### FACTORS AFFECTING BOTSWANA'S COMPETITIVENESS

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# 1.0 OVERVIEW

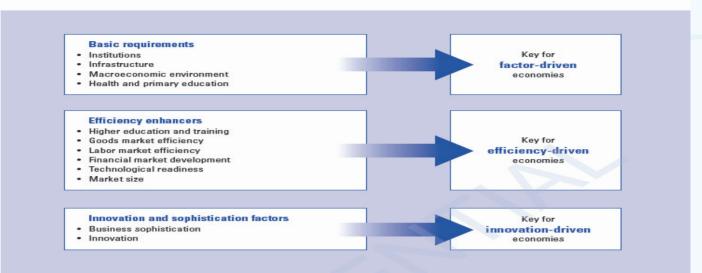
The World Economic Forum (WEF) in collaboration with the Botswana National Productivity Centre (BNPC) has on the 7th of September launched the 2011/12 Global Competiveness Report (GCR) which provides country- wide rankings on the competitiveness for a set of 142 nations so far (appended list). Since its introduction in 2005, the Global Competitiveness Index (GCI) has been used by an increasing number of countries and institutions to benchmark national competitiveness. The index is based on a survey questionnaire instrument administered to business entities and actual country data for a number of indicators of competitiveness. This brief note, therefore, examines Botswana's competitive position and implications in light of the rankings Botswana attained from the 2011/12 GCR and earlier years. The analysis provides a comparison of Botswana's performance and those of other countries on the key pillars and core indicators that inform the overall rankings to identify areas where Botswana has strengths and weaknesses in as far as competitiveness is concerned. The indicators which impact adversely on Botswana's competitiveness and the overall performance of the pillars are flagged (\*) so that they are given emphasis in the reforms and strategies to improve competitiveness. This should inform policy dialogue and strategic decision making with insight on areas that should form the agenda for strategic intervention to address factors that continue to undermine Botswana's competitiveness.

A number of national policies for growth and development in Botswana require a high level of competitiveness to position the economy at an advantage in the changing global market and to promote long term sustainable growth. Therefore, competitiveness remains a key policy priority as espoused in the current strategy for economic diversification in Botswana and the Economic Diversification Drive (Government of Botswana, 2006). The attainment of the Vision 2016 key pillars for attaining "Prosperity for All" through an "Educated and Informed Nation" as well as "A Prosperous, Productive and Innovative Nation" hinge on the improvement of productivity and competitiveness in the production of goods and services that can penetrate the global market (Vision Council, 2009). The outcomes of the GCR therefore deserve attention so that they can inform strategies for improving competitiveness in Botswana given its prominence in policy for the long term growth path.

According to the WEF, competitiveness refers to the ability of a nation to achieve overall levels of productivity that can sustain a rising standard of living in a complex world economy (WEF, 2011/12). At the industry or company level, it refers to the ability of a particular firm to produce and sell products that can meet the challenges of international markets while providing an adequate return for the resources used in their production (WEF, 2011/12). Hence, the WEF views competitiveness as a set of institutions, policies and factors that determine the level of productivity of a country. The theme for the current report is on "Setting the Foundations for Strong Productivity" which sets the tone for the rigor and emphasis that should be placed on the reforms to promote competitiveness given the current deterioration in Botswana's relative position.

The GCI and country rankings for each country are based on 12 pillars as highlighted in Fig. 1 below.

#### Figure 1: The 12 pillars of competitiveness



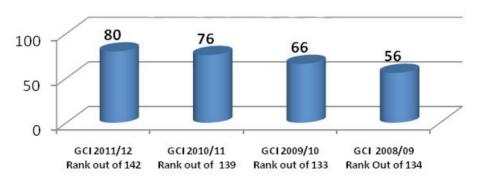
#### Source: WEF 2011/12

Within these 12 pillars, there are a number of factors and indicators that provide the sub-indices to reach the scores for each pillar. Botswana is classified as an economy that is in transition from Stage 1 (factor driven) to Stage 2 (Efficiency Driven) based on the per capita income level. The US\$ classifications according to the stages of development based on GDP per capita thresholds are such that:

Per Capita Income (US\$)	Classification
<2000	factor driven
2000-2999	transition from 1 to 2
3000-8999	efficiency driven
9000-17000	transition from 2-3
>17000	innovation driven

### **2.0** BOTSWANA 2011/12 GLOBAL COMPETITIVENESS RANKS AND IMPLICATIONS

Botswana's rankings from the 2011/12 GCR show a further deterioration in competitiveness. The rankings indicate a 24 place downward slip on Botswana's overall position from being ranked 56th in 2008 to 80th in 2011/12. Between 2010/11 and 2011/12, Botswana slipped four places down from 76 to 80.

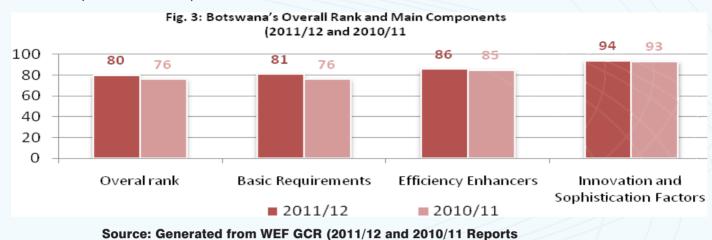


#### Fig. 2: Botswana's Overall Competitiveness Ranks (2008-2011)

Source: Generated from WEF GCR (2010/11 and 2011/12

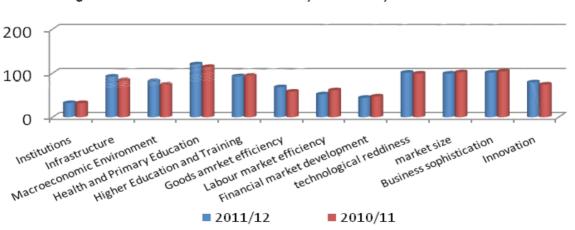
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A comparison of the performance of the 12 pillars in Botswana between 2010/11 and the 2011/12 reveals an overall decline in the ranks for most of the pillars in general. Botswana does poorly on the pillars for efficiency enhancers and those that determine technology adoption, innovation and business development. This is of concern given the importance for attaining competitiveness to spearhead the attainment of major key initiatives that should transform the economy into an efficiency driven one.



The competitive requirements for innovation and efficiency which cover pillars on labour and goods market efficiency, technological readiness and market size are crucial for attracting foreign direct investment and facilitating diversification. Long term sustainable development in Botswana and diversification hinge on the diversity of exports and growth factors which depend, to a larger extent, on investment opportunities that can be realized through promoting factors that improve efficiency enhancers, technology, innovation and business sophistication. Botswana's performance on the pillars for technological readiness, market size, innovation, infrastructure and higher education and training ranked about 100 each in a total of 142 countries showing the need to prioritise factors that adversely affect their competitiveness.

Across the 12 pillars, Botswana performs quite well on the pillars for institutions and financial sector development which have shown some improvement in the ranks from the previous year (Fig. 4). The pillars on the macroeconomic environment, health and primary education which constitute the basic requirements for competitiveness have deteriorated since 2008 and in the last two consecutive years between 2010/11 and 2011/12. The deterioration observed in the macroeconomic environment is due to the adverse impact of the financial and economic crises which resulted in the accumulation of public debt and lower government revenues with a bearing on government expenditure and fiscal performance.



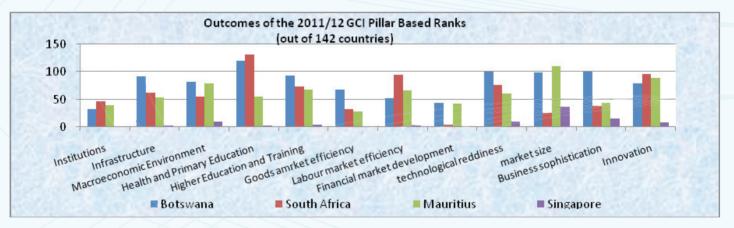


Source: Generated from WER GCR 2011/12 and 2010/11

An assessment of the top 10 competitive countries (1.Switzerland, 2.Singapore, 3.Sweden, 4.Finland, 5. United States 6. Germany, 7. Netherlands, 8. Denmark, 9. Japan, 10. United Kingdom) shows a strength on efficiency, technology, business sophistication and innovation factors. One of the countries among the top 10 countries, Singapore, is characterised by very strong factors that support the 12 pillars. Singapore, is the best amongst all countries with regards to goods market efficiency due to technology advancement, labour market efficiency as a result of high education and training and quality infrastructure. Fig. 5 below shows the ranks attained by Botswana and those of African countries such as Mauritius and South Africa and developed countries such as Singapore for comparison. What is to be drawn from the comparative analysis is the need for Botswana to understudy and explore ways and mechanisms from countries that have succeeded on efficiency enhancers and innovation pillars in refining and re-focusing the strategies and reforms for making Botswana a competitive economy.

### Fig. 5: Botswana Pillar Outcomes for the 12 Pillars Compared with South Africa, Mauritius and Singapore

	Institutions	Infrastructure	Macroeconomic Environment	Health and Primary Education	Higher Education and Training	Goods market efficiency	Labour market efficiency Financial	market development	Technological readiness	market size	Business sophistication	Innovation
Botswana	32	92	82	120	93	68	52	44	101	99	101	79
South Africa	46	62	55	131	73	32	95	4	76	25	38	96
Mauritius	40	54	79	55	68	28	67	42	61	110	44	89
Singapore	1	3	9	3	4	1	2	1	10	37	15	8



#### Source: Generated from WEF GCI (2011/12) Country Profiles

Botswana does not fare very well when compared to other countries in the region such as South Africa and Mauritius. The two countries surpass Botswana's competitiveness on technological readiness, business sophistication, infrastructure and goods market efficiency. The two countries have continued to improve in their overall competitiveness while Botswana's competitiveness deteriorated due to a lack of improvement in the scores and ranks for technological readiness, business sophistication and innovation factors. South Africa moved up by four places to attain 50th position this year, remaining the highest-ranked country in sub-Saharan Africa and the second-ranked among the large economies (Brazil, Russia, India and China-BRICS). The country benefits from the large size of its economy, particularly by regional standards. Mauritius is ranked 54th in 2011, up one place since last year, the second-highest ranked country in the region after South Africa.

### BIDPA Policy Brief

Mauritius as a comparator case is of particular interest since the economy started from an economic starting point significantly less favourable than that of Botswana and attained export diversity. The policy for supporting and promoting the Export Processing Zones (EPZ) which made investment attractive in Mauritius has been a resounding success which has helped transform the Mauritian economy and enhance its competitiveness. EPZ promoted export diversity and trade performance in Mauritius which led to high sustained growth. The growth in manufacturing exports from EPZ and openness to FDI generated new opportunities for trade, employment and growth diversity. The strong industries and investment into a number of sectors made the Mauritian export sector flourish. EPZ contributed towards innovation and business sophistication which improved competitiveness pillars for infrastructure, goods and labour market efficiency. Technology advances promoted labour and goods market efficiency as well as productivity which boosted strong sustainable growth in Mauritius. The right kind of enabling framework that was put in place in Mauritius led not only to diversification, but competitiveness. The enabling framework which contributed towards Mauritius success focused on high principles for openness; highly focused outward looking policies; readiness and effectiveness at implementing the necessary reform measures; strategies for upgrading the skills and capabilities of the workforce, creating strong academic-industrial linkages for research and development; creativity in exploiting the geographical location; identifying and creating champions for each major project or initiative; creating clear structures for decision-making about what needs to be done, and who should do it; creating an overall business climate highly conducive to private and foreign investment; focusing efforts in areas in which the country could create comparative advantage or niche opportunities; creating a competent, motivated, flexible, responsive, and business-friendly public service; and internationally branding their countries in a highly effective way.

It is therefore crucial for Botswana to create the enabling framework in areas where it lags behind on competitiveness. South Africa's strong industrial base, large market size with a diversity on trade and exports, infrastructure development and technology advances have led to competitiveness in the pillars for infrastructure, goods market efficiency, financial sector development, market size and business sophistication. These factors have made South Africa an attractive destination for foreign direct investment in the Southern African region.

### 2.1 BOTSWANA OUTCOMES ON BASIC REQUIREMENTS FOR COMPETITIVENESS

(Pillars 1-4: 1. Institutions, 2. Infrastructure, 3 Macroeconomic Environment, 4. Health and Primary Education)

On the basic requirements, Botswana does quite well with good institutions and received a rank of 32/142, being in the top 50 countries. The macroeconomic environment pillar has had a decline in its rankings and this reflects the accumulated public debt at 25% of GDP and the deficit at about 10% of GDP which are considered as sub indices in the assessment of the macroeconomic pillars. The inflation sub index and ranking performed poorly at 114/142 while the high interest rate spread was ranked at 83/142. The government budget balance sub-index ranked 133/142. Although the inflation rate still remains above the upper range of the inflation range targeted by the Monetary Policy Authorities, the rate has been declining from high levels of about 10% to about 7% in 2011 and this should lead to some improvement in the macroeconomic pillar ranks. The current fiscal policy strategy which aims to attain a budget balance in 2012/13 would also lead to an improvement in the macroeconomic environment pillar (Government of Botswana, 2011). Strategies to promote efficiency and selective spending and reducing the public wage bill would play a role in reducing government spending and enhancing the performance of the macroeconomic environment pillar.

The infrastructure pillar, however ranked 92 out of 142 countries and factors that affect the performance of Botswana in this pillar relate to the quality of port and air transport, available airline seat km/week, quality of electricity supply and the fixed telephone lines (Fig 6). It is hoped that the current initiatives to improve the airport infrastructure in the domestic economy will boost the indicators for infrastructure performance over time. The building of roads and maintenance as well as the improvement of the airport infrastructure will play a role in enhancing infrastructure. With the steady recovery in domestic and global economy, and an improvement in government fiscal position, the Government should continue with infrastructure development projects for upgrading and building roads to improve their quality. The ongoing Morupule power generation project is a step in the right direction that would improve Botswana's rankings in the pillar and overall competitiveness on infrastructure. The power cuts as a result of the reduction in supply of energy from South Africa is one of the factors that adversely affected the infrastructure pillar with respect to the quality of electricity supply. The generation of power through the Morupule project would contribute positively to power supply which affects productivity in the business sector. Power generation should thus be given priority and delivery should be hastened in light of the continued reduction in the supply Botswana gets from South Africa. The ongoing reforms in the telecommunications sector will improve access to communication services, technology and telephone access in the broader economy and positively contribute towards infrastructure development in the sector.

Fig. 6: Infrastructure	Rank in	Fig. 7: Health and Primary Education	Rank in
Pillar 2 indicators	2011/12/142	Pillar 4 Indicators	2011/12/142
Quality of overall infrastructure	57	Business impact of malaria	108 *
Quality of roads	53	Malaria Cases/100000 pop	99 *
Quality of railroad infrastructure	55	Business impact of tuberculosis	129 *
Quality of port infrastructure	86*	Tuberculosis incidence/ 100000 pop	138*
Quality of air transport infrastructure	93*	Business impact of HIV/AIDS	135*
Available airline seat kms/week, millions	139*	HIV Prevalence	141 *
Quality of electricity supply	101*	Infant Mortality	110*
Fixed telephone lines/pop	105*	Life Expectancy	125*
Mobile telephone subscriptions/100 pop	45	Quality of primary education	57
		Primary education enrolment rate	112*

### Source: Summarised from WEF GCR (2011/12)

The ranks awarded Botswana on the pillars for health and primary education as well as on higher education and training have worsened. These are crucial elements for the basic requirements for competitiveness. The outcomes on these two pillars are puzzling and warrant a further interrogation of the data sources and quality. This is because Botswana has over the years performed quite well on access to primary education, the provision of health facilities, clinics and home based care and treatment of tuberculosis with low incidence of malaria cases. There is also a national roll out for the anti-retroviral drugs and programmes such as the prevention of mother to child transmission (PMTCT) to address the HIV/AIDS pandemic where the prevalence has been found to be declining with low rates of transmission. However, the WEF ranks show that the sub-indices for health and primary education have ranked quite poorly on the incidence as well as on the business impact of malaria, tuberculosis and HIV/AIDS. There is concern on the lumping together of health and primary education as an indicator given the high enrolment rates for primary education for Botswana where the WEF reports show that Botswana ranked 111/142 on this indicator and fares poorly among comparator countries where primary enrolment has been low. Nonetheless, the indicators warrant a continued refinement and improvement in the strategies for addressing access to education and health and more importantly its quality to enhance competitiveness. There is need for more focus on malaria, TB and HIV/AIDS diseases through promoting greater health access and health services and awareness to improve the performance of the competitiveness pillar on health and primary education.

## **2.2** BOTSWANA OUTCOMES ON EFFICIENCY ENHANCERS FOR COMPETITIVENESS

(Pillars 5-10: 5.Higher education and training; 6. Goods market efficiency; 7. Labour market efficiency,8. Financial market development; 9. Technological readiness; 10. Market size)

Botswana's ranks for the pillars on efficiency indicate major weaknesses on the requirements for efficiency and competitiveness. Among the efficiency enhancers for competitiveness, the pillar for higher education and training are key to promoting labour efficiency and productivity. Tertiary education enrolment, availability of research and training services, quality of management schools, internet access in schools and the quality of maths and science education play a role in the poor ranking that Botswana attained on higher education and training. This underscores the need to hasten the processes for implementation of the human resource development strategy (HRDS) to address imbalances in the education and labour market needs. Computerisation and access to information technology in a number of schools would lead to better performance on the pillar and an improvement of the quality of education.

A number of indicators on goods market efficiency affected Botswana's competitiveness. Some of the indicators are those that have been identified in the Doing Business survey conducted by the World Bank which impact on efficiency and competitiveness. These indicators include the number of procedures required to start a business in Botswana and the number of days to start a business. Other factors relate to the effectiveness of an anti-monopoly policy, intensity of local competition, and the extent of market dominance where the recent implementation of competition policy legislation in 2009 and the establishment of the Competition Authority would address and improve market efficiency. There is however, a need to ensure that the reforms targeted at improving the business environment are hastened since the factors that affect doing business have continued to persist.

Higher education and Training	Goods market Efficiency	Labour Market Efficiency	Technological Readiness	Market Size
87 * 117 * 58 70 * 93 * 93 * 107 *	75 * 79 * 82 * 12 107 * 128 128 41 74 * 20 20 27	65 * 94 * 29 * 101 * 115 * 69 * 50 50	84 * 91 * 90 * 126 * 107 * 105 *	96 * 100 *
Secondary school enrolment rate, % Tertiary education enrolment, gross % Quality of Education system Quality of Math and Science education Quality of management schools Internet Access in Schools Availability of research and training services Extent of Staff Training	Intensity of local competition Extent of market dominance Effectiveness of anti-monopoly policy Extent of taxation Total Tax rate, % of profits No. Procedures to start a business No. Days to start a business Agricultural policy costs Prevalence of trade barriers Trade tariffs, % duty Prevalence of foreign ownership Business impact of rules of FDI Burden of customs procedures	Cooperation in labour-employer relations. Flexibility of wage determination Rigidity of employment index, 0-100 (worst) Hiring and Firing practices Redundancy costs, weeks of salary Pay and productivity Reliance on Professional management Brain drain Women in labour force ration to men	Availability of latest technologies Firm level technology absorption FDI and technology transfer Internet users/100 pop Broad band internet subscriptions/100 pop Internet Bandwidth, kb/capita	Domestic market size index, 1–7 (best) Foreign Market size

### Fig. 8: Pillars and Ranks for Botswana on Indicators for Efficiency Enhancers (2011/12/142)

Source: Summarised from WEF GCR 2011/12

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The pillar for technological readiness indicates major weaknesses on the adoption of technology in Botswana which affects competitiveness. The adoption of latest technology in the work environment would promote efficiency and effectiveness in the delivery of services. Technology advancement is crucial for efficient production processes at the firm and business level which determines the competitiveness of Botswana across the efficiency enhancers. The comparative ranks for countries such as South Africa and Mauritius show that this is one of the pillars which makes the two countries competitive. The factors that affect Botswana's rank in the pillar relate to the lack of latest technologies and poor firm level technological absorption which has a bearing on productivity and efficiency in the production process. There is poor foreign direct investment and technology transfer which is crucial for investment growth and business success. Internet access and bandwidth are ranked 107 and 105 out of the 142 countries which clearly shows the need for emphasis on the integration of technology and ICT development to promote competitiveness. The policy strategy which has recently been announced for the integration of ICT and technology in all policy strategies should be given priority and greater emphasis and fast tracked towards implementation given the role it can play in promoting technology adoption and competitiveness.

## **2.3** BOTSWANA OUTCOMES ON BUSINESS SOPHISTICATION AND INNOVATION

(Pillars 11-12: 11 Business Sophistication 12. Innovation)

The most challenging factors for Botswana's competitiveness relate to business sophistication and innovation factors. This is where Botswana in general had low rankings which impacted on the overall competitiveness environment compared to other countries such as South Africa and Mauritius.

### Fig. 9: Ranks for Business Sophistication and Innovation Pillars for 2011/12

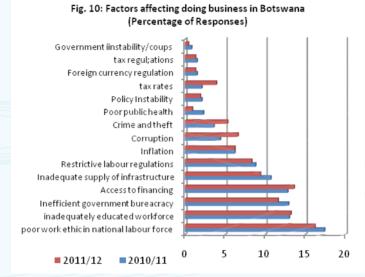
Business Sophistication: Pillar 11 In	dicators	Innovation Pillar 12 Indicators	
Local Supplier quantity Local supplier quality State of cluster development Nature of competitive advantage Value Chain breadth Control of international distribution Production process sophistication Extent of marketing Willingness to delegate authority	119* 114 * 98* 83 * 120 * 118* 101* 113* 81*	Capacity for innovation Quality of scientific research institutions Company spending on R & D Government procurement of advanced tech products Availability of scientists and engineers Utility patents granted/million pop	104* 81* 74* 57* 113* 90*

### Source: Summarised from WEF GCR 2011/12

All the indicators in the two pillars have been flagged clearly indicating the areas of weakness in Botswana's competitiveness. These factors can be enhanced by an improvement in technology readiness. The quality and quantity of local supply ranked quite low reflecting the limited productive opportunities and industrial base. These are critical components for the diversification strategy which aims to promote export, investment and growth diversity. The nature of comparative advantage also to some extent reflects few export products dominated by diamond export where Botswana has a comparative advantage. Capacity, skills and technology for innovation remains weak and there is limited research and development. Gaining mileage in Botswana's competitiveness would largely depend on positive developments in business and innovation factors which have put countries such as Singapore in the top 10 achievers while in Africa, South Africa and Mauritius made progress through improving factors that influence efficiency enhancers, business sophistication and innovativeness.

### 2.4 DETERIORATION IN DOING BUSINESS AS WELL

Doing business ranks by the World Bank indicate a further deterioration in the doing business environment for Botswana (two places down between 2010 and 2011). The problematic factors coincide with the factors that have been identified as factors that affect some of the competitiveness pillars particularly pillars for efficiency enhancers. The main factors that led to the deterioration in the doing business rank are the overall procedures and time for starting a business and dealing with construction permits.



Factors Affecting Doing Business in Botswana (Doing Business Ranks)		Rank for 2011	Rank for 2010
Starting a business	-7	90	83
Dealing with construction permits	-6	127	121
Registering property	-2	44	42
Getting Credit	-2	46	44
Protecting Investors	-3	44	41
Paying Taxes	-3	21	18
Trading Across Borders	-1	151	150
Enforcing Contracts	9	70	79
Closing a Business	constant	27	27
Overall Score	-2	50	52

#### Source: World Bank, 2010 and 2011 Doing Business Reports

One major factor that affects doing business in Botswana is the poor work ethics and the inadequately trained workforce. These factors have been reflected in the outcomes for the global competitiveness survey as adversely affecting the competitive requirements for efficiency enhancers for the pillars on high education and training, labour market efficiency and productivity. One of the major tools for addressing poor work ethic includes training courses and workshops on work relations, performance improvement and customer care to inculcate the value of ethics in the work environment to improve productivity and service delivery.

# 3.0 CONCLUSION

The ranks for the global competitiveness indicate an overall deterioration in competitiveness for Botswana and that a number of countries improve over time on the requirements for efficiency enhancers, technology advancement, innovation and business sophistication while Botswana falls behind. It is encouraging that a number of institutions and the frameworks to facilitate and improve the competitive environment are to a great extent in place. The limitations remain with the process, speed and time that it takes towards implementation. A number of reforms have been pronounced on the intentions of Government to promote Botswana's competitiveness and initiatives are underway for addressing constraints that affect doing business and competitiveness in Botswana in various Ministries, Departments and Institutions. However, the slow pace towards implementation tends to hinder positive progress on competitiveness and improving the business environment.

Such reforms include the strategies to enhance doing business in Botswana to enhance efficiency and effectiveness in reducing bureaucratic processes in starting a business and the registration process. Goods market efficiency is also affected by the time and cumbersome bureaucratic procedures for starting a business and reforms should be hastened to address these constraints. The formation of a "one stop shop service centre' by the Botswana Export Development and Investment Authority (BEDIA) would positively contribute towards reducing time taken to starting a business and reduce the fragmentation in processes for doing business in the many institutions and government ministries. The setting of the Competition Authority would address issues regarding factors that affect competitiveness in the market. Technological readiness remains one of the pillars where Botswana has to give greater focus and emphasis in the strategies towards technology advancement. The creation of hubs such as the Innovation Hub, can play a leading role on ways to address some of the innovation challenges Botswana faces. There is need to hasten the implementation of the Human Resource Development Strategy (HRDS) to tackle the constraints posed by lack of trained human resources and inadequately trained workforce to promote productivity and attaining a friendly investment and business environment. Overall, enhancing productivity and competitiveness requires a concerted effort on the part of Government to provide the enabling conducive environment, the private sector and stakeholders as well as employees and employers who play a role on labour and goods market efficiency through their production process.

The factors that should form the priority list on initiatives to enhance Botswana's competitiveness are summarized below.

### Summary Factors Flagged for Policy Agenda to Enhance Competitiveness in Botswana (Ranked over 50)

### **Infrastructure Development:**

- Quality of air transport infrastructure
- Available airline services
- Quality/access to port infrastructure
- Quality and supply of electricity
- Fixed Telephone lines

### **Macroeconomic Environment**

- Government budget balance
- Inflation
- Interest rate spread

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### Labour Market Efficiency

- Cooperation in labour-employee relations
- Flexibility of wage determination
- Hiring and Firing Procedures

### **Financial Market Development**

- Availability of financial services
- Affordability of financial services

### Health and Primary education

- Impact and incidence of malaria
- Impact and incidence of tuberculosis
- Impact and incidence of HIV/AIDS
- Infant mortality
- Enrollment in primary education

### Higher education and training

- Secondary education enrollment
- Tertiary education enrollment
- Quality of the education system
- Quality of Math and science education
- Quality of management schools
- Internet access in schools
- Availability of research and training services

### **Goods market efficiency**

- Intensity of local competition
- Extent of market Dominance
- Effectiveness of anti-monopoly policy
- No. of procedures to start a business
- No. of days to start a business
- Degree of customer orientation

Buyer sophistication

### **Technological Readiness**

- Availability of latest technologies
- Firm-level absorption
- FDI and technology transfer
- Internet users/100 pop
- Broadband internet subscriptions
- Internet bandwidth

### **Business sophistication**

- Local supply quantity
- Local supply quality
- State of cluster development
- Nature of competitive advantage
- Value chain breadth
- Control of international distribution
  - Production process sophistication
- Extent of marketing

### Innovation

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- Capacity for innovation
- Quality of scientific research institutions
- Company spending on R & D.
- Gov't procurement of advanced tech. products
- Availability of scientists and engineers
- Utility patents granted

Source: WEF GCR, 2011.

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Stage 3: Innovation-driven (35 economies)	Australia	Austria	Bahrain	Belgium	Canada	Cyprus	Czech Republic	Denmark	Finland	France	Germany	Greece	Hong Kong SAR	tion Iceland	Ireland	ago Israel	Italy	Japan	Korea, Rep.	Luxembourg	Malta	Netherlands	New Zealand	Norway	Portugal	Puerto Rico	Singapore	Slovenia	Spain	Sweden	Switzerland	Taiwan, China	United Arab Emirates	United Kingdom	United States	
Transition from stage 2 to stage 3 (18 economies)	Argentina	Barbados	ina Brazil	Chile	Croatia	Estonia	Hungary	Latvia	Lebanon	Lithuania	Mexico	Oman	Poland	Russian Federation	Slovak Republic	Trinidad and Tobago	Turkey	Uruguay																		
Stage 2: Efficiency-driven (28 economies)	Albania	Belize	Bosnia and Herzegovina	Bulgaria	Cape Verde	China	Colombia	Costa Rica	Dominican Republic	Ecuador	El Salvador	Indonesia	Jordan	Macedonia, FYR	Malaysia	Mauritius	Montenegro	Morocco	Namibia	Panama	Peru	Romania	Serbia	South Africa	Suriname	Swaziland	Thailand	Tunisia								
Transition from stage 1 to stage 2 (24 economies)	Algeria	Angola	Armenia	Azerbaijan	Botswana	Brunei Darussalam	Egypt	Georgia	Guatemala	Guyana	Honduras	Iran, Islamic Rep.	Jamaica	Kazakhstan	Kuwait	Mongolia	Paraguay	Philippines	Qatar	Saudi Arabia	Sri Lanka	Syria	Ukraine	Venezuela												
Stage 1: Factor-driven (37 economies)	Bangladesh	Benin	Bolivia	Burkina Faso	Burundi	Cambodia	Cameroon	Chad	Côte d'Ivoire	Ethiopia	Gambia, The	Ghana	Haiti	India	Kenya	Kyrgyz Republic	Lesotho	Madagascar	Malawi	Mali	Mauritania	Moldova	Mozambique	Nepal	Nicaragua	Nigeria	Pakistan	Rwanda	Senegal	Tajikistan	Tanzania	Timor-Leste	Uganda	Vietnam	Yemen	Zambia

APPENDIX: LIST OF COUNTRIES RANKED IN THE GCR AND CLASSIFICATION

November 2011