2016 IRMSA SA RISK REPORT

REPORT COMPILATION AND RESULTS

IRMSA SA Risk Report Contributors





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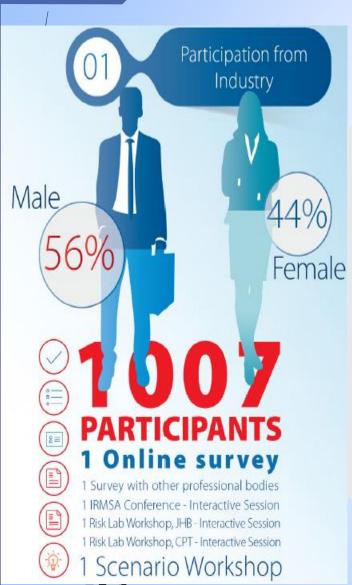


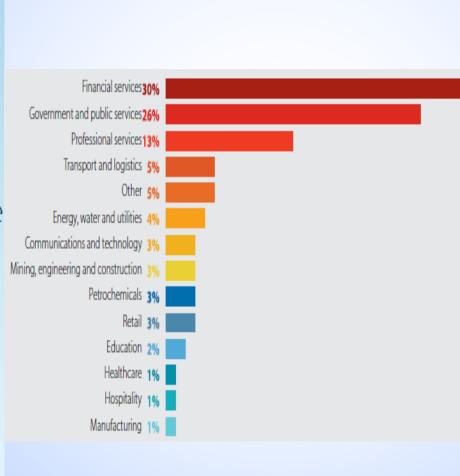
Mark Robins IRMSA Vice President

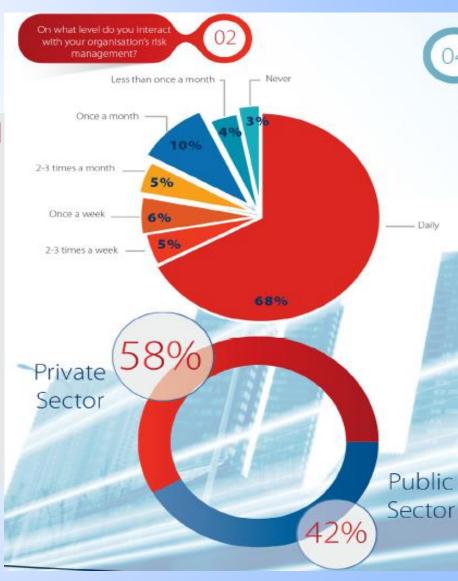


Clem Sunter Mind of a Fox

Profile of Survey Respondents







2016 Risk Report Compilation

Gathering info

Interpreting info

SME feedback

Report writing





Initial Survey: Vote for Top 20

Asset bubble	Banking reputational risk	Biodiversity loss and ecosystem collapse	Breakdown of critical information infrastructure & networks
Capital availability / credit risk	Commodity price fluctuations	Deflation	Droughts in Sub-Saharan Africa
Ebola virus outbreak	Economic Slowdown	Education and skills development	Energy price shock
Escalation in large-scale cyber attacks	Escalation of economic and resource nationalisation	Exchange rate fluctuations	Extreme weather events
Failure / shortfall of critical infrastructure	Failure of a major financial mechanism or institution	Failure of climate-change adaptation	Fiscal crisis in key economics
Food crises	Governance failure	Government policy changes	Increasing Corruption
Increasing Strike Action	Insufficient Electricity Supply	Interstate conflict with regional consequences	Lack of Innovation
Lack of leadership	Large-scale involuntary migration	Major escalation in organised crime and illicit trade	Man-made environmental catastrophes
Massive incident of data fraud / theft	Mismanaged urbanisation	Misuse of technologies	Natural catastrophes
Profound political and social instability	Prolonged recession in high- income countries	Prolonged recession in the BRICS countries	Regulatory / legislative changes
Reputational damage or adverse media / social media attention	Rising pollution in the developing world	Severe income disparity	Skills shortage
Spread of infectious diseases	State collapse or crisis	Structurally high unemployment / underemployment	Terrorist attacks
The weakening of representative democracy	Unmanaged inflation	Water crisis	Weapons of mass destruction

Source of 2016 Risk Universe:

WEF Global Risks 2015 Report

Aon Global Risk Management

Survey 2015

WEF Global Agenda 2015 Report

PwC Risk in Review 2015

South Africa Risk Report 2015

World Bank Sub-Saharan Africa

Outlook 2015

Created 2016 risk universe – 52 risks in total

Multiple sources used for the 2016 risk report

Initial Survey: Vote for Top 20

		Biodiversity loss and	Critical information
Asset bubble	Banking reputational risk	ecosystem collapse	infrastructure breakdown
Capital availability / credit risk	Commodity price fluctuations	Deflation	Droughts in Sub-Saharan Africa
Ebola virus outbreak	Economic Slowdown	Education and skills development	Energy price shock
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Unemployment or underemployment	Unmanaged inflation	Water crisis	Weapons of mass destruction

How the 2016 risk universe is spread across the WEF categories

C	ateg	gories of 2016 Risk Universe	e:	
Economic				Geopolitical
Societal		Technological		

Initial Survey: Risks based on NDP Impact

Interlinked Priorities:

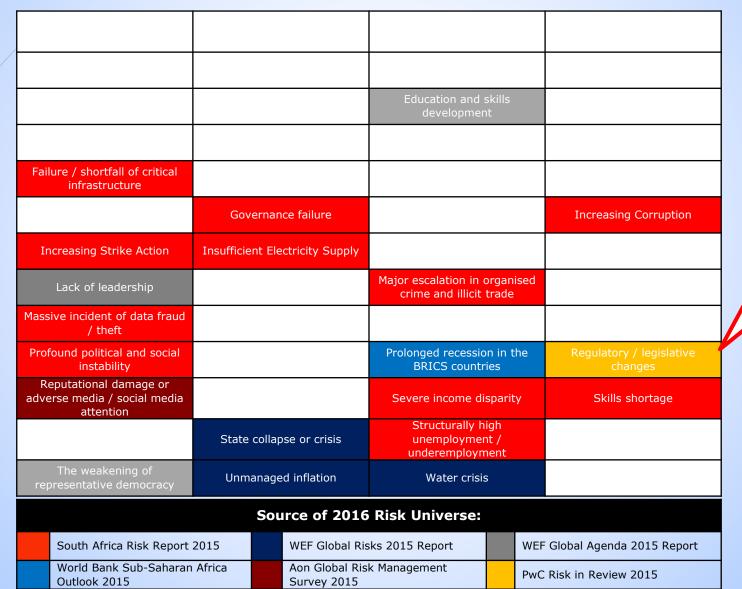
- Uniting all South Africans around a common programme to achieve prosperity and equity
- Promoting active citizenry to strengthen, development, democracy and accountability.
- 3. Bringing about faster economic growth, higher investment and greater labour absorption.
- 4. Focusing on key capabilities of people and the state.
- 5. Building a capable and developmental state.
- 6. Encouraging strong leadership throughout society to work together to solve problems.

Survey respondents were asked to select the top risks that could adversely affect the achievement of the South African Government's National Development Plan priorities and objectives for 2030. They were also asked to select the top risks in their respective industries.

Developmental Themes, with Summarised Objectives:

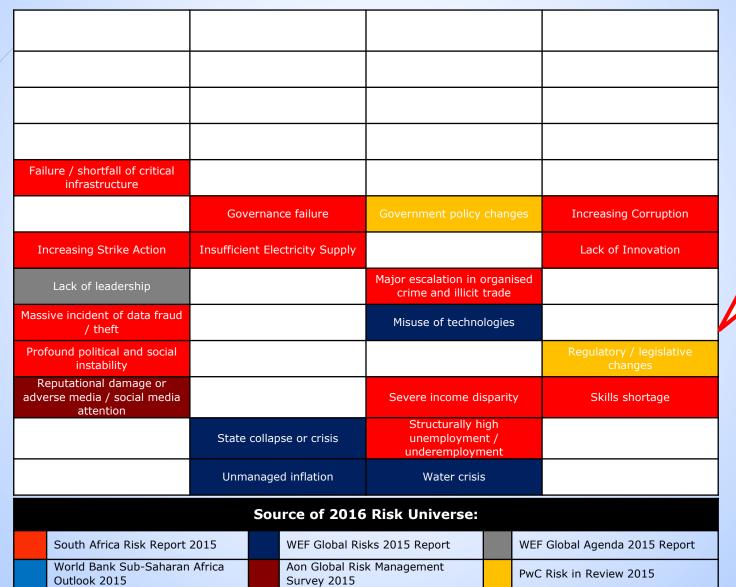
- ECONOMY AND EMPLOYMENT Unemployment; GDP; Inequality; Exports; National Savings.
- ECONOMIC INFRASTRUCTURE Electricity; Water; Public Transport; Ports; Internet.
- ENVIRONMENTAL SUSTAINABILITY AND RESILIENCE Natural Resources; Land and Oceans;
 Greenhouse Gas Emissions; Waste Disposal; Disaster Preparedness; Agricultural Technologies;
 Renewable Energy.
- INCLUSIVE RURAL ECONOMY Additional Agricultural Jobs; Spatial Planning; Upgrade all Informal Settlements; Intra-regional Trade in Southern Africa.
- SOUTH AFRICA IN THE REGION AND THE WORLD Intra-regional Trade in Southern Africa.
- TRANSFORMING HUMAN SETTLEMENTS Spatial Planning System; Upgrade all Informal Settlements;
 Public Transport.
- Percent Pass Rate for Learners; Minimum Standards for Schools; Expand the College System; Increase Enrolment at Universities and more PhD Qualified Staff; Expand Science, Technology and Innovation.
- HEALTHCARE FOR ALL Increase Life Expectancy; Reduce Infant Mortality; Reduce Prevalence of Diseases; Reduce Injury, Accidents and Violence; Access to an Equal Standard of Care; Skilled Healthcare Staff.
- SOCIAL PROTECTION Minimum Standard of Living; Focus on Services to Children and Vulnerable Groups; Improve Social Welfare Sector Skills; Income Support for the Unemployed; Safe and Sustainable Pensions.
- BUILDING SAFER COMMUNITIES Safe Environment at Home, at School and at Work; Focus on Safety
 of Women and Children; Professional and Well-resourced Police Service.
- BUILDING A CAPABLE AND DEVELOPMENTAL STATE Developmental and Transformative State and Public Service; Well-equipped Staff; Improved Relations between National, Provincial and Local Government; Governance Structures support State-owned Enterprises (SOEs).
- FIGHTING CORRUPTION A Corruption-free Society; Ethical Society; Accountable Government.
- NATION BUILDING AND SOCIAL COHESION Equal Opportunities for all Members of Society; United, Prosperous, Non-racial, Non-sexist, and Democratic South Africa.

Initial Survey: Results – Top 20 National Risks



Interesting
to see how
the Top 20
national risk
profile is
spread
across the
various
sources

Initial Survey: Results – Top 20 Industry Risks



The Top 20 industry level risk profile is also spread across the various sources

2016 Risk Report Compilation

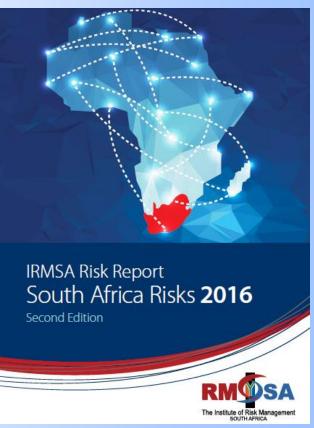
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Risk Labs: Top 20 Ranking for the Country

Top 20 Risks for South Africa: In no particular order

Failure / shortfall of critical infrastructure	Governance failure
Education and skills development	Increasing corruption
Increasing strike action	Insufficient electricity supply
Lack of leadership	Major escalation in organised crime and illicit trade
Massive incident of data fraud / theft	Profound political and social instability
Prolonged recession in the BRICS countries	Regulatory / legislative changes
Reputational damage or adverse media / social media attention	Severe income disparity
Skills shortage	State collapse or crisis
Structurally high unemployment / underemployment	Unmanaged inflation
Water crisis	Weakening of representative democracy

Participants
were asked
to provide
Likelihood
and Impact
ratings for
the Top 20
national
risks

Likelihood Scale:

A. Rare/Remote

B. Unlikely

C. Moderate

D. Likely

E. Almost certain

Impact Scale:

A. Insignificant

B. Minor

C. Moderate

D. High

E. Critical

Risk Labs: Top 20 Ranking for Industry

Top 20 Risks for South Africa: In no particular order

Failure / shortfall of critical infrastructure	Governance failure
Government policy changes	Increasing corruption
Increasing strike action	Insufficient electricity supply
Lack of innovation	Lack of leadership
Major escalation in organised crime and illicit trade	Massive incident of data fraud / theft
Misuse of technologies	Profound political and social instability
Regulatory / legislative changes	Reputational damage or adverse media / social media attention
Severe income disparity	Skills shortage
State collapse or crisis	Structurally high unemployment / underemployment
Unmanaged inflation	Water crisis

Participants were asked to provide Likelihood and Impact ratings for the Top 20 industry level risks

Likelihood Scale:

A. Rare/Remote B. Unlikely C. Moderate D. Likely E. Almost certain

Impact Scale: A. Insignificant

B. Minor C. Moderate D. High E. Critical

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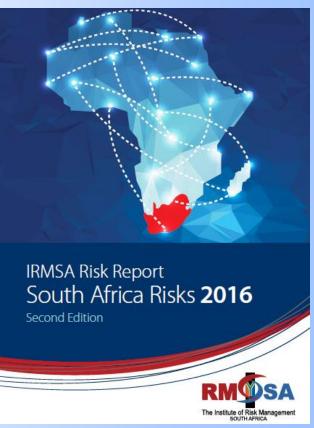
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IRMSA Conference: Additional Rating - Risk Velocity

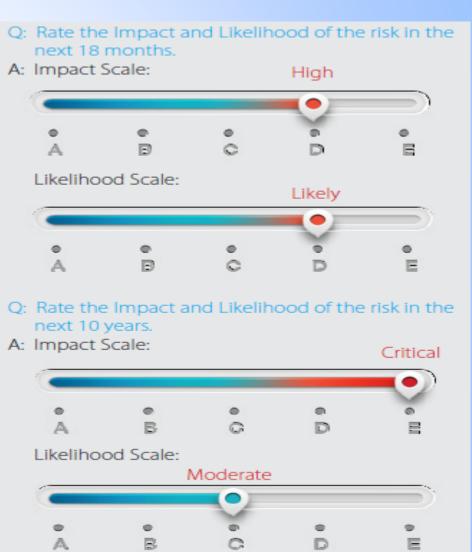
Participants
were asked
to provide
Risk
Velocity
ratings for
the Top 20
risks –
National &

Industry levels

In this context Risk Velocity refers to the speed

O: Rate the Impact 18 mont 18 mont

	IRMS	A Risk Report Risk Velocity Scale
Rating	Descriptor	Definition
5	Imminent	Onset / impact / response happening now or within 1 r
4	Rapid	Onset / impact / response occurs within 1 - 3 months
3	Moderate	Onset / impact / response occurs within 3 months - 1 y
2	Slow	Onset / impact / response occurs within 1 - 3 years
1	Very Slow	Onset / impact / response occurs within 3 - 5 years



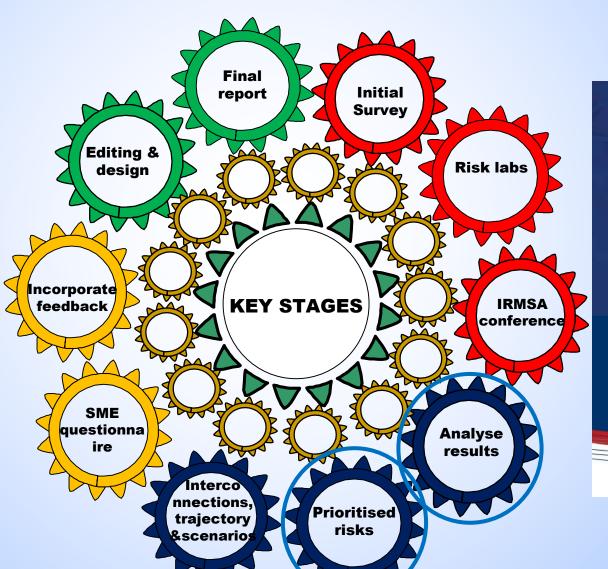
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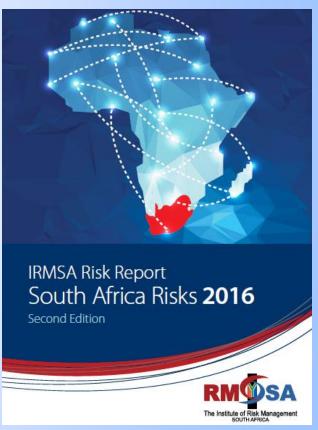
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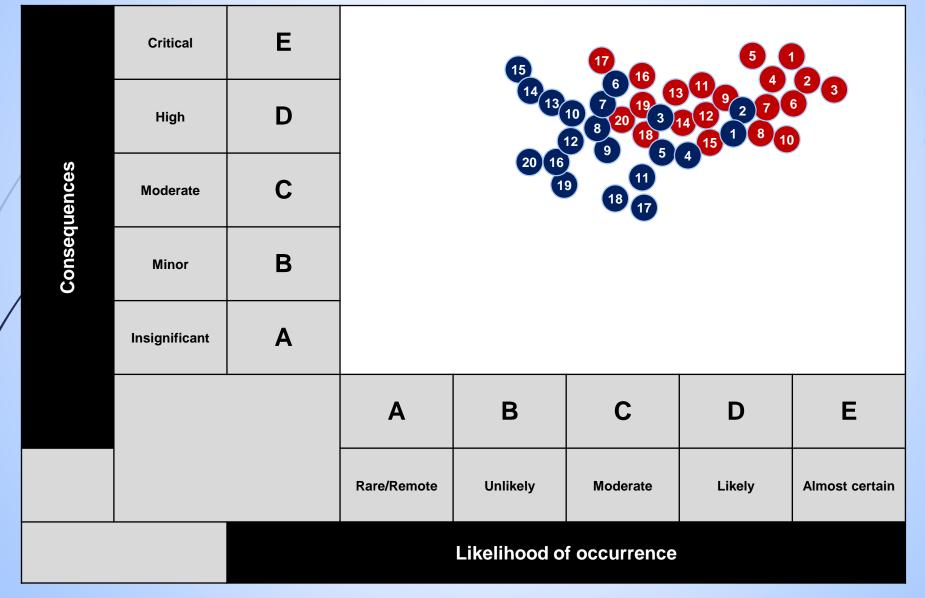
Results: Combined Top 20 Risk Rankings and Scores

- 1	Overall Ranking	Top 20 Risk Rankings: National Level	RI	RL	RR	Risk Sub Category	Overall Ranking		RI	RL	RR	Risk Sub Category
	1	Insufficient electricity supply	4.69	4.47	20.96	NDP	1	Regulatory / legislative changes	4.28	4.19	17.93	Industry
	2	Increasing corruption	4.6	4.52	20.79	NDP	2	Insufficient electricity supply	4.01	4.14	16.6	Industry
	3	Skills shortage	4.55	4.55	20.7	NDP	3	Skills shortage	4.06	3.71	15.06	Industry
	4	Education and skills development	4.6	4.37	20.1	NDP	4	Increasing corruption	3.82	3.92	14.97	Industry
	5	Water crisis	4.76	4.2	19.99	NDP	5	Government policy changes	3.94	3.67	14.46	Industry
	6	Structurally high unemployment / underemployment	4.46	4.45	19.85	NDP	6	Reputational damage or adverse media / social media attention	4.21	3.35	14.1	Industry
	7	Lack of leadership	4.56	4.34	19.79	NDP	7	Massive incident of data fraud / theft	4.15	3.34	13.86	Industry
	8	Increasing strike action	4.31	4.33	18.66	NDP	8	Profound political and social instability	4.05	3.27	13.24	Industry
	9	Failure / shortfall of critical infrastructure	4.56	4.08	18.6	NDP	9	Water crisis	3.8	3.36	12.77	Industry
	10	Severe income disparity	4.08	4.42	18.03	NDP	10	Failure / shortfall of critical infrastructure	3.99	3.11	12.41	Industry
	11	Profound political and social instability	4.42	3.91	17.28	NDP	11	Structurally high unemployment / underemployment	3.5	3.48	12.18	Industry
N	12	Major escalation in organised crime and illicit trade	4.2	3.93	16.51	NDP	12	Unmanaged inflation	3.89	3.11	12.1	Industry
N	13	The weakening of representative democracy	4.29	3.8	16.3	NDP	13	Governance failure	4.1	2.94	12.05	Industry
١	14	Governance failure	4.2	3.82	16.04	NDP	14	Lack of leadership	4.23	2.8	11.84	Industry
	15	Regulatory / legislative changes	3.88	4.11	15.95	NDP	15	State collapse or crisis	4.26	2.78	11.84	Industry
	16	Unmanaged inflation	4.43	3.49	15.46	NDP	16	Major escalation in organised crime and illicit trade	3.64	3.24	11.79	Industry
	17	State collapse or crisis	4.67	3.25	15.18	NDP	17	Severe income disparity	3.29	3.5	11.52	Industry
	18	Reputational damage or adverse media / social media attention	3.75	3.9	14.63	NDP	18	Increasing strike action	3.34	3.34	11.16	Industry
	19	Prolonged recession in the BRICS countries	4	3.51	14.04	NDP	19	Misuse of technologies	3.56	3.06	10.89	Industry
	20	Massive incident of data fraud / theft	3.93	3.54	13.91	NDP	20	Lack of innovation	3.7	2.94	10.88	Industry

Results: Combined Top 20 Risk Dashboard

National level

Industry level



Results: Combined Top 10 Risk Rankings



Results: Top Three Risks by Industry

Industry	Key Risk 1	Key Risk 2	Key Risk 3
Communications and Technology	Regulatory / legislative changes	Insufficient electricity supply	Skills shortage
Energy, Water and Utilities	Water crisis	Increasing strike action	Skills shortage
Entertainment and Media	Profound political and social instability	Water crisis	Reputational damage or adverse media / social media attention
Financial Services	Regulatory / legislative changes	Insufficient electricity supply	Massive incident of data fraud / theft
Government and Public Services	Increasing corruption	Insufficient electricity supply	Lack of leadership
Healthcare	Regulatory / legislative changes	Massive incident of data fraud / theft	Reputational damage or adverse media / social media attention
Hospitality and Leisure	Regulatory / legislative changes	Water crisis	State collapse or crisis
Industrial Manufacturing	Insufficient electricity supply	Failure / shortfall of critical infrastructure	Increasing strike action and Water crisis
Mining, Engineering and Construction	Increasing strike action	Skills shortage	Increasing corruption
Professional Services	Insufficient electricity supply	Increasing corruption	Regulatory / legislative changes
Retail and Consumer	Insufficient electricity supply	Massive incident of data fraud / theft	Profound political and social instability
SME	Regulatory / legislative changes	Government policy changes	Major escalation in organised crime and illicit trade
Transport and Logistics	Regulatory / legislative changes	Insufficient electricity supply	Government policy changes

IRMSA - IODSA, SAICA and IIA SA Combined Industry Level Top 20 Dick Danking Comparison

Lack of innovation

10 out of 20 risks have a ranking differential of no more than three places

Unmanaged inflation

	Top 20 Risk Ranking Comp	oarison
	IODSA, SAICA and IIASA Combined Industry Level Top 2 Risk Ranking	0 IRMSA Combined Industry Level Top 20 Risk Ranking
	Failure/shortfall of critical infrastructure	Regulatory / legislative changes
	2 Lack of leadership	Insufficient electricity supply
	Increasing corruption	Skills shortage
	Governance failure	Increasing corruption
	Insufficient electricity supply	Government policy changes
	Government policy changes	Reputational damage or adverse media / social media attention
١	(7) Increasing strike action	Massive incident of data fraud / theft
١	Profound political and social instability	Profound political and social instability
	Structurally high unemployment/underemployment	Water crisis
ľ	Skills shortage	Failure / shortfall of critical infrastructure
ı	(11) Water crisis	Structurally high unemployment / underemployment
	Regulatory/legislative changes	Unmanaged inflation
	Major escalation in organised crime and illicit trade	Governance failure
	Lack of innovation	Lack of leadership
	Massive incident of data fraud/theft	State collapse or crisis
	Severe income disparity	Major escalation in organised crime and illicit trade
	State collapse or crisis	Severe income disparity
	Misuse of technologies	(18) Increasing strike action
	Reputational damage or adverse media/social media attention	Misuse of technologies

Likelihood Ratings: WEF – RSA – RSA Industry

Geopolitical Economic Environmental Technological WEF 2016 Report Interstate conflict Skills shortage Regulatory/legislative changes Large-scale involuntary migration Extreme weather conditions Insufficient electricity supply Increasing corruption Extreme weather events Failure of national governance Insufficient electricity supply Increasing corruption Failure of climate-change mitigation and adaptation State collapse or crisis Skills shortage nterstate conflict Severe income disparity Government policy changes Vatural catastrophes allure of national governance Natural catastrophes Education and skills development Severe income disparity Jnemployment or underemployment Failure of climate change adaptation Lack of leadership Data fraud or theft Increasing strike action Vater crises Data fraud or theft media/social media attention Illicit trade Cyber attacks Regulatory/legistlative changes Increasing strike action WEF Likelihood RSA Likelihood RSA Industry Likelihood

Consequence Ratings: WEF – RSA – RSA Industry



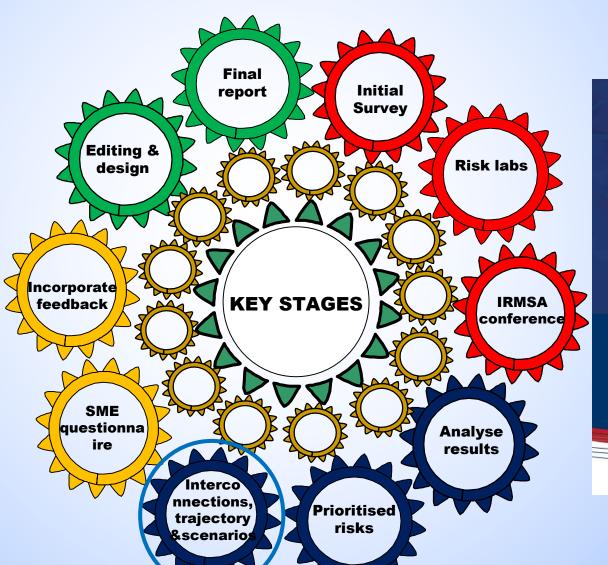
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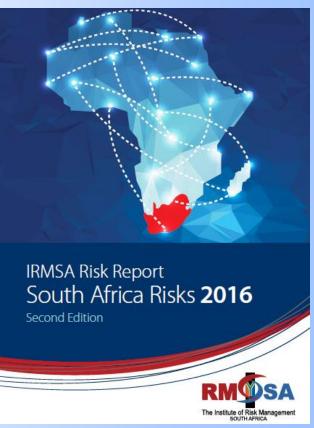
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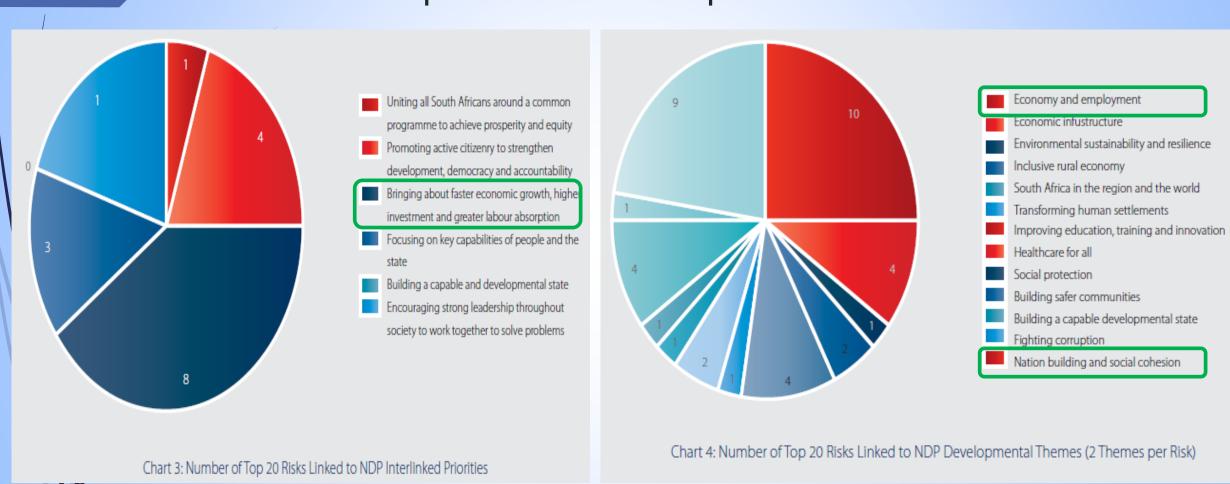
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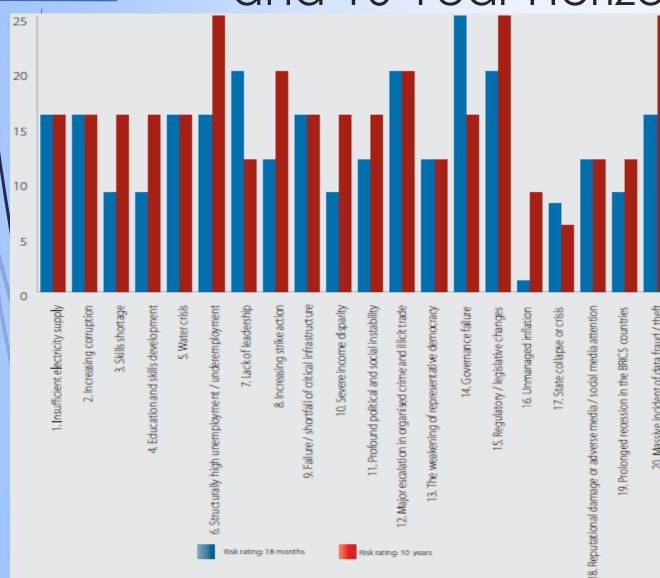


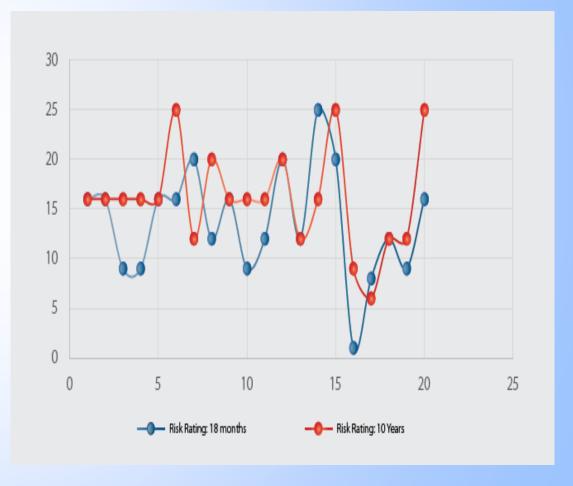


NDP Exposure to Top 20 SA Risk Profile

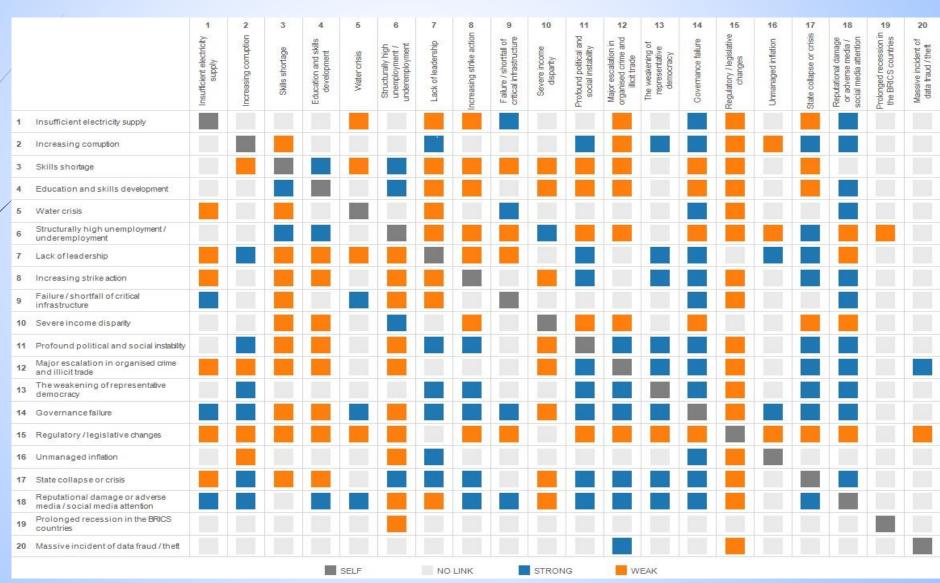


Unfolding of the Top 20 Risks - 18 Month and 10 Year Horizons





Interdependency of the Top 20 South African Risks for 2016



Spread of Total Number of Risk Interconnections



South African Scenarios Related to NDP Implementation

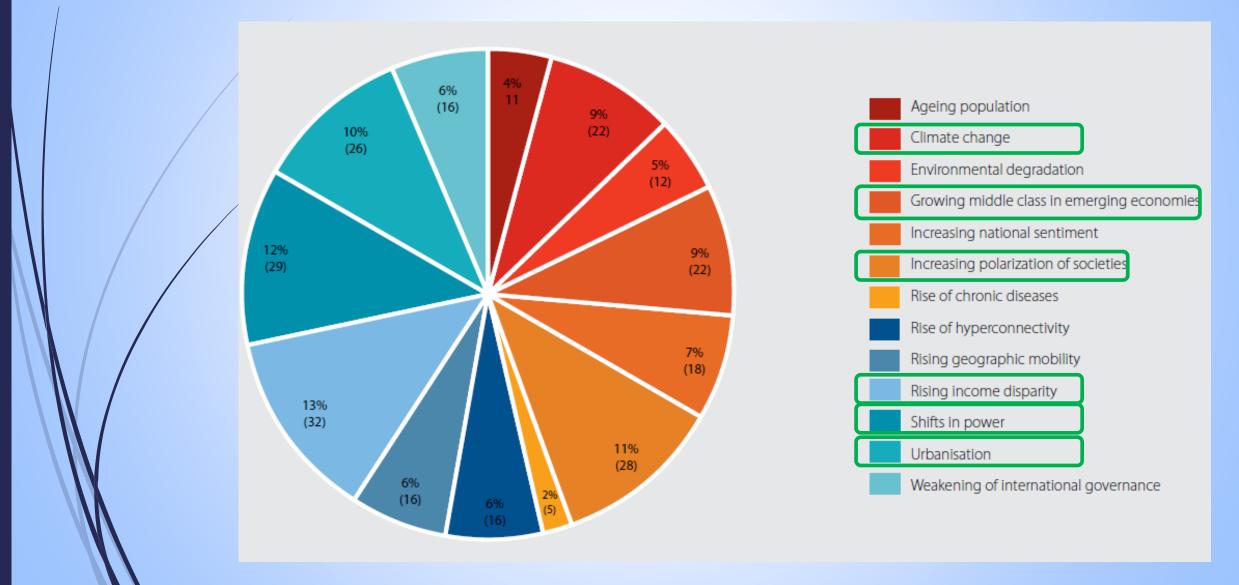


World Economic Forum Global Risks Report

■ Trends 2015

Trend	Description
Ageing Population	Ageing of populations in developed and developing countries driven by declining fertility
Climate change	Change of climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability
Environmental degradation	Deterioration in quality of air, soil and water from ambient concentrations of pollutants and other activities and processes
Growing middle class in emerging economies	Growing share of population reaching middle-class income levels in emerging economies
Increasing national sentiment	Increasing national sentiment among populations and political leaders affecting countries' national and international political positions
Increasing polarization of societies	Inability to reach agreement on key issues within countries due to diverging or extreme values, political or religious views
Rise of chronic diseases	Increasing rates of non-communicable diseases, also known as chronic diseases, leading to long-term costs of treatment threatening recent societal gains in life expectancy and quality, placing a burden on economies
Rise of hyperconnectivity	Increasing digital interconnection of people and things
Rising geographic mobility	Increasing mobility of people and things due to quicker and better performing means of transport and lowered barriers
Rising income disparity	Increasing socio-economic gap between rich and poor in major countries or regions
Shifts in power	Shifting power from state to non-state actors and individuals, from global to regional levels, and from developed to emerging market and developing economies
Urbanisation	Rising number of people living in urban areas, resulting in the physical growth of cities
Weakening of international governance	Weakening or inadequate global or regional institutions' (e.g. the UN, IMF, NATO, etc.) agreements or networks, and loss of trust in them, increasing the global power vacuum and preventing effective solutions to global challenges

Spread of Global Trends Significantly Impacting the Top 20 South African and Industry Level Risk Profiles



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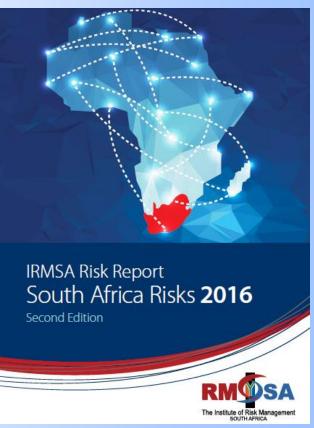
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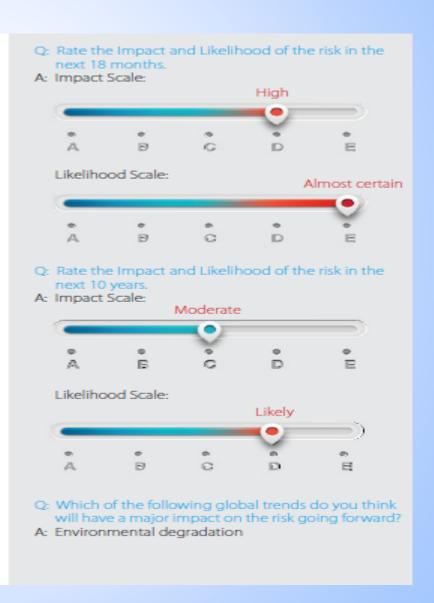
Report writing





SME Questionnaire

- Q: What is your opinion of this topic as a risk to the achievement of the National Development Plan (NDP) objectives for South Africa?
- A: The NDP embodies much of what would normally bedone in development of infrastructure and services – all this will be delayed.
- Q: Give the primary causes of this risk.
- A: Ideology
 - Inadequate skills
 - Lack of leadership
- Q: What are the consequences if this risk materialises?
- A: Lack of:
 - Confidence
 - Political unrest
 - Ill affordable high cost of living
- Q: Which industry will be most affected if this risk materialises?
- A: Mining
 - Engineering
 - Construction
- Q: What are the barriers that prevent us from solving this risk?
- A: Competency
 - Transparency in procurement
 - Political/governmental interference
- Q: What is the effective risk response to treating the risk on an industry level?
- A: Minimisation of exposure to risky initiatives
 - · Inward looking strategy first then outward
- Q: What is the effective risk response to treating the risk on a National level?
- A: Conservatism



Snippet of SME Feedback Summary

No	Risk Name		Rating: Months	Risk R 10 Y	ating: lears	ı	Indust	tries mo	ost affi	ected if	f the ri	isk mat	erialis	ses		lustries the risi				Global trends that will have a major impact on the risk going forward										ward		
\		Ukalkood baring. A - E A. Rase/Remote B. Unakay C. Naderase C. Naderase E. Almest certain	Impact / Consequence Rating A - E A Insignificant B. Minor C. Moderate D. Hah E. Critical	Likelhood Rasing: A - E A. Rase, Renote B. Unislasy C. Moderan D. Lisa E. Almós certain	Impact / Consequence Rading: A - E A Jinspinificant B. Minor C. Moderate E. Offical	Professional Services	Government and Public Sevices	Financial Services	Energy, Waterand Utilities	Communications and Technology	Transport and Logistics	Petrochemicals	Manufacturing	Minha, Engineering and Constluction	Hospitalty	Education	Heathcare	Retail	Other	Ageing population	Omate change	Ervironmental degradation	Growing middle class in emerging economies	Increasing polarization of societies	Reofchoricaleases	Rise of hyper connectivity	Rising geographic mobility	Rising income disparity	Shifts in power	Urbanistion	Wealening of International governance	Increasing national sentiment
1	Insufficient electricity supply													_																		
	Silas Zimu, CEO, Sudon Energy and President Jacob Zuma's	D	D	С	E																											
	Special Advisor on Energy Peter Fowles, Strategic Advisor, Association of Municipal	5	c	c	В																			•								
	Bectricity Undertaking Dr Leslie Carlo, Risk and Engineering Management		_	-	-																											
	Specialist Stan Bridgens, Director, South African Institute of Electrical	D	E	E	E																											
\	Engineers (SAIEE)	E	D	D	С																											
2	Increasing corruption													_																		
	Adv. Kevin Siftso Malunga, Deputy Public Protector of the Republic of South Africa	D	D	D	D																											
	Terrance Booysen, Co-founder and Executive Director, CGF Research Institute	E	E	D	D																											
3	Skills shortage																															
	Dr Jody Cedras, Director: Registration and Recognition, South African Qualifications Authority (SAQA)	С	С	С	D																											
	Stan Bridgens, Director, South African Institute of Electrical Engineers (SAIEE)	D	С	E	D												_									_		_				
4	Education and skills development																															
	Dr Jody Cedras, Director: Registration and Recognition.	В	В	С	С																											
	South African Qualifications Authority (SAQA)		_	_																												
	Christine Fritz, Skills Development Manager, BankSeta Professor Hermien Zaalman, Manager and Associate	C	D	C	E									+																		
	Professor, Centre for Applied Risk Management	E	E	E	E																											
	Dr Whitey van der Linde, Senior Lecturer, University of Johannesburg	C	D	C	D																											
	Stan Bridgens, Director, South African Institute of Electrical Engineers (SAIEE)	C	C	D	D																											
	Reshma Ramkumar, Chief Risk Officer, Impala Platinum	D	C	D	D																											
5	Water crisis																															
	Millicent Mashamalte, Chief Risk Officer, Lepelle Northern - Water	E	E	E	E																											
	Marinda van der Merwe, BU Managing Partner, ERM Southern Africa	C	D	D	E																											
	Oliver Laloux, Chief Executive Officer, Mondial Consultants	E	E	D	D																											
	Brendan Maseti, Group Risk Manager, Lonmin	E	D	D	D																											
	Fred Goede, Senior Lecturer Applied Risk Management, North-West University	D	С	С	С																											

Proposed Enhancements for 2017

Ongoing Monitoring of Risks Throughout the Year

Live Tracking of South Africa's most likely Projected
 Developmental Scenario Linked to NDP
 Implementation

Risk Readiness Assessment

 A Year to Year Comparison between the Current and Previous Year's Top Risks

