

Assessment of Design-driven Innovation within Botswana's Small Creative Industries

Richie MOALOSI, Oantata SEALETSA, Olefile MOLWANE, Paulson LETSHOLO, Shorn MOLOKWANE, Chinandu MWENDAPOLE, and Matlhogonolo LETSATSI



Richie MOALOSI, University of Botswana, Botswana

Richie Moalosi is an Associate Professor and Head of Department of Industrial Design & Technology at the University of Botswana. He obtained his PhD from Queensland University of Technology, Australia. His research interests include culture-centred design, design-driven innovation and co-creation sustainable product/services with local communities. Contact: moalosi@mopipi.ub.bw

Oantata SEALETSA
University of Botswana, Botswana
Lecturer
sealetsa@mopipi.ub.bw

Paulson LETSHOLO
University of Botswana, Botswana
Lecturer
letshopm@mopipi.ub.bw

Chinandu MWENDAPOLE
Botho University, Botswana
Researcher
chinandu.mwendapole@bothouniversity.ac.bw

Olefile MOLWANE
University of Botswana, Botswana
Senior Lecturer
molwaneob@mopipi.ub.bw

Shorn MOLOKWANE
Botswana Institute for Technology
Research & Innovation, Botswana
Design Engineer
shornie@gmail.com

Matlhogonolo LETSATSI
University of Botswana, Botswana
Demonstrator
Matlhogonolo.letsatsi.ub.bw

ABSTRACT

This paper assesses whether design-driven innovation assists Botswana's creative industries in creating added value to the products and services they offer. Evidence from the literature shows that the ability of any creative industry to successfully compete in the global market depends on how it innovates its products and services. However, this area is under-researched as none of the studies reviewed have actually attempted to explore the technical landscape of design and innovation in the creative industries in Botswana, except research in business and management innovation. Botswana is diversifying her economy from overreliance on minerals to manufacturing and tourism. Since creative industries elsewhere have proved to be the drivers of the economy, this paper investigates the role played by this sector in contributing to the diversification of the country's economy. The results show that there is a weak link between the creative industries and research and development institutions and this has hindered the development and promotion of local technological capabilities such as the creation of sustainable high quality products and efficient services.

Keywords: Assessment, Botswana, Creative industries, Design-driven innovation, Products, Services

1. INTRODUCTION

Successful exploitation of new ideas has driven economic progress of many countries. New technology and scientific understandings have unleashed new waves of innovation, creating many opportunities for creative industries to gain competitive advantage (Innovation Report, 2003). The creative industries of today should be knowledge-based entities because their success and survival depends on creativity, innovation, and design. Research shows that design-driven creative industries are more innovative than others (Cox, 2005; European Commission, 2010). The challenge for the creative industries is to move from competing on costs to competing on unique value and innovation.

Botswana, once one of the poorest countries in the world, with a GDP per capita of about US\$70 per year in the late 1960s, has become one of the fastest-growing economies in the world. At present it is an upper middle-income country with a GDP per capita of about US\$18,825 per year as of 2015 (purchasing power parity), one of the highest in Africa. Botswana's engines of growth are predominately mining and to a lesser extent, agriculture. This growth has been heavily reliant on exports of diamonds and other minerals, and beef. However, the minerals will not last forever, and the government is trying to diversify the economy to manufacturing and tourism. The government is also promoting citizen economic empowerment as it is critical if the future growth of Botswana is to be sustained through private sector expansion. The government is also developing the creative industries as a key policy driver for economic diversification to create employment opportunities (MFDP, 2003; Okurut, Olalekan, & Mangadi, 2011; Sentsho et al., 2009). However, the creative industries are still in their infancy in design, creativity and innovation. If well nurtured, creative industries can be a source of socio-economic growth, jobs, innovation, and trade, while at the same time contributing to social inclusion, cultural diversity, and sustainable human development.

Lack of an innovative programme aimed at instilling a culture of continuous innovation among creative industries has been cited as an impediment to this sector's growth in Botswana (Local Enterprise Authority, 2008). The Local Enterprise Authority's report on *small micro enterprises* (2009) identified lack of support for product development and quality of products and services produced by creative industries as major challenges in Botswana. Globally, competition is increasing as a result of trade liberalisation, and movement of financial capital and information. Botswana's creative industries are no exception to this fierce business competition as they will find it increasingly difficult to compete favorably based on low cost, labor intensive industries exposed to international competition (BIDPA, 2007). Moreover, Temtime & Pansiri (2004) argues that today's business environment is turbulent and requires firms, small or large, to be proactive and innovative rather than reactive and receptive if they are to survive and grow.

Innovation is regarded as an essential tool for stimulating growth and enabling enterprises to master the competition brought about by globalization. Innovation matters to customers because it means higher quality and better products, more efficient services, and a higher standards of living. It is also important for business because it leads to sustained or improved growth and higher profits (Innovation Report, 2003). Innovation in the economy is the key to higher productivity and greater prosperity. Conversely, absence of creativity, design and innovation can lead to business stagnation and loss of jobs.

The objective of the study is to audit the level of product and process innovation by considering the effects of innovation, sources of information about innovation activities, and innovation expenditure in Botswana's creative industries. A survey of creative industries in Gaborone and surrounding villages was conducted. The results lay the foundation for a qualitative study to develop a framework which will assist Botswana's

creative industries in using a design-driven innovation approach to enable the sector to remain globally competitive.

2. INNOVATION, CREATIVITY AND DESIGN

Previously, innovation was largely identified with research in new technological solutions. However, in recent years the definition of innovation has centered on customer satisfaction as a priority over the technological notion of product or process innovation. This emerging trend emphasizes customer needs and requirements and is thus design-driven innovation (Rampino, 2011; Verganti, 2009). Design-driven innovation is an innovation approach that seeks to create products and services that have a radical new meaning. It is a major source of long-term competitive advantage (Verganti, 2009).

Creativity in design plays a pivotal role in imparting innovative skills and knowledge in the creative industry business environment. Design fosters a culture of innovation and creativity not only in business, but through the development, presentation and branding of products, processes, or services. Design also enhances people's lives through enriching cultural and social experiences, uniquely shaping their future. It shapes ideas to become practical and attractive propositions for users. Mazota (2006) reports on the four powers of design in a study conducted with European small and medium enterprises. The four powers of design are as follows:

- (1) Design is a differentiator: a source of competitive advantage on the market through brand equity, customer loyalty, and price premiums.
- (2) Design is an integrator: a source that improves new product development and processes.
- (3) Design is a transformer: creates new business opportunities and improves the enterprise's ability to cope with constant change.
- (4) Design is good business: a source of increased

sales, greater market share, better return on investment, and more brand value.

Design may be described as creativity deployed to a specific end. It links creativity and innovation. Design is a capability that transforms products and services to improve their functionality, efficiency and style. It is a fundamental building block of innovation, a critical enabler of competitive creative industries and is vital to building sustainable and cohesive communities. Design in this case refers to a process concerned with the creation of an entity. It is a tool for the realisation of innovation. It is the activity of conceiving and developing a plan for a new or significantly improved product, service or system that ensures the best interface with users' needs, aspirations and abilities, and allows for aspects of economic, social and environmental sustainability to be taken into consideration (Commission of the European Communities, 2009). Design is increasingly considered as a dynamic tool in the innovation process and in turn, innovation is increasingly viewed as a force for economic growth.

2.1 Models of Innovation

Rampino (2011) reports on a model of design-driven innovation process which includes the following:

- (1) Aesthetics innovation – This type is related to product recognition, attractiveness, and external appearance of the product in order to attain differentiation from the competitors.
- (2) Innovation of use – the stage can also be referred to as functional innovation and involves the degree to which a product improves or modifies its usage by the addition of new functions as compared to the competitors' products. It also involves the considerations of issues of usability, maintainability, quality of use, safety, and reliability.
- (3) Meaning innovation – this involves the emo-

tional and symbolic aspects of a product which can be interpreted from a specific socio-cultural context. Product meaning is closely linked to the cultural context and the respective value system and this makes products more symbolic to their users. Dell’Era and Verganti (2007) asserts that meaning innovation can be achieved only when the market shows it understands the new meaning and thus making the product successful.

- (4) **Typological innovation** – communicates the departure of a product from its formal archetype. Product archetypes evolve due to cultural changes and technological innovation taking place in the society. Some product archetypes, such as forks, have changed little over a long period of time. Research shows that products that have radical archetypes struggle to gain acceptance in the market because users struggle to map them onto an existing product category (Rindova & Petkova, 2007).

Beacham (2006) identified the following six approaches to innovation in order of increasing in-

vestment: (1) Incremental - continuous product and process improvement, (2) New design - using design and customisation to add value, (3) New business model - embedding the product inside a service, (4) Increasing functionality - e.g. addition of software technology, (5) Applying technology - fusing different technologies to add a product or service value, (6) Breakthrough - exploiting new technology. The first three stages can be loosely categorised as market-pull and the latter three as technology-push.

In addition to the innovation models proposed above, Norman and Verganti (2014) advance an innovation framework which focuses on two dimensions of technology and meaning change (Figure 1). Technology change focuses on novel technologies developed by industries while meaning change examines the emotional, psychological, utilitarian and socio-cultural reasons why people buy products and services.

Norman and Verganti (2012) argue that this innovation framework connects technology innovation and meaning innovation with the innovation

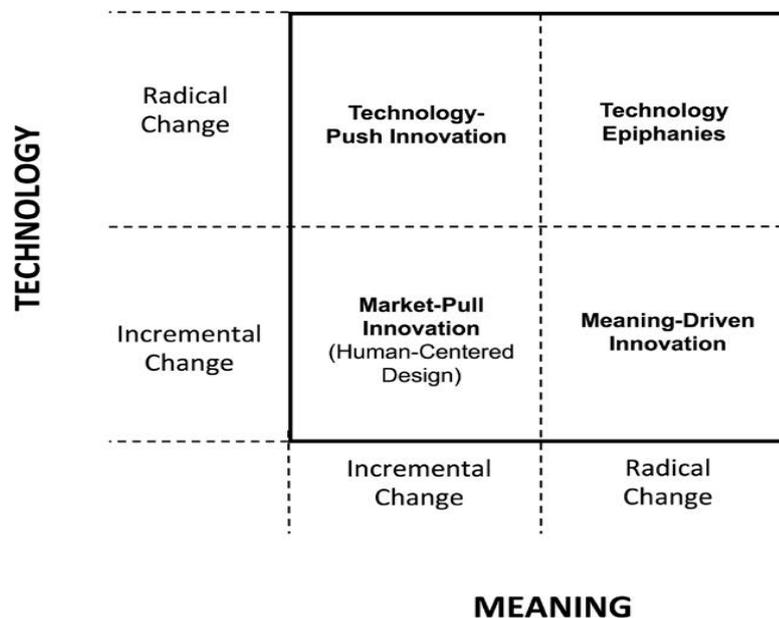


Figure 1. Dimensions of technology and meaning change
Source: Norman and Verganti, 2014 (p. 89)

drivers such as technology, design, and users. From this model, four types of innovations can be identified: technology-push, meaning-driven, technology epiphanies, and market-pull (Verganti, 2008; 2009). In describing these types of innovation Norman and Verganti (2014, p. 90) contend that:

- (1) Technology-push innovation - comes from radical changes in technology without any change in the meaning of products e.g. the invention of colour TV sets.
- (2) Meaning-driven innovation - starts from the comprehension of subtle and unspoken dynamics in socio-cultural models and results in radically new meanings and languages, often implying a change in social-cultural regimes e.g. the invention of the miniskirt in the 1960s.
- (3) Technology Epiphanies - bring a radical change in meaning enabled by the emergence of new technologies or the use of existing technologies in totally new contexts e.g. the Wii video game console and the Swatch watches.
- (4) Market-pull innovation - starts from an analysis of users' needs and then develops products to satisfy them.

Any innovation which can take place within the creative industries should follow one of the innovative models described in this paper.

2.2 Creative Industries in Botswana

The creative sector is based on human creativity and intellectual capital as the ultimate economic resource. Creative industries are vital as they promote culture, competitiveness, creativity, design and innovation. The creative industries are the drivers propelling the growth of the creative economy, which offers emerging economies such as Botswana the ability to diversify its economy away from mining and agriculture. In Botswana,

the creative industries include: advertising, architecture, artistic crafts, audiovisual (such as film, radio, television, and multimedia), cultural heritage, design (graphic, communication, product, industrial, furniture, packaging, fashion, jewellery) music, performing arts, publishing, software, photography and visual arts. Botswana already hosts universities and colleges which offer these programs.

The creative industries in Botswana in their infancy and in some instances, especially in the government, the sector is considered to be a small micro-enterprise sector. However, several initiatives show that the creative sector is a stand alone entity. For example, the National Human Resource Development Strategy (2009) calls for a diversification of skills and approaches to economic development, focusing on the development of a knowledge-based economy in which the creative industries play a significant role. Processes to include the creative industries as an official sector of the Botswana economy within the National Human Resource Development Strategy are at an advanced stage.

There are no statistics on the size of the creative industries in Botswana and how much it contributes to Gross Domestic Product, thus contributing to the low national recognition of the economic gains of creative industries (Dikobe, 2010). Nonetheless, the different stakeholders in the creative industries are calling for the formation of a National Council for the creative industries which will coordinate the sector's activities and liaise with other external stakeholders such as the government and non-governmental organisations.

Avis and Stewart (2009) propose that the creative industries could lay a foundation for a new creative economy in Botswana and provide: (1) poverty alleviation and job creation; (2) social development for the young generation; and (3) diversification of Botswana's economy.

Although, the creative industries are regarded as fundamental to employment generation, innovation, and improved standards of living, major challenges continue to confront this sector. Various studies have reported on challenges faced by creative industries in Botswana such as: difficulty accessing finance (Okurut et al., 2011; Mukras, 2003; Manu, 1998; Kapunda, Magembe, & Shunda, 2007), an unfavorable regulatory environment (Jansson & Sedacca, 2000), lack of business acumen (Modisane, 2013; Temtime & Pansiri, 2004), lack of market, marketing and management skills (Jansson & Sedacca, 2000), poor business record keeping, and poor quality of products (Modisane, 2013).

In addition to these challenges, Sentsho et al., (2009) observes that the Botswana's small micro enterprises and creative industries also face the following: (1) a lack of information on creative industries program because of inadequate publicity of available creative industries programmes; (2) a lack of effective implementation of programmes that are meant to support creative industry activities; (3) inadequate institutional support such as the administrative bottlenecks creative industries encounter when they register as companies; (4) the general high cost of factory shells for business operations; and (5) inability to produce large, output and thus satisfy large domestic and foreign markets unless they are organised into clusters. These challenges hinder creative industry growth and its contribution to the economy.

3. RESEARCH METHOD

A survey was administered to 49 purposively sampled manufacturing and service industries which are involved in design-driven innovation.

The 49 creative industries that responded to the questionnaire were distributed as follows: Gaborone (33 companies – 17 furniture design, 10 graphic design and 6 fashion design), Mochudi

(2 companies – 1 graphic design and 1 fashion design), Molepolole (4 companies – 1 fashion design, 1 furniture design and 2 graphic design), Kanye (4 companies – 1 fashion design, 1 furniture design and 2 graphic design), Ramotswa (3 companies – 1 fashion design, and 2 graphic design), Tlokweng (1 company - fashion design), Gabane (1 company - ceramic design) and Thamaga (1 company ceramic). These areas are within 100km of Gaborone (the capital city). Creative industries are concentrated in the city and surrounding areas for easy access to resources and markets.

The industries surveyed were sampled based on the number of employees per entity rather than the annual turnover. The initial target was 120 creative industries which resulted in 49 responses (41%). The list of the creative industries was obtained from the Local Enterprise Authority, whose mandate is to promote and facilitate entrepreneurship and creative industries development through targeted interventions.

Research assistants were recruited to administer the questionnaires which were composed of mainly closed-ended questions with few open-ended questions. They distributed the questionnaires to designers in the targeted creative industries and after a week, the questionnaires were collected by the research assistants. A survey research design is a very valuable tool for assessing opinions and trends and it was used for this study to establish whether design-driven innovation is taking place within the creative industries and whether the innovation adds value to the products and services they produce. This method was chosen despite its disadvantages, such as inflexible design, possible inappropriateness of questions, and possible cooperation problems from some respondents which later proved to be a major obstacle to the study. However, these limitations are outweighed by the advantages of the method, including high

representativeness, low costs, convenient data gathering, good statistical significance, little or no observer subjectivity, and precise results (Creswell, 2002; Bryman, 2001; Vogt, 2011).

The study used the purposive sampling technique to collect the opinions of the target population, creative industry owners and their staff who are involved in design-driven innovation. Merriam (1998, p. 16) states that purposive sampling emphasizes a criterion based selection of information rich cases from which a researcher can discover, understand, and gain more insight into issues crucial for the study. Purposive sampling is based upon the participant specialist knowledge and experience of the research issues or capacity and willingness to participate in the research. This sampling technique was the most suitable because of financial and time constraints. It enabled focus on particular individuals who have similar characteristics (involved in design-driven innovation).

The Community Innovation Survey (European Commission, 2012) questionnaire was adopted and modified to suit the local context based on feedback obtained from the ten creative firms which were used to pilot test the questionnaire. For example, it was difficult to get responses on the company's total turnover. This was considered confidential information and questions dealing with this area were deleted.

The Community Innovation Survey gives information on the product and the process innovativeness of different sectors in the European Union (Frenz & Letto-Gillies, 2009). The questionnaire measures the following items: the driver of innovation, actors who developed the enterprise products and services, effects of design-driven innovation, design-driven innovation activities and expenditures, sources of information and cooperation for design-driven innovation, cooperating partners and their location, barriers to

design-driven innovation, and public support for innovation for the period 2012-2015. This type of questionnaire has been found to be reliable and has been extensively used to assess an enterprise's involvement in innovation activities in the European Union member states (Frenz, & Letto-Gillies, 2009; Drejer, 2004).

The data from the close-ended questionnaire was analyzed using SPSS version 21 to perform univariate analysis to assess whether Botswana's SMEs use design to drive innovation. The open-ended questions were analysed using the content analysis method. This method allows closeness to text, which can alternate between categories and relationships. It is an unobtrusive means of analyzing social interaction. This process was facilitated by the use of Atlas.ti software in the coding and data analysis.

4. RESULTS

The study assessed the design-driven innovation activities of the creative industries between the periods of 2012 – 2015.

4.1 Driver of Innovation

The majority of the enterprises said that innovation in their businesses was driven by the market (61.4%), needs (31.8%), and technology (6.8%). This shows that the majority of companies rely on market-pull incremental innovation such as improved product/process solutions enabled by analysis of the market needs.

The products and services were mainly developed by the enterprise or enterprise group without external assistance (69.2%). Only a few (20%) of the companies were assisted by other enterprises and only 10.8% had their products/services built entirely by other enterprises. These results further demonstrate that there is little involvement of external agencies that could assist enterprises with the technical and tech-

Table 1. Effects of design-driven innovation (N=49)

Statement	Not relevant	Low	Medium	High
Increased range of products or services	5	4	21	19
Entered new markets or increased market share	5	13	18	13
Improved quality of products or services	3	1	23	22
Improved flexibility of production or service provision	3	7	27	12
Increased capacity for production or service provision	3	8	25	13
Reduced costs per unit produced or provided	11	6	16	16
Reduced environmental impacts or improved health and safety	21	6	10	12
Met regulatory requirements	12	5	18	14
Increased value added	7	4	18	20

nological expertise. This has a negative effect on the use of cutting edge technology because research and development and other relevant institutions are not involved in product and service development.

Table 1 shows that about 30 creative industries have the desire to increase the range of products and services they are offering. Thirty-one out of forty-nine companies have the ambition to enter new markets. The majority of companies (45) want to improve the quality of their services or products. Furthermore, 39 companies want to improve the flexibility of production, increase capacity for the production (38), reduce cost per unit provided (38) meet the regulatory requirements (32), and increase their product/service value (38). However, 27 companies pay little or no attention to reducing environmental impacts or improving their health and safety procedures.

4.2 Design-driven Innovation Resources

Table 2 shows that during the three-year period 2012-2015, 36 of the enterprises were engaged in in-house research and development. However, internal research and development could be superficial because of a lack of involvement of external expertise or institutions. The results further show that only 18 of the creative firms acquired the services of external research and development, indicating that the preference is to have in-house research and development. Furthermore, 28 of the companies did not acquire any external

knowledge. This lack of outward thinking contributes to a lack of ambition to grow beyond the borders of Botswana. However, a considerable number of creative industries spend most of their resources in acquiring machinery, equipment and software (38), training staff (33), and developing design (27).

Table 2. Design-driven innovation activities and expenditures (N=49)

Statement	Yes	No
Internal (in-house) R&D	13	36
Acquisition of R&D (external R&D)	31	18
Acquisition of machinery, equipment and software	11	38
Acquisition of external knowledge	28	21
Training	16	33
All forms of Design	22	27
Market introduction of innovation	24	25

Table 3 shows that major sources of information and cooperation for design-driven innovation are in the creative industries are clients or customers (32), within the enterprise or enterprise group (24), competitors or other enterprises in the industry (21), and suppliers of equipment, materials, services, or software (20). It indicates that the top three sources of design-driven innovation are clients or customers (32), competitors or other enterprises (21) and suppliers of equipment, materials, services, or software (20). Table 4 also shows that the creative industries have not used the services of the following as sources of information and cooperation for

Table 3. Source of information and cooperation for design-driven innovation (N=49)

Sources		Not relevant	Low	Medium	High
Internal	Within your enterprise or enterprise group	1	11	13	24
Market Sources	Suppliers of equipment, materials, services or software	4	6	19	20
	Clients or customers	3	6	8	32
	Competitors or others enterprises in your industry	1	13	14	21
	Consultants, commercial labs or private R & D institutes	22	13	11	3
Institutional sources	Universities or other higher education institutions	18	15	10	6
	Government or public research institute	20	10	12	7
Other sources	Conferences, trade fairs, exhibitions	12	10	17	10
	Scientific journals and trade/technical publications	15	14	14	6
	Professional and industry associations	12	13	20	4
	Technical, industry or service standards	12	9	18	10

Table 4. Cooperating partners and their location (N=49)

Statement	Local	SADC	Other African countries	All other countries
Other enterprises within your enterprise group	37	6	0	6
Suppliers of equipment, materials, services, or software	17	17	2	13
Clients or customers	34	7	4	4
Competitors or other enterprises in your industry	43	4	0	2
Consultants, commercial labs, or private R&D institutes	39	5	0	5
Universities or other higher education institutions	45	4	0	0
Government or public research institutes	43	4	0	2

design-driven innovation: consultants, commercial laboratories, and private research and development institutes (22). This was attributed to lack of sufficient financial resources as stated by this participant when responding to an open ended question in the questionnaire "...the business is small and it is expensive for us to hire the services of consultants." Universities or other higher education institutions as well as government or public research institutes (20) respectively are little used as sources of information. Moreover, 15 of the creative industries do not view scientific journals and trade/technical publications as sources of information for design-driven innovation.

Table 4 shows that the majority (75%) of the creative industries cooperates with other local enterprises within their own group in driving innovation. They largely cooperate with local suppliers (17) and Southern Africa Development Community (SADC) suppliers (17). The results also show that 34 companies cooperate with clients/customers, 43 companies collaborate with local competitors in the same industry, 39 entities work with local consultants, commercial laboratories and research and development institute, 45 companies work together with local higher education institutions and 43 cooperate with government or public research institutes. There are few significant links with the rest of Africa and the world.

Table 5. Barriers to design and innovation (N=49)

Statement	Not relevant	Low	Medium	High
Excessive perceived economic risk	3	9	10	27
Direct innovation costs too high	5	10	8	26
Availability of finance	2	16	10	21
Lack of qualified personnel	7	16	18	18
Lack of information about technology	3	20	19	7
Lack of information on markets	2	14	20	13
Market dominated by established enterprises	3	15	8	23
Uncertain demand for innovative products or services	3	15	20	11
Need to meet Botswana regulations	13	11	15	10
Need to meet international regulations	18	11	11	9

4.3 Barriers to Design-driven Innovation

The following were cited as the top factors which highly constrained the creative industries innovation activities or influenced their decision not to innovate (Table 5): Perceived economic risk (27), high direct innovation costs (26); market dominated by established enterprises (23), and availability of finance (21).

There is a lack of public support for innovation in terms of tax credits or deductions, grants, subsidised loans, and loan guarantees. The results indicate that there is a lack of financial support in the country from possible funders for designers and innovators. This constrains the development of innovation. Some participants through the open-ended questions expressed that, “funds for design-driven and innovation should be made available as soft loans or grants” and “funds for innovation should be loaned at cheaper interest rates.”

The results show a low level of public support for innovation. Only 18.8% received support from the local government and 14.9% from central government, 17% from non-governmental organizations, and 12.6% from parastatals (institutions that are wholly or partly-owned by the government and are run as separate business entities or service institutions on behalf of the government). Though low, 27.1% of the entities received support from the private sector.

5. DISCUSSIONS

The globalization of product and service markets is accelerating. Botswana’s creative industries are still in their infancy and increasingly face global competition not only for markets, but also for technical know-how and skills. For them to compete globally they must embrace outward looking strategies to radically change the way the creative industries innovate their products, systems and services.

The current environment dictates that competitiveness at the enterprise level depends crucially on the speed with which new products and services can be brought to the marketplace with new cost-saving improvements. Similarly, the creation of wealth and employment depends to a very large extent on the speed with which scientific and technological breakthroughs are converted into practical and attractive solutions. This in a way creates employment and alleviate poverty which are some of the challenges currently facing Botswana.

The ability to reap the rewards of scientific achievement requires much more than the ability to turn a new idea into a working product or service. Efficient flows of technology are not enough as ready supplies of finance and business skills are also needed. Furthermore, there must be accessible protection for intellectual

property, and adequate incentives for entrepreneurial drive. What is needed is a dynamic, self-sustaining culture of innovation. All this is contrary to what the results show as there is a lack of government and private sector support for innovation.

Evidence from the literature show that innovation is the principal source of differentiation and competitive advantage in the global economy (Brown, 2008). Botswana creative industries can make a greater impact on the economy by engaging in technology-driven (radical innovation). Due to the fact that most of Botswana's creative industries are market-driven, therefore, the formulation of their goals and strategies focuses on the existing products which involve smaller risks and investments. This incremental innovation approach will not support long term sustainable development.

Radical innovation can lead to more sustainable impacts while providing the breakthroughs necessary to ensure that Botswana's creative industries continue to grow. This type of innovation involves more risks. In order for Botswana's creative industries to survive in the global world, they need radical sustainable innovation, including breakthroughs and leapfrogging (Moalosi et al., 2013). These creative industries require the support of external partners such as research and development institutions and universities to provide additional competencies and capabilities. External support can be in areas such as design, creativity, innovation, complementary technologies, production facilities, and market access. Linking the creative industries with universities may be beneficial because universities frequently spin-off innovations due to their supportive environment for idea generation. Moreover, the younger generation tends to be more open to new ideas and technologies.

This study found that issues of environment and health and safety are not given high prior-

ity by Botswana's creative industries in this era of climate change and global warming. This view is corroborated by Berberoğlu and Tokuç (2013), who indicated that emerging economies, especially those with high unemployment rates, have a tendency to build mid-sized industries that disregard worker and community safety and health. For example, Sealetsa and Thatcher (2011) report on the high prevalence of musculoskeletal disorder in the Botswana's textile industry.

6. CONCLUSION

This is the first study to address technical issues of innovation in detail as compared to previous studies which concentrated on issues of business management such as the creative industry performance, management, marketing, and financing. This study audited the innovation activities of Botswana creative industries via a survey of 49 creative industries in Gaborone and surrounding areas in the following sectors: furniture design, fashion design, ceramic design, and graphic design. The results show that there is little innovation taking place in the creative industries. This is attributed to perceived economic risks in innovating and the lack of government support for the sector. However, the creative industries are aware of the importance of design-driven innovation and seek to improve their products and services. This study has identified several areas needing to be improved in order for the local creative industries to be proactive and remain productive, innovative and competitive.

For Botswana's creative industries, facing a plethora of challenges, globalization is viewed as a challenge because they lack cutting edge competitiveness. Botswana's creative industries should take advantage of the opportunities offered by globalization to increase their competitiveness through enhanced col-

lective efficiency of the use of technology and innovation capabilities.

This study also found that some creative industry employees are well educated, which makes it easier to run in-service technological innovation courses. These key people can drive innovation within the creative industries. The contemporary business environment provides a weak link between the creative industries and research and development institutions, which has hindered the development and promotion of local technological capabilities. The results also show that it is difficult for the creative industries to use technological innovation to create a competitive edge by gaining an advantage to export products and technologies to other countries. This kind of business environment does not favor the growth of the creative industries, despite the potential of this sector to the economy.

The creative industries should collaborate with universities, and research and development institutions to assist them to add value to the products and services they offer. This may lead to radical innovation which is highly risky and has high investment rewards. Such institutions are in a better position to advise the creative industries on how to acquire intellectual property rights for their incremental or radical innovations as Botswana still faces challenges in creating robust regulations for intellectual property protection. The time for creative industries working in silos has passed. They must open up, form collaborative clusters and embrace the positive change brought by globalization.

This audit of innovation in the Botswanan creative industries has produced baseline information that will assist in developing appropriate intervention and innovation strategies. The next phase of the research will be qualitative as it will seek to develop, monitor, and validate the innova-

tion strategies developed in collaboration with creative industry firms.

ACKNOWLEDGMENT

The authors would like to thank the Office of Research and Development of the University of Botswana for the financial assistance for this study.

REFERENCES

- Axelrod, A. (2008). *Edison on innovation: 102 lessons in creativity for business and beyond*. San Francisco, Jossey-Bass.
- Avis, J. & Stewart, R. (2009). *Strategic plan for development of the Botswana National Arts Institute*. Retrieved from <http://www.bsa.org.bw/sites/default/files/projects/BNAI%20strat%20plan%20complete.pdf>
- Beacham, J. (2006). *60 minutes guide to innovation: Turning ideas into profit*. Norwich: The Stationary Office.
- Berberoğlu, U. & Tokuç, B. (2013). Work-related musculoskeletal disorders at two textile factories in Edirne. *Balkan Medical Journal*, 30(1), 23-27.
- BIDPA (2009). *Botswana Institute for Development Policy Analysis brief report*. Botswana Institute for Development Policy Analysis. Retrieved November 11, 2015, from <http://www.bidpa.bw/Bbrief3.PDP>
- BIDPA (2007). *Small, medium and large enterprises database, sector mapping and validation in Botswana: "Findings and strategies" for Local Enterprise Authority in the Republic of Botswana 2007*. Retrieved November 12, 2015, from <http://www.lea.co.bw/uploads/files/Packaged%20BIDPA%20Study.pdf?size=105115>.
- Brown, T. (2008). Design thinking. *Harvard Business Review*, June, 84-92.
- Bryman, A. (2001). *Social design research methods*. Oxford: Oxford University Press.
- Castello, J. J. (2009). Non-probability sampling. Retrieved November 20, 2015 from <http://www.experiment-resources.com/non-probability-sampling.html>.
- Commission of the European Communities (2009). Design as a driver of user-centred innovation. Retrieved December 20, 2015 from http://ec.europa.eu/enterprise/policies/innovation/files/design_swd_sec501_en.pdf

- Cox, G. (2005). Review of creativity in business building on the UK's strengths. Retrieved October 27, 2015, from http://www.hm-treasury.gov.uk/independent_reviews/cox_review/coxreview_index.cfm.
- Creswell, J. W. (2002). *Educational research, planning, conducting, and evaluating quantitative and qualitative research*. New Jersey: Merrill Prentice Hall.
- Creative Economy Report (2013). *Special edition: Widening local development pathways*. New York: United Nations Development Programme (UNDP) and Paris: United Nations Educational, Scientific and Cultural Organization (UNESCO).
- Dell'Era, C. & Verganti, R. (2007). Strategies of innovation and imitation of product languages. *Journal of Product Innovation Management*, 24(6): 580-599.
- Dikobe, M. (2010). ACP cultural observatory Botswana report. Retrieved March 22, 2016, from http://www.acpculturesplus.eu/sites/default/files/2015/03/24/botswana_-_rapport_final.pdf.
- DCMS (2001). *Creative industries mapping document*. London: Department of Culture, Media and Sport.
- Drejer, I. (2004). Identifying innovation in survey of services: A Schumpeterian perspective. *Research Policy*, 33(3), 551-562.
- European Commission (2012). Community Innovation Survey. European Commission. Retrieved March 15, 2015 from <http://ec.europa.eu/eurostat/documents/203647/203701/Harmonised+survey+questionnaire+2012/164dfdfd-7f97-4b98-b7b5-80d4e32e73ee>
- European Commission (2013). Innovation and SMEs: Key to prosperity. Retrieved November 22, 2015, from <http://ec.europa.eu/research/sme/leaflets/en/intro02.html>.
- Frenz, M. & Letto-Gillies, G. (2009). The impact of innovation performance of different sources of knowledge: Evidence from the UK community innovation survey. *Research Policy*, 38(7), 1125-1135.
- Innovation Report (2003). Competing in the global economy: The innovation challenge. Retrieved November 27, 2015, from <http://www.dti.gov.uk/>.
- Jaiyeoba, O. (2011). The impact of market orientation on SMMEs in developing economies: A case-study of Botswana. *International Journal of Business Administration*, 2(3), 132-139.
- Jansson, T. & Sedaca, S. (2000). Formalizing small business: The case of Colombia. *Small Enterprise Development*, 11(3), 4-15.
- Kapunda, S. M., Magembe B. A. S. & Shunda, J. (2007). SME finance, development and trade in Botswana: A gender perspective. *Business Management Review*, 11(1), 29-52.
- Local Enterprise Authority (2009). Needs Assessment Study on SMMEs. Retrieved November 12, 2015, from <http://www.lea.co.bw/>.
- Local Enterprise Authority (2008). Transfer and Innovation Strategy. Retrieved November 17, 2015 from <http://www.lea.co.bw/>.
- Local Enterprise Authority (2007). *A study commissioned on small, medium and large enterprises database, sector mapping and validation in Botswana: Findings and strategies for Local Enterprise Authority*. Gaborone: Botswana.
- Lumsdaine, E. & Binks, M. (2007). *Entrepreneurship, from creativity to innovation: Effective thinking skills for a changing world*. Bloomington: Trafford.
- Manu, G. (1998). Enterprise development in Africa: Strategies for impact and growth. *Small Enterprise Development*, 9(4), 4-13.
- Mazota, B. B. (2006). The four powers of design: Value model in design management. *Design Management Review*, 17(2), 44-53.
- Merriam, S. B. (1998). *Qualitative research and case studies applications in education*. San Francisco: Jossey-Bass Publications.
- MFDP (2003). *National Development Plan 9, 2003/04-2008/09. Ministry of Finance and Development Planning*. Gaborone: Government Printers.
- Ministry of Commerce and Industry. (2014). *Industrial Development Policy*. Gaborone: Government Printers.
- Moalosi, R., Molokwane, S., Sealetsa, O. J., Molwane, O. B., Letsholo, P., Letsatsi, M. T. & Mwendapole, C. (2013). Small Micro Enterprises landscape in Gaborone and surrounding areas and their readiness for product innovation. In *Gaborone International Design Conference proceedings, Gaborone, Botswana, 2013* (pp. 1-11).
- Modisane, R. (2013). The challenges facing the development of SMMEs in Botswana. Retrieved November 24, 2015, from http://www.hotwireprc.com/documents/SBB%20article_challenges%20faced%20by%20SMMEs.pdf.
- Mukras, M. S. (2003). Poverty reduction through strengthening Small and Medium Enterprises. *Pula: Botswana Journal of African Studies*, 17(2), 58-69.
- National Human Resource Development Strategy (2009). *National Human Resource Development Strategy for Botswana*. Retrieved March 22, 2016,

from <http://www.bota.org.bw/sites/default/files/Final%20Macro%20Strategy%20doc.pdf>.

- Norman, D. A., & Verganti, R. (2014). Incremental and radical innovation: Design research vs. technology and meaning change. *Design Issues*, 30(1), 78-96.
- Okurut, F. N., Olalekan, Y., & Mangadi, K. (2011). Credit rationing and SME development in Botswana: Implications for economic diversification. *Botswana Journal of Economics*, 8(12), 62-85.
- Rampino, L. (2011). The innovation pyramid: A categorisation of the innovation phenomenon in the product-design field. *International Journal of Design*, 5(1), 3-16.
- Rindova, V. P. & Petkova, A. P. (2007). When a new thing, a good thing? Technological change, product from design, and perceptions of value. *Organization Science*, 1(2), 217-232.
- Sealetsa, O. J. & Thatcher, A. (2011). Ergonomics issues among sewing machine operators in the textile manufacturing industry in Botswana. *Work*, 38(3), 279-289.
- Sentsho, J., Maiketso, J. T., Sengwaketse, M., Ndzinge-Anderson, V., & Kayawe, T. (2009). *Performance and competitiveness of small and medium sized manufacturing enterprises in Botswana*. Gaborone: Bay Publishing.
- Temtime, Z. T. & Pansiri, J. (2004). Small business critical success/failure factors in developing economies: some evidences from Botswana. *American Journal of Applied Sciences*, 1(1), 18-25.
- Verganti, R. (2008). Design, meanings, and radical innovation: A meta-model and a research agenda. *Journal of Product Innovation Management*, 25(5), 436-456.
- Verganti, R. (2009). *Design-driven innovation: Changing the rules of competition by radically innovating what things mean*. Boston, MA, Harvard Business Press.
- Vogt, W. P. (2011). *Quantitative research method*. New York: Pearson Education.