AN ASSESSMENT OF THE IMPACT OF THE TECHNOLOGY IN MARKETING OPERATIONS OF SMALL AND MEDIUM ENTERPRISES (SMEs) IN AFRICA: A CASE OF TANZANIA

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Abstract : Science is key to development process of humankind where technology is based. Technology has a significant impact on economy so it is to marketing performance, development and maintenance as it guides and supports basic, intermediate and service industries. Industries' technology produces industrial commodities, consumer goods and services whose role in marketing operation is directed to products, communication of prices, distribution and promotion processes. In the case of services, it positions perception of service quality, image, convenient shopping, and handling of transactions.

Technology is embedded in equipment, machines and facilities such that is applied in areas of business operations including production, material handling material processing, transportation, distribution, communications, systems and procedures. Devices increase production capacity thereby maintaining reliable as well as consistent methods and procedures of conducting marketing processes. Marketing technology in use is categorised as being manual, automated and electronic. They facilitate key marketing strategic factors or processes-the product, price, distribution and promotion, people, physical aspects and process information. Although there are limited studies in the topical area, it is observed that technological applications in marketing operations are more pronounced in developed countries than it is the case of Africa, including Tanzanian small and medium (SME) business firms.

The majority of Tanzanian SMEs use manually operated technology of traditional nature, recycled or improvised facilities, to enhance production of goods and services that contribute to poor marketing and low business performance in terms of outputs, low quality and high cost products' leading to high prices. Electronic technology (e-commerce is new and limited in use) but getting more applied in marketing communications. Multimedia technology has contributed in the production of posters, which have decorated cities and other towns of Tanzania.

There is a limited application of technology due to lack of capital, in-built attitude towards the use of cheap as well as risky technology and low skilled labour as operators in the SMEs. There is weak supportive infrastructure including limited imported machines, electrical and communication devices. There is lack of exposure, services to maintain available technology and production of non-standardised as well as low quality of products. The paper concludes by urging business owners to include technology as a strategic component in their business plans and streamline it all over operations in order to revolutionise as well as enable growth of small businesses through workable marketing technology.

Key Concepts: Technology for marketing operations; manual, automated and electronic.

INTRODUCTION

There is a general agreement among researchers, politicians and development experts that technology is one of the basic factors of production as well as development (Cooper, 1991, Koontz, O'Donnel and Weihrich, 1992; Cooper, 1991). Other factors include land, labour, entrepreneurship, capital

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and information (Hanson, 2000) including time. Scientific and technological capabilities are part of human capita that are created over time periods. They include scientists, engineers in pure as well as applied research, those engaged in tertiary education in technical colleges and those in productive activities in private as well as public enterprises (Cooper, 1991b). The renaissance, and industrial revolution and innovations in Europe introduced from 13th to 17th centuries changed world production in agriculture, manufacturing and service marketing. Technology is provided in a form of equipment, machines and facilities. These are utilized in areas of business operations including production, material handling processing, transportation, financial systems and other procedures. The different components of technology are culturally derived (Cannon, 1991) from scientific discoveries and material conditions of society. These are built around an accumulated body of scientific knowledge (Nkunya, 2001) and are applied by people in society.

Technology is also rooted in peoples' culture that evolves and develops over time. Technology is directed into basic and intermediate industries. Basic industries create producer goods that produce goods and services. Intermediate industries assemble parts by adding value and utility. Service industries complement and support basic as well as intermediate industries, for example, making packages and labels facilitating research and communications services. Technology is usually directed in different areas of production process and innovative sectors of the economy. A well supported technological base has an established linkage as observed in developed countries, which is not the case for many of developing countries especially those of Africa South of the Sahara. Although there are limited studies in the topical area, the author initiates discussions on the area so that researchers can plan and organise for more studies that will relate business performances and customer behaviour with different technologies that are used in marketing. It is however noted that in service marketing technology in the form of facilities are taken as strategic method of tangibilising services (Dabholkar, 2000). The paper is highly based on library material, observations and experiences encountered at shopping activities.

PROBLEM

Marketing businesses and organisations' departments of small and medium businesses use varied types of technology that do not give impressions and quality services to customers. Comments and discussions have expressed dissatisfactions with regard to products in categories of foods, textiles, prints, drinks, shoes, and quality of services given at points of sale. Reasons that are advocated include the fact that there is lack of proper management of the marketing mix processes.

Empirical studies show that the conduct of selling activities are provided on the ground, concrete floor as well as in any type of containers (Mboma, 2002, 1999). Promotions are done but messages do not reach targeted markets. At other occasions queues build up contributing to delays, something customers do not expect especially where there is modern technology. This pre-empts the need to study marketing technological environment in small and medium sized firms that discharge some marketing operations. The objective of this paper is therefore to assess technological

environment in SMEs that supports marketing operations in Tanzania.

LITERATURE REVIEW

It is also possible for a country to adopt technology in order to fit its local conditions. Failure to adopt technology poses problems and cannot be sustainable in terms of human skills, service as well as financial back up (Cooper, 1991). It is education and techniques that people possess in organizing its economic activity that lead to availability and adequacy of basic economic, social, financial and marketing infrastructures (Czinkota and Ronkainen, 1995) that technology has a role to play. Techniques affect: level demand, quality including types of products demanded and means of producing those goods as well as their distribution (Cateora, 1993).

The Use and Importance of Technology

Technology has reduced strains and stresses caused by excessive use of human labour, thereby preserving people's lives as well as minimizing the number of accidents. Technology simplifies tasks by contributing to increase of outputs, productivity, welfare and innovations improvement of technology changed production methods, organisation of work and increased innovations on products, services, ideas as well as methods of processes (working methods, delivery of services and communications to customer). Technology and innovation work together giving synergistic relationships and savings in terms of time, space as well as material.

Technology provide added value on working methods in terms of speed, accessibility, flexibility, convenience, accuracy, handling voluminous data or transactions or materials, which conventional methods such as manual operations cannot be efficient and expediently handle. The benefits contribute to high production, high productivity, low unit costs major savings and high earnings.

New values, interests, new demands and new ways of relating with each other as well as life style are enhanced by technology. For example, information, Communication and Technology (ICT) enables people to communicate to and from anywhere in the world also facilitating marketing operations. Using telephones or radio, Internet as well as television exposes people to new ideas goods and other services, which so far have created business opportunities in different places.

An entrepreneur conceives an idea and mobilizes resources including technology that will support implementation of ideas. Innovations create new products and processes that have changed customers' perceptions on company's offers through products' physical alterations with formulated market strategies and procedures by modifying existing standards, formalities, shared values including styles.

In the case of electronic commerce (e-commerce) for example, information flows quickly and in different directions, which allows access to more markets at low costs with minimum capital investments. E-commerce is a global border-less medium that enables small companies to access markets and Internet world-wide. Technology through ICT further facilitates relationships between supplies, customers where partners reduce holding large inventories through supply chain management.

However, technology does not always give positive results. It is expensive in many respects and changes continuously. Any new

development of technology renders the previous one obsolete. For example, looking at maths technology it started with finger counting, then pebbles, pieces of wood, beads, mathematical tables, slide rule, calculator and computer technologies. The computer technology changes in shorter time periods that challenges firms as well as individuals in keeping pace with technology. This implies constant investment in technology something, which if one does not consider manufacturers stop producing spare parts of the "old" technology.

Furthermore, the introduction of new technology is associated with constant loss of jobs. Advancing technology reduces labour involvement in the production and service processes that contributing to people's income loss and poor welfare. Acquisition of new technology requires investing on training as well, otherwise a firm may need to hire new skills that are expensive. New technology has to bring in some advantages as well. Among them are decreases in costs of production, distribution, storing, processing of orders and handling of products.

Technological Environment

Nature of Technology in Developed and Less Developed Countries

The different in technological developments in both developed and developing countries is reflected on the extent through which materials as well as knowledge have been mobilized and contributed towards material well being of respective economies. Technological factor differentiates Less Developed Countries (LDCs) from Developed countries (DCs) even within DCs and LDCs (Cooper, ibid). The state of technological development in other LDCs is low. Asian countries that are part of LDCs have developed faster due to increased efforts of creating their own-trained and skilled human resources in areas of creating, adopting as well as management of technology.

Marketing Management Decisions and Technology

In the early stages of industrialization, institutions took a while to appreciate technology as a wider application phenomenon because organizations concentrated on operations.where production departments were regarded as main centres of activities. Technology was then concentrated on production operations and not in other areas of enterprises. Managerial writings by Frederick Taylor (1903) focused on production and productivity, Henry Fayol in 1916 on effective management, Eaton Mayo (1933) looked at social attitudes as well as relationships and Chester Barnad (1938) on application of systems approach to management (as presented by Koontz, O'Donnell and Weihrich, 1984). Excessive products that were produced and could not be sold or absorbed by targeted markets challenged management thinking on how best to sell non-selling goods despite their good quality and low prices. Marketing people reorganized their marketing activities using five approaches namely, production, product, selling, market, societal (Stanton 1985, Kotler, et. al; 2003) and electronic age.

When production, product and selling approaches are in use, organizations pay more attention on the product that is being produced in terms of quantities and/or quality of goods in order to alleviate shortage, meet production capacity and/or appeal to

customers' unique desires. Peddlers and hawkers are regarded as the most effective selling forces as long as they are motivated and can sell. Again, an enormous literature was developed from the 1920s to 1950s to guide the use of sales force. Production took place in a competitive environment where producers continued to invest, gradually saturating markets with same or similar goods and accumulating surplus since markets cannot absorb all quantities produced.

Selling Company's Products and Excess Supplies

The problem of selling excess goods produced took time to be solved. New methods and processes were devised to create as well as access reliable markets. One of the options was that of exporting to foreign markets. Explorers were sent to different continents and countries in search for markets as well as sources of raw materials. A few included: Vasco da Gama, Christopher Columbus, Cecil Rhodes, David Livingston, Henry Morton Stanley and Richard Burton. Others were Rebman and Joan Krapf, John Speke, Carl Peters and Ferdinand Magellan all of whom we read from History books. Their governments and academic institutions supported them. Upon their return they went with wealth and information about foreign lands. People living in new markets, some of whom resisted seeing visitors, while some accepted them with conditions, raised questions. Competition, resistance and the need to develop local markets necessitated the need to institute political influence, rule, and transform economies and markets.

Marketing methods and practices used could not sell all products. For example, excess supply of goods was exported to foreign countries. Indigenous people had their own cultural based consumer items, so one could not expect immediate purchases. It was important to create an enabling environment – exercising political power and creation of financial institutions such as banks insurance. Furthermore, payment mechanisms were not in place in the newly established colonies.

Both demand and exchange systems required time to develop. Navigation, transportation and communication methods were still underdeveloped. Many of the producers had not gone beyond finding out what and how customers wanted to have their goods as well as services. Failure to absorb goods that were produced by internal and foreign markets could have arisen out of the practice of not starting with studying market needs as recommended by Kotler (2003).

After World War II, a new thinking emerged where organizations addressed needs of people and society as a way of meeting organizations' objectives through customer satisfaction (Kotler, 1972). The importance of organisations to society was looked into a wider context to see their contribution to communities and consequences of their actions in the environment. New approaches to marketing called for careful planning upon which technology was incorporated to deliver goods and services. The aim was to operate with purposeful objectives of meeting customers' needs at a profit, being socially responsible as well as taking care of the environment. Technological innovations in the conduct of marketing operations contributed to better services. The type of technology used in marketing is discussed as being of the marketing system and detailed in the subsequent sections.

The Use of Technology in Marketing Operations

Various technologies have evolved over years to support marketing operations. Marketing technology is in a form of equipment, machines and facilities, which enhances business operations including production, material handling, and processing, transportation, marketing distribution and communications, financial systems and procedures. The type of technology enhances marketing operations alongside the basic subject processes of product, price, distribution and promotion (marketing mix variables). Technology as an integral part of marketing operations activates the marketing mix variables with the aim of effecting provision of quality marketing services and giving synergistic results. Technology may be operated manually, semi-automated, automated, and electronic. These technologies have developed and evolved over time as products of basic science as well as from scientific discovery researches.

MANUAL, ELECTRICAL AND SEMI AUTOMATIC TECHNOLOGY

Products and Related Technology

Basic technology that is embedded within machines and equipments creates goods or services that are offered for sale. Such goods can be industrial or consumer items. Those items that are sold as industrial products are usually demanded as a result of a need of consumer goods. That is the reason why industrial goods bear a characteristics of having a derived demand (Kotler, et al; ibid). Existence of industrial products is manufactured by basic industries that result into providing producer goods such as machinery and equipment.

In the 1970s, when import substitute industrialization strategy (Rweyemamu, 1976) was implemented in Tanzania, the country imported a variety of technology that was used in more than 400 parastatal organizations. The lack of competent technical skills and variety of technology could not easily be standardized or synchronized for importation of spare part design or design of preventive maintenance. These factors further contributed to expensive technology that was not adapted to fit the Tanzanian local conditions hence low production and productivity (Wangwe 1979, Mboma 2001).

Existence of infrastructure that includes road, railway, ship and their maintenance allows navigation technology to distribute products within and without the firm and economy. Development from small rafts to modern large ships or vehicle trucks with small carrying capacity to current large and long based trucks with large capacity for hauling huge cargo between and within countries have contributed to specialization in production which enhanced comparative advantages of production together with costs reduction in terms of gains made from economies of scale. In the case of air transport, cargo planes fly long distances in shorter time periods compared with other modes of transport, contributing to timely and convenience in delivery of fragile or perishable items. Ships, planes, trucks and machines need well-developed ports and roads with their networks. These should be accompanied by reliable maintenance services and supply of other important inputs that include oils together with competent skills to manage in order to sustain

technology. It is therefore necessary that any managerial decisions on choice of technology to consider customers needs that will avail their goods and services that they need.

Production technology has contributed to cost reduction, better product quality and conveniences to customers in terms of use, carrying, size, shape as well as products' colours. Examples are different car makes such a Volkswagen, Benz, Renault, Toyota, Suzuki, and Peugeot where modifications on car boards, colours, shapes, and number of doors have been and still taking place. Other alterations have taken place in the interiors of cars where they are carpeted, installed with audio (radio sets, tape recorders players, compact discs and car-phone) and speakers of different sizes. Different engine capacities and provision of air conditioners or heaters are some of the many modifications that are seen today as a result of technology directed on products. Those products together with their modifications are used to 'tangibilise' those values that are sought by customers from services that are derived from them. Those values or attributes enhance quality features that are searched by customers.

Technological application in production, materials handling, methods of ordering and processing) and applications of value engineering in packing have contributed to cost reductions, increased productivity and improved efficiency in the provision of goods as well as services that are offered for sale.

Price

Price stickers (stick price tags) on products allow customers to aggregate buying costs while the price scanner reduces queues at checking points or counters. The same price scanners have enabled counter sellers to check customers' purchases fast without referring to price tags that appear on shelves and counting stocks as they have been purchased. Where the systems of checking out and stores inventory are integrated, they have prompted replenishing of stocks on shelves and ordering from supply sources on time. In well-computerised stores, stock levels are recorded even in the warehouses. Large supermarkets such as TESCO, Safeway and Mark & Spenser of UK use technology to synchronize stock movements that ensure that stocks are replenished before they run out.

Distribution

Distribution of goods and services utilize Manual, Electrical and Automated technology. Manually operated technology facilitated the selling process when supermarkets were introduced in the 1930s in the USA (MacNair 1958). Emergence of supermarkets was an innovation in the retail institutions where customers served themselves as opposed to counter services. Trolleys and shopping baskets facilitated handling of goods including large shopping that is done by consumers in a single purchase that could last for a week or a month. Affordable cars were accessible by private owners that supported domestic buying that further supported the new supermarket concept of the 1930s.

Vending machines and automatic teller machines (ATM) allow customers to access goods and services conveniently and in 24 hours. Similar machines allow customers to buy stamps, photocopy cards to access photocopying services, tampons, condoms, draw cash, and buy drinks and snacks.

Improved transportation technology facilitated delivery and handling of goods.

Levers, containers, conveyor belts and scanners have improved services at harbours (Kimaro 2003), warehouses, airports, other storage sites including shops. Apart from increased speed, prices of luggage are sorted faster by scanners in the case of security and safety luggage are also sorted out before and upon reaching their destinations in speed and safe. In addition, the scanners, cameras and videotexts have improved security, reducing shoplifting thereby leading to lower prices. Cameras and Closed Circuit Television (CCTV) technology have also contributed to customers' perception of their safety in air transport services especially after 11th September 2001 when passengers' planes were used as weapons were used as weapons to hit the twin towers of the world trade centre at New York.

Furthermore, technology preserves goods to ensure minimum waste or none and maintenance of high quality of products. Refrigeration, sterilization and special packaging including sealing have prolonged product life cycles and have hedged supply of goods as well as services. Batteries save electricity energy that enable portable gadgets and where there are no longer constant supply of electricity energy continuous development of those batteries allow people to access different powered gadgets including mobile phones, cameras and other forms of audios, hence contributing to purchases that are made by different customers.

Different forms and types of stores use different types of technology. The warehouse stores large cup boards and shelves, large stores, small retail stores, shopping malls, departmental stores, supermarkets, groceries and shops that keep large are accessed by businesses such as warehouses. Such stores deploy folk lifts, conveyor belts, pallets, trolleys and use other types of facilities. These facilities enhance stock movement, arrangements, classifications and order in the warehouse as well as in large stores-supermarkets and shopping malls. Physical handling of goods is facilitated by those facilities that enable customers to their purchases from a store to the customer's car or home.

Through the history of marketing both producers and sellers have observed the need to preserve as well as take care of products that are sold. Coolers, refrigerators and deep-freezers allow retailers to preserve highly perishable foods and enabled customers to buy quality goods. The same facilities store and support in store promotion though displays, at the same time allowing more goods to be offered for sale in one shopping spot. Similar facilities, example the refrigerators are bought by consumers as household items enabling them to buying large quantities of goods that last for a reasonably long time.

Manufacturers process agricultural products giving them longer life by preserving them by chemicals, radiation and drying. Retailers continue to preserve them by cooling and freezing that have played a big role of preserving as well as protecting goods. Transporting vehicles, ships and truck have been designed with cooling/freezing facilities that preserve such foods, which are perishable. An increased shop size has allowed customers to walk and browse through shelves, picking products of their choice on a self-service basis in hyper-markets facilitated by trolleys and other gadgets.

AUTOMATED TECHNOLOGY

The automated technology allows organizations and customers to sell or buy directly without going through an intermediary. The use of vending machines, mail orders, telephones (tele-matics); television and computers in facilitating marketing activities allows access to goods or services without the need of a sales person or a retailer. These are applied in the sale of stamps, soft drinks, sanitary towels, condoms, photocopying cards photocopying services, instant photographs, soft drinks, tea, coffee, chocolate drinks, sandwich, and travel tickets and so on. The vending machines reduce labour costs and other problems that are associated with labour relations. A customer either pays in advance or promptly. Consequently, there are no credit sales that reduce collection costs.

Automated technology enhances direct marketing where a producer interacts directly with consumers or vice versa. Selling and buying done through tele-shopping, or catalogue shopping or electronic shopping as companies interact direct with customers, deliver services and goods without the need of physical contacts or customers travelling to a store. Direct marketing allows a very small number of employees who use telephones or mail orders and computers to access customers or vice-versa. Although direct marketing lacks the human touch, in some aspects, various platforms have contributed to better marketing of services, maximized satisfaction increased choices and increased profits.

THE ELECTRONIC TECHNOLOGY

The electronic technology has further improved automated technology because it is more accessible, cheap and provides a better presentation before customers assists in conveying messages whereby it informs markets about company's offers wherever customers are. These technologies are supported by electricity power utility. Management processes and procedures including delegation, execution and control of marketing operations are facilitated by technology through telephones, radio calls/ intercoms, prints, visual aids and inter-net services. These facilities have changed in the manner people relate with each other and conduct business without physical movement.

Electronic age has enabled development of Electronic Commerce (E-Commerce) or electronic marketing (e-marketing) that means selling and buying processes supported by electronic means. E-marketing or e-commerce is a process of two or more parties making business transactions via computer and some type of network or the internet. E-commerce are new business orders that have revolutionised people's ways of thinking, calculating relationships with customers, creating values and making income out of the process. E-markets are market spaces where sellers promote their products and services electronically. Electronic commerce combines the traditional technology of telecommunications and computer technology to transmit data (LeBel 2000). It includes the following technologies:

- Information technology; include different forms of print -data in numeric, graphics, sounds, prints, web-sites and visual aids.
- Telecommunication technology includes voice -telephones, telex, faxes, radio calls/ intercoms, and inter-net services.

- Internet technologies; computer and its accessories, browser software, inter-net services. The internet has revolutionized marketing operations where relationships between consumers, intermediaries and manufacturers have changes (Hoffman and Novak 1996).

Thus customers search for those offers from the Internet. The Internet that is also an online shopping is a growing method of shopping where individuals place orders through the internet and pay through their credit cards. The on line marketing and e-commerce link customers as well as sellers through computer systems' network exchanging information about different offers and orders or selling as well as buying. The World Wide Web (WWW), through NESCAPE Navigator or Microsoft or Internet explorer or Mosaic or Unix, to mention a few, are software packages that allow individuals or companies to provide information about their products or services. The navigating engines challenge existing body of knowledge (Melnicoff 1999) especially marketing strategies as suggested by Emergh (1999) who observes new business practices and establishment of new types of businesses. E-marketing Technology application integrates procedures and processes leading to comprehensive marketing operations. The magnitude of application of e-commerce can be observed in Table 1.

Table 1: *Global Internet Users by Location*

Year	Home use	Number of users
1995	49	70
1996	50	85
1997	54	100
1998	56	130
1999	100	150
2000	120	190
2001	147	280
2002	152	270
2003	200	345
2004	248	450

Source: Business Week, October 1999.

In year 2002 it was estimated that there were more than 30million people world wide who used internet services. 54% were people from USA and more than 4.5 million people were from Africa.

The access and growth in ICT in some countries for example, have been influenced by development in infrastructure and facilities and GDP per capita. Table 2 compares a few countries with Tanzania's situation in 2001.

Table 2: *ICT Infrastructure and GDP per capita*

Country	Phone landline penetration per 1000 people 1998	Personal computers	GNP per capita in 1999 in US. $
South Africa	115	47.4	3,160
Botswana	69	7.5	3,240
Morocco	54	2.5	1,200
Tanzania	4	1.6	240
East Asia and Pacific	70	14.1	1,000
World	146	70.6	4,890
High Income	567	311.2	25,730
Sub-Sahara Africa	14	7.5	5,000

Source: World Bank 2001, pp. 274 & 311

A company establishes customer e-database, which is an innovation in creating customer loyalty and long term relationship. The innovations found in supermarkets in the United Kingdom and airlines such as KLM, BA of Netherlands and UK, respectively have created an electronic data base (EDB). The EDB is an organized collection of information about individual customers or prospective customers including buying behaviour, travel frequency, psychology, geographic location and demographic profile. The idea of forming clubs by traveller retailers or flying customers using specific carriers of airlines or bus companies or trains allow customers to commit themselves to use membership rights and benefits. Technology has facilitated all this by keeping track of customers and their records in a database.

The EDB enhances both mass marketing and one-to-one marketing. The two markets are different as Don Reppers and Marth Rogers (1993) suggest that the new concepts of (i) one to one as opposed to (ii) mass marketing are handled differently. The one-to-one market focuses on an individual customer in terms of needs, products, production, and distribution panel messages. The retention of customers, incentives and share of profitable customers has been made possible. On the other hand, mass marketing serves the average customer; it standardizes products, distribution, and promotion and uses economies of scale. EDB has further benefits to different forms of direct marketing influenced by innovations and technology. They are categorized as face to face, direct mail and e-marketing.

Face to face is the oldest method of selling where the sales force locates suspects and prospects, develop them to customers and retains them. Avon Company of America and "Electrolux" vacuum cleaner has been successful in using this approach. Sales persons use cues to improve their image through technological artefacts associated with service delivery. A salesperson when demonstrating on how to use a product and its characteristic features may use an electronic projector.

Direct-mail marketing takes place when letters, samples and ads are mailed to different prospective customers. In the entertainment industry, tape records, videocassettes, and CD are sold through this method.

Catalogue marketing involves using print, electronic catalogues and video, which are mailed to customers or are made available in stores or are presented on line. Examples are AGOS catalogue sellers. By use of photography and printing technology, the catalogue enables production of quality graphics that influence customer choices from a catalogue magazine.

Telemarketing involves selling using telephone to call and sell to customers. Free phone numbers are used to receive orders from customers after making advertisements through radio, television, direct mailing, catalogues or a mixture of these media. Another example is a direct response television marketing (DRTV) where an advert is put on TV with a free phone number to enable customers to place orders of goods or services being offered instantly as the programme are still running.

Direct Response Television Marketing

This form of direct marketing combines various communication media where the

promoter uses TV to send messages. The responses are received immediately through a paid phone.

Home shopping channels are specific TV channels that are dedicated for selling goods and services. Customers who have cable TV or have a satellite at home can access such offers.

Online marketing: a seller and buyer interact through Internet and commercial online services. The commercial online services provide information and marketing services to subscribers at a fee. Examples of commercial online services are American on line (AOL) Demons. Also the entertainment, news, library cum education sales material, shopping services, chats and e-mail are all conducted through online marketing.

Benefits from e-marketing: The use of Internet has increased because of introduction of user friendly web browsers such as Microsoft Internet Explorer, Netscape Navigator and World Wide Web access. The web (www) uses a standard computer language that allows files containing video, images, sound and texts to be sent through the Internet. Furthermore, E-commerce in the world is a new phenomenon, which is still developing but at a high speed. It is more used in DCs than LDCs. E-marketing provides short channels of distribution, reduced delays and low cost of operation hence low price. Difficulties that consumers face in an e-marketing medium include traffic congestion, high transport running costs, limited parking space, lack of retail sales help and long queues are eliminated. E-marketing increases business growth through an increased number of market niches that are associated with distinct preferences where sellers focus on each small market with better offers that correspond to consumers, specific needs.

Some of the actions and behaviour of sellers pry into privacy or contravene individuals' rights. Public polices and ethical issues are still being instituted in order to address abuses, deception, fraud and various kinds of unfair practices. This aspect is important because e-marketing operation takes place in virtual environments that are based on mutual trust. E-commerce is used at a low scale in developing countries although the trend shows a fast growth in 20 years to come. This is mainly influenced by globalization where a local thinking is changing towards global orientation because ICT has brought the world closer to each other such that it is easier to pass information and making decisions instantaneously and implementation of marketing operations successfully. The question is to what extent Tanzanian SMEs have taken technology on board. More focused is to assess to find out the extent through which management considers technology and a critical factor that can be used in marketing operations with the ultimate goal of meeting organizational goals and customer satisfaction.

THE SITUATION IN TANZANIAN SMALL AND MEDIUM ENTREPRISES

The use of technology for marketing operations: The Tanzanian experience

Product, service and production technology

Drawing from the Tanzanian experience, an industrial capacity improvement used imported technology between the 1970s and early 1980s (Rweyemamu, 1976; URT, 1979; Wangwe 1983). The average utilization of that capacity was between 20-25% (Wangwe,

1977; and Kahama, et. al. 1986). Lack of raw materials, spare parts and accessories were common problems that contributed to low production as well as shortage of goods including services. This was due to high dependency on the DCs' technology, imported inputs and limited foreign currency that could not sustain production as well as quality consumer goods. The technology focused on industry in general and emphasized on machinery, equipment, production and selling approaches to marketing. Another equally important technology that was used in marketing operations was not addressed in those studies. It is worth to note also that the government managed and controlled the economy; it set and controlled pricing by directing distribution mechanisms as supported by 1962, 1973 and 1980 agricultural, pricing and trade policies respectively. Besides establishing a distribution network through the then Board of Internal Trade (BIT), Regional Trading Companies (RTC), Specialised Importing companies and regional transport companies (RETCO), it can be conveniently argued that, IT was generally minimal and relied heavily on human labour in handling loading, offloading so forth.

SMEs trends in Tanzania are that of establishing medium and large firms based in urban areas by trying to produce modern products including service. Some firms are in communication, restaurants, transportation, body as well as beauty centre (saloons) and tailoring.

- The majority of small businesses start with one person deploying family members before engaging none family relatives (Mboma, 1999, 2002; Olomi, 2001). Employees are mostly casual while a few are regular (Murphy 2002). Some SMEs have machinery and formally registered otherwise the majorities are informally organized as cooperatives or micro enterprises that are unregulated by the tax authority.
- The micro-firms have higher death rates than small and medium sized firms. The highest death rates take place in the initial 3-4 years after which they have a substantial chance of survival.
- Most of the small businesses handle both production and distribution functions. However, the small and medium enterprises create more jobs in Tanzania (Mboma, 2001).

Most SMEs apply some form of technology in the following areas of businesses: food production including processing (canning, milling, and bakery, fish drying and curling); textile production as well as dyeing; garment manufacturing; tailoring; catering; local brewing, secretarial; and retail businesses. Others include car repairing and servicing radio, television, computers, cameras, cell-phones, landline phones, manufacturing of detergents and so forth. The nature of SMEs' technology is discussed in detail in the next sub-section.

Product and Production in SMEs

Production technology is limited in terms of quality and quantity. There are few basic industries such as KIZAKU and UFI that were established in the 1970s that have continued to produce the same type of facilities (hoes, machetes, ploughs), which are labour intensive. Such a technology does not facilitate or support innovations that could improve process or increase production

and productivity in farming. The question is how much alternative use a hand hoe has? The same question can be directed to a plough implement.

Technology to produce consumer goods is still low, manual and limited in producing large quantities. There is a large share of such goods, which are not of good quality. The number of industries is still low in Tanzania and if at the food sector is examined, the majority is small and very few belonging to the category of medium size (UDEC, 2002).

Manual Related Technology

The majority of SMEs use manually related technology. This trend cuts across food, beverages, textile and garments production (Mboma, 2002). The labour intensive technology does not minimize wastage and losses. Furthermore, in small food processing, production process takes place at homes using traditional cooking areas or back yards and facilities such as drums as well as stoves that use charcoal or wood as a source of energy. Instead of using industrial boiling facilities, drums are recycled from containers that once stored oils. Palm oil manufacturing in Kasulu villages similar recycle oil drums are also used to boil Palms to extract oil. For those who brew local beer, they use similar tanks as pointed out before to process and ferment beer malt instead of using wooden barrels. Medium size enterprises combine labour and semi-automatic or automated technology. For example, maize mill machines that either use electricity or diesel. Otherwise women still continue using traditional grinding stone or wooden pounding mortars ("Kinu"). The main reason is that labour is cheap and semi-skilled whereby most of the processes as well as tasks are simple and of routine nature, they do not need high skills. It is also possible that investors choose labour intensive production methods for reasons related to low capital or attitude because of high level of unemployment where it becomes convenient to use cheap labour.

Distribution and Service Delivery

During selling processes, indication of prices is communicated verbally by sellers, otherwise simple tools such as paper cuts and a pen suffices to make price tags. A board that can be scribbled by chalk is used in restaurants. However, better managed and growing grocery and supermarket types of retail stores use small price tag machines.

Handling and marketing processing are conducted by human labour. Facilities such as shelves, carts, bicycles and human porters are used. Where vehicles are used, they are not designed to carry food items, or do not protect products hauled from one place to another. It was only in 1999 when pick-ups that used to haul meat from abattoirs to retail stores in Dar es Salaam city started to be covered otherwise meat used to be transported open and exposed to contamination by dust, smog and bugs.

Very few stores use simple levers. Food marketing mainly conducted in traditional markets where foods are displayed on the ground or are placed on an elevated stall using recycled pieces of wood with a plastic roofing and a piece of gunny bag that provides shade against sun or rain. A large part of retail business is conducted through traditional shops and customers are serviced behind the counter. However, the emerging new forms of retail stores such as supermarkets, groceries and shopping malls are giving new ways to self-service marketing. This situation

has brought along a new technology as discussed in the subsequent sections of this paper.

Electrical and Automated Technology

In the case of distribution, a minimum level of technology is utilized as domestic appliances such as refrigerators and deep freezers are used to preserve foods. Foods are sold with minimal processing in Tanzania. Fruit canning factories in Iringa, Arusha and Dar es Salaam are small leading to medium sized firms but mix labour and machines in their processing as well as handling of goods. Retailers preserve highly perishable foods in order to stay fresh and maintain their quality by using coolers, refrigerators and deep-freezers. The same facilities enable consumers to buy large quantities of goods that will last for a reasonably long time. They facilitate displays and allowing more goods to be offered for sale in one shopping spot – supermarkets. It is noted that preserving, display and storage facilities are becoming commonly available on the market.

Automated technology has been in use in areas such as banks where automatic teller machines (ATM) dispense cash services instead of a teller. Introduction of e-banking in Tanzania by CRDB through Tembo card and Postal Bank with its Uhuru card, facilitate commercial transactions. In addition, Citibank, Barclays Branch and Chartered Bank use ICT technology to deliver services worldwide.

Electronic Technology and Promotions

There is a general awareness and application of electronic technology through computers, satellites and internet services in Tanzania in areas of academics, banks and firms (Mbwette and Mboma, 2000). There is a fast growth in areas of marketing communications especially after the introduction of a liberalized economy and uplifting of taxes on ICT since 2002 (Mbamba, 2004) and use of mobile phones. In Tanzania, electronic marketing has enhanced direct marketing and online businesses as new methods of marketing operations. Examples of telemarketing practices in Tanzania include tele-food marketing programme initiative by UN to raise food aid for LDCs. Also a fund raising activity that aimed to raise funds for Mkomaindo Hospital of Masasi in Mtwara region took place in Dar es Salaam, Tanzania on 25th of August 2000. Online marketing is gaining ground as firms have been established to serve customers who want to sell furniture, cars, and computers. Such online businesses include websites and mail severs: uccmail and raha.com for example.

E-Commerce has further been introduced in the government (e-government), banking (e-banking), education, and health. The requisite for this technology include cellular phones with GSM technology, a land-line phone, fibre optical cables, satellite, PC, browsing software and electricity power. However, very few firms have access to computers and landline telephones (table 2) including the Tanzanian government's policy delays in accessing and use of computers until year 2002 (Mbamba op.cit). Internet connectivity and access of both hard and software are in acute shortage for SMEs due to high costs of telephone services utilities, satellite link, cables being limited to some geographical coverage, small bandwidth and expensive personal computers (PCS). It should be noted that few firms do have access e-commerce services.

Despite of all efforts made there were 115,000 users of internet services in Tanzania by 2000. These figures grew by 117.4% and penetrated by 0.7%. Majority of those who are computer literate are youths who are below 30 years of age, whom cannot afford to buy computers and the like. These figures are low when compared by the overall situation in African continent where it grew at 186.6% and penetrated by 1.4% (Gupta 2002). Mrema (2004) further shows that by 2000 there were 13 licensed to operate internet services. Among them is Africa online, Raha.com. Acex System Ltd, Afsat communications (T), Internet Africa Ltd, samba Net, Catsnet and Kicheko.com. By 2000 the rate of internet services for commercial use was 15% only, academic research 15%, Government and NGOs 15%, international organizations 10% and the rest 45% could not be specified (Moyo 2000). E-commerce is new to business people who are operating in Tanzania.

The rise in number of television and radio stations between 1 to 6 and 0 to 7, respectively, news papers from hardly 10 regular ones to more than 71 (Mboma and Gooluck, 2002) and online communications allow businesses to facilitate their marketing communications.

The use of visual aid especially the multi-media techniques by medium sized firms has revolutionized display techniques, methods and quality of advertisement including posters. Graphics and mixing of images as well as colour with some animation communicate messages better by showing what benefits consumers expect to get from a particular product or service. Examples of drama and posters displayed on TV programmes when advertising NIDO milk powder, Coca-Cola posters, electronic billboards that change messages every 2 seconds and large-scale posters that are visible at a distance of 20 meters strongly position products/services in customers' minds.

Firms communicate through posters, walls or boards by using drawings in the form of writing, through paintings, and display messages. Large, bright and informative posters have decorated as well as improved the ambience of Dar es Salaam city. Mobile phone companies have taken their shows very seriously as you move around the city of Dar es Salaam you cannot miss displays by Mobitel, Celtel and Vodacom. Celtel and Vodacom seem to face each other or placed shoulder to shoulder. (Celtel HQ and COSTECH building along Bagamoyo road). Amatures no longer draw posters on paper by hand. They use computers and printing facilities that allow multiple copies, maintain the same features as well as sizes produced up to standards and are nicely coloured. The type and quality of paper used for making posters are pieces of chrome papers that last longer than if ordinary pieces of paper was used. The posters have contributed to Dar es Salaam city decoration that used have a dull atmosphere before 1999.

- Consultants conduct Internet market research where primary data are solicited through internet surveys and on line focused groups.

- Marketing web-sites such as those uploaded by education institutions such as University of Dar es Salaam and other firms either facilitate real state marketing and other goods on line. Dar on line is one of such web sites.

Private trading networks found in B2B where peers or business units link to deliver products and services to customers are practised by banks that have multiple branches. For example, NBC Ltd, CRDB and Barclays use trade networks in Tanzania. Similar networks exist between tour operators of Tanzania and British holiday firms in Tourism exports. Out of 106 respondents 30.2% used direct marketing as a means to survive in business.

- Online advertising is growing after organisations have designed their web-sites. Such examples are Tanzania online, IPP media and a few others. While 60.4% had to use package trips. The direct markets were enabled through the use of websites and internets. A customer from the UK can apply directly for a tourism service.

Limitations of the Use of Technology in SMEs in Tanzania

There is no uniform application of multimedia technology in marketing functions and operations in areas of communications as well as graphics by all SME businesses as large firms do. This is evidenced in Dar es Salaam city and other towns in the country as one need huge, large and small posters as well as billboards, one cannot fail to note that only few organisations dominate.

Factors contributing to low application of technology are mainly historical, lack of capita, exposure, and limited services to maintain technology. Historical shows that automation and computerisation in Tanzania started in the 1960s (table 1).

Table 1: *Initial Computerisation in Tanzania*

Institution	Year
Ministry of Finance	65
TANESCO	68
NPF	70
STC (State Trading Corporation)	74
CRDB Bank BOT	90

Source: Mselle and Hussein, 1994 in Kabalika 200 pp31.

The government of Tanzania banned acquisition of computer hardware by individual in 1970. Another attitude is of not appreciating technology because of availability of cheap labour that is risky due to a low literacy level, increased labour disputes and production of non - standardised as well as low quality of products. These few cases demonstrate that firms and individuals do not appreciate what technology can offer into business and in the conduct of marketing operations. This may be due to limited knowledge and skills of marketing by the majority of business operators in different sectors of the economy. Those who own or manage SMEs are not trained in various areas of management (Mboma. 1999 and 2001). Without marketing knowledge, for example, any practitioner is limited in developing innovative skills that will be complemented by choosing technology that will support its marketing operations.

Drawing from the experiences of countries such as Hong Kong, Japan, Korea, India, Singapore and Taiwan, development of human capital was supported by government interventions in their industrial and technology policies. This was associated with establishment of research organisations, support of local industries through import/

export administration regulations and most of all structured their education systems as well as contents. There was expansion in secondary and tertiary education levels in technical, science and mathematics oriented subjects including quality teaching, (Cooper 1991a). There have been reservations on Science education in Tanzania where few students study technical and science subjects.

The state of technological development in SMEs in Tanzania is relatively low as it is expressed in the following few areas.

- Products are produced under high costs, low quantities and unreliable quality.
- In processing transactions many firms use pocket calculators rather than integrated information systems or use of cash registry cum computers.
- Although ICT has no tax burden now very few SMEs can afford to buy computers. Low literacy level and the general lack of infrastructure, utilities (electricity), few service providers and poor ICT services in the country pose as a risky undertaking that discourages venturing into SME. Many of the SMEs' premises do not have power supply (Mboma, 2001). Poor state of physical infrastructure and low access of telecommunications, electricity power including minimal tech-supportive services further discourage the use of technology at a high level.
- There is a general slow growth of diffusion of technology in Tanzania. In the case of radio that was first introduced in 1954 – Radio Tanzania Dar es Salaam (RTD), a second radio station introduced in the 1960s broadcasted religious programmes to limited geographic areas. The two radio stations remained the only ones until in the 1990s when private stations were allowed to operate. In the case of other forms of media, Tanzania Mainland Tanzania started its first Television station after 1995, mobile phones in 1997 and private newspapers after 1990. Newspapers between 1970 and mid the 1990s were restricted to government, ruling party and religious institutions owned papers. Other papers were a few and had a limited number of copies since they were specific to defined targets such as religious groups.

Government policies, controls and attitude towards certain goods such as white products influenced non availability of marketing facilities. Despite the opening of the economy ands uplifting of controls, the majority of SMEs do not have sufficient capital, knowledge and skills to acquire and adapt technology that is available on the market. Other factors include:

- Weak supportive structure, no regular electric power supply
- No accessibility to technical centres.
- There is high taxation without supporting services.
- Weak telecommunications and communications infrastructure. Cities and towns' plans are not properly designed; no streets names and houses without numbered.
- There are a small number of internet user's mostly young people who do not have income. Very few surf the Internet.
- Language barrier. Web sites are written in English language where the majority uses Kiswahili language. The newly inaugurated Klinux operating system is yet to be perfected in use as the only one Swahili system.

Cultural barriers as larger number of customers do not tend to pay for utility services such as such as telephone companies and electricity power supply. Although prepaid services have been introduced such services are also unreliable rendering power supply and communications not accessible all the time, which contribute to low dependability on ICT uses. Furthermore **there is an unsatisfactory ICT related services such as** use of Automatic Machines (ATM) that dispense cash in Tanzania. Services are still unsatisfactory and increase customers' costs since they have to switch from one branch to another to access cash negating the flexibility that is supposed to be offered by traditional banking services not achievable by ATM technology (Guru, 1990 and Hart, 1996). So traditional mass technology (TV, radio, mail, telephone and automobile) continue to be widely spread and used than the Internet for example.

Any Support to Acquire Technology by SMEs?

There are not many firms that have access to technology though defined institutions. However, few Non-Governmental Organisations (NGO) that are trying to support firms to acquire some form of technology. An example is SERO which is an NGO that supports women projects and is supported by the Dutch Government. The programme supports the purchasing of equipment that is needed by a businessperson. NGO - Pride Tanzania under the support from Nordic Countries, supports people in shoe making and watch repairs, otherwise there are some informal supports which are granted by private retailers often based in urban centres.

Banks and other formal financial institutions hold on SMEs as they form a large part of the informal sector. Despite that fact that the government has expressed its recognition of the sector, the mind set by many of the financial institutions has not changed because many regard SMEs as high-risk business partners.

THE FUTURE OF MARKETING TECHNOLOGY IN SMES IN TANZANIA

The paper urges business owners to take technology as a strategic component in their business planning and streamline it through all firms' operational areas. This move will revolutionise and enhance business growth. This move is more important now than ever before because of global changes that are taking place in the business environment. Direct marketing is a new trend in doing businesses that challenge traditional marketing strategies. Marketing practices have to change because customers can be reached directly and are willing to buy directly from producers and not from intermediaries - the distributors who contribute to higher prices. Should firms reorganise to mail delivery? The presence of new couriers who operate globally (DHL< UPS< TNT, EMS etc. is possible to deliver goods globally.

SIDO, NGOs, the Ministry of Trade and the Direct Investment Centre (DIC) have to establish a technology centre that will be accessible to SME s. This will provide leasing or leasing with buying as a way forward to develop the market sector.

Researchers should continue studying SME in relation to its technology with a motive of solving those challenges identified above.

CONCLUSION

Production technology level in SMEs is largely manually operated and, to some extent, have access to semi and automated technology.

Prices are communicated verbally by sellers, otherwise simple tools such as a paper cut and a pen suffices to make price tags. However, better managed and growing grocery as well as supermarket categories of retail stores use small price tag machines. Integrated scanners and cash registers are gradually being adopted by retailers at counters.

In the case of distribution, a minimum level of technology is utilised. For example, in the food sector, domestic appliances such as refrigerators and deep freezers are used to preserve foods because it is largely sold with minimal processing. Again new shelves display and act as coolers that preserve foods in stores.

There has been a fast growth in areas of marketing communications especially after introduction of a liberalised economy and uplifting of taxes on ICT since year 2002. Large, bright and informative posters have decorated Dar es Salaam city and other towns in the country. The rising number of television, radio stations and online communications allow businesses to facilitate their marketing activities. There is no uniform application of technology in marketing functions and operations. For example, application of multimedia technology in areas of communications and graphics is not utilised by all medium level businesses. This is evidenced in Dar es Salaam City and other towns in the country as noted by huge, large and small posters including billboards.

The other marketing processes have limited technology application. Low producer technology contributes to low production of goods and services, low service quality delivery. However, it is noted that the level of technology application is low in many of the SMEs because f lack of capital, exposure and limited services to maintain technology. There is an attitude of not appreciating technology due to availability of cheap labour. The cheap labour is generally low and risky to use due to the low literacy level, increased labour disputes and production of non-standardised as well as low quality of products.

Electronic marketing is a new marketing phenomenon that is still developing at a relatively high speed. Some actions and behaviour of sellers pry into privacy or contravene individuals' rights. Public policies and ethical issues are being instituted in order to address abuses, deception, fraud and various kinds of unfair practices in DCs. Much as e-commerce is used at a low scale in developing countries, the trend also shows a fast growth in 20 years to come for Tanzania. This is mainly influenced by globalisation where local thinking is globally oriented. Information, communication and technology are a means of implementing marketing operations successfully. It cannot be avoided.

The paper concludes by urging business owners to take technology as a strategic tool in their business plans and streamline it all over operations, marketing inclusive, in order to revolutionise as well as enable growth of small and medium enterprises.

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