

Thornton, P. K., Galvin, K. A., & Boone, R. B. (2003). An agro-pastoral household model for the rangelands of East Africa. *Agricultural Systems*. **76**: 601–622. United States Agency for International Development (USAID). Kenya- Mwaluganje Community Elephant Sanctuary: From Corn to Conservation. Available from <http://www.usaid.gov/regions/afr/ss02/kenya6.html> Accessed December 23rd 2003.

Weladji, R. B., Moe, S. R., & Vedeld, P. (2003). Stakeholder attitudes towards wildlife policy and Benoue Wildlife Conservation Area, North Cameroon. *Environmental Conservation*. **30** (4): 334-343.

Waithaka, J.M. (1994). The Ecological Roles of Elephants in Restructuring Plant and Animal Communities in Different Eco-climatic Zones in Kenya and their Impact in Land Use Patterns. *PhD Thesis* Kenyatta University, Kenya.

B2012-15: Assessment of Competitive Intelligence in Research Institutes in Kenya

Koskei Reuben¹, Njanja W. Lily², Maina Patrick³

¹Kenya Agricultural Research Institute, ² Kabarak University, ³Kenya Agricultural Research Institute, rkoskei@kari.org.

Abstract

This paper gives understanding of competitive intelligence in relation to research and innovation for sustainable development in Africa. The process of competitive intelligence analyzes the external business environment to ensure that managers get the right information about the competitors in the business industry. The statement of the problem was to find out the awareness, attitudes among the competitors and monitoring of information in external environment by research institutes in Kenya. The objectives of the study was to establish extend of competition in the business environment, the challenges facing competitors in research and innovation and to establish if firms adopted information technology in decision making. The methodology used was simple random sampling to collect the data from the participants. Target group of the study were mainly scientists who had a population of 180. The sample population of the study were 60 participants. The data collected was analyzed using the SPSS programme. In the study, the researcher found out that most of the research institutes were not aware that competitive intelligence is important technique in the business environment. In conclusion, competitive intelligence is a unique programme that requires operators of the business environment to understand and keep a close watch with external environment and new innovations for business sustainable development. In recommendation, the study found out that the stakeholders in the business environment to undergo capacity building to acquire skills for effective competitive intelligence access of information in external environment.

Key words: *Environment, innovations, ICT, techniques, sources of information and government policy.*

Introduction

Competitive intelligence is a technique that enables enterprises to know how the competitors perform in the external environment. This is the new area where the business will get information from the external environment. It is essential for firms to get required data, analyze and interpret in order to make informed decision especially to remain competitive and improve the innovation process.

The statement of the problem was to find out the awareness, attitudes of other competitors and monitoring of information in the competitive environment. The research objectives were:

- (a) To establish extend of competition in the business environment
- (b) To establish the challenges facing the competitors in research and innovation
- (c) To establish how firms adopt information technology in decision making.

The research questions were as follows;

- (a) How extend was competition in the business environment?
- (b) What challenges were facing the competitors in research and innovation?
- (c) Do the firms adopt information technology in decision making?

Literature review

Competitive intelligence is a systematic process that involves planning, gathering of information, analyzing and disseminating information on external environment for opportunities or developments that have the potential to affect the enterprise's competitiveness situation (Calof and Skinner, 1998). Calof (2006) further noted that competitive intelligence is not restricted to data on competitors, but extends to suppliers, customers and legal, technological and political environment in which the organization operates. It stressed that all sources should be legally and ethically identified and accessed. It is not about market research or business scanning, rather it is a process of knowing what the competition is upto and saying one step ahead of them, by gathering information about competitors and ideally applying it to short and long term strategic planning. Joynal (2009) narrated that it is the government policy to ensure that there is fair play ground in competition that create conducive business environment and enhances the business to utilize the gathered information ethically for the benefit of end users. For intelligence to succeed, the information collected must be actionable and contain enough information to help the business to develop better products, better deliverables, better marketing and better customer service.

The business environment embraces information and communication technologies to sustain its operation. McClurg (2001) noted that ICT offers support to competitive intelligence by gathering and analyzing information about one's competitor activities and general business trends to further one's own company's objectives. It is employed at all levels of the business in strategic decision making for instance use of the internet facility. It supports specific methods for identifying, storing and disseminating strategic information needs for the business environment.

Competitive intelligence provides business information from the external environment that requires be analyzed and interpreted. Therefore, innovation creates the business to get new ideas, new methods of

production, processes of high quality products or service and new organizational structure which relates to doing things differently to the satisfaction of customers needs. Research Institutes are required by the government to use available means to generate new technologies to improve food sustainability in the country (KARI ISO 2008 Certification). Every year budget for instance 2012-2013, has allocation for the ministry of Agriculture which includes research institutes that spells out what they are required to achieve within the time frame of the utilization on the available funds.

A successful business strategy requires that awareness about the company's environment including the customers both internal and external, industry structure, competitive forces, and suppliers among others. Competitive intelligence enhances information collection which the research institutes requires much attention. It lacks its mandate that information from the environment needs to be utilized to sustain research and innovation sustainability in decision making. Competition is healthy in an environment where competitive intelligence is really considered as important tool for innovation and improving the company process of products or service. Strategic plan for most research institutes ranging from 2010 to 2015 stipulate that they improved technologies to increase production for the benefit of end users. To address the constraint of lack of information, attitudes of competitors and monitoring of information in the business environment, the study was initiated to understand the situation in relation to competitive intelligence in research institutes.

Use of Information and Communication Technology (ICT)

It is important in the business environment to use ICT facility for a competitive intelligence process. Rouibah and Ould-ali (2002) noted that organizations need to be careful in selecting and implementing ICT applications for intended purposes. It gives the direction in the sense that the organization determines its strategic information requirement, aspects in the environment data should be collected, source of data collection, analysis of data to determine whether they are useful for strategic purposes and dissemination of processed information to managers of the business to make strategic decisions and used to formulate their strategic plans. To make such events successful, the business should implement the so-called "intelligence infrastructure". This is the aspect of technological part of the infrastructure that supports the competitive intelligence activities. Examples of ICT include the use of internet for direction or collection activities that CI requires for successful implementation. ICT can be employed at all levels of the business functions for instance at operational levels e.g aiding sales representatives in asking questions to customers and storing the answers, at the tactical level supports the management to analyze the environment information and at the strategic level, it represents overviews of trends and their effects on the current or projected strategy.

Therefore, ICT clearly defines an exact classification according to these dimensions where it is meant to support strategic decision-making process in the competitive business environment. These include the use of intelligence software that analyze the collected data and interpret to aid managers in decision making for the business sustainability. The ICT also defines the techniques used by competitors in CI in order to remain competitive in the business environment. Strength, weaknesses, opportunities, and threats (SWOT) analysis is one of the most popular competitive intelligence analytic techniques. This defines both internal and external environment in the business operation.

Sources of information

For effective CI, it is important to understand the sources of information in the competitive environment. It includes both internal and external sources. Internal sources is required to understand the business needs for instance what really the company requires from the competitive intelligence programme by involving staff at all functions at the beginning to get support and manage expectations and uncovering latent knowledge about the competitors. Competitors sources includes publications, patents, advertising, web sites, customer service and PR departments, direct interview with employees at trade shows or other events, product purchases, evaluation and observation. No business operates in isolation, hence release information during promotion, image, and regulatory purposes. Competitors share customers, dealers, and suppliers who can be interviewed. Fuld (2002) noted that where money is exchanged, so information. Also he further noted that every business has many employees with loose lips who can release information about the competitors. He divided the sources of information into direct sources namely; company sites, portals, search engines, press releases, industry (market) analysts, government, financial analysts, employment adverts, trade shows, technical conferences, employment interviews, meetings and panels. For indirect sources it includes; customer interviews, sales force, representative and distributors, suppliers and partners and former employees. These information guides the business managers in relation to strategic decision making that bring the company into a situation that can improve its serving delivery or product development process.

To sustain such information, business identities needs to operate within the law. The government guides the business through legislation and therefore, they are required to adhere to the provision provided by the law. It is the government policy that for effective competitive intelligence, it must operate within the law. Any policy passed by the parliament have direct impact on business for instance in research institutes, almost 90% of the funding for research and development is from the government. The research

institutes are mandated to collect information, analyze it and make recommendation to the government for further action. Therefore, the research institutes needs to be aware of the external environment, attitudes of the competitors and monitoring of information for research and innovation for sustainable development. The study collected information from research institutes that give the solution of the problem under study.

Theory review

During the process of the study, the researcher used two innovation models namely, private and public sectors innovation models. In the private sector model, the end users were linked with non research institutions for instance ILRI, Kenya Seed Company and non government organizations who are also engaged in competitive intelligence in the business environment. The process involved that the private sector innovation normally has to register their latest innovation with the government through National Council of Science and Technology for further verification. For the public sector model, the end users are linked with government institutes like KARI, Kephis, Kefri, Kevevapi, Coffee Research foundation, Tea Research Foundation in order to get latest information and innovation in various specialization fields. For instance, the KARI Scientific Conference to be held in October, 2012 which has its theme as “Agricultural Innovation system for improved productivity and competitiveness in pursuit of vision 2030. Such benchmarking of the two models gives competitive edge to the end users in the business environment. Innovations strengthen the information availability through creating norms of the business organization by targeting potential customers. They have to practice the best culture in operating their business ethically and legally according to the government policy.

The research institutes and the private organizations are required to operate with the law by inventing new innovation that gives the best quality or service to the end users. In Kenya, most of exhibitions of new innovations by either public institutions or private organizations are normally done through a competitive process and normally conducted by the Ministry of Higher Education. The research institutes and private research organizations generates new innovations which characteristics are to internalize with external environment. Due to targeting the same marketing environment, the competitors still lack information, attitudes of other competitors and even monitoring the external environment for research and innovation for sustainable development.

Empirical review

The research institutes occasionally had workshops, seminars with stakeholders to deliberate on the latest technologies in the external environment. These are government institutes which are required to work towards achieving vision 2030 in terms of competitive intelligence. The research institutes involved in the study were Kenya Agricultural Research Institute (KARI), Kenya Forest Research Institute (KEFRI), Coffee Research Foundation, Tea Research Foundation, Kenya Sugar Research Institute. The research institutes hold key information to research in the country. Despite their performance contract targets, there are also private sectors in the same service industry for instance International Livestock Research Institute, Kenya Seed Company, non-government organizations who competes with government institutes in research and innovation sustainable development. Competitive intelligence participatory approach was used in the research institutes for identification of awareness, attitudes of other competitors and monitoring of information in the external environment.

Research Methodology

This entails the research designed used to achieve the objective of the study. These covered the research design, population, sample population, instruments used to collect data, and data analysis.

The research design

The researcher used descriptive research design to achieve the objective. The researcher used the method in order to describe the events in the study. The data collected were analyzed and tabulated in tables and pie chart.

The population

The study was conducted at research institutes namely Kenya Agricultural Research Institute (KARI), Kenya Forest Research Institute (KEFRI), Coffee Research Foundation, Tea Research Foundation and Kenya Sugar Research Institute. The study targeted mainly researchers in the institutes which had a population of 180.

Sample population

The researcher used a sample population of 60 in the study. Since they were mainly scientists, the data collected were based their mandate in research and innovation in respective fields.

Instruments used in data collection

The population under study were 60 participants but the returned questionnaires were 35. Given the strong strengthening element and model evaluation aspects imbedded in the participatory approach, the competitive intelligence requires monitoring process with the external environment for research and innovation for sustainable development. The instruments used were questionnaires and interview guides

to collect data for the study. The researchers and stakeholders were involved to understand extend of competition in the business environment, challenges facing the competitors in research and innovation and adoption of information technology in decision making. Most of the researchers generate new technologies which are useful to the farmers and ensure that it produces high quality products or service. The management evaluates those technologies while making their decisions in implementing the business strategies. The government which is the main stakeholder usually requires the research institutes to put in place measures that give healthy competition in the market. It gives guidelines in terms of policies to be followed by relevant ministries. Competitive intelligence (CI) enables research institutes to utilize the knowledge gaps and improves the production activities or service delivery.

The researcher identified staff of the research institutes mostly researchers as key participants to give information about competitive intelligence that influence their decisions in respective fields. To achieve the study, pilot test was conducted to enable the researchers understand why it was necessary to gather information about the external environment. A strategy was developed to ensure that researchers were available in their departments in order to participate in the process. The stakeholders were also informed to understand why there is need to collect data, analyze and interpret it for the benefit of the business environment especially in decision making. During the briefing, the participants were made aware that the external environment keeps on changing in terms of innovation and technology. This requires that the research institutes need to cope with situation for the research and innovation for sustainable development in Kenya.

Collection of data from the scientists

Using a simple random sampling procedure, a pilot test was first conducted before data collection to establish the pre-adoption social-economic situation and willingness of participating researchers. During the test, participatory analysis of needs and constraints of competitive intelligence in the business environment and practices of research institutes in monitoring the use and current innovation was also undertaken. This formed the basis of subsequent activities including mobilization of researchers, involvement of management in the process and time framework to get the data using the questionnaire, interviews and observation methods were developed for the study.

For effective utilization of the resources available, questionnaires were distributed to scientists for research institutes in Kenya to enable data collection required for competitive intelligence on the awareness, attitudes with other competitors and monitoring of information in the external environment. A training curriculum was organized for interviewers to enable them understand what was required on the problem under study. Training of trainers covered the technical aspect of competitive intelligence including scanning of environment, competitors in the same industry, current technology used, new

innovations and the need for improvement. This involves 60 scientists in various research institutes in Kenya. They were 35 women and 25 men. The overall essence was whether scientists in research institutes often utilize competitive intelligence by collecting data, analyzing and integrating for their business strategy focus. Since the research institutes hold vital information to the end users, but need to be improved to enhance research and innovation for sustainable development in Kenya. Those who participate in the process were to disseminate the information to their line managers to factor in the aspect of competitive intelligence in decision making process. They used the acquired knowledge and skills to improve their research activities that will benefit the country as whole and eventual achievement of Kenya Vision 2030. At the end of the programme, each participant was given questionnaire to give honest answers to the questions pertaining to competitive intelligence in research institutes. The other method used was interview guide to get first hand information on the areas to address the problem under study.

Data analysis

This involved interpreting of data collected from the participants. Once questionnaires were completed and collected from each departments of scientist, the researcher compiled them. The information was then analyzed using SPSS programme.

Findings and discussions

- Most of the research institutes scientists were not aware that competitive intelligence is important in their business environment. There are other private sectors who also do research on the same, target the same market or customers, hence increasing chances of high competition.
- Most of the scientists are potential in new innovations but does not consider the other competitors in the same business environment. They worked as partners or stakeholders for the generation of technologies to create competitive edge in the field of research. They need to work in collaboration for the benefit of end users.
- The linkage between the private sector, public sector and end users has enables the competitive intelligence to be the most relevant field in business environment for research and innovation for sustainable development.
- To succeed in the competitive environment, the researchers uses available means to gather information through public, media, internet, launching of new products, sharing of customers, dealers and suppliers and interviewing of employees.
- It was established that the data collected, analyzed and interpreted are required by the managers and use such information legally and ethically in decision making.

- The type of co-operation among the competitors creates competitiveness in the business environment. Competitive intelligence creates the business environment more unique and proactive in the management style.
- Success of the instruments used to collect the data has lead scientists to gain more knowledge about the changes from the business perspective. They scrutinize the external environment if there is any new innovation that can improve their products or services.

Discussions

From the baseline survey, it showed that competitive intelligence has not been addressed adequately by research institutes in Kenya. It is important to note that scanning the business environment helps the competitors to access vital information about current market share and innovation in the competitive environment. It therefore meant that competitive intelligence involves frequent monitoring of information; assess the needs of both internal and external customers, suppliers and general public. It also enables the competitors to improve their process by involving the stakeholders in decision making to avoid any resistance in implementation stage.

The following table shows the number of participants in the process to address the problem under study. They were 35 women and 25 men who were involved in the study.

Table1. The number of research institutes involved in the process

Description	No. of participants	%
KARI	20	33.3
KEFRI	15	25
Tea Research Foundation	5	8.3
Coffee Research Foundation	10	16.7
Kenya Sugar Research Foundation	10	16.7
TOTAL	60	100

Table 2. Participants who returned the questionnaires

Item	Distributed	Returned
Male	35	20
Female	25	15
Total	60	35

Table 2. Improvement of collaboration by the scientists after awareness (N= 60)

Description	Scientists (%)
Awareness of information	65
Tracking of the external environment	60
Integration of information interpreted	58
Frequent market survey	50
Positive attitude to other competitors	55
Adoption of new innovations	65
Conducive business environment	60

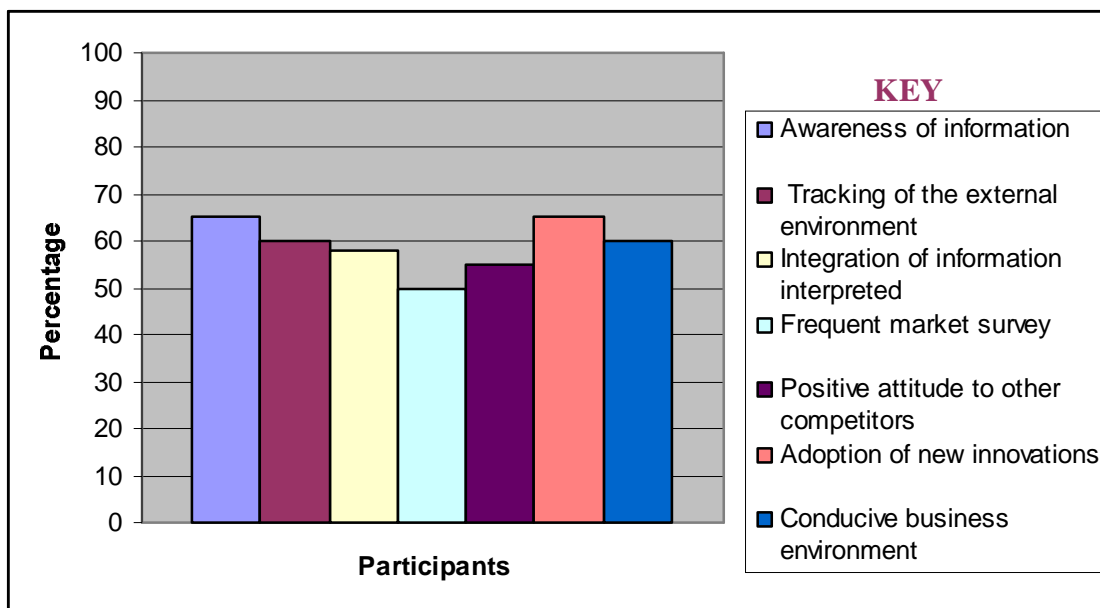


Figure 1: Improvement of collaboration by the scientists after awareness (N= 60)

In Table1 above, it showed that there were more participants from KARI who wanted to know the importance of competitive intelligence in terms of awareness, attitudes with other competitors and monitoring of information about the business environment. These research institutes normally does various specialize fields in collaboration with other stakeholders to fulfilled their mandate. These research institutes normally does various specialize fields who are mandated to assist the farmers as the ultimate end users. Their inputs are very important as they release latest breakthrough to the market for adoption and evaluation. During the study, it was noted that competitive intelligence plays a key role in research and innovation for sustainable development in Kenya. This is derived by the fact that there are other competitors in the same service industry hence are required to analyze external environment in order to remain competitive in the business operation.

In the above table 2, it showed that the number of respondents who gave in their inputs during the study. This contributed to the success of the study

In table 3 and Fig. 1, the researcher noted that after analyzing the questionnaires, the scientist increased understanding about competitive intelligence in the business environment. It was realized that there was need to keep close watch with other competitors to ensure sustainability of the business. It was also noted that collecting such information is very important as it aid the management decision making process. It increases chances of awareness as well as know who other competitors offers the same service or product to the same target market. The scientist appreciates the importance of the data collection instruments since it shaped skills and knowledge in discharging their normal duties and responsibilities in the business operating environment.

Summary, conclusions and recommendations

Through testimonials by participating scientists of research institutes in Kenya, such forum has made significant contribution in data collection, analyzing and interpreting the information in external competitive environment. Such available information has made the competition in the environment more informative and keen to the new innovation and adoption for sustainable development. Through increased knowledge, the scientists moved ahead to monitor information to ensure that the end users get right quality of products or service.

For instance, scientists after interviewing them gained understanding that more exchange of information is vital and key to the business operation. The available information contributes to the business strategies innovation and frequent moderation of information that keeps in line with customers' satisfaction. Competitive intelligence awareness contributes to assessment of quality products or service at the right time and place. The essence of data collection was to enlighten the scientists for the need to ensure that they operate under competitive environment. The scientists were optimistic that the information collected from the external environment was crucial in decision making in formulation of business strategy. The management supports the idea of external sourcing of information for the benefit of the enterprise sustainability. Since they were government agencies, the scientists formulated policies that ensure that competitive intelligence is carried out and used ethically and legally. The stakeholders and the organizers built a positive culture that enhances awareness of the need to make references to the external environment. It was established that competitive intelligence plays an important role in building co-operation with the competitors in the business environment. Most of customers prefer innovations that give best results for their end use.

Conclusions

There is limited availability of awareness, attitudes and monitoring of information, which is attributed to lack of technical knowledge in competitive intelligence. It is a unique programme that requires operators of the business to understand and keep a close watch with external environment and new innovations for business sustainability. It is an eye opener to the business strategies and competitive environment. The business environment is so unique that requires understanding and utilizing the available resources to gather information for decision making for the benefit of business sustainability.

Recommendations

The stakeholders in the business environment need to have constant consultations on areas that require their attention. They are required to undergo training to acquire skills for effective competitive intelligence performance. The managers' needs to make decisions from the information collected, analyzed and interpreted for the business' innovation and competitiveness in the external environment. It requires involvement of all stakeholders when such decisions are undertaken for the business strategic plans. The customers, suppliers, competitors, creditors, employees and government need to collaborate for the business research and innovation. Conducive environment is required for the research and innovation that reengineer competitive intelligence process and makes the business sustainable. The managers need to be taking into account the element of information from internal and external environment. It is vital to the business and awareness of the competitors in the external environment for research and innovation for sustainable development.

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References

Calof, J.L. and Skinner,B. (1998). *Competitive Intelligence for government officers*.

A new world, optimum, vol.28 No.2, pp.38-42.

Calof,J.L. (2006). *Selling competitive Intelligence. Competitive Intelligence magazine*,

Vol.11No. 1,pp.39-42.

Chen, H. Chau, M., & Zeng, D. (2002). CI-Spider. A tool for competitive intelligence on the web. *Decision Support Systems*, 34, 1-17

Fuld & Company, (2002). *Intelligence Software Report 2002*.

Found at: <http://www.fuld.com>.

GOK (2007). *Government of Kenya, Vision 2030: Ministry of Planning and National Development*.

Joynal, A. (2009). *The impact of government policies & world order on Business*.

Rouibah, K. & Ould-ali, S. (2002). A concept and prototype for linking business intelligence to business strategy. *The journal of strategic information system*, 11(2), 133-152.

McClurg, R. (2001). Using the internet for gathering competitive intelligence.

Managing frontiers in competitive intelligence pp.61-76. Westport: Quorum.

13th KARI Biennial Scientific Conference and exhibition of Innovations for October, 2012.

Research Institutes annual Budget, 2012 to 2013.

Research Institutes Strategic Plan, 2010 to 2015.

ISO 2008 certification for research institutes

B2012-16: Recruitment and Development of Academic Staff in Public and Private Universities and university colleges in Tanzania

Mchallo Simphorosa¹ & Peter Simon¹

¹ University of Dar es Salaam, sikuwe@yahoo.com

Abstract

This paper investigate how academic staff are recruited and developed in public and private universities and university colleges in Tanzania, the procedures followed by them to ensure their academic members of staff are developed through academic ladder and how effective is these procedures bear fruits in raising teaching, research and community services, which are core functions of university. Seven