Journal of Advanced Research in Computer Graphics and Multimedia Technology
Volume 2, Issue 1 - 2020, Pg. No. 1-4
Peer Reviewed Journal

Article

A Review on Application of Mobile Technology To Initiate Sustainability in Agriculture

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How to cite this article:
Chauhan P, Khan M. A Review on Application of Mobile Technology To Initiate Sustainability in Agriculture. *J Adv Res Comp Graph Multim Tech* 2020; 2(1): 1-4.

Date of Submission: 2020-02-12
Date of Acceptance: 2020-03-20

A B S T R A C T

An agriculture companies must prioritize supply chain sustainability due to uncommon raw materials and ecosystem. Numerous firms influence info management systems to decrease reserve usage and improvise value chain sustainability. This paper explains the main scientific growths and their application in developing markets in the entire the world. Our study demonstrations that with the evolution of 3G mobile networks worldwide, chances occur to incentivize companies and NGOs to use expertise solutions to in cooperation to create financial value and address sustainability tasks.

Keywords: Sustainability, Agriculture, Mobile Technology

Introduction

The consumers, governments and communities all over the world are seeing for corporations to turn out to be leaders and take concern about the occurring throughout their value chains.

Even though numerous companies are taking steps to talk on these difficulties, there remnants a massive opportunity to generate advanced solutions over the usage of technology.

With the beginning of 3G mobile and other knowhow structures in the emerging world, a prospect occurs for companies to influence the use of comparatively inexpensive information obtaining management systems to improved monitor and interfere in their supply chains, even among 2nd and 3rd tier suppliers.[1]

Calculation of Agriculture's Impact on Sustainability in Evolving Markets

The first phase complicated identifying sustainability risks and social risks well-informed by agricultural depositors in growing markets. We presented primary research with agricultural investors in emerging markets and secondary research using online sources.

The main goal was to together comprehend the agriculture-related sustainability contests that occurred in emerging markets and classifying openings for the reason of existence.

The team's early inclination was to investigation precise agricultural value chains to measure sustainability risks and other traits. Nevertheless, subsequently widespread research we initiate that numerous value chains were facing similar risks. We consequently attentive on taking a more all-inclusive method during this phase.

Primary and Secondary Research on Developing Mobile Technologies in Agriculture

Throughout this phase, our team investigated ongoing mobile technology solutions and recognized current performs that are both operative and unproductive from sustainability and a value-creation perception.

We endeavored to dispersed knowledges that would yield value for both large multi-nationals and smallholder farmers.

We similarly engrossed on skills that had the finest casual of presence rolled out in evolving markets.

We directed this investigation over both prime and secondary sources and gauged the influence on developing markets complete supplementary secondary research.

The references for enhanced employment of skills that development sustainability in agricultural supply chains

The concluding phase of the paper intricate merging insights from the first two phases to yield references for agricultural stakeholders in developing markets.

We make an effort to influence our multidisciplinary viewpoint to offer commendations that will preferably drive positive change and assistance multi- nationals, NGOs, smallholder farmers, local governments and others to discover shared goals and invest in skills that will determination sustainability in the global agriculture manufacturing.

Overview of The Global Agriculture Sustainability Challenges

There are plentiful sustainability contests that consequence from industrial agriculture. Agriculture primes to pollution, nitrification, enlarged emissions, pollution, soil degradation, and water lessening. The world resources organization table below validates the influence that agriculture has on greenhouse gas emissions, earth's landmass, and water removal. The good news is that many of these tasks can be addressed over agricultural innovations.[1]

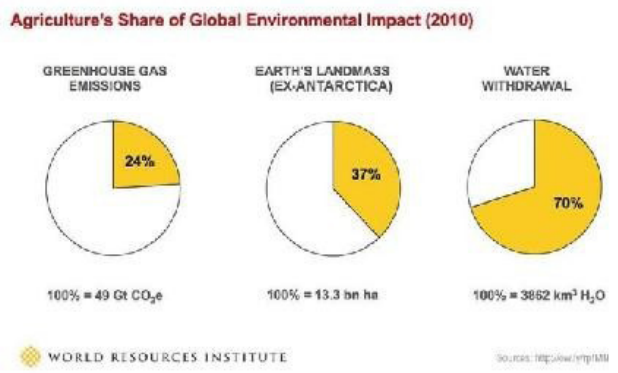

Figure 1.The Global Agriculture Industry's Impact on Sustainability is Immense[1]

Water is turning scarcer in the deprived parts of the world and agriculture accounts for 70% of water usage about the world.[2] With the challenge of growing populations and finding conducts to forage the rising populations there are upright to essential to be inventions with respects to dipping water usage in agriculture. The utmost way to interfere and decrease water usage is to diminish water waste. Conferring to the WWF agriculture wastes 60% or 1,500 trillion liters, of the 2,500 trillion liters of water it uses each year.[3] The WWF cites that the three chief details for water waste are "dripping irrigation systems, extravagant field application approaches, cultivation of thirsty crops not well-matched to the atmosphere."[4] These three extents of waste offer an prospect for development. Though, not only does agriculture use a share of water but it also contaminates bodies of water finished nitrification, the track off of phosphate and nitrogen, which are rudiments that are intensely used in agronomy. The nitrification of bodies of water leads to hypoxic zones also recognized as "dead zones", which zones that lack oxygen and consequence in the assassination off of fish populations

The Agriculture Industry's Impact on Sustainability In Emerging Markets

For evolving market countries, agriculture- correlated sustainability tests are often uniform extra ostensible and have a larger impact on society than in industrialized nations. Here are numerous drivers for this difference, from a lack of infrastructure to the shortage of methodological knowhow in more progressive undeveloped techniques. In totaling, government regulations that indorse sustainability in agriculture are not as common in these countries as the primary goal is often to produce enough food as professionally as conceivable to feed a fast-growing population.

The differences between agricultural practices in developed markets, such as the United States, and emerging markets, such as Sub-Saharan Africa, are stark. In fact, "one third of humanity is fed through an estimated 500 million smallholder farms [and in] Asia and sub-Saharan Africa the dependence is even higher, where small farms produce about 80% of the food consumed."10 On the other hand, the agriculture industry in the United States has undergone massive consolidation as the number of farms has decreased by over 66% in the past 50 years.11 This development was primarily driven by the rapid introduction of new farming technology and techniques, often termed the "Green Revolution.

Technology – An Opportunity To Drive Sustainability in Agriculture In Emerging Markets

Opportunity 1- Increased Connectivity Resulting from the Growth of the Global ICT Industry

There are a amount of explanations to why ICT advancements make available is such a great opportunity to energy modernization in agriculture in developing markets. One primary reason is that these markets continue to consist of a very large number of players; as discoursed above

500 million smallholder farms feed over 1/3 of the entire human population. The dispersed structure of agriculture in emerging markets has complete it problematic to drive innovation, but one of the promises of ICT is that it will progress connectivity and info flows for smallholder farmers and collectives. But this is presumptuous that ICT will be extensive in these emerging market countries, and particularly in rural regions of these countries where most smallholder farmers activate different markets during the world, which is speedily cumulative each year.[3]

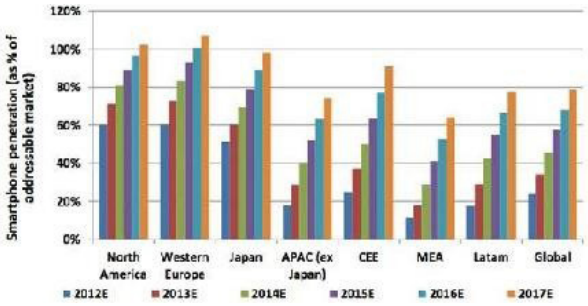

Figure 2. Smartphone Penetration Trends by Regional Market

Opportunity 2 – Shifting Consumer Preferences in Developed Markets are Driving Companies to Prioritize Sustainability in their Agricultural Value Chains throughout the World

Great agricultural companies necessitate financial explanation for practically any large investments they kind in their supply chains. The same argument goes for driving sustainability among their producers in emerging markets. Providentially, consumer favorites are rapidly shifting when it originates to how agricultural supplies are obtained from evolving countries. A GMA/Deloitte review of grocery consumers presented that "fifty-four percent of shoppers questioned reflect sustainability to be one of their decision-making factors and are 'Leaning Green'." At the similar time, request for agricultural commodities and products continues to intensification on a global basis and "from Coca-Cola to Cargill, corporations are tapping into smallholder value chains to protected a sustainable supply for their products."[3]

Overview of Existing and Emerging Mobile Technologies in Agriculture

Cloud computing, combined IT systems, online education, and the production of mobile phones have made it relaxed to distribute agricultural information to farmers in the humblest communities. All of these solutions provide farmers with admittance to education and info on a range of agricultural topics.

The Basic Agricultural Information

The increasing popularity of open source online schooling

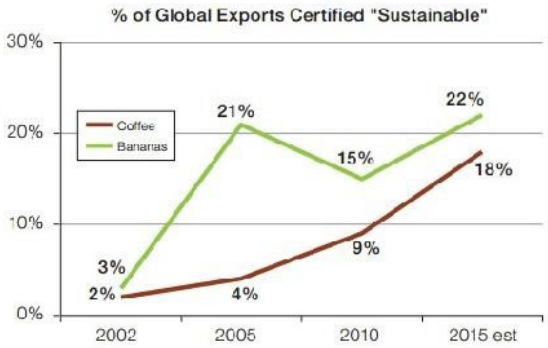

Figure 3.Sustainability Trends in Banana and Coffee Exports from 2002-Present

has bellowed in agriculture. In detail, there is a task force, the Agricultural Learning Repositories Task Force (AgLR-TF), set up that intentions to generate a network of organizations that grow open source agricultural information. Some instances of universities that make accessible online education in agriculture are (NAIP) in India, Indira Gandhi National Open University (IGNOU), Yashwantrao Chavan Maharasthra Open University and in China. The foremost challenges to the propagation of this information is the dearth of interoperability between archives and databases. One of the major efforts to allocate agricultural information, with 591 courses, is in China, and is on a website called Jing Pinke.

Monitoring Climate and Soil Data to Manage Risk

One of the assistances of the connectivity in agricultural is that the info allows farmers to create better land management decisions and elect whether to exploit in insurance. GIS has been castoff to map out the topography of a specific agricultural area and is collective with statistical data in directive to healthier analyze the soil. This info can be used when decisive which plants would fare finest with the certain soil conditions and where the plants should be grown.33

Value-Chain Monitoring and Distribution Systems

One of the numerous assistances of amplified ICT usage in agriculture is in falling transportation, transactional and corruption waste. ICT can also help growth product traceability, disease and pest tracking and storage. It likewise can defend public health by existence able to pinpoint where a product came from and can easily communicate this information to consumers and others in the supply chain. Also, cultivating traceability for large corporations, whose consumers are challenging more ethical and socially friendly business practices, is significant for agricultural producers to contemplate.

Technology Innovations Require the Alignment of Three Critical Resources

Grounded on the research showed by our team, we have

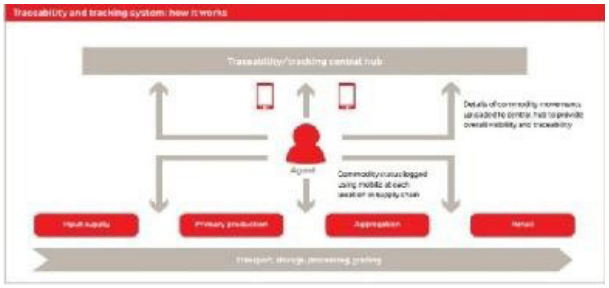

Figure 4.Mobile Technology Provides Traceability and Tracking of Smallholder Farmers

faith in that mobile expertise has the potential to drive sustainability in agricultural value chains in developing markets in a great way. The figure directly above displays the need for an alignment of expertise obtainability, market infrastructure and policies. The environment is promising on all of these fronts. We imagine challenges to remain, but are optimistic about the opportunity for unindustrialized market countries to drive sustainability into their value chains and avoid many of the pitfalls knowledgeable.

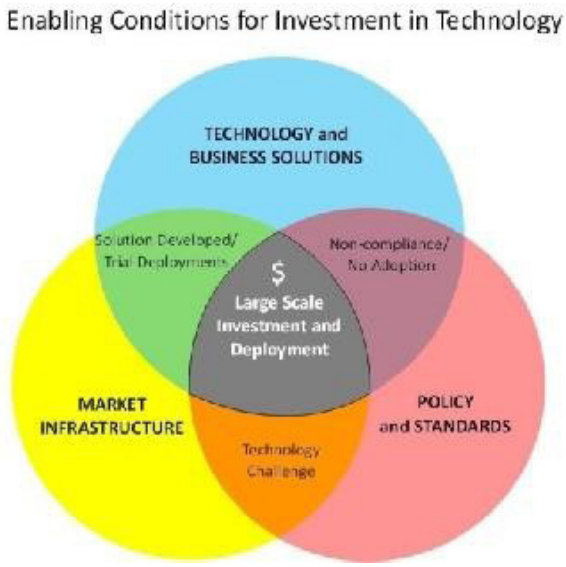

Figure 5.Technology Innovations Require the Alignment of Three Critical Resources

Recommendations

- The private sector corporations would finance in mobile technologies that drive monetary increase and intensification traceability in their stream chains
- The local administrations ought to allow partnerships amongst mobile network operators and private sector companies, NGOs, and smallholder farmers in the agriculture manufacturing.
- The local governments should simplify public-private partnerships to incentivize the adoption of mobile technologies between small holder farmers
- NGOs must safeguard additional Stakeholders stay absorbed on and liable for long-term sustainability goals

Conclusion

Developing markets are well located to deliver a noteworthy helping of the world's agriculture harvests, and particularly export products that are in high request by big multi-nationals. In accumulation, the smallholder farmer regularly plays an essential role in these value chains and must be besieged if sustainability progressions are to be made. Meanwhile large companies are being worried by consumers to make sustainability developments, they must influence ICT and other kinds of mobile technology to advance traceability and offer greater value to their suppliers in developing markets. In addition, NGOs, local governments and other stakeholders (e.g. mobile network operators) must align their inducements to help energy origination on this front. Figure 12 underneath summaries the resources needed in order to drive asset in and the placement of new mobile skills that advance sustainability in agricultural value chains in emerging markets.

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