lundvall (eds.): *Putting Africa First – The Making of African Innovation Systems*, 75–92.
- Weber, K. M. & H. Rohracher (2012). Legitimizing research, technology and innovation policies for transformative change: Combining insights from innovation systems and multi-level perspective in a comprehensive ‘failures’ framework. *Research Policy* 41: 6, 1037–1047.
- Willis, K. D. & M. S. Kumar (2009). Development I. In Kitchin, R. & N. Thrift (eds.) *International Encyclopedia of Human Geography*, 111–116. Elsevier, Oxford.
- Yin, R. K. (2013). Validity and generalization in future case study evaluations. *Evaluation* 19: 3, 321–332.
- Zimmermann, F. & K. Smith (2011). More Actors, More Money, More Ideas for International Development Cooperation. *Journal of International Development* 23: 722–738.