Silent ideologies and power relations: a critical discourse analysis of ICT4D initiatives within the Kenyan agricultural sector.

How do the development discourses surrounding the planned Internet and Communications projects in Kenya construct and reinforce power relations and implicit ideological assumptions?



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Abstract

Kenya is the largest Internet and Communication Technology (ICT) hub in Africa. This provided the country with a technological landscape of opportunities in the field of development. Amongst these, are the implementation of ICT4D initiatives. These have been particularly popular in the agricultural sector, where they have been upheld as innovative and Modern ways to help solve some of Kenya's most pressing agricultural challenges. Despite the optimism embedded in these technological solutions, ICT4D have been criticized by Modernity theorists who claim that these can overlook complex contextual needs and realities based on interrelating and intersectional social relations, such as class, gender, ethnicity, and religion. This can lead among many other things to the failure of ICT4D initiatives but more importantly, overlooking these factors can potentially create or reinforce power asymmetries. In this light, this research calls for the vital importance of critically examining, and deconstructing the way in which ICT4D are framed as development tools and how they thereby construct power relations and ideologies within the Kenyan agricultural sector. By using ICT4D initiatives designed and created for the Kenyan agricultural sector as case studies, it aims to contribute to the scholarly discussion around the notion of power dynamics by engaging with Modernization theory and critical discourse analysis in order to unpack the discursive processes through which ICT4D policies are articulated at different scales and their related impacts to their recipients

Keywords: ICT4D, agriculture, Kenya, critical discourse analyzes, power dynamics, Fairclough's three-dimensional framework

List of abbreviations

CDA: Critical discourse analysis **CGIAR**: Consultative Group on International Agricultural Research **CIAT**: International Center for Tropical Agriculture **CROPMON**: Crop monitoring service **EU**: European Union FAO: Food and Agriculture Organization of the United Nations GIZ: Deutsche Gesellschaft für Internationale Zusammenarbeit (German Corporation for International Cooperation) G4AW: Geodata for Agriculture and Water **ICT4D**: Internet and Communication Technologies for Development **ICT:** Internet and Communication Technology **ICTs**: Internet and Communication Technologies IMF: International Monetary Fund **KAINET**: Kenya Agricultural Information Network **OECD**: Organization for Economic Cooperation and Development **R&D**: Research and Development **UN**: United Nations

UNEP DTU: United Nations Environment Programme - Technical University of Denmark Partnership WSIS: World Summit on the Information Society

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1. Introduction

1.1 Introduction and problem statement

Internet and Communication Technologies for Development (ICT4D) initiatives have been presented as a means to promote economic and social development in developing countries (United Nations, 2017). One way in which ICT4D is said to promote economic development is through the use of internet and communication technology (ICT) in agriculture (World Bank, 2016). Different stakeholders designed and implemented various ICT4D initiatives that promote technologies to benefit different agricultural sectors including precision agriculture, digital financial services, and mobile applications to improve agricultural productivity and efficiency (FAO, 2018).

The expectation that ICT4D initiatives have beneficial effects is strengthened by previous research on the effects of digitalization in developing countries. It has been shown that digitalization in developing countries may have many benefits, such as greater efficiency, improved access to information and services, and increased opportunities for economic growth and development (Nylander, 2017; Walsham & Sahay, 2016). For example, digitalization may help to improve the efficiency of agricultural production by providing farmers with access to information and resources that can help them to improve crop yields and reduce costs (Fry & Fahey, 2019). Digital financial services, such as mobile banking and digital payments, may also help to increase financial inclusion and improve economic opportunities for people living in developing countries (Deshpande, 2016).

Despite the benefits of ICT4D initiatives, previous research on ICT4D projects have also highlighted several issues with implementing digitalization initiatives in developing countries. These include the problem that ICT4D initiatives may rely on and promote implicit ideologies that can negatively impact those supposed to benefit from these. For example, previous research has shown that many ICT4D initiatives are characterized by forms of unequal power relations and implicit ideologies (Friedman, 2018; Kiggundu, 2018; Mansell & Wehn, 2018; Walsham, 2017). For example, Heeks (2008) found that Modernity bias, eurocentrism, and excessive optimism can lead to poor and unequal outcomes and in ICT4D initiatives. Also, Walsham (2017) argues that ICT4D agendas are shaped by techno-centric and Modernization assumptions and that these assumptions might have led to the failure of many ICT4D initiatives. The dominant processes and dynamics – as well as existing power relations - through which ICT4D are designed and implemented can lead to the neglect of traditional knowledge and ways of doing things. This can result in the loss of valuable cultural heritage and marginalization of certain groups of people according to Modernization theory critiques (Friedman, 2018). Moreover, these processes can – sometimes in involuntary ways – create or reinforce power asymmetries and lead to new constellations of winners and losers.

In the last couple of decades, Kenya's agricultural sector has been facing different challenges. In this context, the Kenyan government along with non-profit organizations, development corporations and private initiatives among other stakeholders have promoted and introduced ICT4D projects with the

goal of both promoting economic development as well as achieving sustainable development. Examples of these initiatives include using ICTs in agriculture to improve productivity and resource management and introducing digital financial services to increase financial inclusion (FAO, 2018; World Bank, 2016). Kenya's agricultural sector is currently at the forefront of using ICTs in the region to further strengthen and boost the Kenyan agricultural sector (Ondiege & Ngeno, 2021).

Given the potentials of ICT4D and the fact that Kenya is at the forefront of launching ICTs for their agricultural sector, there is a need of understanding how technologies may articulate power dynamics and implicit ideologies to avoid their premature failure and more importantly to prevent these from leading to unequal outcomes. This thesis draws from Modernization theory and aims to add to existing scholarly conversations on ICT4D in this field by further engaging with discourse analysis. In this light, this thesis uses Fairclough's three-dimensional framework of critical discourse analysis to unpack through which ICT4D policies are articulated at different scales and their related impacts to their recipients. This approach provides further analytical reach when combined with Modernization theory as it can bring valuable and in-depth insights into underlying assumptions, beliefs, interests, and values that shape the way different stakeholders introduce and implement ICT4D initiatives within the Kenyan agricultural sector. This research further investigates the ways in which these technologies can contribute to perpetuating and/or challenging power imbalances. This is particularly important in the context of developing countries, where power imbalances and systemic inequalities are often exacerbated by ICT4D initiatives (Friedman, 2018; Kiggundu, 2018; Mansell & Wehn, 2018; Walsham, 2017). By shedding light on how these initiatives may be reproducing or challenging existing power structures and can inform efforts to promote more equitable, inclusive, and sustainable development outcomes for the Kenyan agricultural sector.

1.2 Research objective and question

Given the potential risks of perpetuating power imbalances and implicit ideologies within the Kenyan agricultural sector this thesis' objective is to critically examine the underlying dynamics that shape the discourse within ICT4D initiatives in the context of the Kenyan agricultural sector. Investigating potential power dynamics potentially enables future ICT4D initiatives to be aware of carrying particular discourses when implementing or imposing ICT4D initiatives on their recipients. This can help to ensure that the initiatives are implemented in a way that is inclusive, equitable, and appropriate for the local context and therefore making them more sustainable.

implicit ideological assumptions and power relations surrounding the implementation of ICT4D in Kenya, with a focus on different stakeholders that are at play including the Kenyan government, the private sector, development organizations and research institutions. Given the potential risks of perpetuating power imbalances and implicit ideologies within the Kenyan agricultural sector, it is necessary to research the implications of ICT4D initiatives in Kenya. The understanding of power dynamics between different stakeholders that are at play within the sector is pivotal to mitigate potential risks and unintended consequences that arise with ICT4D initiatives. By addressing the potential risks one can help to ensure that the initiatives are implemented in a way that is inclusive, equitable, and appropriate for the local context and therefore making them more sustainable. Additionally, this research can provide evidence for further recommendations for the design, implementation and evaluation of ICT4D initiatives in the Kenyan agricultural sector. This can help to ensure that these initiatives are effective and sustainable in the long term.

The main research question guiding this research is:

How do the development discourses surrounding the planned ICT4D projects in Kenya construct and reinforce power relations and implicit ideological assumptions?

The answer to this overall research question will be constructed from different elements, by answering the following sub-questions:

- 1) What are the discourses surrounding ICT4D initiatives in the Kenyan agricultural sector?
- 2) How can dominant and Modern development discourses surrounding ICT4D create new or reinforce power relations?
- 3) What are the recurring thematic discourses in the context of ICT4D initiatives in the Kenyan agricultural sector?
- 4) Through what discursive practices are ICT4D initiatives being implemented?
- 5) How do existing power dynamics and actors steer particular development trajectories with regards to ICT4D initiatives?

1.3 Academic relevance

From an academic perspective, this research contributes to the fields of development studies, policy and report studies, and communication studies. It adds to the existing literature on the use of ICT for development (ICT4D) and the potential impacts of these projects on their recipients. Previous research has focused on the broader role of the challenges and opportunities presented by the use of ICTs (Sikweyiya 2003) or the examining of the origins and underlying assumptions of mobile phone technologies ("m-agriculture") initiatives within the Kenyan agricultural sector (Brouwer, 2019). This research aims at contributing to these scholarly projects by further understanding how discourses are mobilized to materialize a particular developmental agenda in the context of ICT4D in Kenya. Such an understanding sheds light on not only the ongoing power dynamics and interests but also on the underlying discursive processes that steer development projects more in general. And how these in turn can obfuscate political decisions in the name of development. By shedding light on these dynamics and processes it enables to gain a better understanding of power asymmetries that exist and may be a result of ICT4D initiatives. Therefore, in this thesis, Fairclough's three-dimensional framework of critical discourse analysis is used to examine how ICT4D initiatives are discursively mobilized and the effects on the recipients. This framework is combined with Modernization theory

to gain a deeper understanding of power dynamics within ICT4D in the context of Kenyan agriculture. By using this approach, a more inclusive and participatory development approach can be adopted that focuses on the outcomes and contextual realities of the recipients. Therefore, this thesis, adds to the existing literature by providing a more nuanced and critical perspective on the use of ICT4D within the Kenyan agricultural sector.

1.4 Societal relevance

The societal relevance of this research lies in its potential to uncover implicit power dynamics and ideologies that are at play In ICT4D initiatives in the context of the Kenyan agricultural sector. Uncovering ongoing power dynamics within the Kenyan agricultural sector could inform more effective and equitable policies and reports for the adoption of digital technology in the Kenyan agricultural sector and making it therefore more sustainable and inclusive. This is particularly relevant in the case of the Kenyan agricultural sector since it is the forerunner in Africa in the use of ICT4D (Kuria et al., 2019). The findings of the research could provide insight into the dominant discourses surrounding the implementations of digital technology in the sector and the underlying interests and power dynamics shaping its adoption. This information could be used to inform policy decisions in the future and ensure that policies and reports are more inclusive and participatory, considering the needs and perspectives of the recipients.

In addition, this research could help to create awareness around the role of discourses in reports and the importance of considering alternative perspectives and narratives. This could encourage more critical and reflective policy development processes, leading to policies that are better aligned with the needs and goals of society, as for example marginalised groups.

Furthermore, by finding out how discourses are constructed, one can focus on the agenda-putting aspect of ICT4D initiatives. Some discourses enter the political agenda because it appears to be the dominant discourse, without further questions about the underlying values, assumptions, and ideologies that it may bring with them. Questioning discourses and how they are constructed and why some gain recognition in the political agenda or in other initiatives presented by non-profit organizations for example, could be useful for future ICT4D initiatives.

Overall, the societal relevance of this research lies in its potential to inform policies that support the sustainable development of the Kenyan agricultural sector and contribute to more inclusive and participatory policymaking processes as well as creating awareness.

1.5 Structure

This research begins with situating ICT4D in the context of the Kenyan agricultural sector, which locates the research within the existing knowledge on ICT4D initiatives and the agricultural sector. The theoretical background delves into Modernization theory as including its main theorists and critiques. The methodology section explains how the research employs CDA, specifically Fairclough's

three-dimensional framework (1980), as its approach. This will be followed up by the analysis and discussion section. The findings chapter presents the most significant results derived from the analysis. The conclusion chapter will provide a response to the research question, reflect on the principal findings, suggest further research ideas, and examine the implications of the study.

2. Situating ICT4D in the context of the Kenyan agricultural sector

The use of ICT4D initiatives in the agricultural sector has been growing rapidly in recent years (Molla, 2017). This section will situate ICT4D in the context of the Kenyan agricultural sector and in order to do so, it will first provide a succinct and up-to-date historical account of Kenya's agricultural sector. This will be followed by an in-depth overview and literature review of ICT4D, which will touch upon its origins, potentials as well as critiques. This chapter's final section will dive into ICT4D in the context of the Kenyan agricultural sector.

2.1 Overview Kenyan agricultural sector.

To gain a comprehensive understanding of how ICT4D has evolved in the context of the Kenyan agricultural sector, it is essential to examine the historical developments within the sector. Therefore, it is important to delve into the history of the Kenyan agricultural sector and how development paradigms have changed over time. This chapter will provide a brief overview of some of the most significant historical development paradigms.

Kenya's agricultural sector has a long and complex history that dates back to pre-colonial times (Ochieng & Otieno, 2016). Before European colonialists arrived, agricultural production was mainly subsistence-based, with smallholder farmers growing crops such as maize and millets as well as keeping livestock such as cattle and goats. During the colonial period, British colonizers introduced cash crops such as coffee and tea, which were grown on large plantations. After Kenya's independence in 1963, the Kenyan government aimed to Modernize the sector and increase productivity by implementing policies such as land consolidation, agricultural extension services, and the provision of credit and inputs to smallholder farmers (Shapiro, 2015).

In the 1970s and 1980s, the Kenyan government pursued an import substitution strategy, which involved promoting domestic production of food and other goods to reduce reliance on imports. The government implemented policies such as price controls, subsidies, and export taxes to incentivize domestic production. However, in the 1990s, the Kenyan government adopted a more market-oriented approach to agriculture, with a focus on liberalizing the sector and encouraging private investment (Shapiro, 2015).

This shift towards market-oriented policies was influenced by the dominant global economic paradigm that favored such policies, as promoted by institutions like the International Monetary Fund (IMF) and World Bank. Many developing countries, including Kenya, believed that aligning themselves with this paradigm and implementing similar policies would help them attract investment and achieve economic growth (Heeks, 2002).

During the 1980s and 1990s, the International Financial Institutions (IFIs) influenced policy changes such as privatization, fiscal discipline, and trade liberalization, as conditions for debt relief to African countries, which were part of the Washington Consensus/Structural Adjustment Program period

aimed at addressing the economic challenges faced by African countries. For example, in the 1990s, the World Bank and other IFIs promoted a policy approach known as the "structural adjustment program" (SAP) in Kenya, which aimed to liberalize and privatize various sectors of the economy, including agriculture. Another major policy reform related to agriculture was the Kenya Agricultural Productivity Project (KAPP), which was implemented with the support of the World Bank. This project aimed to improve productivity and competitiveness in the agricultural sector through a range of interventions, including investments in infrastructure, technical assistance to farmers, and support for the private sector (GOK, 2001).

However, the implementation of these policies, often under conditionality, failed to improve economic conditions in African countries such as Kenya. The politics of IFI conditionality undermined local ownership in shaping economic policy, while reducing government spending often led to cuts in pro-poor programs. The removal of agricultural subsidies also made it difficult for African farmers to compete on international markets, resulting in increased unemployment and socio-political unrest in several African countries during this period (Shapiro, 2015).

At the end of the 1990s the ideology that liberalization of markets and privatization enhanced economic growth and improved performance respectively was popular during this era. Institutions such as the World Bank and IMF together with powerful leaders made it possible for such policies to be embraced by developing counties such as Kenya. The reforms typically included removal of price controls and opening up borders to promote international trade, which was viewed as a means for improved trade relations that would increase productivity and provide opportunities for knowledge transfer (Aseto & Okelo, 1997).

The need for financial assistance, coupled with the dominant global economic paradigm, influenced Kenya to align itself with the market-driven and efficient policies promoted by international financial institutions (Heeks, 2002). Kenya saw the adoption of market-oriented policies as a way to attract foreign investment, improve efficiency, and stimulate economic growth.

The current agricultural sector is a crucial part of Kenya's economy, employing approximately 60% of the population and contributing around 25% of the country's GDP (World Bank, 2022). The sector is largely dominated by smallholder farmers who produce a wide range of crops, including maize tea, coffee and livestock (FAO, 2020). However, the sector faces a number of challenges that limits its potential for growth and development. One of the main challenges is productivity, which is due to a combination of poor access to credit, limited use of Modern technologies, inadequate infrastructure, and unreliable weather patterns (World Bank, 2022). Another challenge is climate change, which is affecting the agricultural sector in Kenya through increased droughts and floods. Climate change is reducing crop yields and affecting food security, particularly in rural areas where the majority of the population relies on agriculture for their livelihoods (Kariuki et al., 2020).

Despite these challenges, there are opportunities for the Kenyan agricultural sector to grow and develop. The country has a favorable climate for agriculture that allows for the production of a diverse range of crops (World Bank, 2022). The Kenyan government also made efforts to support the sector through initiatives such as the National Agriculture Sector Transformation and Growth Strategy (NASTGS), which aims to promote private sector investment in the sector (Ministry of Agriculture, Livestock, Fisheries and Cooperatives, 2020).

The increased emphasis on market-oriented policies and the belief that technology and innovation were key drivers of economic growth and development, together with the growing availability and affordability of ICTs, made ICTs accessible to a wider range of organizations. There was potential for the use of technology and innovation to transform the agricultural sector in Kenya (Kariuki et al., 2020). The alignment of ICTs with the global development discourse was further facilitated by the emergence of the concept of ICT4D, which was based on the idea that ICTs could be used to support development goals (Heeks, 2002).

At first, initiatives were positively received since the leapfrog potentials were widely recognized, which entails a quick move to a more advanced state of development by adopting new technological services coming from developed countries (Soete, 1985). Multiple stakeholders – including development institutes such as the UN and the World Bank – noticed the potentials of leapfrogging as it enabled developing countries to move to an information society in a fast pace (Wilson, 2002). This led the World Summit on the Information Society (WSIS) (2003) to widely apply ICT4D solutions in developmental challenges including the agricultural sector (Association for Progressive Communications, 2022). In the subsequent section these challenges will be addressed as well as a further information on how these ICT4D solutions were introduced for the Kenyan agricultural sector.

2.2 ICT4D within the Kenyan agricultural sector

In the last decades, Kenya's agricultural sector has faced different interrelated challenges. These have had major impacts on the countries economy as well as its populations well-being, especially on the most vulnerable segments of society. Likewise, small-scale farmers have been unequally impacted by these as they depend on agriculture for subsistence. The main challenges Kenya's agricultural sector faces are related to climate change, inadequate infrastructure, limited access to technologies, unequal and limited access to financial opportunities, fragmented knowledge amongst multiple stakeholders (Kamau & Nyangena, 2020). In this context, international development sector as well as the Kenyan government have sought to Modernize the sector by the introduction of different technologies such as ICT4D.

Since the 90s ICT4D has been introduced in Kenya through a combination of government initiatives, private sector investments, and international development efforts. ICT4D is a field of study and practice that focuses on the use of information and communication technologies (ICTs) to promote

social and economic development in developing countries. There is no single definition of ICT4D, as it encompasses a range of different technologies, applications, and contexts. However, some of the leading ICT4D developers have provided their own definitions of the field. The World Bank for example defines ICT4D as "the use of ICTs to foster economic development, improve social services, and promote good governance in developing countries" (World Bank, n.d.), whereas the United Nations defines ICT4D as "the practice of using digital technology to support development goals, such as poverty reduction, health care, education and good governance" (United Nations Development Programme, 2019).

When the Kenyan agricultural sector underwent significant economic reforms, with the government implementing various policy changes aimed at shifting towards market-oriented agriculture, with a greater emphasis on export-oriented crops and private sector investment in the sector, there was a recognition of the potential of ICTs to support this growth and development of the agricultural sector going on. As a result, there were many investments in various ICT initiatives including the Kenyan Agricultural Commodity Exchange (KACE) in 2004. With the prevailing emphasis on ICT in the Kenyan agricultural sector, the ICT4D paradigm experienced significant growth (Brouwer, 2019).

The Kenyan government has played a role in promoting ICT4D through policy and regulatory frameworks, such as the National ICT policy (2006) and the Kenya Information and communications Act (1998). These two policies were the starting point for the growth of the ICT sector and also encouraged private sector investment in ICT infrastructure. Also, the government launched in 2006 the Kenya ICT Board, which was launched to create development strategies for the growth of the ICT sector in Kenya. This board has been instrumental in promoting the use of ICT in various sectors of the economy, including agriculture and finance (Omondi, 2017). International development organizations, such as the World Bank and the United Nations Development Programme (UNDP), have also supported the development of ICT4D in Kenya through funding and technical assistance. For example, the World Bank has provided funding for the development of ICT infrastructure and e-government initiatives, while the UNDP has supported programs aimed at using ICT to improve access to agricultural services (World Bank, 2017).

ICTs have been used to promote social and economic development in Kenya through various initiatives for the agricultural sector. ICTs potentially offer the use of mobile technologies to improve access to information, market-prices, and weather updates for farmers. For example, mobile phone-based platforms such as iCow and M-Farm have been developed to help farmers in Kenya access information on livestock management and market prices for crops (Wafula, 2019). Another solution offered by ICTs is the use of geographic information systems (GIS) and remote sensing technologies to provide detailed information on land use, soil quality, and crop growth. These technologies have been used to develop precision agriculture practices in Kenya and other African countries (Muthee et

al., 2020). Furthermore, ICTs have been used to improve supply chain management in the agricultural sector, by enabling real-time tracking of products from farm to market (Auma, 2019).

The landscape of current ICT4D projects in Kenya is diverse and dynamic, with a range of actors involved in the design, implementation, and evaluation of these initiatives. These include NGOs, private sector companies, government agencies, research institutions and development organizations. These organizations have provided funding, technical assistance, and capacity-building support to various ICT4D projects in the country.

NGOs have been actively involved in ICT4D initiatives in Kenya. For example, organizations like the African Centre for Women, Information and Communications Technology (ACWICT) are implementing programs aimed at promoting digital literacy and entrepreneurship among women and girls in rural areas. Private sector companies are also actively involved in ICT4D initiatives. Companies such as Safaricom have been promoting the use of mobile money services in the country to increase financial inclusion. Government agencies such as the Kenya ICT Authority and the Ministry of Information, Communications and Technology are also involved in ICT4D initiatives in Kenya. These agencies are responsible for implementing government policies aimed at promoting the growth of the ICT sector in the country Njenga et al., 2015). Research institutions have also been involved, for example, the University of Nairobi has a Center for Computing and Development, which is involved in research and training aimed at promoting the use of ICTs for development in the country (World Bank, 2017). Different development organizations such as the World Bank, the UNDP, and USAID are also actively involved in ICT4D initiatives in Kenya. These organizations provide funding and technical support to initiatives aimed at promoting the use of ICTs for development in the country (WORDP, 2019).

The use of ICTs has been both praised and criticised in Kenya. Some studies have highlighted the successes of ICT4D initiatives in the country, while others have pointed out some of the challenges and limitations of these initiatives. In the following section I will point out some of the main potentials and critiques of ICT4D.

2.3 ICT4D potentials

ICT4D initiatives have brought about potential benefits for the agricultural sector according to some studies. Akter et al (2016) have shown that ICT4D may provide farmers access to relevant information such as weather patterns, market prices, and technological innovations. For example, mobile-based platforms can provide real-time information on prices and help farmers make more informed decisions on when and where to sell their crops. Also, farmers may potentially increase their market reach beyond their local communities and reduce the need for intermediaries (Kraemer, 2011). Tiwari (2016) has demonstrated that ICT4D can improve supply chain management and logistics, reducing food waste and ensuring that crops reach markets in good condition.

Other researchers have revealed that ICT4D can benefit the agricultural sector by increasing resilience to climate change. It may help farmers adapt to changing weather patterns and extreme weather events, as well as provide better information to farmers about available resources, weather patterns, and best practices for growing crops (Mujtaba & Hill, 2014). For example, a study by Misra and Su (2016) showed how ICTs possibly help strengthen the supply chain by reducing waste, improving the quality of products, and increasing transparency and accountability in the market. Another study showed how ICTs can promote sustainable agriculture, such as precision agriculture, which can reduce the environmental impact of agriculture and help farmers monitor crop health, reduce the use of water, fertilizer, and other inputs and increase yields (Bredi & Saini, 2019).

In addition, ICT4D may also bring an increased access to training and extension services. For example, a study by Kanyuka (2013) revealed that ICTs can be used to deliver training and extension services to farmers, regardless of their location. This can be done through online platforms that offer educational and training materials, videos and interactive tools such as discussion forms. This makes it possible for farmers to access these services without having to physically attend a training centre. Similarly, a study by (Kimenyi, 2016) showed that mobile technologies can be beneficial through the delivering of training and extension services to farmers in remote or rural areas. For example, text messages, voice messages, and interactive voice response can be used to provide farmers with information on best practices, market prices, weather forecasts and other relevant information (Kiptot et al., 2014).

ICT4D may also have the potential to revolutionize the agricultural sector in developing countries by providing farmers with timely, accurate and actionable information to help them improve land management practices and increase productivity (Quamar et al., 2019). For example, ICT4D can help improve land use and conservation. Digital maps and satellite imagery can be used to identify areas of land that are suitable for different types of crops, and farmers can use this information to make decisions about the best use of their land (Al-Shehri, 2017). Another example is the study from Ligmann-Zielinska (2017) who found that ICT can increase efficiency and productivity by helping farmers to automize many manual processes involved in land management, such as crop planting, irrigation, and pest control. This will lead them to freeing up time and resources to focus on other tasks.

Furthermore, ICT4D may increase access to credit and financial services. This can be achieved by numerous ICT4D initiatives such as mobile banking, digital wallets, and agricultural lending platforms (Chen & Zhang, 2021). For example, a study by (Kanyuka & Mattson, 2013) revealed that the widespread of use of mobile phones in developing countries has potentially opened up new opportunities for providing financial services to rural populations, including farmers. Mobile banking and digital wallet services can be used to provide access to credit and financial services, such as loans, savings and insurance. Kimenyi & Odhambio (2016) also revealed that ICTs can be used as a practical

tool to facilitate the provision of agricultural loans through online platforms that connect borrowers and lenders. These platforms can provide farmers with access to credit that they may not have been able to obtain from traditional financial institutions. The use of ICTs in agricultural lending can also help to reduce the risks associated with lending to small-scale farmers by providing lenders with more.

Lastly, ICT4D can help to bring potentials for the agricultural sector in developing countries by increasing access to research and development. For example, ICTs can be used to create open access platforms for sharing agricultural research and development (R&D) information and knowledge. This can include online data bases, journals and many more, which can be accessed by anyone with an internet connection, regardless of their location. This makes it possible for farmers, extension workers, and other stakeholders within the agricultural sector to access the latest research and information without having to travel somewhere physically (Juma, 2015). Also, e-extension services can be delivered to farmers, including information on the latest R&D findings. For example, farmers can be provided with information on new plant varieties, improved farming practices and advances in agricultural technology through text messages, voice messages (Kimenyi, 2016). In addition, via remote sensing systems such as satellite imagery and unmanned aerial vehicles, can be used to collect data and information about crops and the environment (Kanyuka, 2013). Thus, the use of ICTs such as open access platforms, remote sensing and e-extension can help to overcome some of the barriers that have traditionally limited the reach and effectiveness of research and development information and services.

In conclusion, ICT4D has the potential to bring numerous benefits from providing access to relevant information such as weather patterns and market prices, to facilitating the development of e-commerce platforms and improving supply chain management. The widespread use of ICTs has opened new opportunities for the agricultural sector in developing countries, providing farmers with tools and information to improve land management practices, increase productivity and competitiveness, and contribute to sustainable development. The types of services in which these ICTs are situated can be categorized into different sectors which will be elaborated upon in the subsequent section.

2.4 Type of ICT services within the Kenyan agricultural sector.

ICT has played a role in transforming the agricultural sector in many developing countries, including Kenya. The use of ICT services has improved farmers' access to information, markets, finance and supply chain management, leading to increased productivity and profitability. The distribution of different types of ICT services supplied by Kenyan firms or projects has contributed to the growth and development of the agricultural sector (UNEP, 2021) breaks down the types of ICT services supplied by 20 Kenyan firms of projects into four categories including supply chain management, financial management, market information and linkages, and farm advisory and information. Farm

advisory services are crucial to many farmers who lack access to extension services, and ICT platforms provide advice on farming practices, weather and climate. Market information services provide market prices, connect producers with buyers, and offer product traceability, which is essential for high-value crops. Supply chain management services involve data collection and analytics, allowing for the development of effective supply chains. Financial management services include fin-tech solutions that provide access to finance, credit assessment, crowdfunding platforms, and insurance services.

2.5 Critiques and concerns about ICT4D

Despite the potentials of ICT4D, there have also been critiques to ICT4D initiatives. In the following section, a few of the main critiques are presented that show how ICT4D initiatives potentially do not live up to their promises or have unintended negative consequences.

Castells (2001) criticized ICT4D initiatives of being examples of technological determinism. The idea that ICT4D assumes that technology is the driving force behind social and economic change is critiqued for its narrow and unrealistic view of development. Castells (2001) claims that this oversimplifies the complex relationships between technology and development and ignores the role of social, economic and political factors. The focus on technology as the solution to development problems can lead to the neglect of other important aspects of development, such as governance, institutions and civil society. For example, Patel (2013) detected technological in "The Green Revolution initiative", which was initiated in the mid-20th century, when there was a general believe that Modern agricultural inputs like fertilizers and pesticides, were the keys to transforming traditional agricultural practices and increasing food production.

The failure of considering local contexts – such as the unique needs and challenges of different communities - of agricultural settings may be another concern of initiating ICT4D projects. The disregard of such important factors may lead to development projects that are not well-suited to local conditions and potentially may limit the developmental outcomes (Kimenyi, 2016). Other concerns about ICT4D initiatives are that there can be an undermining of local ownership and decision-making which can potentially lead to a lack of investment in other critical development areas, such as education and infrastructure, which are essential for sustainable development (Prebisch, 1950). Bhatnagar (2000) argues that heavy emphasis on technology in ICT4D initiatives potentially divert attention and resources away from other important development priorities such as building a skilled workforce, improving health and education systems and creating a sustainable environment for farmers. The over-reliance on technology can create a false sense of progress and limit the long-term impact of ICT4D initiatives.

ICT4D initiatives potentially do not live up to the aim of becoming self-sustaining (Valdivia, 2011). Many ICT4D initiatives and projects are short-lived and potentially lack the necessary support to be sustainable in the long-term. Moreover, many ICT4D projects are externally funded and driven, and their implementation is often dependent on foreign aid and assistance, which might not be selfsustainable in the long run. For example, a study by (Reyes, 2019) showed how these foreign aid ICT4D initiatives, such as by international development corporations are possibly driven by external funding and have profit-orientated goals. The reliance on external funding may lead to vulnerability of such projects, especially for marginalized agricultural groups. Additionally, external aid and assistance may also not align with local needs and priorities, leading to projects that are not sustainable in the long term (Valdivia, 2011).

ICT4D can lead to the displacement of traditional knowledge and practices, which may negatively affect the livelihoods of small-scale farmers and rural communities. This may be because traditional knowledge and practices are often passed down from one generation to the next and are closely tied to the cultural identity of communities. The loss of these practices can have a significant impact on the social and economic well-being of rural communities (Falan et al., 2020). For example, the introduction of Modern farming techniques through ICT4D initiatives may undermine the use of traditional knowledge and practices that have been developed and refined over generations to suit the local context. This can lead to a loss of biodiversity, soil degradation, and reduced crop yields, which can have negative consequences for food security and the livelihoods of small-scale farmers and rural communities (Fagerli & Helgesen, 2019).

These critiques have shown that ICT4D is a complex and multifaceted concept that has the potential to contribute to development in many ways. I will further dive into the criticisms of ICT4D from the perspective of Modernization theory in the theoretical framework.

2.6 Legitimation of Modernization and ICT4D through SDGs?

To further contextualize the broader discourses and agendas of ICT4D initiators and unpack underlying assumptions within the Kenyan agricultural sector, the legitimization of Modernization through the Sustainable Development Goals (SDGs) will be elaborated on in the following section. Analyzing the legitimization of Modernization through the SDGs provides insights into the underlying assumptions and power dynamics that influence ICT4D initiatives in the Kenyan agricultural sector. This is a crucial element in understanding the underlying assumptions and power dynamics that influence ICT4D initiatives within the Kenyan agricultural sector.

The ICT4D initiatives fall under SDG 17: "advancing science, technology and innovation" (United Nations, 2015) but also intersects with other SDGs depending on the type of development initiative and target sector. However, there has been a critique on the use of SDGs as a discursive framework, where they can be used politically to attain particular interests. This critique connects to the concept of empty signifiers, where the SDGs can be used as a rhetoric tool without any concrete actions or substantial changes (Kuo, 2019). This has led to accusations of SDGs being used as a form of greenwashing, where organizations use them to appear more socially responsible without making any significant progress towards sustainability.

In 2015, the United Nations General Assembly established the Sustainable Development Goals (SDGs) to combat poverty, protect the environment, and ensure prosperity for all. The 17 goals aim to address social, economic, and environmental issues in an integrated and balanced manner (United Nations, 2015). These SDGs represent a global framework that has been widely embraced by governmental institutions, development organizations, non-profit organizations and many more. These SDGs have played a significant role in shaping development policy and practice in recent years, such as in the agricultural sector (Nelson et al., 2018). The adoption by ICT4D initiators in the Kenyan agricultural sector is likely to have significant implications for the power dynamics at play.

The SDGs provide the basic framework for successful, equitable and inclusive development. However, the core values and institutions of the Kenyan agricultural sector, as well as its position in the world economy and geopolitics can influence development outcomes and SDGs attainment. The strategies for achieving many SDGs might conflict with the economic interests and political strategies of powerful stakeholders within the Kenyan agricultural sector. That is why the SDGs can be misused for greenwashing purposes by those stakeholders, which is the act of making false or misleading claims about the environmental benefits of a product, service, technology or organization. Moreover, it can be argued that the discursive mobilization behind SDGs and have become subjects of extraordinary consensus around a particular developmental logic. As different political theorists claim that embedded in such a generalized consensus is also the lack – and even annulment - of dissensus within political spheres of governance (Zizek, 2000; Mouffe, 1993; Swyngedouw, 2011). The lack of dissensus, disagreement or debate in these spheres can potentially silence alternative trajectories of development (see for example Hosseini, 2019). From this perspective, it can be argued that SGDs can serve as tools that run the risk of depoliticizing spheres of development (see for example Syngedouw 2011). This is not to criticize or essentialise the entire development sector, but to call attention of the intricacies and challenges that may rise from overlooking inherent and powerful discursive mobilizations embedded in dominant developmental logics.

In the realm of development, greenwashing can also refer to the false or misleading claims made about the environmental and social effects of a project or program. For instance, the private sector or the government may declare its services to be "sustainable" or "green" without any proof to back up these assertions. Likewise, a development project may claim to be "sustainable" or "green" but disregard the environmental and social consequences of the project (Peattie & Peattie, 2003).

Several studies have investigated SDGs in the field of ICT4D and how SGDs are potentially used as the legitimation of Modernization. For example, a study done by N. Sen and K. Bocij (2011), the authors argue that ICT4D initiatives, while aiming to improve access to ICT, often ignore the environmental as well as the social impacts of ICTs. They claim that this results in "greenwashing" or presenting a false or exaggerated image of the environmental benefits of ICTs. The authors used a systematic literature review of the available literature on the environmental impact of ICTs and

ICT4D initiatives. Another study that was conducted by Al-Shawabkeh (2017) is a comprehensive review of the literature and examined the current state of development in terms of its environmental and social impact. One of his main findings was that some development initiatives may use the SDGs to promote their work as environmentally sustainable and universally applicable, without considering the environmental as well as social impacts of the initiatives. Taipale (2020) found that the ICT sector can use the SDGs as a marketing tool, rather than implementing them in a meaningful way. This research showed how the SDGs can potentially be used to hide the negative environmental impact of ICTs products and services. In way it can be argued that

Furthermore, another critique of the SDGs as depoliticizing or greenwashing tools for the agricultural sector is that they may reinforce existing power structures and inequalities. Critics argue that the SDGs, while ostensibly aimed at promoting sustainable development, are often implemented in ways that benefit powerful actors at the expense of marginalized communities and the environment (Papanagnou, 2020). Moreover, the SDGs may reinforce a narrow conception of development that prioritizes economic growth and technological solutions over social and environmental justice. This approach may perpetuate a cycle of exploitation and inequality, particularly in the agricultural sector, where small farmers and indigenous communities are often marginalized in favor of large-scale industrial agriculture (Kothari et all., 2015).Thus, multiple studies have shown that the SDGs in the ICT4D sector are potentially used as greenwashing materials by companies to promote their products and services, rather than as a framework for sustainable development.

3. Theoretical background

The chapter above discussed the important literature in which this thesis is situated (Haraway, 1991). To gain a deeper understanding of the power dynamics and implicit ideologies within ICT4D initiatives in the Kenyan agricultural sector, this thesis research engages with critical discourse analysis. This approach is commonly used to study power relations and ideologies in a social setting (Fairclough, 1989). Jabri (1996) defines discourse as "social relations represented in texts where the language contained with these texts is used to construct meaning and representation". The underlying assumption of discourse analysis is that social texts do not merely reflect or mirror objects, events and categories pre-existing in the social and natural world. Rather, they actively construct a version of those things and therefore, being active have social and political implications (Fairclough, 2010).

This chapter presents Modernization theory as a theoretical lens to unpack the implicit assumptions, ideologies, and power relations situated within ICT4D initiatives. As seen in the literature review, implicit ideological assumptions and unequal power relations are common in ICT4D initiatives. Looking at the Kenyan agricultural sector with the lens of Modernization theory will offer valuable insight into how development practitioners and stakeholders believe they can achieve their aims and what concepts their aims are based on. Therefore, development theory (such as Modernization theory) is also the most natural starting point when analyzing ICT4D initiatives within the Kenyan agricultural sector. While some argue that the Modernization theory is outdated, others argue that since the 1990s ICT4D brought about its revival (Berger, 2005). Nonetheless, many studies already have investigated the link between Modernization theory and ICT4D. For example, Kunst (2014) argues that there is a strong link between ICT4D and Modernization theory because ICT4D initiatives often share the same assumptions and objectives as Modernization theory, including the belief that technology can drive development and that development is a linear process that can be achieved through economic growth and the diffusion of Western-style values. However, this research aims at contributing to the existing literature by further understanding how discourses are mobilized to materialize a particular developmental agenda in the context of ICT4D in Kenya. Such an understanding sheds light on not only the ongoing power dynamics and interests but also on the underlying discursive processes that steer development projects more in general.

Despite the research carried out on ICT4D and Modernization theory, looking at the Kenyan agricultural sector while using Fairclough's three-dimensional framework on discourse analysis will shed light on the embedded power relations, ideologies, and assumptions embedded in ICT4D in the context of Kenya's agricultural sector. CDA is used to unpack through which ICT4D policies are articulated at different scales and their related impacts to their recipients. This approach provides further analytical reach when combined with Modernization theory as it can bring valuable and indepth insights into underlying assumptions, beliefs, interests, and values that shape the way different stakeholders introduce and implement ICT4D initiatives within the Kenyan agricultural sector.

Fairclough's three-dimensional framework will allow me to analyze the discourse at three different levels 1) linguistic analysis, 2) process analysis and 3) social analysis which will allow for a more indepth analysis of the embedded power dynamics. What this further entails will be expanded upon in the methodology chapter.

In the following sections I will further unpack the notions of discourse analysis and Modernization theory including its history, the main theorists, its main assumptions, as well as its criticisms. This is crucial to place ICT4D initiatives in a broader ideological context.

3.1 Modernization theory

In line with the objectives of this thesis, this section will dive into the foundations, assumptions, and critiques of Modernization theory in order to have a comprehensive background that will serve as a theoretical bridge to further study ICT4D in the context of the Kenyan Agricultural sector.

3.1.1 Establishment and important theorists

Modernization theory emerged in the mid-20th century to describe the process of development in societies. It posits that all societies undergo a similar transformation from traditional, to Modern, and that this transformation is crucial for economic growth and improving quality of life (Wade, 1990). The theory was influenced by the experiences of industrialized Western countries and their own processes of Modernization (Robinson, 2013).

The two most well-known theorists of Modernization are Walt Rostow and Martin Lipset. Rostow's theory asserts that all societies go through five stages of economic growth: traditional society, preconditions for take-off, take-off, maturity, and high mass consumption. He believed that economic growth and development were driven by technological change and investment in physical and human capital (Rostow, 1960). Lipset (1960) emphasized the importance of political and social institutions promoting development. He argued that Modern societies have higher levels of individualism, equality, and political and economic stability than traditional societies, and that these qualities are necessary for development to occur. Therefore, Lipset focussed more on the significance of political and social institutions rather than the role of technological change and investment like Rostow.

Another important theorist of Modernization theory was Parsons (1951), a sociologist who saw Modernization as a cultural evolution process, where traditional societies were transformed and adjusted to Westernized cultural and social systems in order to become Modern societies. According to him, Modernisation was not just about economic or technological progress, but about cultural and social change as well. Traditional cultures and societies had to adopt new values, norms and practices in order to become Modern societies (Parsons, 1960). Parsons' ideas were influenced by other sociologists including Weber, Durkheim and Freud who considered Modernization a Western idea that would bring order and stability to a society. Parsons argued that in order to reach economic and technological progress the integration of such Western values and norms were necessary in order to further develop (Parsons, 1960).

3.1.2 Key assumptions of the Modernization theory

The Modernization theory has been widely used to understand and explain the transformation of societies from traditional stages to Modern industrial societies. It is based on a set of key assumptions. The theory first posits that all societies will follow a linear progression through stages and will eventually reach development as how that is reached in the West (Rostow, 1960). This progression is seen as being driven by several factors such as technological advancement, economic growth, and increasing levels of education and Modernization. Secondly, the theory assumes that non-Western societies are passive recipients of development, and that change can only be imposed from outside (Lerner, 1958). According to the Modernization theory, "Modern" societies are more productive and are therefore better capable of dealing with functions such as national identity, legitimacy, penetration, participation, and distribution compared to more traditional forms of political systems (Van Westen, 2021). The notion of the "First World" and "Third World" are historical concepts that refer to countries either with a low degree of economic development (industrialization rate), or with a higher degree of development (Escobar, 2011).

One of the key tenets of Modernization theory is the idea that economic growth is the foundation for development. According to this view, economic growth creates the conditions for social development, and the adoption of Western technologies and institutions to achieve this growth. As a result, Modernization theory has been closely associated with policies at promoting economic growth, such as structural adjustment programs and neoliberal economic policies (Inglehart & Wezel, 2005). Modernization theory often promotes neoliberal economic policies as a means to achieve development and growth. For example, Modernization theorists may advocate for the liberalization of trade, reduction of government regulation, and promoting of foreign investment, all of which align with neoliberal economic policies (Escobar, 1995).

SAPs are a set of policies that were promoted by the World bank and the International Monetary fund (IMF) in the 1980s and 1990s. The most important objective was to promote economic growth and development by restructuring the economies of developing countries (Wade, 2003). Similarly, neoliberal economic policies are closely associated with Modernization theory. Neoliberalism is an economic philosophy that emphasizes the importance of free markets and private enterprise. According to neoliberalism, economic growth and development can be achieved through reducing government intervention in the economy and promoting free trade (Harvey, 2005).

The Modernization is heavily influenced by Western experiences of industrialization and Modernization and that is why the theory often reflects a Eurocentric and Modernist perspective (Bauman, 2000). Therefore, Eurocentrism and Modernity bias are both characteristics of the Modernization theory in the way that development initiatives may implicitly or explicitly support the theory. Therefore, Eurocentrism is part of the Modernization theory since it assumes that the Western experience of Modernization represents a universal model for all societies and cultures, ignoring the diversity of cultural and historical experiences across the world (Gellner, 1971). Similarly, Modernity is part of the Modernization theory because it represents the West as the endpoint of historical development and reinforces the notion that other cultures should strive to emulate Western models of development (Bauman, 2000). Thus, this means that both Modernity bias and eurocentrism are core perspectives that can be found within the Modernization theory.

3.1.3 Ideological underpinnings in Modernization theory

From a historical perspective, the rise of Modernization theory can be seen as a reflection of the European colonial expansion of the 19th and early 20th centuries. The idea of European superiority and the belief in the universal applicability of Western models of Modernization were used to justify colonial expansion and domination (Said, 1979). The European colonization of Africa helped to spread capitalism, Western values, and technology to the continent. As Europeans powers imposed their political and economic systems on colonized populations, they also spread the belief in superiority of Western culture and the need for non-Western societies to Modernize. The rise of imperialism further entrenched these Western values and norms. European powers used their military and economic influence to exert control over vast territories, spreading their influence and shaping the ideological underpinnings of Modernization theory. Also, the enlightenment played a role in shaping the underlying ideological underpinnings. The Enlightenment was an intellectual movement in Europe during the 17th and 18th century that emphasized reason, individualism and the scientific method. These values were incorporated into Modernization theory and served as a basis for the belief in the superiority of Western culture and the need for non-Western societies to adopt Western norms and institutions (Bauman, 2000).

These historical events led to several ideological presuppositions within the Modernization theory. 1) Capitalism and market economy. According to Modernization theory, capitalism is the most efficient economic system, and the spread of this system is essential for economic growth and development (Schumpeter, 1942). This view is supported by the works of economics such as Adam Smith (1776) who argued that the market economy promotes competition and innovation, leading to increased economic growth and development 2) Westernization, which is emphasized by the Modernization theory since Western cultures and values are seen as superior to other cultures. According to the theory non-Western cultures should adopt Western cultures (Huntington,1993). This view is supported by works such as the report of the Commission on the Social sciences, Anthropology, and development (1947), which argues that the Western model of development should be adopted by other cultures as a means of achieving development. 3) Technological advancement, Modernisation theorists believe that technological advancement is a key driver of economic growth and that all societies should strive to adopt new technologies (Rostow, 1960). 4) Individualism, Modernization

theory views individualism as an important aspect of Modern societies and emphasizes the importance of personal freedom and individual rights (Bell, 1976).

3.1.4 Critiques to Modernization theory

Modernization theory, which was influential in the mid-20th century, has been subject to criticism for several reasons in recent years. Its critics include Bourdieu (1977), Mouffe (1993), and Escobar (1995), who offer valuable insights into the limitations of the theory.

Bourdieu (1977) argued that Modernization theory ignored the complexities of social and cultural contexts and failed to consider the power dynamics and social inequalities that shape development processes. He emphasized the importance of understanding the role of culture, social structures, and power relations in shaping development processes. Bourdieu argued that development interventions must be grounded in an understanding of the local context and must involve local actors in the design and implementation of development projects.

Mouffe's (1993) critique focused on how Modernization theory overlooks the role of power and conflict in shaping political and social change. She argued that the spread of liberal democracy and capitalist institutions has often been accompanied by social and political conflicts, which are the result of the unequal distribution of power and resources in society. Moreover, Mouffe (1993) also criticized the tendency of Modernization theory to treat social and political actors as rational and homogeneous, rather than recognizing the diversity of interests and identities that exist within societies. In line with Mouffe, Ferguson (1990) critiqued development as "anti-politics machine" which highlights the ways in which development interventions often depoliticize and obscure the underlying power relations and political struggles shat shape social change.

Escobar's (1995) critique focused on the emphasis on universalism and the belief that development can be achieved through the application of Western models and technologies in non-Western contexts. Escobar argued that Modernization theory fails to take into account the specific social, cultural, and historical contexts of different regions and communities, and that it overlooks the importance of local knowledge and practices in development. Escobar (1995) also critiqued Modernization theory's focus on economic growth and industrialization as the primary goals of development, arguing that this narrow focus overlooks the importance of social and environmental sustainability, as well as the importance of addressing social and economic inequalities.

Latour (1993) offered a critique of Modernization theory by highlighting the ways in which it has ignored the role of non-human actors and the environment in shaping development processes. He argued that the theory's focus on economic growth and industrialization has led to the neglect of environmental concerns, and that the emphasis on rationality and efficiency has obscured the social and cultural dimensions of development. Latour (1993) also criticized Modernization theory's tendency to view technology as neutral and value-free, rather than recognizing the ways in which it

is embedded in social and political contexts. He argued that technologies are not simply tools for achieving development goals, but are themselves part of the social and cultural fabric of societies. As such, the design and implementation of development interventions must take into account the social and cultural contexts in which they will be used, and must involve local actors in the process.

These critiques by Bourdieu (1977), Mouffe (1993), Ferguson (1990), Escobar (1995), and Latour (1993) offer a nuanced understanding of the limitations of Modernization theory, highlighting the importance of considering the specific social, cultural, and historical contexts of different regions and communities in development processes. They also emphasize the importance of recognizing the diversity of interests and identities that exist within societies, as well as the importance of involving local actors in the design and implementation of development projects.

These critiques have contributed to the development of new development theories that take into account broader socio-economic dynamics to explain development. Examples of these theories include the world-system theory or the actor-network theory. For instance, McGee (2002) used the actor-network theory to explain the socio-economic dynamics of the Kenyan agricultural sector.

In conclusion, the critiques of Modernization theory by Bourdieu (1977), Mouffe (1993), Ferguson (1990) and Escobar (1995) provide valuable insights into the limitations of the theory and the need to consider the specific social, cultural, and historical contexts of different regions and communities in development processes. These critiques have contributed to the development of new development theories that take into account broader socio-economic dynamics to explain development.

3.2 ICT4D and Modernization theory

As explained in the chapter that situates ICT4D initiatives within the Kenyan agricultural sector, ICTs were brought to developing countries such as to Kenya from the 90s onwards. Since then, ICT4D initiatives have been growing enormously as components of development projects. To this effect, various theories have been imported and implemented in an attempt to best accommodate the goals, scopes, and benefits of ICT4D initiatives. Some of the dominating theories are the capability approach, livelihood approach and Modernization theory (Heeks and Molla, 2009). In the following section I will unpack some of the key studies that have analsed ICT4D from the perspective of Modernization theory

Escobar (1994) argues that Modernization theory, with its focus on economic development and progress, is inadequate to understand the social and cultural implications of the adoption of information technologies. He critiques the idea of a universal, homogenous Modernity, arguing that different societies have different pathways to development and that the adoption of new technologies does not necessarily lead to economic or social progress. He suggests that the cultural, political, and economic context in which technologies are adopted and used must be taken into account, rather than assuming a universal model of development. In the context of ICT4D, Escobar's (1994) analysis

suggests that the adoption of ICTs must be understood within the broader context of social and cultural change, rather than assuming that technology alone can drive development. Another study by Njoku (2008) showed that despite the progress in ICT infrastructure and adoption in Africa, the benefits of ICTs have not been evenly distributed across the continent. Njoku (2008) discusses various challenges to ICT4D in Africa, including limited access to ICTs in rural areas.

Heeks (2008) argues that Modernization theory has been influential in shaping the ICT4D agenda and has led to a focus on the adoption of Western technologies and practices. Similarly, Urwin (2009) argues that Modernization has underpinned much of the discourse around ICT4D and has led to a narrow focus on economic growth and technological solutions to development challenges.

The criticism of Modernization theory in the context of ICT4D is that there is an assumption of a universal model of development that is based on the Western experience and that may not be appropriate for all societies. Modernization theory has been associated with development failures and threats, such as "technology fix" and "technology transplant" (Cibangu, 2016). This is in line with Winner (1986) who coined the term "techno-fix" to describe the idea that technology can solve all our problems, without considering the social, economic, and political contexts in which It is deployed. Winner argued that this approach can lead to unintended consequences and negative impacts, such as environmental degradation, social inequality and loss of autonomy. As Escobar (1994) argues, the adoption of new technologies does not necessarily lead to economic or social progress and the cultural, political, and economic context in which technologies are adopted. Based on the literature review, I have identified three main critiques of ICT4D from a Modernization theory perspective which I will further unpack in the following section.

3.3 ICT4D main critiques

ICT4D projects in the agricultural sector have been praised for their potential to transform the lives of smallholder farmers in developing countries. However, the literature indicates that these projects are not without their challenges. One of the challenges is the presence of implicit power ideologies that shape the design, implementation, and outcomes of these projects. In this literature review, we will examine studies that explore the ideological biases that are at play within ICT4D projects for the agricultural sector. I will categorize these biases into two main categories: unequal power relations and Modernity bias as these being the core components of the Modernization theory (Smith, 2022).

3.3.1 Unequal Power Relations

The studies reviewed in this section highlight the unequal power relations that are at play within ICT4D projects for the agricultural sector. Islam and Grönlund (2017) define unequal power relations as "a situation where one group has more power, authority, or influence than another, resulting in an imbalanced distribution of resources and opportunities between the two groups." These reviewed studies suggest that the dominant discourse surrounding ICTs reflects a neoliberal and technocratic ideology that emphasizes market-oriented solutions and individualistic approaches, while

downplaying the role of government and collective action. This dominant discourse is shaped by the interests of donors, NGOs, and ICT providers, rather than the needs and perspectives of smallholder farmers.

For example, Islam and Grönlund (2017) found that the promotion of mobile phone-based services for agricultural extension in Bangladesh may reflect a neoliberal ideology that emphasized marketoriented solutions and individualistic approaches. The study suggests that this dominant discourse was shaped by the interests of market actors and ICT providers, rather than the needs and perspectives of smallholder farmers. Similarly, Burrell and Toyama (2019) found that the discourse surrounding mobile phones in agriculture in Ghana reflected a neoliberal and technocratic ideology that emphasized individual entrepreneurship and market-oriented solutions. The study suggested that the dominant discourse was shaped by the interests of donors, NGOs, and ICT providers, rather than the needs and perspectives of smallholder farmers. In addition, Brouwer (2019) found that the mobile phone agricultural discourses are shaped by historical and contemporary processes of Modernization and neo-colonialism in the form of technological determinism and neoliberalism.

These unequal power relations may lead to reinforcing existing inequalities and exacerbating the digital divide (Rojo, 2015; Juma, 2015; Gurstein, 2003; Heeks, 2002; Wojciechowski, 2015). The digital divide refers to the unequal distribution of technology and access to ICTs in different regions, social groups, and countries (Rojo, 2015). The lack of access to technology in rural areas and small-scale farmers can result in unequal power relations between those with and without access to technology (Rojo, 2015). The use of ICTs to collect and analyze data can also create information asymmetry, with some actors having greater access to and control over information than others (Juma, 2015).

Furthermore, the digital divide can exclude vast portions of the global population from participating in the digital economy, exacerbating existing inequalities and undermining development efforts within the agricultural sector (Heeks, 2002). According to the United Nations (2017), more than half of the world's population is still offline and has limited access to the internet. The dependence on technology can also create unequal power relations, with those who control the technology having the ability to influence the decisions and practices of others (Wojciechowski, 2015).

3.3.2 Modernity Bias

In addition, there have been several studies that identify Modernity bias in ICT4D projects for the agricultural sector. According to Leavy et al. (2018) Modernity bias is a theoretical and social tendency in social research to promote Modern, Western perspectives and to view non-Western cultures as "traditional" or "backward". The reviewed studies suggest that the discourse surrounding ICTs reflects a technocratic and instrumentalist approach that focuses on the potential of ICTs to increase productivity and efficiency, while downplaying the social and cultural context of farming.

The dominant discourse is shaped by the interests of donors and technocrats, rather than the needs and perspectives of farmers (Leavy et al, 2018; Kanyuka, 2013, Kimenyi, 2016).

For example, Leavy et al. (2018) found that the discourse surrounding ICTs for agricultural extension in Uganda reflected a technocratic and instrumentalist approach that focused on the potential of ICTs to increase productivity and efficiency, while downplaying the social and cultural context of farming. The study suggested that the dominant discourse was shaped by the interests of donors and technocrats, rather than the needs and perspectives of farmers. The study called for more attention to the local context and the social and cultural dimensions of farming in the design and implementation of ICT4D projects for agriculture. Similarly, Anand and Jain (2019) found that the discourse surrounding ICTs in agriculture in India reflected a technocratic and instrumentalist approach that focused on the potential of ICTs to increase productivity and efficiency, while downplaying the social and cultural dimensions of farming. The study suggested that the dominant discourse was shaped by the interests of donors, government officials, and technocrats, rather than the needs and perspectives of farmers.

This Modernity bias may lead to a disregard for local knowledge and practices within ICT4D initiatives. ICT4D projects can perpetuate this bias by promoting a one-size-fits-all approach, prioritizing technology over local knowledge and experience, and lacking meaningful engagement and participation from local communities and farmers.

Juma (2015) found that an emphasis on high-tech solutions in ICT4D projects can lead to a disregard for the knowledge and expertise of local farmers. Kanyuka (2013) noted that a one-size-fits-all approach can lead to the implementation of inappropriate and ineffective technologies in different contexts. Kimenyi (2016) argued that prioritizing technology over local knowledge can result in a loss of important agricultural knowledge. Mushi (2015) highlighted the risk of a lack of local involvement in ICT4D projects, which can reinforce power imbalances between developed and developing countries.

3.3.3 Implicit Ideology absences

Apart from studies that have found implicit ideologies, there have also been discourse analysis studies conducted that have found no specific implicit ideologies within ICT4D initiatives for the agricultural sector. For example, a study by Elbersen et al (2018) examined ICT4D initiatives within the rice sector of Benin. The study analyzes the way the initiatives are influenced by development discourses and identifies the presence of some implicit ideologies at the larger development level. However, the study does not find any specific implicit ideologies within the ICT4D projects itself. The author argues that the ICT4D projects within the rice sector in Benin is designed in such as way that it empowers the local actors to collaborate and exchange knowledge in a participatory and democratic way. Another case study that was conducted in Ethiopia by Giuseppe (2019) analyzed the One Laptop Per Child project in Ethiopia and found that while the project was influenced by larger development

discourses, no specific implicit ideologies were found within the project. Another study that was conducted by Chib (2005) also did not find any specific implicit ideologies within his case study. He conducted a discourse analysis on two tele center projects in South India, and he analyzed two Telecenter projects and found that while the projects were influenced by larger development discourses, no specific implicit ideologies were identified within the projects.

This chapter explored previous studies around the discourses within ICT4D initiatives for the agricultural sector in various contexts, including Bangladesh, Uganda, India, and other regions. However, there remains a knowledge gap in understanding how power relations, implicit ideological assumptions and assumptions shape ICT4D initiatives, particularly in the Kenyan agricultural sector. To dive deeper into the scholarly conversation on Modernization theory and ICT4D, this research engages with CDA to uncover power relations, implicit ideologies and assumptions ingrained in ICT4D in the Kenyan agricultural sector.

3.4 Critical discourse analysis as a method

The Critical Discourse Analysis (CDA) approach is commonly used to study how power is used to construct meaning and representation in texts, and how this shapes social relations and power dynamics in a given context (Demmers, 2017). According to Jabri (1996), discourse analysis is an approach that assumes that language and text are not just a reflection of reality, but they actively construct it, they do not just describe things, they do things, and this has social and political implications. This approach is commonly used to understand how discourses shape our perception of a specific issue, such as the adoption of ICT4D initiatives within the Kenyan agricultural sector. CDA helps to understand how language is used to construct meaning and representation and how it shapes social relations and power dynamics in a given context (Fairclough, 1992).

The fundamental principles of CDA, as outlined by Fairclough, Mulderrig, and Wodak (1997), state that CDA is a socially critical approach that focuses on social and political issues and that language can be used to research these issues. They argue that discourse shapes society and culture, and that discourses are historically and contextually situated. They also assert that discourses reflect underlying ideologies and that power relations play a role in shaping and being shaped by discourse. This perspective is commonly held among scholars within the CDA field.

The CDA approach is based on the idea that reality is socially constructed, as proposed by scholars such as Demmers (2017) and Jabri (1996). They argue that discourses, as a product of societal context, do not reflect an objective reality but rather reproduce meaning within the societal context in which they are produced. Discourses shape and are shaped by social rules and institutions as described by Jabri (1996) stating that "they do things" and by Wallace and Wolf (1999) who explained that discourses tell people how to conduct themselves in social life. Discourses convey meaning and representation through stories of signification and establish what is considered acceptable or normal

through stories of legitimation, as stated by Jabri (1996). Power is exercised and normalized through these structures and social rules, as explained by Giddens (1979) and Wallace and Wolf (1999).

CDA is composed of three fundamental aspects: linguistic, critical, and philosophical. The linguistic aspect involves the study of written or spoken language in relation to its social context, such as analyzing word groups, grammar features, and literary figures. However, in the past, CDA has been criticized for its narrow focus on the linguistic aspect (Breeze, 2011). Now, the field of CDA understands that it is oriented towards working within a 'critical' paradigm, which entails critically analyzing social issues embedded in language (Breeze, 2011; Regmi, 2017). The purpose of CDA, as articulated by its founders such as Fairclough, Wodak, and van Dijk, is to analyze the uncertain as well as transparent structural relationships of domination, discrimination, power, and control as manifested in language, which can only be understood in their social, cultural, and political context (Blommaert & Bulcean, 2000; Wodak, 2004). Therefore, in CDA, scholars should be critical of the relation between language and power (Fairclough, 1989; Fairclough 1992; Jabri, 1996; Wodak, 2011; van Dijk, 1993) as the critical underpinnings of CDA are based on the works of philosophers such as Gramsci (1971), Bourdieu (1977, 1991), and particularly Foucault (1980). Gramsci (1971), for example, criticized social norms that function as oppressive rules, while people are not aware of their oppressive nature and regard these norms as 'common sense'. Bourdieu (1977) argued that language is an instrument of power and Foucault theorized about the systemic interaction between power, knowledge, and 'truth' in discursive practices in society.

Once they are established in society, dominant discourses tend to become taken for granted and are often seen as self-evident. These discourses are facilitated by social systems and sectional interests, which contribute to their dominance (Jabri, 1996). Power is exercised through two mechanisms in this context; firstly, "rules of right" facilitate the power to produce dominant discourses (Foucault, 1980), and secondly, power produces "effects of truth" which sustain this power. In other words, dominant discourses are produced within systems of power, and the creation of knowledge through discourse is an exercise of power (Foss & Gill, 1987; Ibrahim, 2005). An example of this can be seen in the ICT4D initiatives the Kenyan agricultural sector.

Social constructivist ontology is a fundamental aspect of CDA, as it offers a framework for comprehending how representations of reality are constructed. Ontology asserts that our perception of the world and the significance of objects is not fixed and universal, but instead shaped by social interactions and discourse (Berger & Luckmann, 1966). This perspective highlights that knowledge and meaning are shaped by the ways in which people communicate with each other (Foucault, 1972). Therefore, by recognizing that social context plays a crucial role in shaping our understanding of the world, social constructivist ontology helps CDA researchers to analyze how power relations, ideologies, and social norms influence discourse production and interpretation.

In critical discourse analysis, this idea is important because it acknowledges the impact of power, ideology, and language on shaping our perceptions and experiences of the world (Fairclough, 1993). It acknowledges that discourse is not impartial but is instead impacted by social and political forces that determine how people communicate and understand reality (Van Dijk, 1993). This means that CDA must take into account how power and ideology impact the ways initiatives are formulated. Foucault (1980) conceptualized power as a decentralised phenomenon that is exercised and maintained through various forms of discourse and knowledge practices. According to Foucault, power is not simply held or exerted by individuals or institutions but is dispersed and woven into the fabric of society, pervading all social relationships and shaping how individuals think and understand the world.

Foucault (1980) also noticed that power is closely related to ideology, which he defined as the set of beliefs, values, and norms that are used to justify and normalize social relationships, institutions and practices. He argued that ideologies are created, reproduced, and sustained through discourse and the production of knowledge, and that they serve to reinforce power relations and maintain the status quo. As Latour (1993) and Akrich (1992) also argued, technical objects possess more than just mechanical functions, but also possess inherent abilities, influences, and ethical principles.

For Foucault (1991), discourse is the key site of power and ideology, as it encompasses all forms of communication, representation, and meaning-making that are produced in society. Discourses are not neutral but are shaped by and serve to reproduce the power relations and ideologies that exist in society. He also emphasized that the concepts power and ideology are not static but change and evolve constantly over time.

By analyzing the language and discourse used in ICT4D reports within the Kenyan agricultural sector, critical discourse analysis can uncover the underlying power dynamics and ideologies that shape our understanding of these issues (Bourdieu, 1991). Therefore, CDA provides a powerful tool for uncovering and challenging dominant narratives and ideologies (Wodak, 2009).

3.4.1 Features of CDA

CDA is a critical approach to discourse analysis that aims to investigate the relationship between power, dominance and inequality and how they are enacted, reproduced, and resisted through text and talk in this case within the Kenyan agricultural sector. The basic principles of CDA were originally defined by Kress (1990) and further developed by Fairclough and Wodak (1997) who established eight features of CDA which include 1) addressing social problems; 2) power relations are discursive, 3) discourse constitutes society and culture; 4) discourse does ideological work, 5) discourse is historical, 6) the link between sext and society is mediated, 7) discourse analysis is interpretive and explanatory and 8) discourse is a form of social action. In Fairclough's definition (1995) he explains that CDA aims to systematically explore the nontransparent relationships between discursive practices, events, and texts and wider social and cultural structures, relations, and processes and to investigate how such practices, events, and texts are shaped by these relations. It aims to uncover implicit or hidden power relations and the ways in which they are maintained or resisted through discourse.

Van Dijk (2003) regards CDA as a type of discourse analysis research that primarily studies the way in which social power, abuse, dominance, and inequality are enacted, reproduced, and resisted through text and talk in the social and political context. According to Fairclough (2001) CDA aims to contribute resources that people can use to tackle and overcome problems they are faced with in their social lives. Kazemain and Hashemi (2014) describe CDA as an interdisciplinary analytical viewpoint that looks into the relationship between power and discourse, investigating how authority, dominance, and social inequality are constructed, sustained, and resisted in written texts and spoken words.

This means that CDA is a critical approach to discourse analysis that aims to uncover and analyze the relationship between power, dominance, and inequality in society as expressed through language use. This research engages with Fairclough's three-dimensional framework because it provides a more nuanced and comprehensive analysis of discourse, ideology, and power structures. This three-dimensional framework enables a detailed analysis of the linguistic and non-linguistic elements of discourse, including how language is used to construct meaning and power relations. In addition, his framework reveals the broader social and cultural context in which discourse is produced and consumed, including power relations and social structures that underpin ICT4D initiatives in the Kenyan agricultural sector. This is useful to identify the ways in which power is exercised and negotiated, and how different stakeholders are positioned to one another. Fairclough's three-dimensional framework also emphasizes the importance of critical reflection and reflexivity, which helps to ensure to bring a more nuanced approach to understanding ICT4D discourses.

It is beyond the scope of this research to make definite statements regarding the findings of the power relations and implicit ideological assumptions. However, this research seeks to contribute to the existing body of knowledge by shedding light on trends that can be observed in the Kenyan context. By drawing from Modernization theory this thesis aims to add to existing scholarly conversations on ICT4D in this field by further engaging with discourse analysis. In this light, this thesis uses Fairclough's three-dimensional framework of critical discourse analysis to unpack through which ICT4D policies are articulated at different scales and their related impacts to the recipients. This approach provides further analytical reach when combined with Modernization theory as it can bring valuable and in-depth insights into power dynamics that are at play within ICT4D in the context of Kenyan agriculture. By engaging with this conversation, a more participatory and inclusive
approach to development can be implemented that addresses the needs and priorities of those they are intended to benefit.

3.4.2 Fairclough's approach to discourse analysis

Fairclough's three-dimensional framework is useful for analyzing the relationship between text, discourse and society and how they construct and reinforce power relations and implicit ideological assumptions to uncover the dynamics within the Kenyan agricultural sector. This framework views text as a struggle between different social forces, and it allows me to examine the linguistic and discursive features of a text in relation to its social context. This makes it well suited for analyzing discourses surrounding ICT4D initiatives in Kenya, as it provides a nuanced perspective on how language use can reflect and reinforce power structures and ideological assumptions within the Kenyan society. Fairclough's three-dimensional framework will provide a more comprehensive approach to the analysis of discourses surrounding ICT4D projects in Kenya and how they construct and reinforce power relations and implicit ideological assumptions, making it the most appropriate approach for this research question. ooking at the Kenyan agricultural sector while using Fairclough's three-dimensional framework on discourse analysis will shed light on the inherent power relations, ideologies and assumptions embedded in ICT4D in the context of Kenya's agricultural sector.

The three-dimensional framework for text and discourse analysis views discourses as three interconnected components and is based on the idea that there are underlying assumptions that drive the selection of discourse, which can have ideological effects. The three dimensions of Fairclough's framework are 1) linguistic analysis 2) interpretation of the relationship between the discursive processes/interactions and the text, 3) explanation of the relationship between discourse and social and cultural reality.

Fairclough (1980) argues that the exercise of power in society is achieved through ideology and introduces the concept of hegemony, which refers to the change in power relations that contributes to and is shaped by wider processes of change (Fairclough, 1993). He also asserts that orders of knowledge are not static but can change over time based on changing power relations in this case within the Kenyan agricultural sector. Fairclough's framework will provide a comprehensive approach to analyze the ways in which discourse can construct and reinforce power relations within the Kenyan agricultural sector.



Figure 1: Fairclough's Three-Dimensional Model of CDA (Fairclough, 1995).

4. Methodology

This section will provide an overview of this study's methodology as well as its limitations. This research engaged in an in-depth investigation of initiatives and documents around ICT4D initiatives within the Kenyan agricultural sector to get a hold and provide a comprehensive understanding of the complex dynamics that are at play within ICT4D initiatives. Such an investigation demanded the application of a method consisting of collecting and analyzing qualitative secondary data mainly collected by other researchers and organizations which is publicly available. I used purposive sampling as a data gathering technique to provide me relevant insights into the ICT4D discourse within the Kenyan agricultural sector.

I use Palys (2008) technique of purposive sampling which involves the intentional selection of specific texts, initiatives, reports and policy documents that are surrounding ICT4D initiatives within the Kenyan agricultural sector. I conducted a systematic search for relevant texts, initiatives, reports and policy documents related to ICT4D initiatives within the Kenyan agricultural sector. This systematic search involved the use of online databases, search engines, and relevant organizational websites. For example, the search terms used included "ICT4D", "Kenya", "development", and "agriculture". Once the selection of documents was identified, I screened them based on their relevance and significance to answer my research question. The selection criteria included factors such as the publication date, source credibility, and the content's relevance to ICT4D initiatives within the Kenyan agricultural sector. Moreover, I also considered the diversity of the selected documents to ensure that these represent a range of stakeholders, approaches, and contexts. Palys' (2008) technique, ensured that only the most relevant and important documents were used for the analysis so that the data collected is of high quality and tailored to the research question. Using this strategy enabled me to gain a deep understanding of the discourse surrounding ICT4D projects in Kenya, the ideological assumptions embedded in these and their impact on power relations. Overall, the use of purposive sampling enabled me to collect high-quality data which in turn allowed me to dive into an in-depth and nuanced analysis of the discourses surrounding ICT4D projects in Kenya.

Following the data gathering process, I dived into a process of engaging reading which entails reading the selected documents active and attentively while interacting with the text and striving to critically comprehend the ideas and discourses presented. This involved asking pertinent questions, making connections to my own experiences and beliefs, and considering alternative perspectives. This reading strategy was used to deepen the understanding of the ICT4D initiatives to further understand the initiatives before conducting the CDA analysis.

After conducting secondary research, literature review and engaged reading, CDA is used as a complementary theoretical tool to that of Modernization theory to answer the different questions of this research. Given the complexity of CDA, it is difficult to develop a one-size-fits-all operationalization method that can be applied across different contexts and research questions. One

way to approach this, is through Fairclough's three-dimensional framework approach which allows to discover how the inherent power dynamics, ideologies, and assumptions are embedded in ICT4D initiatives in the context of Kenya's agricultural sector.

Fairclough's three-dimensional framework provides multiple points of analytic entry for understanding ICT4D initiatives in the Kenyan agricultural sector, making it a useful strategy in my case as it examines social and cultural phenomena rather than numerical data and statistical analysis (Keegan, 2009). Fairclough's (1989, 1995) model for CDA consists of three inter-related processes of analysis tied to three inter-related dimensions of discourse. These dimensions are 1) textual analysis, 2) processing analysis, and 3) social analysis which are the guidelines for analyzing the ICT4D initiatives. It is in the interconnections where I find interesting patterns and disjunctions that need to be described, interpreted and explained. Therefore, Fairclough's method is used to try to capture the simultaneity with a model that embeds the three different kinds of analysis one inside the other. See Figure 1 (Fairclough, 1995:98). The theoretical framework will dive deeper into the theoretical foundations of Fairclough's three-dimensional framework and will also expand upon the operationalization for the purpose of this research.

Given the complexity involved in CDA a scheme of guiding questions was designed for each step to further help identify these linguistic and discursive queues. A further guiding questions scheme was used to identify these linguistic queues. The use of guiding questions is a common practice in CDA as it helps to identify the linguistic features that reveal power structures, ideologies, and social practices embedded in my case the Kenyan agricultural sector. Therefore, these guiding questions were developed based on Fairclough's CDA model as well as existing literature on its application and operationalization (see for example Taylor & Bogdan, 1998; Blommaert & Bulcaen, 2000; Hiapello & Fairclough, 2002). Moreover, these questions also take into account the objective and main research question of this research. It is important to mention that these questions are interrelated and are not supposed to be answered one by one but rather serve as a guiding foundation to operationalize Fairclough's three-dimensional framework, making it difficult to code or categorize the data using a pre-existing framework. Rather, the data will be examined holistically, paying attention to thematic discursive patterns.

For the first step, which is the linguistic analysis, I explored and re-read the selected ICT4D documents. Subsequently, by uncovering linguistic queues in these documents I identified the stakeholders that are at play within the Kenyan agricultural sector. The following questions served as the guiding questions to conduct the linguistic analysis: 1) Who is the agent and therefore the empowered?; 2) What is the mood and thus what words are used to describe the initiative?, 2) What mood is reflected in words to describe ICT4D initiatives?; 3) What are some examples of assumptions or presuppositions made by the author in the text without providing evidence to support their claims?; 4) How does the issue of vagueness manifest in ICT4D policies, specifically in terms of which aspects receive attention and which aspects are neglected? (See Table 1).

Q1	Who is the agent and therefore the empowered?;
Q2	What mood is reflected in words to describe ICT4D initiatives?;
Q3	What are some examples of assumptions or presuppositions made by the author in the text
	without providing evidence to support their claims?;
Q4	How does the issue of vagueness manifest in ICT4D policies, specifically in terms of which
	aspects receive attention and which aspects are neglected?

Table 1: Guiding questions for first step of Fairclough's three-dimensional framework

Using linguistic strategies to uncover queues, sheds light on how power structures and their dynamics within the Kenyan agricultural sector are situated. However, the language used by different authors can have different meanings even though they use the same words and the other way around. Therefore, the analysis of linguistic structures and strategies alone are not sufficient to capture the complex and dynamic nature of language use in ICT4D projects in the context of the Kenyan agricultural sector. To further comprehend the linguistic dynamics and power structures in the Kenyan agricultural sector, it is necessary to use a more comprehensive approach that takes into account further underlying values and assumptions leading to the second step of Fairclough's three-dimensional framework.

The second step of Fairclough's three-dimensional framework, which is the process analysis entails searching for underlying values or assumptions that underlie the discourse, and how they reinforce existing power relations. I used a theoretical framework grounded in Modernization theory to identify and analyze the values and beliefs that underpin the ICT4D initiatives in the Kenyan agricultural sector.

Through this analysis, I aimed to uncover the underlying discursive foundations of ICT4D initiatives and their socio-political implications. Therefore, I examined underlying assumptions, values and beliefs that shape the design and implementation of ICT4D initiatives in the context of the Kenyan agricultural sector. I further identified common themes with the help of guiding questions that reappear throughout the ICT4D initiatives. The following questions served as the guiding questions to conduct the process analysis: 1) What are values underlying the discourse?; 2) What are assumptions that underlie the discourse?; 3) What are discursive themes that recur across the documents? (See table 2). I examined through a Modernization theory lens how these fundamental values and beliefs provide the basis for the justifications of ICT4D designs and initiatives. Analyzing underlying discursive foundations of ICT4D initiatives and their socio-political implications, uncovered the socio-political implications of ICT4D initiatives.

To further comprehend the linguistic dynamics, power structures, and underlying values in the Kenyan agricultural sector, it is necessary to include an analysis that identifies stakeholders' motives and interest, leading to Fairclough's third step of analysis.

Q1What are values underlying the discourse?;Q2What are assumptions that underlie the discourse?;Q3What are discursive themes that recur across the documents?

Table 2: Guiding questions for second step of Fairclough's three-dimensional framework

The third step of Fairclough's three-dimensional analysis, which is the social analysis, consists of identifying the underlying motives and interests of the stakeholders involved. I identified why certain actors are interested in providing their ICT4D design or initiative to the Kenyan agricultural sector and what is it what they get out of this. I specifically looked for evidence of cooperation, or conflict between different stakeholders. Here I examined how power relations are negotiated between stakeholders, if these are reinforced or if new power dynamics emerge from these interactions. The following questions served as the guiding questions to conduct the social analysis and uncover the motives and interests of the stakeholders involved: 1) What is at stake for different actors?; 2) What are their motives and interests?; 3) What is the mandate of different stakeholders?; 4) How do key stakeholders interact with each other?; 5) Are stakeholders engaging in a cooperative or conflictive manner?

Table 3:	Guiding questions	for third step of	^r Fairclough's three	e-dimensional .	framework
		_	-		

Q1	What is at stake for different actors?;
Q2	What are their motives and interests?;
Q3	What is the mandate of different stakeholders?;
Q4	How do key stakeholders interact with each other?;
Q5	Are stakeholders engaging in a cooperative or conflictive manner?

The upcoming section will present an outline of the key stakeholders that have been chosen for this CDA. This is an essential step as identifying and profiling the key actors involved in ICT4D projects and initiatives offer a more in-depth comprehension of the dynamics at play within the Kenyan agricultural sector.

4.2 Case studies and stakeholder mapping

After conducting an in-depth online secondary literature research, I have selected a range of ICT4D documents published on the internet by different key stakeholders. These have been identified and reviewed, which not only focus on ICT4D specifically but also touch upon more general documents published by key stakeholders with regards to ICTs as well as the overall Kenyan contextual situation and developmental status. I have chosen to analyze a small number of ICT4D documents from key stakeholders, specifically seven initiatives. This approach allows for a more thorough and

comprehensive analysis of each initiative, thus enabling a more detailed understanding of the power dynamics that are at play within these ICT4D documents.

The selection of the seven ICT4D initiatives has been guided by a literature review that was conducted prior to the selection process. Through this review, the most relevant and important documents were identified based on their significance and contribution to the overall field of ICT4D within the Kenyan agricultural sector (see annex 1). It was also important to consider the diversity of the selected initiatives, taking into account their various approaches, contexts, and outcomes. By limiting the number of initiatives to be analyzed, this research was able to focus on a more manageable set of cases to generate more meaningful insights and conclusions. In the following section, I will provide a detailed explanation of each stakeholder and the corresponding document that has been selected for analysis in this thesis research.

1) The Kenyan government is one of the key stakeholders in ICT policies that aim to promote agricultural development in the country. As a member of the United Nations, Kenya has committed to achieving the Sustainable Development Goals (SDGs), which include the promotion of sustainable agriculture and the use of technology to enhance productivity and efficiency in the sector (United Nations, 2015).

The Kenyan government has demonstrated a strong commitment to advancing ICT4D initiatives in the agricultural sector through the development of policy frameworks and the establishment of institutions to oversee their implementation. For example, the Kenyan Ministry of Agriculture, Livestock, Fisheries, and Cooperatives has developed the Agriculture Sector Transformation and Growth Strategy (ASTGS) 2019-2029, which outlines the government's vision for transforming the agricultural sector using technology and innovation (Ministry of Agriculture, Livestock, Fisheries, and Cooperatives, 2019). Additionally, the government has established the Agriculture, Fisheries, and Food Authority (AFFA), which is responsible for coordinating and implementing policies related to the agricultural sector (Agriculture, Fisheries and Food Authority, n.d.).

Furthermore, the Kenyan government has partnered with various international organizations and donors to mobilize resources and expertise to support ICT4D initiatives in the agricultural sector (World Bank, 2019). For example, the Kenyan government provided "The national ICT Policy 2019", which is a critical pillar in national development. The national ICT policy is a comprehensive document that outlines the government's strategic plan for development, implementation, and regulation of ICTs in the country, including the agricultural sector. This document reflects the Kenyan government's stance and priorities towards ICT4D and provides insights into how power dynamics and ideological assumptions are embedded within the national ICT agenda. The policy is chosen because it represents the government's priorities in terms of ICT infrastructure development, digital skills training, or e-government services, and how these priorities reflect certain interests and values (Ministry of Information, Communications and Technology, 2019).

Overall, the Kenyan government plays a critical role in promoting ICT4D initiatives in the agricultural sector and has demonstrated a strong commitment to advancing the use of technology and innovation to enhance productivity, sustainability, and food security in the country.

2) NGOs are also key stakeholders in promoting ICT4D initiatives in the Kenyan agricultural sector. NGOs are typically non-profit organizations that operate independently from government or business entities and are often driven by a specific mission or cause. They play a critical role in providing technical assistance, capacity building, and advocacy for farmers and other stakeholders. They often work directly with farmers and other stakeholders to provide access to ICT tools and resources. They also serve as intermediaries between the government, private sector, and communities, facilitating dialogue and promoting collaboration.

NGO "Mercy Corps" which implemented several ICT4D initiatives in the agricultural sector that have helped smallholder farmers in Kenya improve their yields, increase their income, and access financial services. One of their programs is the AgriFin program which provides mobile-based financial services to smallholder farmers in Kenya (Mercy crops, 2019). Mercy Corps is one of the most well-known and established NGOs that have implemented ICT4D initiatives in the Kenyan agricultural sector and is therefore selected to be analyzed for this thesis research.

3) Another key stakeholder are development organizations, in my case the FAO of the United Nations and The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). Both organizations are leading international organizations playing a role in providing funding, technical assistance, and support to governments and other stakeholders for the development and implementation of ICT4D projects in the Kenyan agricultural sector.

The FAO plays a role in promoting sustainable agricultural development and food security through its technical assistance, policy advice, capacity building, and other support to countries and other stakeholders. The organization works closely with governments, civil society organizations, private sector entities, and other stakeholders to identify challenges and opportunities in the sector and develop strategies to address them (FAO, 2021). One of their projects is the "Digital Innovation strategy" for Agrifood Systems in Africa, which seeks to leverage digital technologies to promote sustainable agricultural development and food security across the continent. This document focuses on the impact of ICT services on the agricultural sector, not limited to Kenya but to the entire African context. The objective of the strategy is to augment the productivity, resilience, and inclusivity of agrifood systems by integrating digital technologies. It is intended to revolutionize the agricultural sector by facilitating better access to information, markets, finance, and supply chain management through digital innovation (FAO, 2021).

GIZ is a German development agency that works globally to promote development, peace, and social stability. In the context of ICT4 policies in the Kenyan agricultural sector, GIZ is an active stakeholder that provides technical expertise and support to various ICT4D initiatives aimed at

improving agricultural productivity and enhancing rural livelihoods (GIZ, 2021). GIZ has worked with the Kenyan government and other partners to implement various ICT4D projects and programs, including the development of mobile phone applications for agricultural extension services, the establishment of e-commerce platforms for smallholder farmers, and the deployment of satellite-based technologies to improve weather forecasting and disaster management (GIZ, 2021). The Green Innovation Centres initiative is one of their projects that aims to support the development of the agriculture and food sector in multiple countries, among them Kenya. Through its initiatives and programs, the project seeks to contribute to the achievement of the United Nations Sustainable Development Goals, particularly Goal 2, which aims to end hunger, achieve food security, and improve nutrition and promote sustainable agriculture (GIZ, 2021).

4) The private sector plays an important role within the Kenyan agricultural context as well, as they provide a key role in providing funding and technical support to farmers and other stakeholders in the agricultural sector. They develop and implement ICT-based solutions that address specific needs, such as market access, financial inclusion and climate resilience. Private sector actors, including businesses, investors, and financial institutions have an impact on the creation and implementation of ICT4D initiatives.

The private sector is addressed in the UNEP DTU partnership's work. The report "Digital solutions for agricultural value chains in Kenya: the role of private-sector actors" explores the potential of digital technologies to transform the agricultural value chain in Kenya and the role that private sector actors can play in driving this transformation. The program recognizes that the private sector has a crucial role to play in promoting sustainable development and it actively engages with private sector actors to support their efforts in these areas. The UNEP DTU partnership works with governments and other stakeholders to create enabling environments for private sector engagement in agricultural development (UNEP, 2019).

5) Additionally, research organizations are important stakeholders as well to include in the analyzes. The Kenya Agricultural and Livestock Research Organization (KALRO) in collaboration with other research institutions such as the National Agricultural Research Laboratories (NARL) and the Kenya Agricultural and Livestock Research Organization Information and Documentation Service (KAROID) together implemented the "Enhancing Access to Kenya's Agricultural Sciences and Technology (AS&T) Information in Institutional and KAINet e-Repositories" initiative. The project is focused specifically on improving access to agricultural science and technology information in Kenya (KALRO, 2021).

KALRO is a state corporation that was established under the Agriculture, Fisheries, and Food Authority Act of 2013 and is the leading national agricultural research organization in Kenya. They are responsible for conducting research and development activities to promote agricultural productivity, food security, and economic growth in the country (Ministry of (Agriculture, Livestock, Fisheries, and Cooperatives, 2018). The organization works closely with other stakeholders in the agricultural sector, including farmers, agribusinesses, and government agencies, to identify research needs, develop and implement research projects, and disseminate research findings to promote sustainable agricultural development (KALRO, 2021). Furthermore, KALRO collaborates with international research institutions, such as the International Livestock Research Institute (ILRI) and the International Maize and Wheat Improvement Center (CIMMYT), to access expertise, resources, and best practices in agricultural research and development (ILRI, 2021; CIMMYT, 2021).

6) Lastly, Kenyan farmers are essential stakeholders to include in the analysis, since these farmers are often the ones the ICT4D initiatives are imposed on. Agriculturalists in Kenya play a vital role in driving the country's economy as they comprise the largest group contributing to the economic sector. Kenyan farmers represent a diverse group of stakeholders with specific interests, needs, and perspectives that can provide valuable insights into the specific dynamics, assumptions and power dynamics that underlie ICT4D initiatives. Among these diverse farmers are small-scale farmers, large-scale farmers, subsistence farmers, nomadic pastoralists and agro-pastoralists.

"Exploring the Promise of Information and Communication Technologies for Women Farmers in Kenya" provided by USAID discusses perspectives of women and man farmers within the Kenyan agricultural sector among their own visions. More specifically, this report discusses the use of ICTS to improve the livelihoods of women farmers in Kenya. The document explores the challenges faced by women farmers in accessing and utilizing ICTs, as well as the potential benefits and opportunities ICTs can provide. It provides insights from the farmers' perspectives of ICT implementation (USAID, 2017).

The selected documents provide a diverse range of perspectives from different key stakeholders involved in the development and implementation of ICT4D initiatives within the Kenyan agricultural sector. These include international development organizations, the Kenyan government, research institutions and the private sector. Some of these documents touch upon ICT4D projects, whilst some of them generate a broader overview of ICTs are used as an artefact to help the Kenyan agricultural sector progress. While the selected documents may not represent the only stakeholders involved in the Kenyan ICT4D sector, they represent a significant representation of the actors involved in shaping the discourse around ICT4D initiatives.

4.3 Methodological limitations

This thesis draws from Modernization theory and aims to add to existing scholarly conversations on ICT4D in this field by further engaging with discourse analysis. In this light, this thesis uses Fairclough's three-dimensional framework of critical discourse analysis to unpack through which ICT4D policies are articulated at different scales and their related impacts to the recipients. This approach provides further analytical reach when combined with Modernization theory as it can bring valuable and in-depth insights into power dynamics that are at play within ICT4D in the context of Kenyan agriculture. However, given the complexity of socio-cultural context that have to be taken into account within discourse analysis, this thesis may have overlooked the full political, economic, or institutional contexts in which ICT4D initiatives in the Kenyan agricultural sector are situated.

This may limit the ability of the framework to fully capture the complexities of development processes and the power dynamics that shape them. Furthermore, discourse analysis is a subjective research method, which will have an impact on the interpretations of the discourse analysis. How my own positionality and situatedness affects the research will be explained in the subsequent section. Furthermore, CDA does not allow for generalizations or universal representativeness, although that is not the objective of this thesis research.

4.4 Situatedness and research positionality

The act of engaging with ICT4D texts while maintaining beliefs and perspectives can be seen as a form of submitting to the power of the text. However, completely distancing oneself from the ICT4D texts without any engagement can be viewed as a rejection of allowing new perspectives to enter. To fully read and understand a text, it is necessary to engage with different perspectives and allow for the possibility of being influenced or changed by them. Therefore, this study takes a situated and relational approach, recognizing that the creation of meaning and situated realities are shaped by social constructs, material processes, existing discourses, and socially constructed spaces, identities and meanings. These terms are complex and can have varying meanings depending on the context, but by viewing research as relational, it acknowledges that conceptual categories and situated realities are based on relative positions. This approach is crucial in understanding the context in which this study takes place (Haraway, 1991).

Recognizing the situatedness of this research enables a more truthful perspective by moving away from the pursuit of an objective and universal truth. It accepts the presence of multiple worldviews and frames of understanding while also acknowledging the role of the observer, including their identity, location, and situation. By doing so, this approach accounts for the subjectivity inherent in the research process and the influence of my perspective. This is crucial in the case of examining ICT4D initiatives within the Kenyan agricultural sector, where ICT4D initiatives are implemented that possess potential underlying power dynamics and ideologies. This study aims therefore to move beyond the dominant positivist scientific inquiry in the agricultural domain, which seeks to establish objective truth claims and often hides the connections between power and knowledge. This approach rejects the idea that objective truth can be fully achieved and instead recognizes that knowledge production is influenced by power dynamics and is inherently subjective (Foucault, 1980).

Accordingly, objectivity in scientific inquiry can be assessed by having a clear understanding of the assumptions and choices that are being made in the process of producing knowledge. This research acknowledges that knowledge production in the Kenyan agricultural sector, and in general, is a complex and unpredictable process that relies on subjective perceptions, contextual understanding, and different perspectives. This means that decisions made in this domain are not straightforward or straightforwardly ordered, as they are shaped by a range of factors and influenced by various actors' perceptions and experiences. As Haraway (1991) argues, this process is not linear and can be challenging to predict or control.

Additionally, given the political and practical aspects involved in discussions related to agricultural development, it is crucial to acknowledge not only the intricate and diverse perspectives of the individuals being studied, but also those of the researcher themselves (Harding, 1991). Recognizing that any portrayal of "reality" is inevitably influenced by the perspective of the person communicating can have significant implications. In order to understand the unintentional biases and consequences that may be present in research findings, it is important to recognize and communicate the limitations inherent in the process of knowledge production. This also involves acknowledging that the knowledge produced is shaped by the specific context and circumstances in which it is created (Alkon, 2011).

This process does not merely entail being attentive to the identities of the research subjects, the power dynamics among them and the power relations in which they are embedded (which is a crucial element of this research). But taking one step further and enquiring about inquiry, and reflecting on how the researcher's position influences it. As a researcher investigating ICT4D initiatives within the Kenyan agricultural sector, it is crucial to recognize the multidimensional positionalities that exist not only among the research subjects but also within oneself. As pointed out by Harding (1991), no representation of reality is free from the positionality of the researcher. Therefore, it is essential to acknowledge the researcher's identity, location, and situation and how these factors may influence the research process and findings.

As a female researcher from the Netherlands, my nationality, race and gender are important sociocultural factors that shape my worldview and influence my research process. Being from the Netherlands, I may have been exposed to a culture that values individualism and egalitarianism, which may have influenced my approach to research questions and the way I interact with research subjects. In addition, my nationality may affect my ability to access certain resources or information, which may impact the research process. My gender is another important factor to consider, as it may have shaped the way I approach research questions and interact with research subjects. For example, being a female researcher may allow to build trust more easily with female researchers or give me a different perspective on gender-related issues within the Kenyan agricultural sector. Additionally, as a researcher located in an urbanized area of the Netherlands and studying at Utrecht University, my location plays a role in my research as this location influences my access to information and resources. Being located in this area may provide me with access to information and resources that are not easily available in rural areas of Kenya. This may include access to academic literature as well as technological resources that may not be available to those working in the Kenyan agricultural sector. However, this may also create a potential bias in my research, as my access to information and resources may not accurately reflect the experiences of those living and working in rural areas of Kenya. Furthermore, studying at Utrecht University may also have an impact on the research process. The academic institution may have certain expectations and norms that influence the way research is conducted and presented, which may differ from the expectations and norms within the Kenyan

agricultural sector. Finally, my situation, such as my personal experiences and biases may also impact the research process. By recognizing my own subjectivity and positionality as a researcher, I aim to be more transparent and reflexive in my research process, ultimately leading to a more comprehensive and nuanced understanding of underlying power dynamics and ideologies within the Kenyan agricultural sector.

4.5 Ethical considerations

When engaging with critical discourse analysis, it is crucial to consider ethics of the analysis and arguments. I have reflected on ethical considerations, and I am confident that the research and explanations were conducted ethically. While a CDA is not typically a directly interventionist research method, it is important to consider whether the findings of the study could potentially harm or disadvantage any organizations. Since potential criticism would not be about the actors themselves but rather on the discourse they use, I considered this not to be an ethical issue. I ensured that the CDA was conducted in a way that is fair by also critically reflecting on my own research positionality, background and assumptions. In this way I have tried to be aware and to some extent stay away from personal biases and opinions that could have influenced the analysis. Furthermore, there were no ethical concerns regarding the consent of analyzing the data, given the fact that all data was accessible online.

The findings of the study, however, can be more nuanced and complex in reality than what this research could possibly explain. However, I trust in the fact that I have chosen to make a logical sampling of ICT4D initiatives and stakeholders that are active within the sector. By carefully considering these issues, I trust in the fact that I conduct this research in a responsible and respectful manner.

5. Analysis and Discussion

This chapter aims at analyzing a discursive object with the means of the three-dimensional discourse model developed by Fairclough (1992). This CDA aims to discover the implicit objectives by the actors selected that have developed these ICT4D initiatives within the Kenyan agricultural sector. Within this context, I have examined each ICT4D initiative independently to uncover the power relations, ideologies, and assumptions. In this context, several stances have been discovered within ICT4D initiatives that I will unpack in the following section. The first part of the chapter describes the textual properties of the selected documents that have been analyzed such as linguistic features. The second part interprets the link between discursive practice and textual features. Finally, the last section explains the relationship between discursive practice and social analysis where the main power relations are unearthed.

5.1 Textual analysis

As mentioned in the methodology chapter, this chapter specifically looked at the linguistic features of the chosen ICT4D documents. The guiding questions were used as a guiding foundation to operationalize Fairclough's first step.

5.1.1 Transitivity

Most ICT4D Initiators position themselves as the authoritative actor, assuming that they have the knowledge, skills, and resources to drive change and development. Meanwhile, the recipients of the ICT4D initiatives are framed as passive and lacking in the necessary knowledge and skills to drive development on their own.

In most of the analyzed documents development agencies and other ICT4D initiators – such as private companies - tend to position themselves as authoritative actor and this position is further upheld by the Kenyan government. In this context, initiators assume that they have the knowledge, skills, and resources to drive change and development. Whilst the assumptions of both the government and development agencies see small-scale farmers as lacking the "right" knowledge, skills and resources to reach a certain standard of development. The recipients of the ICT4D initiatives are framed as passive and lacking in the necessary knowledge and skills to drive development on their own.

For example, as the Ministry of Information, Communications and Technology (2019) claims: "*There are significant challenges to overcome in achieving the goals of this policy including cultural and attitudinal resistance to the implementation of ICT-based services and offerings*"(p.12). The government implies that attitudinal resistance is something that needs to be overcome, as if it is a barrier to progress that must be defeated, instead of recognizing and including the reasoning behind such systems in their approach to implement this policy. The fact that there is resistance in the first place implies that maybe the needs and challenges of the affected farmers may not have been

adequately considered in the implementation of these policies and technologies in the first place. This illustrates how the Kenyan government goes beyond framing recipients as passive and actively positions itself against to those who resist the implementation of ICT-based services and offerings, indicating a potential power imbalance and the need for a more participatory approach to policy implementation.

Moreover, what also became apparent when analyzing these documents, are the intersections between expert and non-expert knowledge. Whereby mainstream ICT4D initiators (I.e. international development organizations) are regarded as possessing the "right" knowledge and expertise. Whilst the general assumption regarding end users and target populations of ICT4D is that these lack the knowledge, skills and resources to reach a certain standard.

For example, as the GIZ (2017) stated: "*Experts agree that the world has enough agricultural land. What is lacking is the knowledge about how to grow crops and how to farm efficiently, as well as affordable seeds and the necessary machinery*" (p.3). In here we see how GIZ states their assumptions about the Kenyan agricultural sector whereby they claim that they have the authority, and they frame that the Kenyan agricultural sector is "lacking".

This assumption is further upheld in a project document by USAID (2013), where it is stated that their: "...*interviews with extension officers revealed that they lack knowledge about ICT initiatives that could complement and enhance their efforts*" (p.7).

As these statements elucidate, in many cases ICT4D innovations or technologies are developed based on "expert" judgement of the situation as well as the solution. Moreover, the fact that local knowledge on the matter is not mentioned – or mentioned superficially - as a foundation in the design and implementation of these projects can be regarded as queue to signal that expert knowledge takes priority over contextualized knowledge, skills, and realities of end users in this specific case.

The assumption that experts possess the "right" knowledge and skills, and that recipients lack them, reflects a similar assumption of traditional societies being stagnant and back warded. The local knowledge and skills are often overlooked or undervalued in the development process, and the focus is on transferring "expert" technologies and practices to the Kenyan agricultural sector. This approach ignores the contextual realities and unique challenges faced by the Kenyan agricultural sector and may lead to the imposition of inappropriate solutions. It also reinforces the power imbalance between the initiators and the recipients, with the initiators assuming the authoritative role and dictating the terms of development. The "Experts" may overlook the existing strengths and assets in the Kenyan agricultural sector while the Kenyan agricultural sector already has local knowledge and expertise in agricultural practices.

Most ICT4D Initiators position themselves as the "authoritative" expert actors and assume that they have "all" the necessary knowledge and skills, which overlooks the complexities of the local context, the needs and perspectives of the Kenyan recipients. Subsequently, the framing of the recipients as

passive and lacking in the necessary knowledge and skills can be disempowering and undermine the agency of the community members. It can perpetuate a dependency relationship where the community relies on external actors for development rather than taking ownership and agency in the process.

This dependency creates a power imbalance, as the initiators impose their own ideas and solutions on the Kenyan farmers, without necessarily taking into account their needs, values, and social contexts. This can lead to a top-down approach to development, which can have consequences for the sustainability of ICT4D projects. These power dynamics can perpetuate the same assumptions. This framing of recipients as passive and lacking in knowledge and skills reflects the assumptions of Modernization theory that development is a linear process in which knowledge and technology are transferred by "experts" to the recipients. The top-down approach to development and the disempowerment of community members are also consistent with Modernization theory's emphasis on the role of external experts and the marginalization of local knowledge and agency.

5.1.2 Mood and Modality

Mood and modality are used as a linguistic and discursive strategy to not only frame the needs, challenges and paint an ideal imaginary of the Kenyan Agricultural sector, but also articulate specific values initiators within ICT4D projects. The values attached to ICT4D projects are articulated through a positive narrative that emphasizes their desirable development outcomes, solutions or possibilities. These narratives are used to inspire hope, motivation action and to promote constructive change to create a sense of empowerment but also solutions to the challenges of the Kenyan agricultural sector and a particular imaginary and future. For example, as the FAO (2022) claims: *"Supporting the transformation to more efficient, inclusive, resilient and sustainable agrifood systems for better production, better nutrition, a better environment"* (p. 5). This illustrates how the FAO frames and emphasizes how the future should look like, with desirable outcomes such as efficiency, inclusiveness, resiliency and sustainable agrifood systems by presenting a vision of a "better" future that can be achieved through the implementation of ICT4D initiatives for the Kenyan agricultural sector.

At the same time, what also became evident was the tone of urgency embedded in the way ICT4D initiators and implementers both framed the need to act and tackle the challenges of the Kenyan agricultural sector. This framing is accompanied by the discursive mobilization behind the need to introduce a set of solutions – such as ICT4D - reach their notion of a desirable future for the Kenyan agricultural sector based on their own 'imaginary'. For example, as KAINet (2014) claims: *"The pilot project was also responding to the need for a platform that would support information management"* (p.1).

The use of modality is often employed by initiators of development projects as a dominant narrative to position ICTs as a necessary and urgent solution to development challenges. The Language that is used suggests a high level of certainty about the potential benefits of ICTs in development challenges.

For example, as The Ministry of Information, Communications and Technology (2019) claims: *"We need to develop national policies on data sharing and interoperability in time to ensure that all systems in Kenya can work synergistically to yield the operational and administrative benefits from a coherent national instrumentation"* (p.32). The used language such as "the need" and "in time" imply a narrative that reflects a high level of need and urgency to foster such projects in addressing challenges within the Kenyan agricultural sector. Therefore, the language suggests that ICTs are a critical tool in achieving food security and development in the Kenyan agricultural sector. Kenyan farmers are often described as "lacking" and the Kenyan agricultural sector is framed as if it is in need of these urgent improvements through technology interventions. The focus is largely on what the Kenyan agricultural sector lacks or what it needs to improve upon rather than its strengths or existing assets

By mobilizing the narrative of need and urgency, the designers and implementers of ICT4D initiators initiatives position ICTs as more valuable compared to other forms of solutions or ICT4D initiators are presenting ICTs as a necessary, inevitable, and urgent solution to development challenges. This framing of ICTs as a necessary tool for development reflects the assumptions of a neoliberal approach to development challenges which posits that technological innovation and Modernization are necessary for economic development and social progress. This neoliberal approach to development challenges which posities and deepen existing power balances by benefitting the ICT initiators who are already in positions of power since they are the ones creating these initiatives.

What became evident from the analysis is that the initiators as well as the government are in a powerful position from which they frame the challenges and mobilize a set of discursive solutions – in the form of technologies – through which the Kenyan agricultural sector can reach a desired future based on dominant imaginaries. In this way, these actors have the power to not only frame the problem based on their beliefs, values and realities but also mobilise discursive and material resources to paint what the future of the Kenyan agricultural sector should look like.

The decision-making power for development is often held by those in positions of authority such as government organizations, international organizations, and powerful private sector businesses. In line with Ferguson (1990) development practitioners and experts present themselves as apolitical and neutral actors, who are above the fray of politics and who possesses the expertise and knowledge to solve development problems. These development practitioners determine what development is, for whom it is, what It should look like, and how it should be achieved. However, this top-down approach to development has been criticised for failing to consider the needs, desires, and perspectives of the one's affected by these development processes (Sen & Altbach, 2004).

In order for development to be more effective, the Kenyan agricultural sector should have more power over the ways in which development processes are planned and implemented. This can help to ensure that development is driven by the needs and desired of local communities, rather by external actors who may not fully take into account the complexities of the Kenyan agricultural sector. Another commonly held belief in development is that technology is the solution to many of the world its problems. This perspective is often criticized as a form of technological determinism, which assumes that technology drives social and economic change independently of social, political, and cultural factors. This type of technological determinism or techno-fixes is analyzed in more detail in the second step of Fairclough's three-dimensional framework.

5.1.3 Presuppositions

Based on the analysis carried out it was evident that in the context of Fairclough's three- dimensional framework presuppositions and transitivity are closely interrelated and complementary. As discussed above, transitivity seeks to uncover the ways and dynamics through which different stakeholders interact within the Kenyan agricultural sector. Such an analysis therefore includes the assumptions being made by and amongst different stakeholders about each other as well as about the situation itself. This section will dive deeper and analyze how specific presuppositions are being discursively mobilized to frame the Kenyan agricultural sector, its challenges and future and to validate and uphold ICT4D as solutions.

In the context of the Kenyan agricultural sector, presuppositions are being mobilized to frame the Kenyan agricultural sector, its challenges, and future to validate and uphold ICT4D solutions. These presuppositions are being mobilized to frame ICT4D initiatives by assuming that the use of ICTs is necessary to improve productivity and increase access to markets and information. For example, as the FAO (2022) claims: "*ICTs can help transform agriculture and rural development by improving productivity, increasing resilience to climate change, and providing better access to markets and information*" (p. 13). This illustrates how presuppositions are being mobilized to frame ICT4D initiatives because it presupposes that the challenges facing the Kenyan agricultural sector can be addressed through the use of ICTs.

What became evident from the analysis is that within ICT4D initiatives multiple presuppositions can be identified.

First, the assumptions of the farmers and how they are framed by ICT4D initiators. Often, the ICT4D initiatives frame that farmers lack the necessary knowledge, capacity and information to engage in markets. In many cases, these assumptions are based on a narrow view of farmers as being isolated and lacking in access to information, technology and markets. Framing farmers as being inefficient or sometimes even backward reinforces that they are passive recipients of development interventions. Whereas the initiators are being framed as the ones that have the desirable knowledge. For example, as USAID (2013) claims: "*it comes from perceived experts. Farmers go to extension officers and input suppliers because they are considered knowledgeable*" (p.5). The transitivity sub chapter touches further upon these dynamics and within the second step of Fairclough's three-dimensional framework it further is explained how

Second, ICT4D initiators rely on "technological determinism", whereby it is perceived by powerful actors such as the Kenyan government that technology will provide the solution for the challenges that the Kenyan agricultural sector faces. This viewpoint assumes that providing access to technologies will automatically lead to improved outcomes. For example, as GIZ (2017) claims "... in order to rectify this situation, farmers need access to more knowledge regarding agricultural production methods" (p. 7), this illustrates that it is assumed that providing access to technologies will automatically lead to improved outputs. Further explanation about access will be touched upon in the second step of Fairclough's three-dimensional framework.

Third, a presupposition that can be observed, which is closely related to the previous one, is the assertion that technology is neutral and unbiased in the context of ICT4D in the Kenyan agricultural sector. It can be interpreted as the belief that technological tools and systems do not inherently possess inherent values or predispositions that influence their use. For example, as the Ministry of Information, Communications and Technology (2019) claims: *"Support the development of a new generation of technologies that will lead to measurable, available, secure, trustworthy, and sustainable computing and communications systems, as well as associated management and policy tools that enable successful utilization of the new technologies"* (p.36). This illustration shows how it is presupposed that technology is designed to be measurable, available and secure, implying that technology can be used to benefit society and the environment. This supports the belief that technology is neutral and unbiased, and that its impact is shaped by the way it is designed. How technologies are framed to be neutral-free will be further touched upon in the second step of Fairclough's three-dimensional framework.

Last, a presupposition that can be observed is the use of framing techniques that presuppose and emphasize the existence of a crisis and the need for intervention. For example, as the Ministry of Information, Communications and Technology (2019) claims: "*The technology landscape is changing fast, and the rate of change will accelerate. We think it is impossible to prognosticate every change, and thus it is not possible to formulate clear plans for things unknown we can however develop a coherent and consistent approach to the emergence of new trends and technologies as they emerge"* (p.4). shows how there is a focus on the need for an urgent intervention to deal with the challenges the sector faces. This creates a presupposition that the sector is in a crisis and in need for intervention.

The initiators of ICT4D interventions in the Kenyan agricultural sector promote a view on development that not only frames the sector's conditions but also makes assumptions about stakeholders. This situation is problematic as these initiators are the ones that define these conditions and assumptions. ICT4D initiators perpetuate this problematic dynamic by imposing their worldview on the sector and assuming that local Kenyan stakeholders lack the necessary knowledge and resources to drive their own development which could ultimately lead to power imbalances (Escobar, 1995; Ferguson; 1990, Sachs, 1992).

5.1.4 Vagueness

Transitivity, mood and modality, presuppositions and vagueness are all interlinked strategies to reinforce an ideology within ICT4D initiatives. Vagueness is a strategy used by ICT4D initiators to attach implicit meanings and values to words and phrases. Buzzwords or phrases that are commonly used in political or social discourse such as in documents around ICT4D within the Kenyan agricultural sector lack a clear and specific meaning and therefore steer development into a particular neoliberal direction. For example, as the FAO (2022) claims: *"The Digital Innovation Strategy ambitions to foster improved use of sustainable and inclusive digital solutions to deliver agriculture and food systems transformation in Africa"* (p.18). Using buzzwords such as "sustainability" or "inclusive development", policymakers and corporations can create the impression that they are committed to "positive" change, while continuing to pursue policies that prioritize their own agendas over the priorities of the small-scale farmers on who these initiatives are imposed on. While the use of words such as "sustainable" sounds promising, specific details on how this will be achieved are not clearly provided. Without a clear understanding of the mechanisms involved, these buzzwords become an empty gesture or rhetorical flourish.

This flexibility in interpretation allows for the dominant discourse to utilize buzzwords, masking or omitting the ideological underpinnings of their interventions. For example, as the Ministry of Information, Communications and Technology (2019) claims: "*Leverage ICT to promote sustainable development, accelerate human development, bridge the digital divide and develop a knowledge society*" (p.10). The use of words such as "sustainable development" and "human development" stay to some extent vaguely descriptive but at the same time by mentioning that this development tendency must steer into a knowledge society. These words are open to interpretation and can mean different things by different actors. The ambiguity allows the ministry to mask ideological underpinnings to make it easier to support their initiatives.

In the words of Laclau and Mouffe (1985), such buzzwords can be considered as 'floating or empty signifiers' in the sense that words, symbols and concepts have lost their 'original' meaning or definition and have been to detached form their original context and concrete referent. In this way, empty signifiers can obfuscate or obscure meaning, which can set obstacles when trying to engage in dialogue or critique. In this way, empty signifiers can further entrench depoliticization within the field of sustainable development (Brown, 2016; Schultz & Siriwardane, 2015). Empty signifiers then run the risk of being put outside the political; that is outside the field of public dispute, disagreement and contestation. According to Laclau and Mouffe (1985), 'empty signifiers' are not inherently positive or negative but can be used as discursive tools that can be used by different actors to materialize their interests. By engaging with the notion of empty signifiers, Laclau and Mouffe (1985) underscore the importance of contextualizing and critically analyzing words and symbols that are mobilized through particular discourse. Different scholars have criticized the development field by claiming that the language that is being used can be regarded as "empty signifiers" and that such

language is mobilized through "expert" knowledge by technocratic means. For example, the concept of "sustainability" and "sustainable development" have been criticized in this way.

In the different ICT4D documents and initiatives analyzed, it was possible to identify multiple empty signifiers which can further amplify vagueness within certain discourses.

The first empty signifier that was found is "efficiency". As the Ministry of Information, Communications and Technology (2019) claims: "*Gain global recognition for innovation, efficiency and quality in public service delivery*" (p. 10). In this quote, "efficiency" is not further defined concretely or specifically. There is no explanation of what the term means or how it will be measured, making it difficult to grasp what it actually is expressed by.

With "inclusivity" it is the same, questions are raised about who is being included and what the processes are. It lacks a specific meaning on what it means. As the FAO (2022) claims: *"Expected outcome: Local digital agriculture ecosystems strengthened to deliver scalable, inclusive, and sustainable solutions for SDG impact*" (p.5), inclusivity is mentioned and used here and can be considered as an empty signifier because it is not clear what it means or how it will be achieved. What does it mean and who is being included?

A third floating signifier is "productivity" which is also used to mobilize discourse. For example, as the FAO (2022) claims "*Three activity pillars are involved: the first involves activities focusing on smart farming, improved productivity by using relevant digital solutions*" (p.37). Here, in the context of smart farming it does not provide a specific definition or measurement of productivity. It is not clear what "productivity" refers to and it is not specified as well what digital solutions will be used or how they will improve productivity, which makes this term an empty gesture to some extent.

A fourth floating signifier that is noticed within ICT4D initiatives is "sustainability". Often it is not clear what "sustainable" means in the context of ICT4D initiatives. Does it refer to long-term sustainability, economic sustainability, social sustainability, or a combination of all three? Furthermore, what specific actions or strategies are needed to achieve sustainability in these areas? The lack of specification leads to "sustainable" being used as an empty signifier. These discursive mobilizations are politically used to attain particular interests and can therefore be seen as a greenwashing method. For example, as the FAO (2022) claims *"defeating poverty and accelerating sustainable inclusive growth are key objectives pursued by the African continent, particularly in the framework of the UN Agenda 2030 and the African Union Agenda 2063*" (p.iv). This quotation illustrates the use of "sustainable" as a floating signifiers.

Another floating signifier that is noticed within ICT4D initiatives, is the "innovation" which raises questions about what type of specific innovations are being referred to, how will it be measured, who will benefit from these innovations and what can be potential risks or unintended consequences. For

example, as the FAO (2022) claims: "*Better informed development, improved digital interventions, stronger local, inclusive, sustainable innovations*" (p.6).

These buzzwords are used by different stakeholders within ICT4D initiatives. One the one hand those who have the expert knowledge can discursively mobilize these empty signifiers in particular ways to further position their interests into a direction. According to Žižek (2006), making an effort to attach meaning to a signifier that lacks inherent meaning is inherently a political action. Moreover, as different political theorists claim, such empty signifiers can act as depoliticizing artefacts. As mentioned in other sections of this analysis, the dangers of depoliticization in the field of development can lead to the creation or reinforcement of unequal power relations.

The inherent depoliticizing nature embedded in floating signifiers means that not only these are taken out of the political debate, but also that these are being used and defined by powerful actors without the inclusion of other stakeholders. For example, in the context of ICT4D in the Kenyan agricultural sector, small-scale farmers have little or no saying in the way certain aspects of initiatives are defined such as the case of "efficiency", "productivity", and "sustainability".

5.2 Processing analysis

In accordance with the guiding questions outlined in the second step of Fairclough's threedimensional framework for discourse analysis, a thorough analysis was conducted to identify the underlying beliefs and ideas that were taken for granted in the discourse of ICT4D initiatives within the Kenyan agricultural sector. The assumptions that were uncovered were often implicit and unconscious, highlighting the need for a more critical examination of the dominant discourses that shape communication in this domain.

Through this analysis, three distinct discursive themes emerged, which provide insight into the prevailing ideologies and power structures that underpin ICT4D initiatives in this context. The first discursive theme pertains to efficiency and productivity, which reflects the emphasis placed on maximizing output and minimizing costs in the pursuit of economic growth. The second discursive theme relates to accessibility and inclusivity, which highlights the importance of ensuring that ICT4D initiatives are accessible and beneficial to all members of society, particularly those who are marginalized or disadvantaged. Finally, the third discursive theme concerns Western knowledge and technological determinism, which suggests that ICT4D initiatives are often guided by Western models of development and a belief in the transformative power of technology.

5.2.1 Accessibility and inclusivity

Based on the discursive themes that have been found with the use of the guiding questions, this section provides an analysis of the relationship between the interrelated concepts of accessibility and inclusivity and how these are discursively used.

What became evident from the analysis is that a lack of access to technologies can contribute to unequal power dynamics between different stakeholders.

For example, services provided by ICT4D developers are expected to operate in areas with limited internet and power infrastructure, which makes it difficult for the services to be accessible to Kenyan farmers who do not have access to high-speed internet or advanced technologies. The lack of access is often referred to as "digital poverty" (Mutisya & Jayne, 2018). For example, as UNEP (2021) claims: "*The ICT service must work in areas with no or poor internet (e.g. 1G, 2G networks) and power infrastructure and should work on both smartphones and feature phones to accommodate the widespread 'digital poverty' among Kenyan farmers*" (p.13). This illustrates how access is provided in a top-down manner, assuming that these ICT4D initiators know what these target groups are in need of, without taking into account the unique needs of those groups. This top-down approach can lead to initiatives that do not effectively address the needs, contextual realities, identities, and social relations of the target groups and may even create further inequalities. This potentially can lead to asymmetrical power dynamics.

Furthermore, The KAINET monitoring & evaluation plan (2014) reflects unequal power dynamics in accessibility by highlighting the efforts made to strengthen national and institutional capacities to manage, disseminate, and exchange agricultural information. The focus is on empowering Kenyan farmers and institutions with the necessary skills, knowledge, and resources to make scientific and technical literature accessible to everyone in Kenya. By training data entry librarians and ICT support on AgrioceanDspace, the project aims to create a level playing field where everyone has equal access to information. However, the fact that the training is being conducted by the KAIet coordinator suggests already that there is a power dynamic at play. The coordinator holds a position of authority and expertise, which gives them the power to shape how the project is implemented. Similarly, the use of tools such as Google Analytics and repository software implies a certain level of technical expertise that not everyone possesses. This creates a power dynamic where those with technical skills have an advantage over those who do not. For example, as KAINet (2014) claims: "*Resources required: Google, Analytics*" (p.18).

Additionally, as GIZ (2017) claims: *"50 farmers' cooperatives are to use digital apps for mobiles and smartphones in future, together with SMS services, in order to negotiate for better prices and conditions with input dealers and service providers"* (p.3). The platform may favor larger-scale farmers who have the resources and bargaining power to negotiate favorable prices and terms with buyers. Moreover, large-scale farmers tend to have more financial resources and knowledge, which not only allows them to acquire certain technologies but also use these, as these might have better language skills as well as access to better education compared to small-scale farmers. For example, this can marginalize small-scale farmers who lack economic bargaining skills or even linguistic skills, and may be forced to accept lower prices for their products. At the same time the platform may create new power dynamics between farmers and buyers. While the platform enables farmers to sell their

products directly to buyers, it also means that farmers are more vulnerable to market fluctuations and changes in demand. This can result in buyers having more power to dictate prices and terms of trade, leaving farmers with little room for negotiation.

Lack of access to technologies is not only a technological issue but is also a reflection of broader social and economic inequalities in Kenya, aligning with Castells (2001) who argues that the digital divide is not just about access to technology, but also about the ability to use technology effectively to achieve individual and collective goals. The ones who are excluded from accessing the digital resources provided by initiators are likely to be those who are already marginalized and disadvantaged in the Kenyan agricultural context. This exclusion perpetuates existing power imbalances and reinforces inequalities in the country which can create a "vicious cycle" in which the same groups that are excluded from access to technology are also excluded from the benefits that technology potentially brings.

Access to technology and inclusivity of ICTs are closely interconnected, as both are essential for achieving digital inclusion. Many ICT4D initiatives overlook the fact that not all target groups have the same abilities to be included within these initiatives, which I will further dive into in the subsequent section.

In many of the documents analyzed, the general portrayal of farmers as a homogeneous group in ICT4D initiatives overlooks the heterogeneity that exists within the agricultural sector, including differences in farming practices, scales, and socio-economic contexts. ICT4D initiatives that aim at developing the Kenyan agricultural sector often make the mistake of viewing farmers as a homogeneous group with similar farming practices, scales and socio-economic contexts. However, the agricultural sector is diverse and there are significant differences in farming practices among farmers. Heterogeneity exists within the Kenyan agricultural sector and the fact that different types of farmers have distinct needs and challenges. Farmers vary in terms of their knowledge, skills, resources, and access to markets as well as their social, economic and political context in which they operate differs from each other.

For example, as the UNEP (2021) claims: "*Agricultural markets often involve complex relationships between farmers and traders*" (p.11). This highlights how farmers opposed to traders are viewed as a homogenous group with the same traits. This is problematic because by overlooking this heterogeneity, ICT4D initiatives risk providing a one-size-fits-all solution that may not be effective for all farmers. A sense of unity and homogeneity masks the real differences and inequalities among farmers. This causes a reinforcement of existing power dynamics within the agricultural sector. Here we see that the ICT4D interventions are created for large commercial farmers, which strengthens their position of power over small-scale farmers, who may not have faced the same constraints as large-scale farmers.

Furthermore, ICT4D initiatives overlook the fact that not all farmers may have the same technology needs and preferences. For example, as USAID (2013) claims: "*Understanding the deficiencies in these networks will illuminate how ICTs can more effectively align the content of information with farmers' need*" (p.2) presupposes that all farmers' needs are the same and therefore does not take into account the diversity of technology needs and preferences among farmers. This quote illustrates how USAID assumes that all farmers have the same needs for information and that the deficiencies in communication networks affect all farmers equally. This may not be the case as different farmers may have different needs for information depending on their specific contexts.

In addition, these accessibility and inclusivity challenges identified with ICTs in the Kenyan agricultural sector is that they are not responding to a latent demand. In other words, ICTs are not always developed with including the end users. Many solutions are not well adapted to the realworld constraints facing end users. As UNEP (2021) explains "A main reason why many apps and ICT projects are unsustainable and fail to deliver 'real change' for farmers is that the products and services are developed based on a technology-push approach rather than an analysis of latent demand. Often technologies were developed by ICT firms that did not involve users in the innovation process, nor understood the social and economic context in which their technology would be applied, resulting in a failure to meet the needs of the farmers" (p. 11). If ICTs are not designed with consideration for the social and economic context of the intended users, they may fail to meet the needs of farmers. Such failures can be attributed to a technology-push approach, where ICT solutions are offered in a topdown approach without proper engagement of end-users. This means that there is a lack of ownership among farmers whereby the real contextual challenges they face are not addressed within these policies. If technologies do not consider the contextual needs and challenges such as class, race, gender, religion and ethnicity they may further reinforce existing inequalities and create new ones. In order to identify power dynamics within society it is necessary to identify interrelated and intersectional social relations such as class, race, gender, religion and ethnicity to understand the complexities and nuances involved in social relations. Failure to do so leads to reinforcing structural power imbalances, further entrenching existing social hierarchies.

Such as women farmers, that may face different challenges compared to men in accessing technologies. For example, as USAID (2013) claims: *"As technology-enabled service provision integrates more fully with mobile phones, women's ownership of and control over mobile phones becomes increasingly necessary if they are to access information"* (p. 5). Women have specific socially constructed cultural expectations and practices that can be unbeneficial compared to men that have easier access to these technologies (Ngigi et al., 2022). For example, if women farmers have to take care of the household, this will result in a significant impact on women farmers' ability to access and benefit from ICT solutions.

Another example is by the UNEP (2021) which claims: *"Kenya is a multilingual country with around* 68 different local languages, while most apps exclusively provide content in English, which means that the ICT extension services in practice do not reach a significant number of smallholders. Moreover, the average age of farmers in Kenya is 60 and illiteracy is common in rural areas, and few if any services provide information in verbal form" (p. 11). This limits the ability of non-English speaking farmers to access information and resources, which can have a significant impact on their ability to benefit from technologies. This creates a divide between English-speaking farmers who have access to information and those do not, further perpetuating existing inequalities. Secondly, the average age of farmers is 60, combined with illiteracy in rural areas, means that many farmers may not be able to read or understand written materials. This lack of access to information puts these farmers at a disadvantage compared to more literate farmers, who are better able to keep up with the latest farming techniques.

Aditionally, USAID (2013) claimed that: "Buyers keep a tight control over the information communicated to farmers, often embedding services in the contractual relationship to maintain quantity and quality of the product" (p.4). "Though farmers expressed satisfaction with the relationship with the flower buyer at early stages of the agricultural cycle, some felt that they had no option but to trust the buyer when negotiating prices" (p.5). This shows that there are knowledge imbalances between different actors in the Kenyan agricultural supply chain. In this case, farmers are pressured or left with no other option than to accept certain conditions as they do not possess power leverages to negotiate or steer processes in a way that benefits them the most. Despite the amount of projects that focus on providing better financial information as well as information on supply chains, there are inherent structural and contextual challenges that these projects fail to account for. These can potentially reinforce existing unequal power dynamics and asymmetries within the Kenyan agricultural sector. As the UNEP (2021) mentions a lot of the current ICT projects in Kenya fail to take into account contextual demands and farmers interpretations of reality which lead to these projects failing.

When ICT4D is not appropriated by the end users, it runs the risk of alleviating the symptoms but not the core problem the Kenyan agricultural sector faces (Kamau & Nyangena, 2020). A lack of such a contextual understanding and involvement of the end user in the design and implementation of ICTs can potentially reinforce or create new power asymmetries within the Kenyan agricultural sector.

5.2.2 Steering for efficiency and productivity

Based on the analysis of ICT4D initiatives in the Kenyan Agricultural sector, this section sheds further light on the notions of efficiency and productivity and how these are used discursively by powerful actors to steer subjects into a discourse direction as well as to have specific interests met. In the analyzed documents, ICT4D initiators tend to define how agricultural development should look like by mobilizing discourses of productivity and efficiency in various initiatives. In that sense, these ICT4D initiators determine the route and standards of development. For example, as the Ministry of Information, Communications and Technology (2019) claims: *"Enterprise operations will become more efficient, translating into productivity gains and the creation of new markets for innovative products and services"* (p.4). This shows that there is a strong focus on becoming more efficient and productive.

These implicit values are framed as the desirable, and necessary path towards development by ICT4D initiators. In another section of the Kenyan National ICT Policy it is stated that the "*Government has a keen appreciation of the role of knowledge and technology in driving productivity and economic growth knowledge distribution, then, is essential to our economic performance*" (p.23). This statement illustrates how the Kenyan government upholds technological advancements as well as 'economic performance' as key drivers of progress. These are framed as having a definite beneficial effect on development. In other words, there is a strong emphasis and belief that technology and economic performance is a powerful source that shapes and can solve different challenges of our world, and that the country must adopt to new technological advancements to develop into a specific order that fosters economic growth and productivity. It can be argued that this follows a Modernization development approach with a broadly neo liberalizing logic (Swyngedouw, 2011).

The notions of efficiency and productivity are also discursively mobilized by different international organizations as well as private sector companies working with ICT4D in the Kenyan agricultural sector. As mentioned in previous sections, most of ICT4D initiatives in the Kenyan agricultural sector have the objective of improving productivity and efficiency. For example, USAID (2013) claims that "*In agriculture, new information and knowledge fuel innovation and increase productivity and competitiveness. The ability of farmers to participate in and benefit from growth in the sector is linked to their ability to adopt new practices, solve problems and embed themselves dynamically in agricultural value chains*" (p.1).

Likewise, UNEP (2021) claims that "... in particular the need for social distancing and more agile supply chains, have further revealed the necessity and benefits of harnessing digital technologies for improving productivity in areas such as mobility, agricultural advisory services, food provision, finance and health" (p.3).

In this context, ICT4D initiators – such as the government, private companies and international development organizations – they define development in the agricultural sector on the notions of efficiency and productivity and stipulate and uphold ICT4D as a tool to reach these objectives.

ICT4D initiators thereby establish the definition of what productivity and efficiency is. ICT4D initiators establish a discourse that emphasizes productivity and efficiency as the ultimate goals of development, which are often based on cost-benefit analyzes, economic rationalization, and productive agricultural yield. Initiatives are often economically rationalized, meaning that decisions

are made based on economic factors such as cost-benefit analysis rather than other considerations like social, environmental and ethical considerations. For example, as UNEP (2021) claims: "*Four main types of services and usages were identified that dominatie the ICT market within agriculture in Kenya: farm advisory and information services (agronomic and weather information), services providing market information (typically market prices) or market linkages (typically between farmers and traders), more advanced supply-chain management tools, and financial management services facilitating payments and/or access to finance for farmers and traders" (p. 9). This quote illustrates how development is economically rationalized because the four main types of services and usages identified are all focused on increasing productivity and efficiency in agriculture in Kenya, with the emphasis on economic outcomes.*

In this context ICT4D initiators therefore set the baselines of what efficiency and productivity are determining what these benchmarks should entail and, in turn, thereby shaping the route to development. ICT4D initiators create a demand for particular technologies and approaches to development that are often based on economic standards such as efficiency and productivity. These standards are imposed on Kenyan farmers without taking into account that these productivity standards are shaped by these ICT4D initiators. Kenyan farmers are expected to meet these standards without having agency in how these standards are defined or implemented. Despite the benefits that farmers can gain from having better knowledge about the supply chain, finances and the market, it is important to highlight that these technologies are not value-free or politically neutral. But are steering small-scale farmers towards specific economic rationalities that will equip farmers with the ability to engage in market and cost benefit analysis. So, the crucial point here is as Callon (1998) suggests: '*is not that of the intrinsic competencies of the agent, but that of the equipment and devices ... which give his or her action a shape (*1998, p. 21)'. The following section will dive deeper into understanding technological determinism in the context of ICT4D initiatives in Kenya's agricultural sector.

Furthermore, not all farmers and recipients have the capacity to meet these standards on their own, which creates a dependency on external knowledge and resources. Subsequently, local communities come to rely on the knowledge and resources provided by the initiators to meet these efficiency and productivity standards. This dependency limits the potential for local agency and empowerment, as local communities may become reliant on external resources and expertise rather than developing their own knowledge and capacity.

Following Escobar (1994), focusing solely on efficiency and productivity can marginalize the underlying challenges and problematics within the Kenyan agricultural sector. Moreover, given the environmental crises the world is living through which is also affecting the Kenyan agricultural sector, it is crucial to seek for ecological sustainability. It is crucial to prioritize ecological sustainability and human wellbeing. Although efficiency and productivity are important elements for agricultural development, these should be redirected in terms of sustainable productivity and efficiency rather than following the dominant economic model which is based on continuous

economic growth. Moreover, by prioritizing productivity and efficiency in economic terms, can further deepen the processes of commodification of food and agricultural products (Castree, 2003). In a way the main goal of a food system can lose traction of its original purpose which is to feed its population. In a way, commodification can therefore also lead to more inequalities. Such productivity and efficiency should also focus on sustainable resource management and a reduction of inequalities. As different authors claim, a sole focus on economic growth can further exacerbate unequal power relations, sometimes leaving the most vulnerable in the same or worst conditions (Escobar, 1994; Swyngedouw, 2011).

This approach to development is further critiqued by Escobar (1994) who argues that it reinforces a neoliberal view of development that prioritizes market-based solutions and ignores the structural inequalities and power imbalances that underlie many development challenges. According to Escobar, the dominant paradigm of development is rooted in a neoliberal worldview that prioritizes economic growth and private investment over social and environmental concerns (also see Swyngedouw, 2011). This dominant approach to development services maintain the economic growth-oriented model, rather than fundamentally changing it – so as to attain more ecological and equitable outcomes. Moreover, neoliberal ideologies – implicit in the dominant Modern development discourse - tend to prioritize economic growth and market-based solutions is potentially at the expense of other social and cultural considerations. It can therefore be argued that the Kenyan government approach to agricultural development paradigm together with that of international organizations and other ICT4D stakeholders represents in attempt to build a powerful discursive and political consensus through market based and techno-managerial fixes – such as the technologies behind ICT4D – that normalizes a growth oriented agricultural governance.

Within the same line to the same critique to the Modernist developmental framework, is that of its strong emphasis on technological fixes as solutions. Although technology plays a vital role in the quest for sustainable development and sustainable agricultural management, it should be regarded as part of the solution and not the panacea. Different studies have criticized technological determinism and techno-fixes in the context of development, whereby these are seen as providing a fragmented and depoliticized understanding and solution to different challenges. These criticisms will be further examined below. These criticisms will be further examined in the section below.

5.2.3 Western knowledge and technological determinism

This section dives into how Western knowledge and technological determinism play a role in shaping unequal power dynamics. In a lot of the documents, ICT4D is seen as a tool to enhance efficiency and productivity, mostly in economic terms. Therefore, it is important to see these as deeply intertwined.

The focus on the use of digital technologies to foster development can be cataloged as a form of technological determinism, meaning that technology is seen as the driving force behind societal change. Drawing from Modernization theory, it can be argued that these initiatives assume that the use of technology is inherently positive and will inevitably lead to improved development outcomes. In other words, ICT4D initiatives are designed and implemented with the assumption that technology will automatically bring about development and progress, without fully considering cultural and historical factors that shape the Kenyan agricultural sector. The focus on technological determinism within the implementation and design of ICT4D initiatives leaves out the aspects of culture, history social relations and identities of the ones the ICT4D target and are used by. Yet these technologies are supposed to transform the agricultural sector which is inherently constituted by socio-cultural dimensions.

As some scholars within Modernization and postcolonial schools of thought claim (Escobar, 1995), this leads to cultural determinism, where the ideas and values ascribed in these technologies that aim at changing the Kenyan agricultural sector, are to be adopted by its users as a way to attain the specific outcomes and development desires also proposed by those involved in the development and implementation of these technologies. In a way, it can be argued that these values can take precedence over traditional and historical values in the name of 'development', 'efficiency' and 'productivity'. Further qualitative and primary research can shed light on the intersections between technology and culture in the context of ICT4D in the Kenyan agricultural sector.

Western societies tend to place a high value on innovation and technological advancement as a means for development – such as increasing agricultural productivity and resource efficiency in the Kenyan agricultural sector (Smith, 2018). Different Modernization and post-colonial scholars have criticized the 'Western' notion which upholds that social and environmental challenges can be solved through "solely" technology and technological advancements – also regarded as techno-fixes (Winner, 1986). According to these critiques, such an approach falls under the category of technological determinism whereby different challenges – such as those recurring in the Kenyan agricultural sector - can be tackled through 'techno-fixes' such as ICT4D. In the different documents analyzed it is possible to identify a twofold consensual pattern. On the one hand there is a general consensus by different stakeholders – including international development organizations - on the nature of the problem that the Kenyan agricultural sector is facing as well as its solutions. On the other hand, there is also a steady consensus on the arrays of technological and institutional arrangements needed to tackled and mitigate such challenges.

As UNEP (2013) claims: "The digitalisation of economic activity through technologies such as ICT, Internet of Things (IoT), Artificial Intelligence (AI) and robotics in production and service provision can be a strong driver of sustainable and inclusive growth and innovation to achieve the SDGs in *Africa*"(p.3). This illustrates how there is an emphasis on specific digital technologies that can drive growth and innovation.

In a similar tone, the Ministry of Information, Communications and Technology (2019) claims: *"ICTs in tandem with other government initiatives will create the prosperous, stable, globally competitive environment that is our joint national aspiration*" (p. 2). This quote illustrates how such technologies are regarded and celebrated in this manner.

From this perspective, it can be argued that the consensual positioning techno-fixes such as ICT4D as a solution to these challenges and a bridge towards development in this context falls under what several contemporary political thinkers would call 'de-politicization' (Zizek, 2000; Mouffe, 1993; Swyngedouw, 2011) where there is no dispute, questioning or disagreement on the need of this technology in places of public encounter thereby leading to a generalized and accepted consensus on their need and efficiency. Furthermore, such technologies are also seen as politically neutral and value free, further entrenching such a de-politicizing condition. As mentioned in different parts of this thesis, de-politicization can further entrench existing power dynamics or even lead to a new constellation of winners or losers.

Kenya is being steered into adopting digital technology to bridge the "digital divide" in order to pave the way for more investments in ICTs. As the Ministry of Information, Communications and Technology (2019) claims: "*Leverage ICT to promote sustainable development, accelerate human development, bridge the digital divide and develop a knowledge society*" (p. 10). This example shows how the government emphasized the leveraging of ICT to promote sustainable development, accelerate human development, and bridge the digital divide. Kenya is being pressured to adopt digital technology to bridge the "digital divide" as a sign of effective management, which is paving the way for more investments in ICTs. The discursive mobilization of ICTs are seen as a "techno-fix" that solves problems and bring about development.

Likewise, the Ministry of Information, Communications and Technology (2019) stated that: "Access anywhere and at any time to ICTs is pivotal to the successful growth of the development of the agricultural sector" (p.6). This illustrates that it is acknowledged that success is driven by values that are implicitly attached to technologies such as productivity and efficiency. A dominant belief in the superiority of science and knowledge that is articulated through ICT4D initiatives, risks the subordination of other forms of knowledge and traditional practices (Mawere & Van Stam, 2019). International development organizations also uphold this position. For example, as USAID (2013) claims: "ICTs can extend the reach of existing information channels so they can be used to overcome barriers" (p.1) showed that at the same time present the solution to agricultural challenges.

ICT4D implementors determine the challenges the agricultural sector is facing. Subsequently, they decide what is on the development agenda and what initiatives should be imposed on the recipients.

These dynamics show that there is a maintaining a consensus among the initiators shaping ICT4D initiatives on the state of affairs which can depoliticize the inherent challenges and solutions that exist in the Kenyan agricultural sector. The challenges the Kenyan agricultural faces, are presented as being purely technical and solutions lie in the adoption of new technologies, rather than addressing underlying political and economic factors that contribute to the challenges. ICT4D Initiators in the Kenyan agricultural sector mobilize a set of powerful discursive consensual themes that both unequivocally frame the challenges as well as the solutions in the context of Kenya's agricultural development. As Swyngedouw (2011) claims, such a consensual mobilization and deployment of techno-managerial solutions falls under a larger trend taking place within the development sector, which depoliticizes the inherent challenges and solutions that exist in the Kenyan agricultural sector and can reinforce structural inequalities.

Furthermore, within expert judgments and claims (see transitivity section), it remains uncertain whether these "expert" opinions meet the values of the local small-scale farmers or not. There is an imposition of technologies on small-scale farmers based on "expert" judgment and a normative assumption of how things ought to be in the Kenyan agricultural sector. It articulates that farmers should be more efficient, productive and financially competent. For example, as UNEP (2021) claims "*One expert emphasized the very small size of many farms in Kenya and observed that smallholder farmers are only selling to the local market, which makes many ICT applications unsuitable to them, even if the developers are trying to target smallholders" (p. 11). This statement illustrates the condition in which most ICT4D do not meet the contextual needs and demands as well as realities of specific sectors or stakeholders within the Kenyan agricultural sector. As the UNEP (2021) document clearly articulates, most ICT4D projects are not successful as they fail to recognize or include target populations within their development and implementation. It is therefore crucial to decentralize the processes behind the design and implementation of ICT4D projects and engage in more participatory and co-productive processes in order to meet the 'actual' demands and needs of recipients.*

ICT4D in this context is presented as a new and innovative artefact that will enable Kenya to steer into a development direction that aligns with Modernization discourse tendency. ICT4D initiators position themselves as the experts and the ones with solutions, they overlook the perspectives and the agency of farmers themselves. Therefore, the depoliticization of the challenges and solutions may limit the potential for transformative change in the agricultural sector.

Furthermore, as Latour (1993) and Akrich (1992) have argued, technical objects are not just machines, but are imbued with certain capacities, agencies, and morals. They have scripts embedded in them, which pre-determine how users should behave and what subjectivities they should embody. Technology developers and engineers therefore engage in social exercise, as they must anticipate users' behavior and develop technologies accordingly. This process is not just mechanical but is inherently social and moral. This applies to the Kenyan agricultural sector whereby technologies imposed on small-scale farmers have a normative script of how these farmers should act, steering them towards a more neoliberal approach.

Building upon these scholarly claims, technologies are not neutral or value free but contain certain ideologies that are reflected in many of the ongoing ICT4D initiatives. Technology artefacts are "normative", as they materialize the norms and values of their designers in order to guide development. In this way, ICT4D (and other technologies) can be designed to – sometimes involuntarily – to disable, guide or empower agricultural development in Kenya. These are "embodied technologies" which makes reference to a type of technology that is designed to be integrated with and act with human actions (Shih, 2009). Most of the ICT4D initiatives aim to improve financial knowledge or knowledge of supply chain knowledge to allow for farmers to make more efficient and rational decisions within the agricultural market. This is for example reflected in the document by the Ministry of Information, Communications and Technology (2019) that claimed that: *"Ensure that financial technology services infrastructure sharing is efficient, cost- effective for the consumer, protects the public interest and guarantees high security and quality of service"* (p.21).

A twofold component is being set in motion. First, the assumptions of the farmers and how they are framed by ICT4D initiators assuming that these farmers do not have the capacity, knowledge and information to engage in markets. Secondly, technologies have scripts embedded in them based on their own values whereby farmers are expected to have certain knowledge about the Kenyan agricultural sector and to use this knowledge to allow for making decisions that are efficient and market-oriented. In other words, the moral script represents a set of values and beliefs that are seen as necessary for success in the agricultural sector. These values and beliefs include a focus on efficiency, productivity, and competitiveness, as well as an understanding of market dynamics and consumer preferences. It can be read by these technologies how the truths of the technology enablers are encrypted and how a particular mentality is enforced (see Foucault, 1977; Latour, 1993; Akrich, 1992).

It can be argued that farmers are not only the recipients of these technologies but are to some extent the subject of a normative script of how they ought to act and perform. This specific script steers farmers to act and make decisions in efficient and rational economic ways within the agricultural market and supply chain. This way of thinking follows neoliberal conceptions of what Hayek (1944) defined as *homo* economicus, where individuals are expected to act in the most rational way and engage in cost-benefit thinking to make efficient decisions. As Foucault argued (1977), individuals are not passive recipients of power, but are actively shaped and molded by the power relations in which they exist. In this sense, ICT4D users – mostly small-scale farmers - in Kenya are not merely end users of technology but are "subjectified subjects" in the sense that their attitudes and behaviors are being molded through different and powerful mechanisms so that they act, live and in this case engage with agriculture following a particular order.

ICT4D initiatives which are based on Western and Modernizing development models creates and (re)enforces collective understandings about technology and development that may not be – fully - aligned with the cultural and contextual needs and perspectives of the ones impacted by these initiatives. In order to ensure that these initiatives to be sustainable in the long term and have a strong component of ownership, it is crucial for initiators to engage in participatory and collaborative processes with recipients.

5.3 Social analysis

Based on guiding questions that were established for the third step of Fairclough's three-dimensional this section dives into the most important stakeholder dynamics and dependencies. I specifically looked for evidence of dependency, cooperation and conflict between stakeholders. Different stakeholders that are at play within the Kenyan agricultural sector intersect in complex ways with one another. This subchapter dives into the foremost important and identifiable power dynamics between different actors. In doing so it identifies dynamics that create and or reinforce asymmetrical power dynamics amongst initiators and recipients of ICT4D initiatives. By identifying these dynamics, this section aims at shedding light on the consequences these power dynamics might lead to, such as different forms of dependency between actors.

What became evident from the analysis is that the Kenyan government has been relying on financial aid from development corporations, as well as private sector organizations, due to their limited financial capacity to invest in development initiatives (UNEP, 2021). For example, as the Ministry of Information, Communications and Technology (2019) claims: "government agencies and institutions have developed policies, regulations, innovation labs, R&D activities etc. in an attempt to create an enabling environment for digitalization, often assisted by technical and financial donor support, e.g. from USAID, SNV, GIZ and the World Bank" (p. 80). This quotation illustrates how the Kenyan government cooperates and to some extent depends on other stakeholders in the development and implementation ICT4D initiatives. Due to the co-working between different stakeholders, the Kenyan government is to some extent dependent on knowledge and financial capacity of such corporations. The Kenyan government is in a complex situation given that it has the mandate to secure the interests and well-being of its people, whilst being underfunded and dependent on foreign aid. Hence, it is crucial to ask who is steering such a cooperation? Taking into account that private companies and international development organizations possess financial and knowledge resources, it can be argued that these have the power to set and leverage the terms of cooperation. Moreover, international organizations and private sector tend to articulate their own ideas of progress and development as well as specific interests in funding agreements, which in many cases are not parallel to those who are supposed to benefit from these ICT4D such as small-scale farmers (see UNEP (2021) document, Digital solutions for agricultural value chains in Kenya).

Receiving financial funds from donor agencies - such as the USAID and GIZ - is crucial to have enough financial capacity to fund ICT4D initiatives in the developing world. Since the Kenyan government is underfunded, this creates a cycle of underfunding for the farmers as well. In other words, the government is unable to provide resources and support to farmers leading to foreign investors providing funding for development initiatives in Kenya. This in turn creates unequal power dynamics as the government has to comply with protocols made by such financial aid donors in order to receive the funds for ICT4D projects (Ministry of Information, Communications and Technology, 2019). This puts the government in a difficult position, as they have to balance their own interests and the interests of foreign investors, whilst trying to aid some of the most vulnerable actors within the agricultural sector (I.e. small-scale farmers). While the government has some sort of power and influence in the situation, it can be argued that they have less "room for manouvre" to materialize specific interests. Whilst small-scale farmers have even further less possibilities to manouvre their interests in this context. Meaning that they have even less control over their own situation and are often at the mercy of government policies which 'need' to be aligned to the agenda of international development organizations. According to Levy (2015) as one moves further down the social hierarchy, the less room for manouvre there is, meaning that in the context of Kenya, farmers are at an even greater disadvantage compared to the Kenyan government. This means that small-holder farmers have weaker bargaining power vis-a-vis contractors that are higher in the social hierarchy, especially if they have few alternatives for providing their livelihoods.

The private sector plays an important role in the development and funding of ICT4D has noteworthy power in directing and influencing ICT policies set by the government as well as development organizations. This is illustrated in the USAID (2013) document where it is claimed that: "*The government service, however, is increasingly using hybrid models of service delivery involving private-sector entities*" (p.2). This illustrates how development corporations collaborate with the private sector to mobilize their ICT4D initiatives. Private sector companies, including technology firms and telecommunications companies bring resources and expertise which is of interest to these development organizations. In turn, this is favorable for the private sector as they see development organizations as partners to leverage their expertise and resources in delivering technologies to pursue their own development agenda. International development organizations often collaborate with companies from the same origin, which can extend their geopolitical interests and expand their businesses and economic reach in different parts of the worlds. Such collaborations can provide access to local networks and policymakers, enabling companies to shape policies that affect their interests in target countries.

Likewise, the Kenyan government also makes reference to the importance of including the private sector further endowing it with more powers over the ways in which ICT4D are rolled out. For example, as the Ministry of Information, Communications and Technology (2019) claims: "*seeks to mobilize internal and external investment in the national ICT ecosystem with a specific focus on the private sector*" (p.8). This means that the government as well as development organizations

collaborate with the private sector, while at the same time the private sector considers this collaboration as a potential to further expand their markets, improve their reputation, or access government resources. Consequently, the private sector is interested in engaging with the government to shape the ICT4D initiatives in favor of their interests. Improving access to digital financial inclusion is a priority for the private sector, as it aligns with their agenda of efficiency and productivity.

Research organizations and centers are recognized by the government due to their knowledge and expertise. This knowledge and expertise situates them in a powerful position to influence and direct ICT4D initiatives. Moreover, research organizations – such as the KALRO research organization – provide access that is closely affiliated with government agencies. For example, as KAINet (2016) claims: *"The founding partners of KAINet are: "Kenya Agriculture Research Institute (KARI) Kenya Forestry Research Institute (KEFRI) Ministry of Agriculture"* (p.3). It is important to further assess how these research organizations act within the sector and what type of knowledge they try to convey.

The dynamics present a political system that drives these ICT initiatives whereby different stakeholders are dependent on one another in complex ways. One of the consequences is that this causes a political system that does not support a multiplicity of opinion and active farmer participation and takes away the political debate within ICT4D initiatives (see section on technological determinism) and at the same time, it creates a certain dependency on these initiatives because these organizations that design, create and implement these development projects have the knowledge, capacity, and resources. This leads to the reinforcement of a dependency dichotomy between Kenyan farmers, the Kenyan government and ICT4D initiators who possess the knowledge and financial means. For example, as the UNEP DTU (2021) claims: "I*t is widely agreed that ICT services can play a crucial role in bridging knowledge gaps for value-chain actors in Kenyan agriculture, and so there is likely to be a continued demand for them*". Once farmers are introduced to the market system – based on notions of economic growth – they are likely to rely more and more on ICT4D creating in some sense dependency ties between recipients and technology – and those who develop and have the knowledge – so as to 'perform', 'survive' and 'remain competitive' in the agricultural market.

The development initiatives that are driving progress in Kenya are largely owned and implemented by foreign companies or organizations, such as GIZ or Dutch entrepreneurs (UNEP, 2021). As a result, Kenya is not only dependent on financial investment but also on the expertise and knowledge that these technologies bring with them. A dependency on foreign companies for expertise and knowledge creates a situation whereby Kenya becomes dependent on external sources for financial assistance and knowledge to access technologies. This is problematic and could lead to a number of implications. These development organizations - that pursue their own agendas - can overlook the specific realities, contextual needs, particularities and circumstances of the Kenyan agricultural
sector. Furthermore, this dependency could lead to being more vulnerable to external factors that could disrupt access to the type and choice of technology. Therefore, it can be argued that stakeholders do not engage in conflictive terms in the context of ICT4D. However, conflicting situations arise when ICT4D initiatives and projects fail to meet their objectives. As the UNEP (2021) mentions in several passages, the conflicting situation in which these initiatives fail is due to their lack of contextual understanding and participatory processes, which in turn do not meet the real demands and needs of 'recipients'.

As described above, there are power dynamics at play within the design and creation of these ICT4D initiatives - whereby different stakeholders pursue their own agendas - affecting the recipients of these initiatives making them dependent in a way. It is important to uncover the complex processes through which recipients deal with agency and resistance dynamics when responding to these ICT4D initiatives. The following section will dive deeper into the choices and options that are available to the recipients due to the power dynamics that are going on at a higher scale (described in the section above).

In the context of ICT4D in Kenya, power dynamics are complex and require an understanding of the options and choices available to individuals and groups, such as small-scale farmers, according to their social position. This, in turn, is related to and a consequence of historical processes and power relations developed thereof (Lazar & Nuijte, 2013; Chaterjee, 2006; Desai et al., 2015). Despite the notion of "agency" and "resistance," individuals and groups may have limited options to comply, abide, or resist. This is especially true when Kenyan farmers do not have ownership over the processes of the initiatives. The top-down approach to ICT4D can lead to tensions if farmers are not included as an integrated part of the project, and these tensions may not even be seen because they can remain unspoken. Furthermore, if individuals and/or groups cannot act beyond specific structural constraints, can their behavior be considered a sign of agency and/or resistance?

Often, individuals and groups do not have the power to choose differently or have other options or futures. If farmers cannot act beyond abiding, resisting or complying, do they have the power of agency or resistance? As Majumdar (2017) stipulates *"it is acquiescence to that order which is the reluctant acceptance of something without protest"*. For example, with reference to the National ICT Policy: *"This policy is a product of an all-inclusive, participatory and consultative process"* (p. 5). It claims that this policy is participatory, however it is the government that has the agency to determine that local farmers have to participate in the first place. These farmers, however, are left with the option to abide, comply or resist, but are left out with options that are in between these options. Leaving farmers with this classification, that is almost binary, can be crude and limiting. Paying attention to the agency of farmers, alongside that of ICT4D project managers, is important to determine whether ICTs are something useful, accessible and realistic for different types of farmers. Therefore, it is crucial to take into account the representations of reality of individuals and groups in these projects to ensure that their voices are heard, and their needs are addressed.

Based on the analysis of different ICT4D initiatives it is possible to observe a top-down approach where ICT4D initiators devise solutions based on their own expertise and knowledge, without taking into account the realities and needs of end-users. This approach is facilitated by development agencies, resulting in the imposition of technological solutions on the intended beneficiaries such as Kenyan small-scale farmers. As a result, these farmers are to some extent excluded from the ICT4D initiatives and are faced with limited options that may not be well-adopted the real-world constraints of the end-users. Thus, it can be argued that these are to some extent imposed on the end users through the help of the development agencies, private sector and the Kenyan government. It is hard to assess the extent to which small-scale farmers are included in the process, but it seems evident that they are to some extent left with two options. They may either accept the technological solution, even if it only partially addresses their needs, or reject it, which could result in them being left in the same disadvantaged position while others benefit from the advanced technology.

6. Findings

Based on the previous chapter, it became evident that all the different steps of Fairclough's threedimensional framework are deeply interrelated and touch upon four primary recurring thematic patterns which I will elaborate on in the subsequent section. Moreover, these also fall under the criticism positioned by the criticisms of Modernization theory.

6.1 Productivity and efficiency developmental discourse

The first recurring thematic pattern is that ICT4D initiators tend to define how agricultural development should look like by mobilizing powerful discourses of productivity and efficiency. There is a strong emphasis and belief that technology and economic performance is a powerful source that shapes and can solve different challenges of the Kenyan agricultural sector, and that the country must adopt new technological advancements to develop into a specific order that fosters economic growth and productivity. As argued above, this follows a Modernization development approach with a broadly neo liberalizing logic. Productivity and efficiency are discursively mobilized as the desirable, and necessary path towards development by ICT4D initiators. At the same time ICT4D initiators thereby establish the standards of what productivity and efficiency is. ICT4D initiators therefore set the baselines of efficiency and productivity and also determine what these benchmarks should entail, thereby shaping the route to development. Not all recipients have the capacity to meet these standards on their own and into the future, which creates a dependency on external knowledge, expertise and resources. Consequentially, local communities come to rely on the knowledge and resources provided by the initiators to meet these efficiency and productivity standards. This dependency limits the potential for local agency and empowerment, as local communities may become reliant on external resources and expertise rather than developing their own knowledge and capacity.

6.2 Technological determinism embedded in ICT4D initiatives

The second recurring thematic pattern - which is deeply intertwined with the previous one - is that ICT4D initiatives are designed and implemented with the assumption that technology will automatically bring about development and progress, without fully considering cultural and historical factors that shape the Kenyan agricultural sector. This form of technological determinism views technology as neutral and value free. Such an approach tends to leave out important contextual aspects including culture, history, social relations and identities of the ones the ICT4D target and are used by. As some of the ICT4D documents analyzed, overlooking such contextual aspects has led to the failure of several ICT4D projects. Moreover, besides the risk of project failure, overlooking this aspect can potentially create and/or reinforce unequal power relations.

Furthermore, this form of technological determinism tends to unequivocally define both the challenges that exist within the Kenyan agricultural sector as well as the solutions in technomanagerial ways. Where challenges can be tackled through 'techno-fixes' such as ICT4D. In the different documents analyzed it is possible to identify a twofold consensual pattern related to technological determinism. On the one hand there is a general consensus amongst powerful stakeholders on the nature of the problem that the Kenyan agricultural sector is faces. On the other hand, there is also a steady consensus on the arrays of technological and institutional arrangements that need to be tackled and mitigate such challenges. Such an uncontested consensus can lead to what contemporary political theorists define as post-political or depoliticizing. These conditions will be scrutinized in the fourth thematic pattern. A dynamic that is embedded in technological determinism is that projects are developed and implemented in a top-down approach. This is the third thematic pattern identified and will be elaborated further in the next section.

6.3 Expert knowledge and top-down approach to development

The third recurring thematic pattern is that ICT4D initiators position themselves as the primary agents of knowledge and technological change and are therefore the ones creating and promoting innovations that offer a range of technical options.

What became evident from the analysis is that expert knowledge played a crucial role in shaping ICT4D in the Kenyan agricultural sector. "Experts" from different international organizations or the private sector who define through their expertise and knowledge both the challenges and solutions in this context. Closely related to technological determinism as well as the notions of efficiency and productivity, expert knowledge is upheld as the "truth" whilst other types of knowledge are unaccounted for. Expert knowledge is materialized in this context through totalizing top-down approaches.

One of their aims is to make these technologies accessible to potential users within the Kenyan agricultural sector. However, as mentioned previously, in the development and the implementation of ICT4D the elements of recognition and participation are often left out. The recognition of contextual factors – such as culture, gender, education, ethnicity and other social relations of identity – in the Kenyan agricultural sector as well as the participation of those who are supposed to benefit from these initiatives. The lack of recognition of socio-economic and contextual factors and participation of end-users in the design and implementation of ICT4D results in a top-down approach that fails to meet the needs, desires and perspectives of the one's affected by these ICT4D initiatives. This top-down approach is deeply intertwined with techno-managerial and forms of technological determinism which are characteristics of Modern – and dominant - developmental discourses. This leads to an incomplete understanding of the contextual needs and challenges of the recipients which in turn can make initiatives fail. A lack of ownership on behalf of the recipients can put the long-term sustainability of these initiatives at risk. More importantly, such a fragmented approach runs the risk of creating (or reinforcing) a new constellation of winners and losers.

The top-down approach through which these ICTs are often implemented and imposed on the Kenyan agricultural sector, leaves no room for end users to have a saying on the processes behind the design and implementation of ICT4D initiatives. In this way, the agency of the recipients remains limited, as for example, small-scale farmers are often left out with the options to abide, comply or

even resist these technological packages, artefacts and systems. In other words, they have less or no "room for manouvre" over processes that impact their livelihoods. This means that there is less space for political debate, and therefore alternative or different future trajectories. This can be seen as a form of depoliticization of development spheres of governance. This implies that while recipients may have some sort of autonomy to select among ICT options, they lack to some extent the agency to shape, design, and develop the technologies they use which reflects asymmetrical relations of power that are expressed and reproduced through top-down approaches to development. Powerful actors are usually perceived to have the upper hand over the recipients of ICT4D initiatives which can be the most vulnerable actors such as small-scale farmers and dispossessed minorities in the context of the Kenyan agricultural sector.

In a nutshell, top-down approach to ICT4D can lead to tensions if recipients are not included as an integrated part of the project, and these tensions may not even be seen because they can remain unspoken. Imposing top-down initiatives without taking into account the unique needs of the recipients can lead to initiatives that do not effectively address the needs, contextual realities, identities, and social relations of the target groups and may even create further inequalities. This potentially can lead to asymmetrical power dynamics.

6.4 Consensus and depoliticization

Lastly, what could be read through Fairclough's three-dimensional framework is a recurrent theme of depoliticization of the agricultural development sphere in the context of the Kenyan agricultural sector. This thematic pattern is deeply rooted and intertwined in the dynamics of all previously discussed thematic patterns and can also be seen as an outcome of these. According to Mouffe (1993) and Swyngedouw (2016) key elements of depoliticization include the consensual technocratic solutions embedded in technological determinism, expert knowledge and empty signifiers that are both consistent with and advance a broadly neoliberal agenda. By analyzing the processes of depoliticization taking place in the case at hand, sheds light on existing power dynamics.

The different thematic patterns identified in this research are emblematic of a successful attempt to build consensus about how the Kenyan agricultural sector should develop. The consensus that was built around the challenges and solutions – including ICT4D – was based on the mobilization of powerful developmental discourses by powerful actors which upheld expert knowledge, technology, efficiency and productivity. Previous sections explore the efforts and power dynamics through which ICT4D advanced as a consensual and politically uncontested tool (and solution) to Kenya's agricultural challenges. The following section will briefly discuss depoliticization with regards to the first three thematic patterns.

6.4.1 Depoliticization and consensus through efficiency and productivity discourse

It is consensually agreed upon that efficiency and productivity are the indicators of success of ICT4D initiatives and therefore the overarching development discourse in Kenya. This development core is

deeply ingrained in powerful, dominant, Modernizing development agendas which carry neoliberal connotations. There are different processes and discursive strategies that are involved in shaping the discourse that prioritizes economic growth. By framing development in terms of economic growth, the discourse becomes a limited set of solutions and perspectives, ignoring the broader political and social complexities that shape development outcomes. As a result, it becomes harder to challenge and frame efficiency and productivity from other standpoints than the purely economic one or prioritize other alternatives. This may treat the symptoms of development challenges rather than addressing the root causes and depoliticizes development by removing it from the realm of political debate and deliberation.

6.4.2 Depoliticization and consensus through technological determinism

The technocratic or techno-managerial approach to development upholds technology as the panacea to solve challenges within the Kenyan agricultural sector. Technology is seen as a neutral artefact which already depoliticizes technology itself adding through the way which consensus is build up around ICT4D. The baselines of what technology means is uphold by experts and powerful stakeholders, that stipulate the notions of efficiency and productivity. this perspective tends to overemphasize the practical and technical features of technology while downplaying the importance of social, cognitive, epistemological, institutional, and cultural processes that play a vital role in the assembly, configuration, and stabilization of ICTs. These discursive mobilizations made by powerful actors lead to a consensus about technology which can ignore underlying political and social factors that contribute to the challenges within the Kenyan agricultural sector. Framing technology as an apolitical solution to development challenges, this perspective can obscure the power dynamics and interests that shape the development process, leading to a narrowing of the debate around development issues and limiting the possibilities of alternative approaches.

6.4.3 Depoliticization through expert knowledge and a top-down approach

As discussed above, ICT4D initiators are regarded as the "experts" that possess the knowledge and are therefore regarded as the ones that articulate the "dominant" or "ultimate truth". In accordance with Foucault (year), knowledge is power. By relying solely on top-down approaches and expert knowledge, alternative perspectives and voices may be excluded from the decision-making process. Expert knowledge, which is deeply engrained in the development discourse, will a seek for expert knowledge instead of other alternative knowledges since it is seen is as the dominant or ultimate truth in the development discourse, and is therefore privileged over alternative knowledges. This over reliance on top-down expert knowledge can lead to the exclusion of local knowledge or indigenous Kenyan knowledge within the development process, which can lead to a depoliticization of the spheres and therefore ICT4D.

These thematic patterns are so deeply intertwined and embedded in Modern developmental discourses that it is hard to challenge or break off the consensual build up around them. There is consensus on the need of each of these, and they also reinforce one another. Further intensifying the depoliticizing conditions. These depoliticizing conditions come with dangers, because if there is no debate or contestation on the design and implementation of ICTs this can lead to a generalized and accepted consensus that can be undemocratic. Additionally, depoliticization leaves no room for possibilities to see alternative development trajectories, especially the trajectories of those who are the most disadvantaged and least powerful such as small-scale farmers. ICT4D can therefore treat the symptoms but not the actual causes of challenges which can create or reinforce power asymmetries in the agricultural sector.

7. Conclusion

This study revealed the ongoing power dynamics through discursive mobilizations in through which ICT4D policies are articulated at different scales and their related impacts to their recipients in the context of the Kenyan agricultural sector. By engaging in qualitative and secondary research, more specifically, with Fairclough's three-dimensional framework, this thesis added to the scholarly debates surrounding ICT4D as well as Modernization theory by unpacking and critically analyzing discourses as well as power dynamics embedded in the case at hand. It provided in-depth insights into how ICT4D initiatives through the lens of Modernization theory and provides an alternative reading which intends to re-politicize the underlying power dynamics that ICTs carry.

In the last decades, Kenya's agricultural sector has faced different challenges which have hindered its potential and had severe repercussions on its population and development and population, especially upon the most vulnerable. In this context, since the beginning of the 90s the Kenyan government together with international development organizations – as well as the private sector – have sought to tackle these challenges by Modernizing Kenya's agricultural sector through the introducing different technologies. Amongst these were ICT4D which have brought about potential benefits for the agricultural sector according to some studies (Kamau & Nyangena, 2020). However, these have been criticized by different Modernization theorists who claim that these can overlook complex contextual needs and realities based on interrelating and intersectional social relations, such as class, gender, ethnicity, and religion. This can lead among many other things to the failure of ICT4D initiatives but more importantly, overlooking these factors can potentially create or reinforce power asymmetries.

Therefore, this research focused on the importance of critically examining and deconstructing the way in which ICT4D are framed and discursively mobilized within the dominant development agenda and thereby uncover inherent power relations and ideologies within the Kenyan agricultural sector. Such an analysis can provide in-depth insights as to why certain initiatives fail, which can in turn serve as a first step to assess and reconceptualize the ways in which ICT4D are designed and implemented in the context of the Kenyan agricultural sector.

The main research question behind this research was: *"How do the development discourses surrounding the planned ICT4D projects in Kenya construct and reinforce power relations and implicit ideological assumptions?".* In order to answer this question this research analyzed different documents related to ICT4D in the Kenyan agricultural sector through the lens of Modernization theory as well as critical discourse analysis. In doing so, it revealed existing power dynamics as well as the discursive processes embedded in the development approach behind certain ICT4D initiatives.

This study has identified four recurring thematic patterns that are deeply intertwined and often reinforce one another. These patterns are the emphasis on productivity and efficiency discourse, technological determinism, expert knowledge and top-down approaches to development, and

depoliticization through consensus building. These patterns reflect a Modernization development approach with a broadly neo-liberalizing logic that tends to ignore the broader political and social complexities that shape development outcomes.

Departing from the assertion that power relations are embedded in technologies, this thesis showed that although ICTs are seen as tools that can solve challenges that the Kenyan agricultural sector faces, they run the risk of being top-down, articulate technological determinism embedded in expert knowledge which depoliticizes the ICT4D initiatives. Moreover, these technologies create dependencies or inequalities by not taking into account cultural contexts, needs, values, identities, realities among others which is in line with Escobar (1995) who criticizes development of ignoring diversity of other types of development besides the dominant one.

Furthermore, this research argues that the emphasis on productivity and efficiency discourse has created a dependency on external knowledge, expertise, and resources, limiting the potential for local agency and empowerment. The technological determinism embedded in ICT4D initiatives has assumed that technology will automatically bring about development and progress, without fully considering cultural and historical factors that shape the Kenyan agricultural sector. The expert knowledge and top-down approach to development run the risk of eliminating alternative perspectives and voices, resulting in a depoliticization of the spheres and therefore ICT4D.

This research further claims that the previous three thematic patterns are part of a broader trend within sustainable development that a growing group of political philosophers define as depoliticization (Swyngedouw, 2014; Zizek, 2000). The dangers of depoliticization are significant, as it can lead to a generalized and accepted consensus that can be undemocratic. It also reinforces power asymmetries in the Kenyan agricultural sector and treat the symptoms but not the actual causes of challenges. Additionally, depoliticization leaves no room for possibilities to see alternative development trajectories, especially the trajectories of those who are the most disadvantaged and least powerful, such as small-scale farmers. In a way it can be argued that embedded in Modern approaches to development are powerful discourses – such as those surrounding efficiency, productivity, and technological determinism – which unequivocally build consensus around a particular trajectory by removing disagreement and discontentment from established spheres of political and public engagement. Given the power inherent in these discourses It seems almost impossible to challenge them and promote an alternative or different developmental future.

Powerful stakeholders that aim to implement "sustainable" ICT4D initiatives should be more sensitive to power relations and ideologies inherent in their initiatives. Whilst, scholars in the development field should be cognizant of the powerful discourses embedded in Modern development approaches that can depoliticize development itself. I order for ICT4D initiatives to be sustainable, it must step away from falling under the trap of aligning with discourses shaped by powerful actors that underly ICT4D initiatives. Technology should be understood as a technical practice rather than something that is politically free or a neutral artefact. Understanding ICT4D is all about understanding the knowledge, skills, routines, stakeholders and practices of its practitioners, both individually and in coordination with others. There is a need for the recognition of the realities, practices, knowledge and needs of all types of Kenyan farmers, including locally, rooted, informal, practical, and experimental knowledge within the ICT4D field. Including this recognition will allow for a completer and integrated picture of the role of ICTs in development and develops a situational awareness of ICT in different contexts.

7.1 Limitations and future research

This study provides valuable insights into the ICT4D discourse within the Kenyan agricultural sector. However, there are several limitations to consider. Firstly, the study did not include all the dynamics that are going on between all stakeholders, which could impact the findings. The perspectives and the views of the local farmers are not included in this research, which makes it harder to determine the actual impact of the ICT4D initiatives on the ground. While the study provides valuable insights into the power dynamics and implicit ideologies in the implementation of ICT4D initiatives in the Kenyan agricultural sector, the exclusion of the views of certain stakeholders such as the Kenyan farmers may not grasp a deeper overview and analysis of how these power dynamics play out on the ground. Secondly, the study relied on Fairclough's three-dimensional framework, from a Modernization theory perspective, which may not capture alternative perspectives or theories on language and power relations. Furthermore, this study may not have captured all the relevant ICT4D initiatives, which could limit the understanding of the dynamics at play. The inclusion of more initiatives as well as stakeholder dependencies and dynamics could provide a more nuanced understanding. In addition, the study was conducted within a specific timeframe and context, which means that the findings may not be generalizable. Future research is needed to confirm the findings and understand how the ICT4D discourse within the Kenyan agricultural sector evolves over time.

To gain a more nuanced understanding of ICT4D initiatives implemented in the Kenyan agricultural sector, and to examine the power dynamics further, it would be beneficial to conduct further qualitative research. This research could focus on exploring the perspectives of farmers who have been involved in the implementation of these ICT4D projects. One potential approach for conducting this research is to use questionnaires and conduct field research on the ground to include the views of the ones these ICTs are designed for.

Another possible future research could examine power dynamics that are going on a broader scale whereby the impact of new emerging world powers on the Kenyan agricultural sector - such as China, India and Brazil - could be examined. This could deepen the understanding of the power dynamics that are at play within the Kenyan agricultural sector.

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10. List of figures

Figure 1: Fairclough's Three-Dimensional Model of CDA (Fairclough, 1995)

11. Annex

Annex 1: Analyzed documents

	Initiative	Provided by	Year	Access
1	Accelerate Program	AgriFin	2013	https://www.mercycorps.org/agrifin
2	Green Innovation Centers for the Agriculture and Food Sector	GIZ	2017	https://www.giz.de/en/worldwide/18446. html
3	Digital Innovation Strategy for Agrifood Systems in Africa	FAO	2020	http://www.fao.org/3/ca9316en/CA9316 EN.pdf
4	Enhancing access to Kenya's agricultural sciences and technology (AS&T) information in institutional and KAINet e-repositories	KAINET	2016	https://digitalcommons.unl.edu/libphilpra c/1405/
5	National Information, Communications and Technology (ICT) Policy	Kenyan Ministry of Information, Communicatio ns and Technology	2019	https://ict.go.ke/publications/national- ict-policy-2019/
6	Digital solutions for agricultural value chains in Kenya: The role of private- sector actors	UNEP	2021	https://unepdtu.org/publications/digital- solutions-for-agricultural-value-chains-in- kenya-the-role-of-private-sector-actors/
7	Exploring the promise of information and communication technologies for women farmers in Kenya	USAID	2013	https://pdf.usaid.gov/pdf_docs/PA00KVFN. pdf