

Waste As Business: Firm Capabilities, Innovations And Growth Of Firms In The Sanitation Sub-Sector

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Abstract

This study examined the relationship between firm capabilities, innovations and growth of firms in the sanitation subsector among firms in Kampala city and Wakiso district. The objectives were to examine; relationship between firm capabilities and innovation; innovation and growth of firms; firm capabilities and growth of firms; and test the influence of innovation on the relationship between firm capabilities and growth of firms. This was a cross-sectional research design based on a qualitative approach. Data was obtained from owners of 12 firms within the sanitation subsector using a structured interview guide. Validity of the interview was obtained by ensuring credibility, conformability and transferability and reliability through audit trail, maintaining and preserving all transcripts and notes for the study. Atlas. it (v.7) was used to analyze data to identify important narratives upon which interpretation was based. This study ascertained that firm capabilities influence innovation among firms. The study found that management capabilities were critical in determining the level of innovation within firms. Funding capabilities was also revealed as important in determining innovation. It was obtained that operational capability can determine the level of innovation. This study further ascertained that growth of firms is inclined to the level of innovation. The study found that new processes and new products facilitate firms to growth. Firm capabilities were found to determine growth of firms. Management capabilities, funding and operational capabilities were all relevant in determining growth of firms. The study established that innovation influences the relationship between firm capabilities and growth of firms. This study recommends; boosting management capabilities; increased innovation; and enhancement of operation capability.

Keywords: Waste, Business: Firm Capabilities, Innovations And Growth Of Firms

Background to the study

Waste can be viewed as items that people discard or throw away because they have dangerous properties and have no value (Regan et al., 2024). For example, there are different categories of waste; Solid waste, animal by-products, e-waste, food waste, agricultural waste, end-of-life vehicles and gas cylinders to name a few. All this waste can be recycled to create wealth for individuals, organizations and governments. In this way, it improves the level and well-being of people living in a particular environment. Recycling can lead to environmental development as it reduces waste while creating wealth (Christopher et al., 2022). The idea of turning waste into a resource is understood under the concept of the resource, recovery and reuse (RRR) business model. A business model describes how a business creates, delivers and captures value (Osterwalder & Pigneur, 2010). RRR business models can be described according to various parameters, but there is no fixed framework regarding how business models should be classified. Models

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can be categorized by type of waste (waste stream), resource used, or based on a firm partnership or financial mechanism. For example, some wastewater business models are best distinguished by the agricultural end product produced, the energy projects, the business approach they use, nutrient recovery cases, the technology used, etc., while corporate factors such as the type of public-private partnership (PPP) or handover technology, scale of operation, cost recovery potential or social benefits will add additional options (Lydia et al., 2023). Growing population, domestic and industrial activities have led to an increase in total waste production. Organizations, communities and individuals must therefore find ways to manage these wastes to preserve and benefit from their natural environment (Ntirandekura & Friday, 2022). Today, the economic value of waste is enormous. It has managed to generate a large amount of resources (clean and green energy, revenue, employment and other forms of development) and its effective use has led to a greener and less polluted environment. In order for the economic value of waste to arise, the government, organizations and individuals in a specific environment must be massively educated about waste management (Racheal et al., 2023). This is important so that we have a good knowledge of the economic importance of waste and work together to obtain a profitable value. Various companies in Uganda, both private and public, have ventured into the business of generating revenue from waste (Regan et al., 2024). Among the companies involved in this business is the National Water and Sewerage Corporation, a government parastatal. According to the daily monitor of Monday, November 28, 2016, the company will be able to generate 650 kilowatts of electricity from the biogas produced at the Bugolobi sewage treatment plant.

Kampala Jellitone Suppliers (KJS) is another company that produces non-carbonized briquettes from agricultural residues. The company uses agricultural residues to make briquettes and also produces eco-friendly charcoal stoves for customers. The price of briquettes remains low compared to biomass, but the price of firewood and charcoal continues to rise. According to the FAO, between 1990 and 2005, Uganda lost 26% of its forests (78% in the areas around Kampala). A 2008 report by the Uganda National Environment Agency predicts that this deficit will lead to the complete depletion of national forests by 2050. This creates huge potential for the growth of the trade in briquettes and other fuel sources such as biogas (Abdi et al., 2020).

Grace Naluggwa from Kagoma sub-county in Wakiso district has also been able to transform her community using briquettes made from agricultural waste. She started the project in Kagoma sub-county (Wakiso district). Naluggwa worked with the community and local leaders to start the project as well as sourcing waste material for the business. It started with 50 kilograms of briquettes and today produces 300 kg of briquettes a day. Its main clients are schools and restaurants, which buy 70% of the total daily production (Julius, 2024). They buy in kilograms and each kilogram sells for 1000 Ugandan shillings. Today, people who use her briquettes say they have saved 50% of the money they originally spent on charcoal and firewood. The growth of companies in the Sanitation subsector is key to improving people's living standards through wealth creation and environmental protection. However, firms in the sanitation sub-sector have not yet reached their full growth potential for a number of reasons, including poor technology and low financing (Kazaara et al., 2023). There is a large amount of waste in the environment, including animal by-products, e-waste and agricultural waste, that can be channeled to produce wealth for individuals and governments, but firms in the hygiene sub-sector have yet to fully exploit this potential to generate revenue from waste. their profitability (Annet et al., 2023). The slow growth of these firms leaves many opportunities for wealth creation in the sanitation sub-sector untapped. This study therefore aims to identify the various strategies that firms in the sanitation sub-sector can use to achieve maximum growth and reach their full potential.

Statement of the problem

The growth of companies in the Sanitation subsector is key to improving people's living standards through wealth creation and environmental protection. However, firms in the sanitation sub-sector have not yet reached their full growth potential for a number of reasons, including poor technology and low financing (Kazaara et al., 2023). There is a large amount of waste in the environment, including animal by-products, e-waste and agricultural waste, that can be channeled to produce wealth for individuals and governments, but firms in the hygiene sub-sector have yet to fully exploit this potential to generate revenue from waste. their profitability (Annet et al., 2023). The slow growth of these firms leaves many opportunities for wealth creation in the sanitation sub-sector untapped. This study therefore aims to identify the various strategies that firms in the sanitation sub-sector can use to achieve maximum growth and reach their full potential.

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Purpose of the study

The study examined the relationship between firm capabilities, innovations and growth of firms in the sanitation subsector among firms in Kampala city and Wakiso district.

Objectives of the study

1. To establish the relationship between firm capabilities and innovation in the Sanitation sub sector among firms in Kampala city and Wakiso district.
2. To establish the relationship between innovation and growth of firms in the sanitation sub-sector among firms in Kampala city and Wakiso district.
3. To establish the relationship between firm capabilities and growth of firms in the sanitation sub-sector among firms in Kampala city and Wakiso district.
4. To assess the influence of innovation on the relationship between firm capabilities and growth of firms in the sanitation sub-sector among firms in Kampala city and Wakiso district.

Methodology

The study adopted a cross-sectional design based on a mixed research approach. A cross-sectional design was adopted due to its suitability within the time frame of the study. Moreover, it would facilitate the rapid drawing of conclusions and recommendations on the given topic. While the study employed a mixed research approach, most of the analysis was based on qualitative analysis as it allows for an in-depth understanding and understanding of the issues under investigation (Olanrewaju et al., 2021a). This would allow the researcher to see if there are associations between these variables with the support of the thematic data. Quantitative analysis was used only when presenting the demographics of the respondents and the surveyed companies (L. Nafiu et al., 2013). The study population consisted of twelve (12) firms engaged in generating revenue from waste under the reuse, resource and recovery (RRR) model. A list of these firms is provided in Appendix I. No list of waste firms has been defined according to the reuse, resource and recovery (RRR) model (L. A. Nafiu et al., 2012). Accordingly, the study used a snowball sampling technique to identify the firms that made up the population. Due to the small population size, this study did not sample, but used a census.

This study used an in-depth interview guide to elicit responses from participants who represented business owners (Aslam et al., 2022). This interview was conducted face-to-face with the researcher taking notes on all aspects of the interview. With the authorization of the interviewee, the researcher audio-recorded the interview session for further correspondence. Interviews were chosen due to their ability to provide more qualitative, in-depth and representative information (Lu et al., 2013).

Firm capabilities were measured in terms of management capability, financing capability and operational capability (Olanrewaju et al., 2021b). Innovation has been measured in terms of new products and new processes that depict process and product innovation (Damanpour & Evan, 1984, Knight, 1967; Schumpeter, 1934). Firm growth was

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measured in terms of sales, market share and capital. The same constructs were highlighted by Ardishvili et al. (1998) and Delmar (1997) as important attributes for evaluating firm growth. The study used Atlas. those (v.7) to analyze the data obtained from the participants. The system, through the principles of direct content analysis, i.e. data reduction, the process of making sense when receiving large volumes of qualitative data, and the identification of major consistencies and meanings, identified important narratives to emphasize within each study objective (L. A. Nafiu & Ph, 2012). In the interpretation, these stories were presented and their meaning was provided to address the objectives of the study. The obtained demographic characteristics were quantified and presented using frequency tables. The interpretation of these tables was based on percentages.

RESULTS

Firm capabilities and innovation

The views and opinions from participants revealed that firm capabilities and innovation are related. Participants mainly put emphasis on operation capabilities as the main firm capabilities contributor to innovation, while funding and management capabilities received low support. As some of the participants remarked:

“We have been able to make new products responding to the market demand. For instance, through engaging with our customers, we realized that there was need to make bulk production and the need to make new types of briquettes from the ball briquette to the stick briquettes and later honey comb briquettes”

“...our organization has been able to identify new ideas, markets and business ideas through the interaction with customers and these have surely guided both innovation and growth of the organization in general.”

These narratives clearly expressed how transacting in the market as an operational capability is able to guide firms into process and product innovation. The statements implied that as firms transact within the market, they receive feedback regarding their products and services which serves as a basis for improvements or introduction of new products and services which denotes product innovation.

More so, it was obtained from participants that operation capability in the context of technology equally plays a fundamental role as far as innovation is concerned. Participants feel that when you have better technology, then you are in a better position to adopt better processes of production to facilitate efficiency and effectiveness. This can indeed be exemplified by one of the participants who expressed that:

“The company has moved from manual techniques to a semi-automated machine such as the extruder and honey comb briquette making machine which has increased our efficiency.”

This statement implied that in this particular company X, they were not enjoying the efficiency within the process, until they acquired better technology as a way of enhancing firm capabilities. From the same, it is implied that the company was able to produce several products which depicts product innovation (Regan et al., 2024).

Furthermore, the views suggested that funding capabilities has a bearing on the innovation among firms. Participants emphasize that funding increases the potential of a firm to acquire technology which can facilitate process and product innovation as well. As one of the participants asserted:

“Ideally speaking, our company has been able to acquire technology like the carbonizing drum, the extruder. As such, our company has been able to make honey comb briquettes and the stick briquettes from the ball briquettes”

The implication of the narrative is that when a firm has funds available, it will not find any difficulty of acquiring it. Moreover, the acquisition of such equipment facilitates process innovation.

Lastly, management capabilities were also among the key aspects that facilitate innovation. Participants strongly highlighted that such capabilities are critical especially when it comes to product innovation. For instance, one of the participants stated:

“Because of their skills and knowledge, they have guided most of the innovation especially in determining the design and quality of our products.”

While another participant also had this to say:

“...We therefore ensure that people go for further training and development to ensure that we equip them with the required ideas”

The above narratives imply that human resources are considered a source of potential ideas for product innovation.

Analysis Summary on Firm Capabilities and Innovation

This study provided an overall overview of qualitative analysis in relation to firm capabilities and innovation. The results are presented in Table 1.

Table 1: Qualitative analysis summary on relationship between firm capabilities and innovation and growth of firms

Objectives	Narrations/Statements	Emerging Themes
Firm Capabilities and innovation	<i>"We have been able to make new products responding to the market demand. For instance, through engaging with our customers, we realized that there was need to make bulk production and the need to make new types of briquettes from the ball briquette to the stick briquettes and later honey comb briquettes"</i> <i>"...our organization has been able to identify new, ideas markets and business ideas through the interaction with customers and these have surely guided both innovation and growth of the organization in general."</i> <i>"The company has moved from manual techniques to semi -automated machine such as the extruder and honey comb briquette making machine which has increased our efficiency."</i>	Firms which transact receive feedback from customers which is crucial for guiding improvements or introduction of new products and services It's not until a firm engaged in waste as a business acquires technology that it will have the capability to innovate Technology is a key driver of product innovation and process innovation
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		When a firm has funds, it will not find any difficulty of acquiring technology. Acquisition of equipment facilitates innovation, especially product innovation. Human resources are a source of innovation ideas
	<i>“Ideally speaking, our company has been able to acquire technology like the carbonizing drum, the extruder. As such, our company has been able to make honey comb briquettes and the stick briquettes from the ball briquettes”</i> <i>“Because of their skills and knowledge, they have guided most of the innovation especially in determining the design and quality of our products.”</i> <i>“...We therefore ensure that people go for further training and development to ensure that we equip them with the required ideas”</i>	

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The level of innovation exhibited by firms determines the level of growth of firms. From the analysis of the different views and opinions, it was noted that whichever form of innovation that a firm decides to undertake, is bound to have a positive bearing on the growth of firms in terms of size of the firm, its overall market share and boost the amount of capital. One of the major advantages of innovation is the ability of firms to have product diversity. Majority of the informants have a feeling that the more innovative a firm is, the greater the potential to produce more products and services for the market. As one the participants said:

“Through innovation, our company has been able to produce high quality products which are on high demand.”

From the above narrative, it is implied that highly innovative firms are able to produce products that match the needs and expectations of customers to increase on the market share because of the high demand. The same opinion is expressed in one of the participants who had this to say: *“The company has been able to innovate new products which require absorbing waste. The quantity of products has increased tremendously and we have surely established ourselves within the market”*

In the same context, another participant stated:

“Through innovation, our organization has been able to come up with numerous products increasing on the product line.”

Similarly, one of the managing directors in explaining the impact of innovation on the growth of the company stated that:

“We have also continuously improved the old products to match the changing preferences of customers. Accordingly, our company has remained competitive because our products are surely on high demand.”

These narratives are suggestive of the fact that for a firm to be able to produce new products, it must adopt product innovation. Moreover, the more a firm produces a variety of products, the more likely they are able to engulf different markets, maintain a higher competitive advantage, hence increased market share.

Aside the ability of innovation to boost market share, there was agreement that innovation matters in boosting the overall size of the firm. Most participants defined size of the firm either in number of products and services rendered or the outreach. There was emphasis among views that innovation guides firms to expand on the area of operation. According to one participant:

“We have now expanded to different parts of the country and surely we are doing a great job as far as utilizing waste is concerned”

In the same manner, one of the participants said that:

“Our company has had great things to smile about. We have been able to increase on our operation area.”

Here, the message envisaged is that when a firm innovates, it is likely to produce different products and services which fit in different markets. This propels firms to extend on its outlets as it seeks to simplify it for customers to acquire such products. This increased network signifies growth not only in terms of number of operational centers, but also the different product line.

Furthermore, another participant stated as follows:

“Through innovation, our company has been able to win competitive advantage and this has driven our production and expansion strategy”

While another participant also quoted that:

“We have been able to diversify products rendered to customers like candles, glass products and wax and these have increased our opportunities within the market”

From the first narrative, it is implied that innovative firms are more likely to undertake an expansion strategy which would necessitate a firm to exhibit more aggressiveness as far as boosting size is concerned. Moreover, the second narrative implies that the more innovative, the more a firm is able to increase on the product variety.

To a small extent, it was agreed that innovation determines growth of firms in the context of enhancing capital. A participant asserted that:

“Our business has been able to acquire modern machines like extruder, manual honey comb machine, carbonizing drum and sieve...”

The above narrative expresses that innovation prompts firms to acquire machinery, as they seek to change the process through which they produce products and services. The machinery acquired is considered a boost in capital since it increases on the overall worth of the firm. Although, the fact that most participants are silent about this could imply that most of the innovations among firms relate to the product rather than the process.

Analysis summary on Innovation and Growth of Firms

This study provided an overall overview of qualitative analysis in relation to innovation and growth of firms engaged in waste as a business. The results are presented in Table 10

Table 2: Qualitative analysis summary on Innovation and Growth of Firms

Objective	Narrations/Statements	Emerging Themes
Innovation and growth of firms.	<i>“Through innovation, our company has been able to produce high quality products which are on high demand.”</i>	Highly innovative firms are able to produce products that match the needs and expectations of customers to increase on the market share because of the high demand.
	<i>“The company has been able to innovate new products which require absorbing waste. The quantity of products has increased tremendously and we have surely established ourselves within the market”</i>	In order to produce new products firms engaged in waste as a business must adopt product innovation
	<i>“Through innovation, our organization has been able to come up with numerous products increasing on the product line.”</i>	Product innovation facilitates competitiveness
	<i>“We have also continuously improved the old products to match the changing preferences of customers. Accordingly, our company has</i>	Innovation facilitates market share
	<i>remained competitive because our products are surely on high demand.”</i>	

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	<i>“We have now expanded to different parts of the country and surely we are doing a great job as far as utilizing waste is concerned”</i> <i>“Our company has had great things to smile about. We have been able to increase on our operation area.”</i> <i>“Through innovation, our company has been able to win competitive advantage and this has driven our production and expansion strategy”</i> <i>“We have been able to diversify products rendered to customers like candles, glass products and wax and these have increased our opportunities within the market”</i>	When a firm in waste as a business innovates, its able to come up with variety of products Innovative firms are likely to engage in expansion strategy by opening more outlets Innovation prompts firms engaged in business to establish numerous product lines. Innovative firms are more likely to undertake an expansion strategy to facilitate increment in business size. The more innovative firms engaged in waste as a business are, the more they will increase on the
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	<i>“Our business has been able to acquire modern machines like extruder, manual honey comb machine, carbonizing drum and sieve...”</i>	product variety. Innovation prompts firms to acquire machinery, and this is reflective of a boost in capital.
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Firm capabilities and growth of firms

The views and opinions obtained were in agreement that firm capabilities determine growth of firms. The capabilities which were categorized in terms of management capabilities, funding capabilities and operational capabilities were all expressed as having led to growth of firms. Analysis of the narratives obtained were of the view that the major firm capability that would result in growth of firms is operational capability. Majority indicated that transacting as part of operation capability is the major drive for growth of firms, compared to facility and technology.

For instance, one of the participants stated:

“Transacting has increased on our ability to generate new products. We have been able to obtain reliable information through interactions with customers to understand their interests and subsequently react in the same regard.”

Another participant also stated that:

“We have been able to establish strong relationship with customers such as schools, hotels and homes for briquettes. The company is able to sell at least 130 tonnes of briquettes every month to 31 schools, universities and hospitals. Such transactions have resulted in consistent inflow of revenues making the company highly sustainable.”

In both scenarios, the participants expressed a shared opinion that when firms are able to transact in the market, they get knowledge rich within the market sense understanding all the needs and expectations of customers which guide them in future productions. This implies firms are able to expand the market as well as on the overall size through varied production. Indeed, as one participant stressed:

“We have been able to make new products responding to the market demand. For instance, through engaging with our customers, we realized that there was need to make bulk production and the need to make new types of briquettes from the bail briquette to the stick briquettes and later honey comb briquettes.”

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From the above narrative, it is implied that before when the firm's transactions within the market were still low, it was characterized by low production, but as they subsequently got involved within the market, they acquired enough information which scaled up production and production of new products and services to contribute to growth.

Besides transacting within the market, participants revealed that facilities are equally important in determining growth of firms. The major facility which was emphasized is land with most of the views suggesting that firms that possess this factor of production are less likely to face expansion challenges. For example, one of the participants had this to say:

"As you can see, we have a lot of land so we wouldn't be limited by land in case we wanted to expand."

In the same manner, another participant quoted:

"Facilities like big production space and land have enabled our organization to grow"

The implication of the afore mentioned narratives emphasize that the possession of facilities Is important for determining growth, specifically that related to size of firm attained through expansion of the production line which can affect the number of products and services.

More so, numerous participants also expressed that funding capabilities is necessary in determining growth of firms, although this is bound to manifest indirectly. For instance, from a statement by one of the participants which goes:

"We have been able to implement all our programs consistently because funds are always available to do so. With funds, we are also guaranteed of continuity because we are in position to cater for all operational costs."

The meaning obtained from the above narrative is that firms with funding capabilities are efficient in executing goals and objectives. For instance, when the plan is to expand, firms have the resources available to facilitate so.

Still about the relevance of funding capabilities, a participant said that:

"Of course, funds are critical for predetermining whether business will sustain or not. We deal mainly with causal workers who must be paid instantly. The funds have surely allowed us to do so and keep a good relationship with all our creditors who perceive us as highly reliable."

From the statement, it is implied that funding capabilities improves continuity to facilitate growth such as size and market share which are attained as the firm persists.

In relation to management capabilities, only one participant was of the view that skills and knowledge matter when it comes to growth of firms. This participant highlighted as follows;

"Skills and knowledge have enabled the organization to learn new techniques of production to acquire a furnace to melt broken glass and make new glass products."

This implies that that through skills and knowledge, firms are able to come up with new ideas which facilitate production of unique products to increase competitiveness, hence boosting market share and size in terms of different

range of products. Although, the less emphasis of this, denotes that most firms are not efficiently utilizing human resources as vital in boosting growth of firms.

Analysis summary on Firm Capabilities and Growth of firms

This study provided an overall overview of qualitative analysis in relation to firm capabilities and growth of firms engaged in waste as a business.

Table 3: Qualitative analysis summary on Firm Capabilities and Growth of Firms.

Objective	Narrations/Statements	Emerging Themes
Firm Capabilities and Growth of Firms	<i>“Transacting has increased on our ability to generate new products. We have been able to obtain reliable information through interactions with customers to understand their interests and subsequently react in the same regard.”</i> <i>“We have been able to establish strong relationship with customers such as schools, hotels and homes for briquet tes. The company is able to sell at least 130 tonnes of briquettes every month to 31 schools, universities and hospitals. Such transactions have resulted in consistent inflow of revenues making the company highly sustainable.”</i> <i>“We have been able to make new products responding to the market demand. For instance, through engaging with our customers, we realized that there was need to make bulk production and</i>	When firms transact in the market, they get knowledge rich as far as customer needs and expectations are concerned Transacting beefs knowledge which scales up production of products and services.
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<i>the need to make new types of briquettes from the ball briquette to the stick briquettes and later honey comb briquettes.</i>		
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	wouldn't be limited by land in case we wanted to expand.” “Facilities like big production space and land have enabled our organization to grow” “We have been able to implement all our programs consistently because funds are always available to do so. With funds, we are also guaranteed of continuity because we are in position to cater for all operational costs.” “Of course, funds are critical for predetermining whether business will sustain or not. We deal mainly with casual workers who must be paid instantly. The funds have surely allowed us to do so and keep a good relationship with all our creditors who perceive us as highly reliable.” “Skills and knowledge have enabled the organization to learn new techniques of production to acquire a furnace to melt broken glass and make new glass products.”	Possession of facilities especially land directs firms towards growth. Funding capabilities are efficient in executing goals and objectives Funding capabilities increase continuity and this will allow firms to increase size and market share. Skills and knowledge is a hub for ideas which facilitate innovation.
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Influence of innovation in the relationship between firm capabilities and growth of firms.

From the different views and opinions obtained, it was established that innovation is able to facilitate the relationship between firm capabilities and growth of firms. Moreover, views obtained in expression of this linkage emphasized that the core firm capability in this regard is operation capabilities, specifically technology. This can be exemplified in some of the remarks by participants such as:

“The most recent technology that has been obtained by this company is the carbonizer for making carbonized briquettes and different dryers like the Rotary Drum Dryer and Flash Dryer to dry saw dust and produce non-carbonized briquettes in large quantities.” “Technology has been instrumental in improving the quality of products produced by our company. We are able to incur relatively lower cost compared to the earlier ever since we acquired machines such as the Flash Dryer and Rotary dryer.”

“Ideally speaking, our company has been able to acquire technology like the carbonizing drum, the extruder. As such, our company has been able to make honey comb briquettes and the stick briquettes from the ball briquettes.”

The above narratives imply that firms which acquire technology ably change the process through which they produce products and services, hence the process of innovation. Moreover, the improved technology enhances operational capability to produce various products and services which can suit different markets to stimulate market share and overall size of the firm.

Besides operation capability, it was agreed that the availability of management capabilities is able to determine the rate of innovation which later translates in growth of firms. As one of the participant asserts:

“The more knowledge, the more we have been able to produce products which are unique and exceptional in the market which has increased our competitive advantage.”

From the narrative, it is implied that the more a firm is possessed with personnel with the right skills and knowledge, the more they generate new ideas to facilitate product innovation. Due to this, it is implied that a firm is able to produce new or improved products to gain dominance within the market, hence growth.

Participants also agreed that funding capability enhance innovation which subsequently facilitate growth of firms. This was emphasized based on the premise that the availability of financial resources allows firms to obtain the machinery and technology required for enhancing efficiency and effectiveness which allow firms to produce variety and relatively lower cost compared to competitors. One participant commented:

“Funds have enabled the company to acquire machinery which has seen the firm move from manual to semi-automated processes which are fundamental in enhancing growth.”

The implication of the narrative is that funding capabilities facilitate the process of innovation, which enables firms to produce low cost high demand products and services necessary for enhancing market share.

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Analysis summary on the influence of innovation on firm capabilities and growth of firms.

This study provided an overall overview of qualitative analysis regarding the influence of innovation on firm capabilities and growth of firms.

Table 4: Qualitative analysis summary on the influence of innovation on firm capabilities and growth of firms

Objective	Narrations/Statements	Emerging Themes
Influence	<i>“The most recent technology that has been obtained by this company is the carbonizer for making carbonized briquettes and different dryers like the Rotar y Drum Dryer and Flash Dryer to dry saw dust and produce non -carbonized briquettes in large quantities.”</i> <i>“Technology has been instrumental in improving the quality of products produced by our company. We are a ble to incur relatively lower cost compared to the earlier ever since we acquired machines such as the Flash Dryer and Rotary from dryer.”</i> <i>“Ideally speaking, our company has been able to acquire technology like the carbonizing drum, the extruder. As such, our company has been able to make honey comb briquettes and the stick briquettes from the ball briquettes.”</i> <i>“The more knowledge, the more we have been able to produce products which are unique and</i>	Firms with technology are capable of changing their processes which can facilitate quality products. Attaining operational capacity requires technology to stimulate efficiency in order to fulfill market demands. Personnel who are skilled and knowledgeable, the more they generate new ideas to facilitate
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	<i>competitive advantage.”</i> <i>“Funds have enabled the company to acquire machinery which has seen the firm move from manual to semi-automated processes which are fundamental in enhancing growth.”</i>	innovation to increase firm dominance. Funding is necessary for facilitating innovation in order to produce low cost high demand products and services
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Conclusion

This study adds knowledge to our understanding of the relationship between firm capabilities, innovation and growth of firms. First and foremost, it is observed that firm capabilities influence growth of firms determining their size, capital and market share. Whereas such firm capabilities are complex, comprehended differently as various literatures, this study provides the assurance that management capabilities, operation capabilities and funding capabilities are among the major capabilities whose manifestation will increase the rate at which the firm grows. From the management perspective, it is necessary to ensure that these capabilities are prominent if the growth objective is to be achieved. Secondly, it is proved that growth of firms is inclined to the level of innovation. This study teaches that through innovation, more especially process and product type of innovation firms are able to increase the level of capital, size of the business and market share. Accordingly, the research provides a basis upon which managers must increase their engagement in research and development and dedicate substantial financial resources towards innovation.

It is further revealed that firm capabilities influence the innovativeness of firms. In this case, we learn that the more a firm is characterized by management, operation and funding capabilities, the more it builds capacity to innovate. It unearths that management serves as the idea-hub upon which innovation can be determined. More so, it emphasizes that with funding capabilities, firms would not find challenges financing innovation. Operational capabilities such as technology, transacting ability and facilities set a favorable environment for innovation. Lastly, it is highlighted that innovation influences the relationship between firm capabilities and growth of firms. In other words, it is important to bear in mind that growth attributed to firm capabilities becomes remarkable when such capabilities are used to stimulate innovation.

Recommendations

1. Firms dealing in waste should boost management capabilities by enhancing skills, knowledge and abilities of all employees across all levels. This should be implemented through refresher training, conducting of seminars and holding conferences to ensure that employees are acquainted with latest information.
2. Firms dealing in waste as a business should intensify innovation. These firms should increase their budget for research and development, encourage sharing of ideas among employees and accept innovation mistakes.
3. Firms dealing in waste as a business should enhance operation capability by acquiring recent technologies which can stimulate efficiency and effectiveness and increased market engagement.

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