Technology as an Enabler for Smallholder Inclusion and European Union Deforestation Free Regulation (EUDR)

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Abstract

Smallholder farmers, who contribute significantly to global agricultural production, face challenges in complying with the EUDR's regulation, potentially leading to their exclusion from the EU market and undermining the regulation's effectiveness in reducing deforestation. The regulation aims to impose deliberate measures that raise costs and create obstacles for Malaysia's palm oil sector, which encompasses over 450,000 smallholders. These outcomes would lead to an escalation in poverty rates, decreased household incomes, and adverse impacts on rural communities in Malaysia, contradicting the European Union's commitments as outlined in the United Nations Sustainable Development Goals (UN SDGs).

Thus, technology is explored as a facilitator for smallholder inclusion and EUDR compliance, offering readily available solutions. The EU should support technology companies with domain expertise and allocate funds for the development of a free digital supply chain platform tailored to smallholders' needs, mapping the entire supply chain and ensuring EUDR compliance. This research further emphasises the significant role of smallholders in the palm oil industry and their ability to comply with EUDR regulations, crucial for achieving zero deforestation and promoting nature-positive outcomes. By incentivising nature-positive practices and investing in smallholder capacity building, a mutually beneficial scenario can be created for smallholders and the environment in the long term.

Keywords: technology, smallholder inclusion, European Union Deforestation Free Regulation (EUDR), sustainable agriculture, compliance, deforestation.

INTRODUCTION

Smallholder farmers, who are predominantly involved in the production of agricultural commodities such as palm oil, make significant contributions to global food security and rural livelihoods (Ogahara et al., 2022). However, the implementation of the EUDR presents challenges for smallholders in meeting the regulatory requirements. The EUDR aims to reduce deforestation associated with the production of commodities like palm oil, but its stringent measures can potentially exclude smallholders from the EU market, leading to adverse socio-economic impacts and undermining the regulation's intended goals.

To address these challenges, it is crucial to explore how technology can serve as an enabler for smallholder inclusion and facilitate compliance with the EUDR. Technology offers innovative solutions that can enhance transparency, traceability, and efficiency in supply chains, thereby supporting smallholders in meeting the sustainability criteria set forth by the regulation (Ayan et al., 2022). By leveraging technology, smallholders can demonstrate their commitment to sustainable practices, ensuring their continued access to the EU market, and contributing to the reduction of deforestation.

CASE OBJECTIVE

The objective of this case study is to evaluate the market potential of DIBIZ Malaysia Sdn Bhd and its digital supply chain platform to support smallholder farmers in meeting the requirements of the

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European Union Deforestation Free Regulation (EUDR). DIBIZ aims to leverage technology to ensure the inclusion of smallholders in the palm oil industry and to promote sustainable practices. By providing real-time visibility, traceability, and transparency throughout the supply chain, the platform enables smallholders to document and demonstrate their adherence to EUDR's sustainable practices.

This case study critically assesses DIBIZ's market potential based on its technology, scalability, cost-effectiveness, and user-friendliness for smallholder farmers. It also evaluates the platform's compatibility with EUDR requirements and its potential to address the challenges faced by smallholders in achieving compliance. By examining these aspects, this study aims to provide insights and recommendations on leveraging technology to facilitate smallholder inclusion and support their adherence to EUDR.

This case study also seeks to highlight the significant role of technology in promoting sustainability and inclusivity in the palm oil industry. By supporting smallholder farmers in their efforts to comply with the EUDR, DIBIZ's digital supply chain platform can contribute to reducing deforestation and achieving the United Nations Sustainable Development Goals (UN SDGs) related to responsible consumption and production.

INTRODUCTION TO DIBIZ

Founded by Mr. Unnikrishnan R Unnithan and Srinivasan Malarampath. In 2019, DIBIZ Malaysia Sdn Bhd is the world's first online marketplace for certified sustainable palm oil (CSPO).

DIBIZ's aim has been to disrupt traditional supply chain models by allowing users to carry out digital business through a collaborative supply chain.

DIBIZ's trading platform "Transparent Marketplace" plays a central role by linking palm oil buyers and sellers at every stage of the supply chain. It has the additional measures for traceability to ensure the industry's commitment to "No Deforestation, No Peat and No Exploitation."

Its online marketplace offers a new way to search and identify suppliers and connect them with ideal buyers. Users can rely on our marketplace to source best grade and certified products in the market and establish new relationships.

DIBIZ is dedicated to users who struggle to find and source authentic certified and sustainable products. They can find verified suppliers and buyers on a global scale and start interacting with them, capture all trade related documents & communications, and intelligently track them.

Its modern and agile marketplace allows users to move away from cluttered emails and chats; and replaces them with process automation and digital tools to improve human capital efficiency (*DIBIZ,* 2022).

THE COMPANY DIBIZ'S MARKET POTENTIAL

Dibiz, a technology company specialising in agricultural supply chain management, possesses significant market potential in supporting smallholder farmers, particularly in the palm oil industry (*DIBIZ,* 2022). The company's digital supply chain platform offers a comprehensive solution that connects various stakeholders, including smallholders, processors, traders, and buyers, in a streamlined and efficient manner (*DIBIZ,* 2022).

DIBIZ's platform, specifically tailored for the palm oil industry, provides smallholders with the tools they need to effectively manage their supply chain from cultivation to processing and distribution (Rainforest Alliance,2022).

By utilising DIBIZ's digital supply chain platform, smallholders can enhance traceability, optimize processes, and improve overall supply chain efficiency. The platform's real-time visibility and data analytics capabilities enable smallholders to make informed decisions, identify areas for improvement, and enhance the sustainability of their operations.

Furthermore, DIBIZ's platform is designed to align with the specific requirements of the palm oil industry, including EUDR compliance. This ensures that smallholders can accurately record and track their sustainable practices, contributing to their inclusion in the palm oil supply chain and ensuring continued access to the EU market. By empowering smallholders and promoting sustainability, DIBIZ plays a vital role in supporting the growth and development of the palm oil industry.

DIBIZ'S COMPLIANCE WITH EUDR

DIBIZ's digital supply chain platform aligns with the requirements of the European Union's Deforestation Free Regulation (EUDR) by offering a transparent and auditable system for tracking the origin and sustainability of palm oil products. Smallholders can record their production practices, such as land use and fertilizer application, on the platform, ensuring compliance with the EUDR regulations (The Sun Daily, 2023). The use of blockchain technology ensures data integrity and provides verifiable evidence for sustainable practices.

DIBIZ's digital supply chain platform provides a transparent and auditable system for tracking the origin and sustainability of palm oil products, aligned with the requirements of the EUDR (*DIBIZ*, 2022).

The use of blockchain technology within DIBIZ's platform ensures data integrity and transparency. A blockchain is a decentralised and tamper-resistant ledger that enhances trust and transparency throughout the supply chain. The data recorded on the blockchain cannot be easily altered or manipulated, providing verifiable evidence of sustainable practices for EUDR compliance. (KPMG,2023)

The traceability enabled by DIBIZ's platform, supported by blockchain technology, allows the tracking of palm oil products from their origin to their final destination. Every step of the supply chain, including smallholder farms, processing facilities, and distribution centers, can be traced and verified. This level of traceability aligns with the EUDR's goal of ensuring sustainable sourcing and providing assurance to both buyers and consumers (Chain Reaction Reserach,2023).

DIBIZ SITUATION ANALYSIS

Conducting a comprehensive situation analysis is crucial for assessing the potential impact of Dibiz's digital supply chain platform on smallholder inclusion and compliance with the European Union Deforestation Free Regulation (EUDR). Smallholders in the palm oil industry often face various socioeconomic challenges, including limited access to markets, financial constraints, and inadequate resources.

DIBIZ's technology has the potential to bridge these gaps and empower smallholders. The platform is designed as a user-friendly interface that addresses the specific needs and capabilities of smallholder farmers. By simplifying complex processes and offering intuitive features, DIBIZ's platform can enhance smallholders' ability to navigate the supply chain and meet the EUDR requirements. This user-centric approach is critical for ensuring smallholder inclusion and active participation in the palm oil industry.

In addition to addressing the challenges faced by smallholders, DIBIZ's platform offers opportunities to enhance market access and financial sustainability. By facilitating real-time visibility and traceability, the platform can improve smallholders' ability to demonstrate the sustainability and origin of their palm

oil products, thereby increasing their appeal to buyers and consumers who prioritise responsibly sourced commodities. This enhanced market access can contribute to smallholders' socioeconomic well-being and help them overcome poverty and income disparities (RSPO,2022).

However, it is important to consider potential barriers to technology adoption among smallholders. Factors such as limited digital literacy and access to technology infrastructure may pose challenges to the widespread adoption and effective utilisation of DIBIZ's platform. Addressing these barriers through targeted training programs, capacity-building initiatives, and improving digital connectivity in rural areas is essential to ensure the successful implementation and impact of DIBIZ's technology among smallholders.

By conducting a thorough situation analysis that considers the socioeconomic context, technological readiness, and challenges faced by smallholders, it becomes possible to design tailored strategies and interventions that maximise the potential benefits of Dibiz's platform for smallholder inclusion and EUDR compliance.

DIBIZ SWOT ANALYSIS

By considering these strengths, weaknesses, opportunities, and threats, DIBIZ can strategically navigate the market, capitalise on its strengths, address weaknesses, seize opportunities, and mitigate threats to maximise its impact on smallholder inclusion and EUDR.

Strengths:

- Technological expertise in agricultural supply chain management:
    - DIBIZ possesses strong technical capabilities in developing and implementing digital solutions for supply chain management in the palm oil industry. This expertise gives them a competitive advantage in delivering innovative and tailored solutions.
- Comprehensive digital supply chain platform:
    - DIBIZ's platform offers real-time visibility, traceability, and transparency throughout the palm oil supply chain. This comprehensive solution enables smallholders to effectively manage their operations, comply with regulatory requirements, and build trust among stakeholders.
- Potential to drive positive changes:
    - DIBIZ's platform has the potential to drive positive changes in the palm oil industry by promoting sustainable practices, enhancing smallholder inclusion, and fostering collaboration among stakeholders.

Weaknesses:

- Limited market penetration and awareness:
    - DIBIZ may face challenges in penetrating the market and raising awareness about its solutions, especially among smallholder farmers who may have limited exposure to technology adoption.

- Resistance to change and technological adoption:
    - Smallholders may face challenges in embracing new technologies and adapting to digital platforms. Overcoming resistance to change and providing adequate support and training will be essential for successful adoption of Dibiz's platform.
- Potential competition from others:
    - Duplication of similar supply chain solutions may pose a challenge for DIBIZ in terms of market share and differentiation.

Opportunities:

- Expansion of partnerships:
    - DIBIZ can explore opportunities to establish strategic partnerships with smallholder associations, processors, traders, and buyers. Collaborating with key stakeholders can enhance market reach, improve adoption rates, and strengthen the platform's value proposition.
- Access to funding support:
    - Accessing funding support for research and development, scaling up operations, and reaching a broader base of smallholders can enable DIBIZ to expand its market presence and offer its solutions to a larger number of smallholders.
- Capitalising on the increasing demand for sustainable palm oil:
    - DIBIZ can leverage the growing demand for sustainable palm oil by highlighting the platform's capabilities in supporting smallholders to comply with sustainability standards, meeting market requirements, and accessing premium markets.

Threats:

- Competition:
    - DIBIZ may face competition from new players in the market who offer similar digital supply chain solutions. Differentiating its platform and demonstrating its unique value proposition will be crucial to overcoming this threat.
- Regulatory uncertainties:
    - The evolving nature of sustainability standards and policies, including the EUDR, may pose uncertainties and challenges for DIBIZ. Staying updated with regulatory developments and adapting the platform accordingly will be essential to ensure compliance and meet market demands.

HUMAN CAPITAL CHALLENGE

The successful implementation of DIBIZ's digital supply chain platform relies on effective utilisation of human capital. While the technology itself offers immense potential, building the necessary capacity among smallholders and other stakeholders is essential for its adoption and long-term sustainability.

One of the main challenges is ensuring that smallholders have the knowledge and skills needed to effectively use digital supply chain platforms. Many smallholders may have limited experience with technology and may require training programs and technical support to navigate the platform and interpret the data it provides (Fabregas et al., 2022). Providing user-friendly interfaces, clear instructions, and access to technical assistance can empower smallholders to embrace technology and overcome potential barriers to adoption.

Capacity-building initiatives should not be limited to smallholders. Other stakeholders also play a crucial role in the implementation and success of the platform. Training programs and knowledge-sharing initiatives should be designed to enhance their understanding of the platform's benefits, promote collaboration, and facilitate the integration of the platform into existing processes.

Furthermore, ongoing technical support and assistance are essential for addressing any challenges or issues that may arise during the implementation and use of the platform. Establishing dedicated support channels, including helplines, online forums, and on-site visits, can ensure that smallholders and stakeholders have access to necessary guidance and troubleshooting when needed.

In addition to that, knowledge-sharing initiatives can facilitate the exchange of best practices and lessons learned between smallholders and other stakeholders. This can foster a collaborative environment in which experiences and success stories are shared, accelerating the adoption and impact of digital supply chain platforms.

By addressing the human capital challenge through training programs, technical support, and knowledge-sharing initiatives, DIBIZ can empower smallholders and stakeholders to use the digital supply chain platform effectively. This, in turn, will contribute to the platform's long-term sustainability and success, facilitating smallholder inclusion and compliance with the EUDR.

ECONOMIC AND ENVIRONMENTAL BENEFITS

Implementing DIBIZ's digital supply chain platform can yield substantial economic and environmental benefits for smallholder farmers and the palm oil industry. The platform enhances smallholder inclusion by providing access to a broader market and allowing them to demonstrate adherence to sustainable practices, leading to poverty reduction and increased household income. The platform's transparency and traceability features play a crucial role in promoting environmental sustainability by combating illegal activities and ensuring palm oil production aligns with nature-positive outcomes. Additionally, the platform's traceability capabilities enable targeted interventions to address environmental challenges, improving resource management and overall efficiency in the industry. Overall, DIBIZ's platform fosters a responsible and nature-positive palm oil industry, benefiting smallholders, the palm oil sector, and the environment (Agyekumhene et al., 2020).

POLICY RECOMMENDATIONS

To maximise technology's impact on smallholder inclusion and EUDR compliance, several policy recommendations should be considered. The EU should provide funding and resources to support technology companies like DIBIZ, facilitating the development of tailored digital supply chain platforms for smallholders. Partnerships between the EU, palm oil-producing countries, and stakeholders should be fostered to facilitate capacity-building programs and knowledge-sharing. Policy measures, such as financial incentives for sustainable practices and technology adoption, should be implemented. Clear policy frameworks aligning with international sustainability standards should be established to ensure regulatory clarity. By implementing these recommendations, the EU can create an enabling environment for technology adoption, promote smallholder inclusion, and enhance compliance with the EUDR, contributing to deforestation reduction and sustainable development goals.

CONCLUSION

In conclusion, DIBIZ's digital supply chain platform holds significant potential for facilitating smallholder inclusion and promoting compliance with the EUDR. By providing transparency and traceability, DIBIZ empowers smallholder farmers to meet regulatory requirements and maintain their access to the EU market. However, addressing human capital challenges and implementing supportive policies are crucial for the successful adoption and utilisation of technology. Through capacity building, partnerships, and policy support, smallholders can be empowered to embrace sustainable practices, comply with regulations, and contribute to the palm oil industry.

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