

The Mediating Role of Third Party Organizations in Adoption of Drying Technology for Tomato products by Manufacturing SMEs in Nigeria

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Abstract

Several agencies of government are established as third party organizations to act as mediators in assisting SMEs within the same industry to make among others, adoption decisions for growth and development. These include Small and Medium Enterprise Development Agency of Nigeria (SMEDAN), National Office of Technology Acquisition and Promotion (NOTAP), Bank of Industry, Export Promotion Council, National Agency of Foods, Drugs Administration and Control (NAFDAC) and several others. Despite these, the challenges of SMEs still persist as it only contributes 25% to employment and 46% to GDP. Mediating role of third party organizations in adoption studies are few in literature and these few cover such roles as training, promotion, facilitating, providing advice and conducting research for growth and development of enterprise. Information is scarce in empirical studies on exact mediating roles these agencies may play on proposed determinants of adoption of drying technology for tomato products by manufacturing SMEs in Nigeria as against current practice of sun-drying by farmers. This is therefore the subject of this study. The findings will provide useful information and guide to would-be entrepreneurs in the sector on what and where to seek assistance in adoption decisions to use industrial drying process for tomato products. The preliminary study adopted a case study survey of 10 notable third party organizations on enterprise development in Nigeria using structured questionnaire on a YES or No answer while data were analysed by the use of descriptive statistics.

Keywords: Mediating role, Third party organization, Adoption of drying technology, Tomato products and Manufacturing SMEs.

Background to the Study

Third Party Agencies which exist as enterprise support Institutions in Nigeria were established to mediate the existence and challenges of Small and Medium Enterprises (SMEs) in order to make them perform satisfactorily in economic development and job creation. Examples are Small and Medium Scale Agency of Nigeria (SMEDAN), Bank of Agriculture (BOA), Nigerian Export Promotion Council (NEPC), Bank of Industries (BOI) and several others.

Despite their existence, the challenges of the SMEs still persist. Okpara (2011) noted the persistence of several factors that still constraint the growth and survival of SMEs and these include; resources, poor management, poor infrastructure, insufficient profits and low demands for products and services. According to Aganga (2013), these challenges culminate into poor performance as SMEs merely contribute 25% to the total employment and 46% to the GDP.

It is even more of greater concern now that the government's transformation agenda 2011-2015 is having a focus on the need to exploit and utilize major agricultural resources and to adopt relevant and appropriate technologies in the processing value-chain with these agencies providing the necessary mediating role. Tomatoes in particular is a major and most important vegetable crop as Nigeria was ranked 13th producer in the World and 2nd in Africa in 2010 (FAO, 2011).

However, up to 50% of harvested tomatoes, get spoilt annually due to absence or poor post-harvest handling systems (Musa Makama, 2006). For instance, sun-drying has been the major method employed by farmers to dry tomato excesses and according to Olaniyi and Akanbi (2010) this is inadequate to develop new market as consumers often demand many of their original characteristics be retained which is only possible in a controlled environment offered by the use of drying technology (Solar system, mechanical devices or combination with pre-treatment and packaging). This therefore calls for indigenous manufacturing SMEs to get involved in dry processing of tomatoes using technology that have to be supported by third party agencies as mediators.

Review of literature

Some determinants to technology adoption are being proposed for adoption of drying technology for tomatoes by SMEs in Nigeria viz: Resources, Information and Communication technology, SMEs innovativeness, SMEs owner characteristics and market development. (Kennedy and Ryland 2003, Zaidee & Beaumont, 2003). It will add to knowledge to know how the proposed determinants are mediated by the role of third party Agencies towards adoption of drying technology for tomato products in Nigeria.

Furthermore, the revised model of Kurnia et al (2006) identified 5 key mediating roles of third party Organizations to influencing organizational characteristics such as; capability, perception, supply chain that eventually form action towards adoption.

Applying the same model on the proposed determinants of adoption would unveil new knowledge on the specific role and extent to which third party organizations could mediate in the circumstance to close the gap in SME action towards adoption of drying technology.

The objective of the study

The use of model to ascertain the specific role of third party agencies to influence or mediate adoption of drying technology for tomatoes by SMEs in Nigeria. The research information would be helpful to would-be-entrepreneurs/investors in the sector on what and where to seek for help to achieve success and to also guide government on interventions required to actualize and take industrial dehydration of tomatoes to the next level.

Statement of the Problem

Several enterprise support agencies of government in Nigeria were established to mediate the challenges of existing SMEs and support the creation of new ones for economic development and job creation. Despite their existence, Okpara (2011) had identified many challenges of

SMEs that constraint their growth and survival, which invariably limit their meaningful contribution to the economy and stifle the creation of new ones. It becomes pertinent therefore to ascertain the role of these agencies especially now that the government transformation agenda 2011-2015 desires to exploit and utilize its abundant agricultural resources through adoption of appropriate and efficient technologies in processing value-chain with these agencies providing vital mediating role.

Tomato in particular, is a major and most important vegetable crop as Nigeria was ranked 13th producer in the world and 2nd in Africa in 2010 (FAO, 2011). Currently, there are over 100 registered tomato processing SMEs (NAFDAC, 2010) and none of them process from fresh indigenous tomatoes but are all engaged in re-packaging tomato paste imported from china (Aminu *et al.*, 2007) thus leaving farmers to use sun-drying for their excesses which according to Oyebanji *et al.*, (2011) produce sub-standard product which is inadequate to develop new market. It thus leaves a gap for study to establish the role of third party agencies in an attempt to produce dried tomatoes at industrial level for global market.

Aim/Objectives

To ascertain the role that third party organizations of government can play in mediating adoption of drying technology by tomato processing SMEs in Nigeria.

Literature Review

Several works of researchers have identified many factors to consider at bridges to technology adoption by SMEs. These include SMEs awareness/knowledge (Kennedy and Hyland, 2003, Setyawawuti *et al.*, 2003) benefits (Hall, 2002, Anckar, 2003, Cabral *et al.*, 2009) usefulness (Suebsin and Gerdsir, 2009), affordability (Kennedy & Hyland, 2003), organizational characteristics (Gbobakbo *et al.*, 2011), innovation factors (Allan *et al.*, 2003, Jaide & Beaumont, 2003) and market development (Naude *et al.*, 2011).

Kurnia *et al.*, (2006) has taken a step further to look at the Mediating Roles of third Party Organization in Efficient Consumer Response (ECR) adoption within the Australian grocery industry in order to stay competitive. The term “mediation” broadly refers to any instance in which a third party helps others reach agreement as it acts as neutral to facilitate the process and guide the parties through the process.

The role of third party organization as external factors is shown in a revised model of ECR adoption (Fig 1) to mediate organization's action in the adoption of ECR. The model uncovers five relevant roles third parties play as mediators in the ECR adoption process and are outlined:

Advisor:

Advise towards solution e.g. standards, adoptions, Educator/Trainer: Through seminars, workshop, internet Promoter: Through advert in trade magazine, prepare generic industry reports and consultancy services.

Facilitator:

Provide physical support (materials, technology, finance, linkages, information)Research & Development: New technologies, best practices, market analysis, cost structures.

The model is important theoretically for understanding the complexities of inter-organizational systems adoption and may therefore be helpful in determining technology adoption by SMEs in products development, introduction, promotion and product replenishment (Kurnia *et al.*, 2006). The critique of the Kurnia theoretical model is in its limited application to ECR adoption in Australian grocery industry and therefore needs to be tested in different condition and environment.

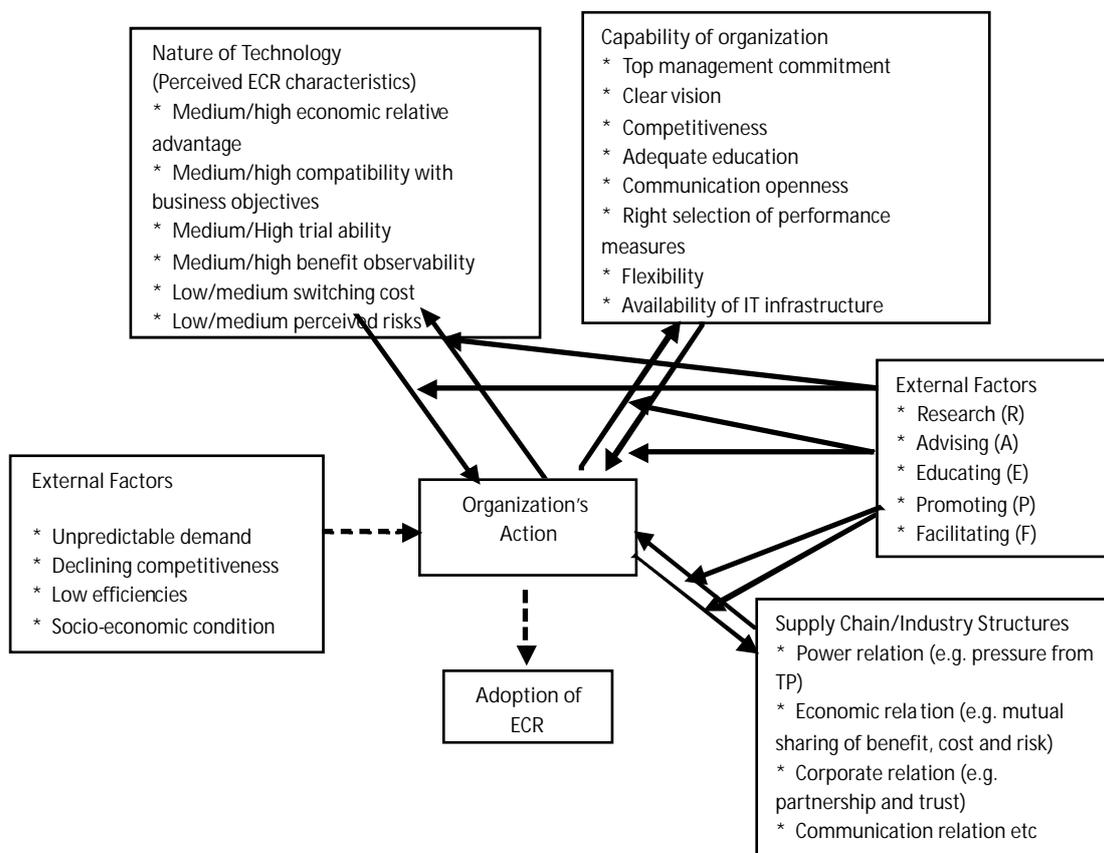


Fig 1: A revised model of ECR adoption including third party organizations as external parties (Kurnia et al., 2006)

Methodology

The preliminary investigation adopted a case study research with a population of 10 notable third party organizations in Abuja, Lagos and Kaduna. They are: Bank of Agriculture (BOA), Bank of Industries (BOI), Central Bank Nigeria (CBN), Small and Medium Enterprise Agency of Nigeria (SMEDAN), National Export-Import Bank (NEXIM-Bank), National Office of Technology Acquisition and Promotion (NOTAP), Export Promotion Council (EPC),

National Agency for Science, Engineering Infrastructure (NASENI), Standard Organisation of Nigeria (SON), Federal Institute of Industrial Research Oshodi, Lagos (FIIRO).

According to Rowley (2014), case study as a research strategy often emerges as an obvious option for students and other new researchers who are seeking to undertake a modest scale research project based on their work place or the comparison of a limited number of organizations. It is a useful tool for the preliminary, exploratory stage of a research project, as a basis for the development of the 'more structured' tools that are necessary in surveys and experiments. Eisenhardt (1989) says that case studies are particularly well suited to new research areas for which existing theory seems inadequate and is complementary to incremental theory building from normal science research.

A structured questionnaire based on revised model of ECR adoption that covers five relevant roles third parties play as mediators in adoption was administered to the Chief Executives of organizations who directed accordingly.

The questionnaire cover 5 parts, each part for the proposed determinant for adoption of drying technology in the vertical column i.e resources, information and communication technology, innovativeness of enterprise, owner/manager of enterprise, and market development. This is followed by the horizontal column that contains the 5-mediating roles i.e. training, promoter, facilitator, advice, research and development with a YES or NO answer under each A 100% response was obtained.

The study made use of descriptive statistics to analyse the responses for identification of specific roles each organization could play in mediating the adoption of drying technology for tomatoes by SMEs in Nigeria.

Presentation of Results

Table 1: % Respondents of third party organizations on mediating roles of the proposed independent variables on drying technology adoption.

Mediating Roles of Third Party Organizations in drying technology adoption					
Proposed Independent variables	Education/Trainings %	Promotion %	Facilitation %	Advice %	Research & Development %
* Resources					
Human Capital	60	40	20	40	20
Finance	30	20	50	40	20
Infrastructure	20	-	10	10	-
Materials	40	20	10	40	10
* ICT	20	10	10	20	20
* Innovativeness of SMEs	30	20	20	20	20
* Owner characteristics	40	40	30	60	20
* Market development	30	50	40	30	20

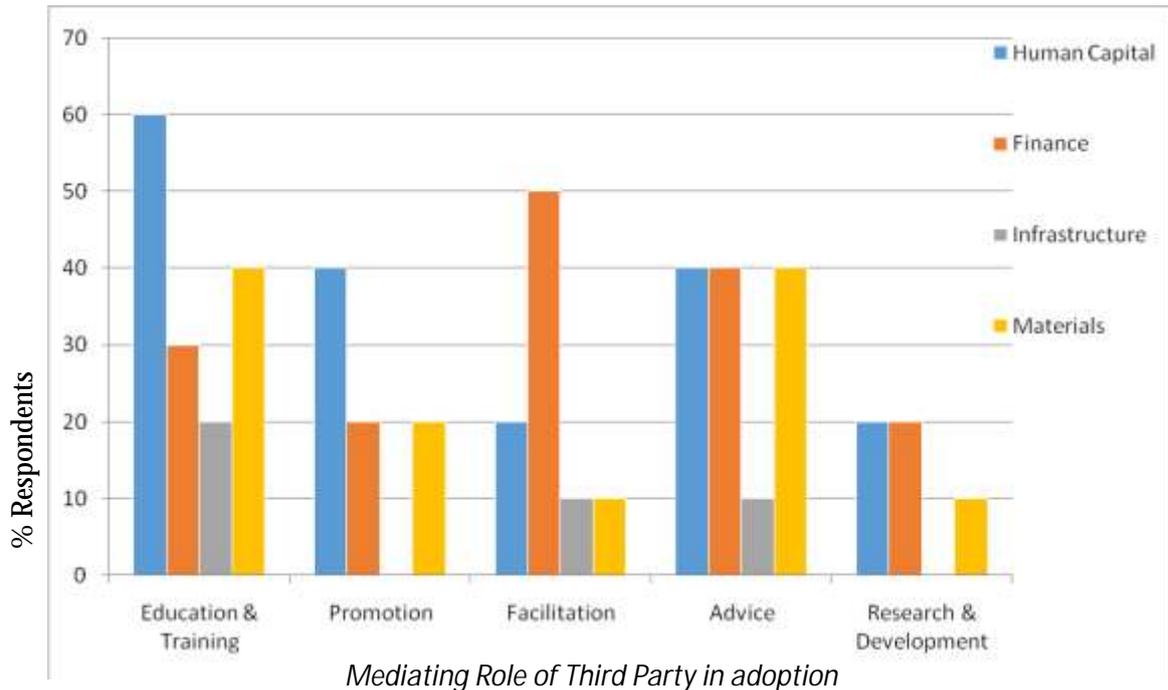


Fig 3: % Respondent of Third Party Organization on Mediating Roles of the Proposed Independent Variables (Resources)

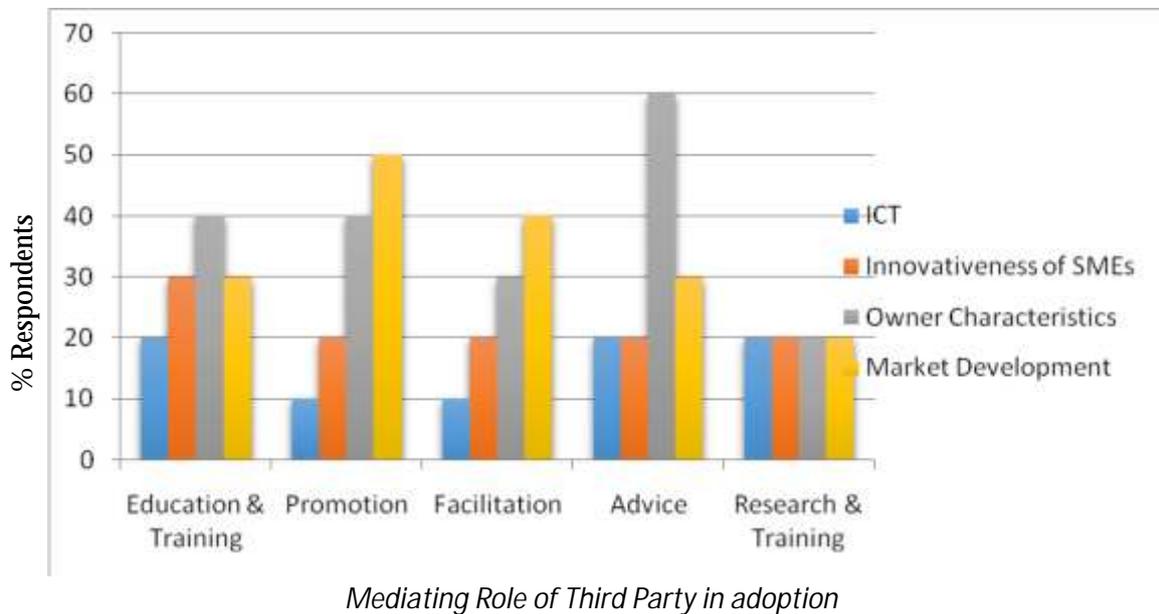


Fig 4: % Respondent of Third Party Organization on Mediating Roles of the Proposed Independent Variables (ICT, Innovativeness of SMEs, Owner Characteristics, Market Development)

Discussion of Results

Mediating roles of third party organizations on resources.

The results (Fig. 3) show that 60% of the agencies can actually train in relevant skill towards adoption of drying technology while 40% can engage in giving advice on materials needed in adoption of drying technology for tomato products. According to Kurnia *et al* (2006), third party organizations can conduct training through seminars, publication and on-line learning sites to encourage adoption especially on benefits while advice can be in form of adoption of international standards to stay in harmony with international business practices.

Mediating roles on factors associated with ICT

Only 20% indicated that they can be involved in training and giving advice on ICT as well as conducting research (Fig. 4).

Mediating roles on innovativeness of SMEs

In Fig. 4, 30% indicated they play role in training of SMEs to implement adoption, while 20% can assist in promotion, facilitating, advice and research & development respectively. Further oral clarification also revealed that some third party organizations can actually go into partnership arrangement with private concern through establishing pilot or model plants for the purpose of industrial manufacture of dehydrated tomatoes. Kurnia *et al* (2006) reveals research and development activities through partnership arrangement ensure rapid development of new technologies for rapid adoption.

Mediating role on owner characteristics (perception)

Results (Fig. 4) indicate that 40% can organize training to improve the perception of SMEs owners towards adoption, 40% can help to promoting adoption, while 60% can give advice, and 30% can actually facilitate owners on adoption. As facilitators, Kurnia *et al* (2006) identified the role in providing physical facilities, smooth running of enterprise for start-up and development to improve perception on adoption.

Mediating role on market development

The results (Fig. 4) show that 30% of agencies can organize training on market development for product, 50% can promote relevant market, while 40% can facilitate market for the product and 30% can advise on it. Kurnia *et al* (2006) relates promotion to advertisement, newsletter, websites, and consultancy services for useful industry information. It also includes conduct of market research to understanding cost structures and best practice initiatives.

Conclusion

The investigation has shown that up to 60% of third party organizations can mediate to varying levels of the proposed determinants for adoption of drying technology for tomato products by SMEs in Nigeria while playing such roles as organizing training for relevant skill, facilitating finance, engage in promotion through providing relevant information documents and can advise on many areas that could determine adoption of drying technology for tomato products at industrial level as well as to conduct research for continuous improvement. The revelation that some of the third party organizations can go into partnership arrangement may modify further the revised Kurnia model on roles.

Recommendations

- (i) To enhance the identified mediating role, there should be private-public partnership between these agencies and relevant professionals in foods that should mid-wife these adoption process by building, run pilot plant and develop to a full enterprise then dispose to would-be entrepreneurs to manage further as this could improve the risk-taking propensity of investors and install confidence on business start-ups.
- (ii) Government should give incentives in form of tax rebate on import of machineries, promote local research and fabrication on machineries and tools, and introduce policies to reduce importation of competitive products like tomato paste.
- (iii) Trained professionals in the field of entrepreneurship should be recognized to establish consultancy services in this area to link potential investors with the third party agencies for enhanced role since they would be verse in the requirements of these agencies vis-à-vis the need of potential investors.

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