



POLYTECHNIC
OF NAMIBIA

Office of the Rector

ACADEMIC WELCOME 2013

“ Building Sustainable Futures ”

*Transforming the Polytechnic of Namibia
into
Namibia University of Science and Technology*

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Talking Points

1. The Theme
2. A Long-term View
3. Towards NUST
4. Global Comparisons
5. Conclusion

The Theme

“Building Sustainable Futures”

- Appropriate for a holistic development perspective in 21st century
- Appropriate for our transformation – to develop fully, comprehensively, consciously and sustainably

The Challenge of Development

- Development is:
 - Complex
 - Multi-dimesional
- Performance about competitiveness
- V-2030 addresses competitiveness

Imperatives for Transformation

VISION 2030

“A PROSPEROUS AND INDUSTRIALIZED NAMIBIA DEVELOPED BY HER HUMAN RESOURCES, ENJOYING PEACE, HARMONY AND POLITICAL STABILITY.”

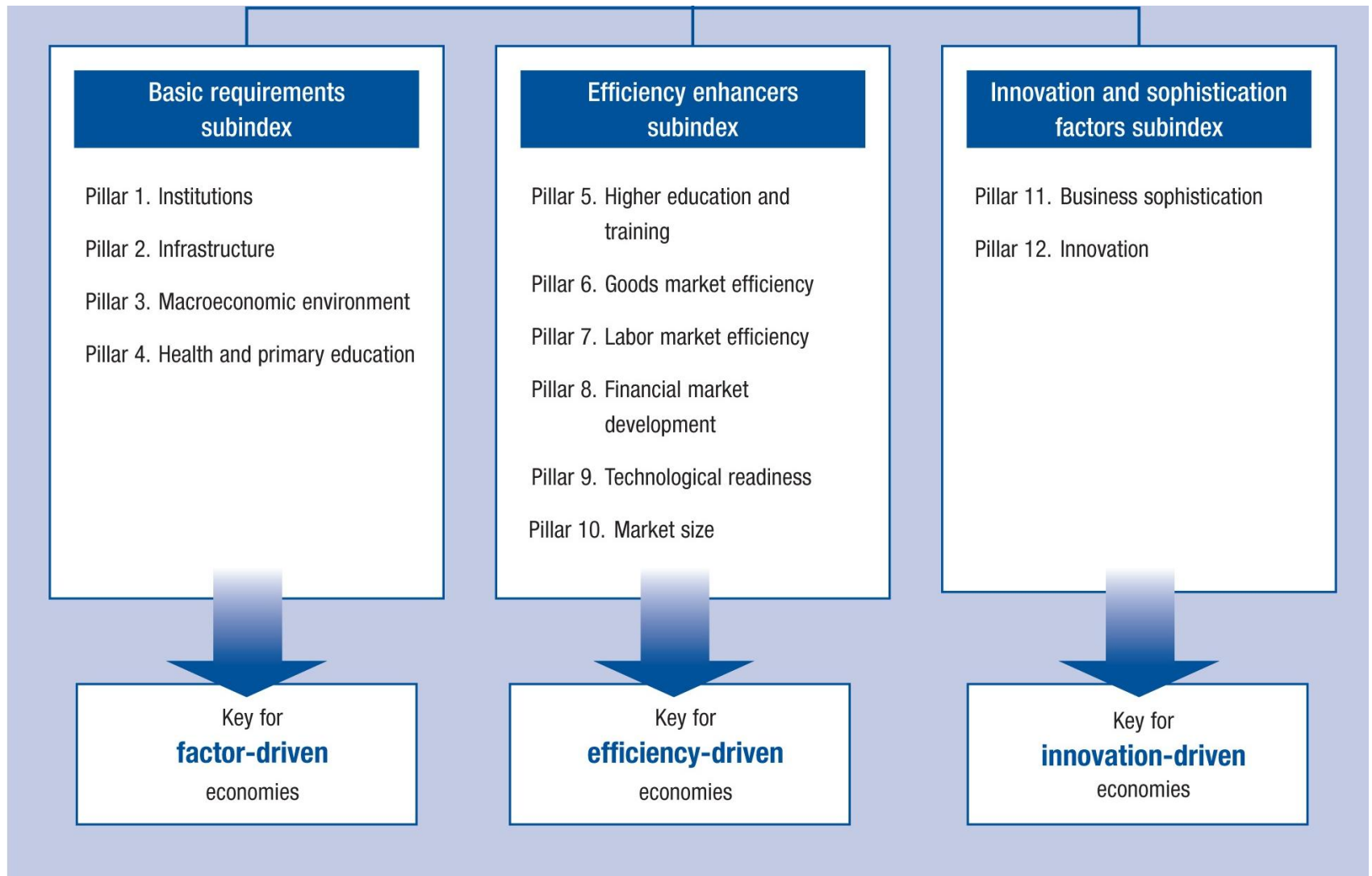
- GRN recognises *mismatch* between *labour market demand* and *kind of graduates* required in the ***new economy***.
- The ***new economy*** is a ***knowledge economy***.

The Knowledge Economy

- Roy du Pre, 2012

- The world has moved from a resource-based economy to **knowledge-based economy**
- Thus knowledge, not resources, is the **major source of wealth**
- 9 of the top 10 richest individuals in the world gained their wealth from **selling knowledge**

Global Competitiveness Index



Global Competitiveness Report 2012-2013

- **5TH Pillar: Higher Education and Training**

Secondary education enrolment, gross	64.0	106
Tertiary education enrolment, gross	9.0	115
Quality of the education system	2.7	127
Quality of math and science education	3.1	129
Quality of management schools	3.1	110
Internet access in schools	3.0	131
Availability of research and training services	4.1	55
Extent of staff training	2.7	126

• 11TH Pillar: Business Sophistication

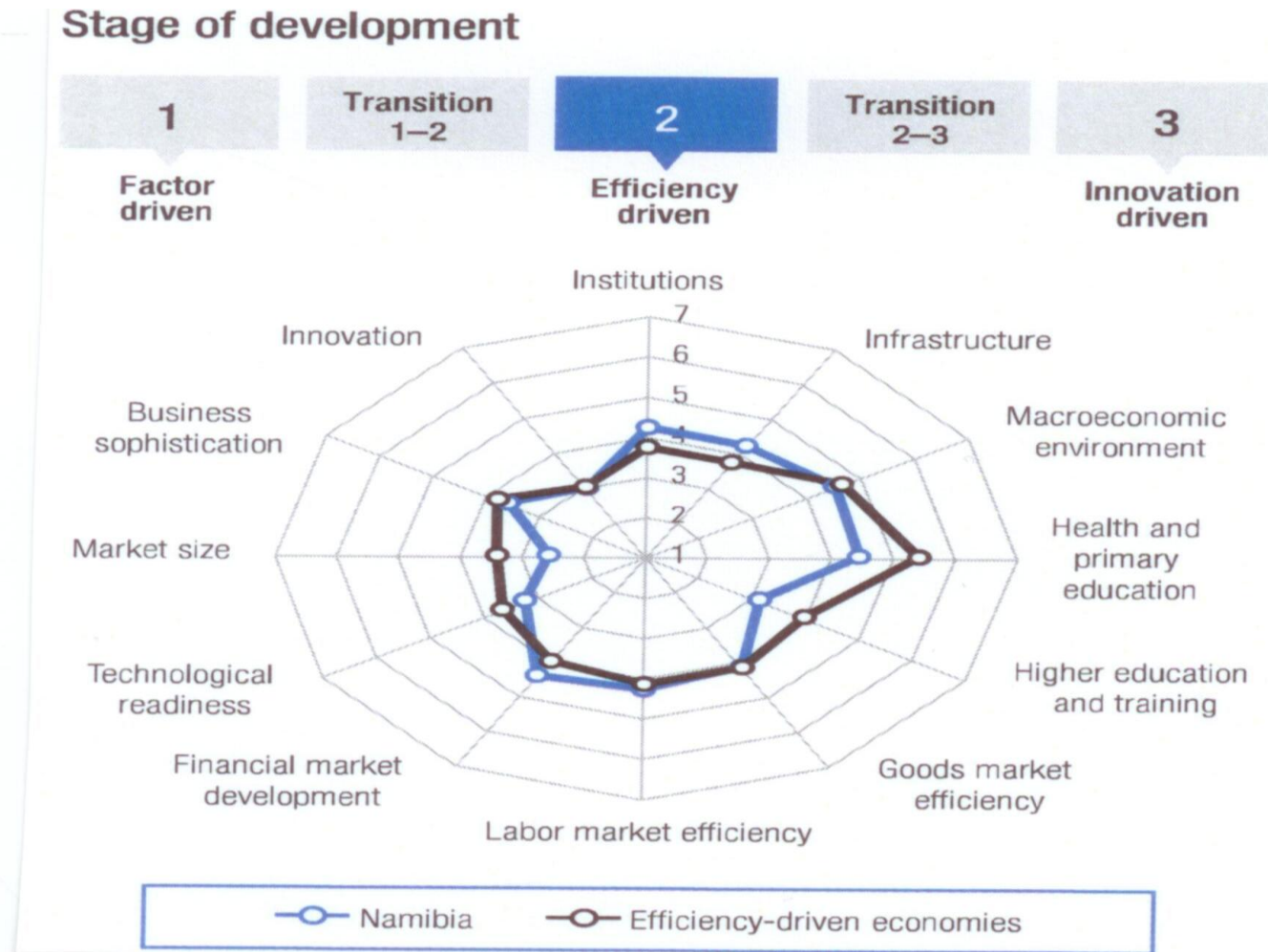
Capacity supplier quantity	3.8	132
Local supplier quality	4.2	89
State of cluster development	3.4	88
Nature of competitive advantage	3.2	94
Value chain breadth	2.9	122
Control of international distribution	3.6	110
Production process sophistication	3.3	98
Extent of marketing	3.7	94
Willingness to delegate authority	3.7	72

- **12TH Pillar: Innovation**

Capacity for innovation	2.9	90
Quality of scientific research institutions	3.4	92
Company spending on R&D	2.9	86
University-industry collaboration in R&D	3.5	73
Government procurement of advanced tech products	3.3	90
Availability of scientists and engineers	2.8	138
PCT patent, applications/million population	0.3	84

Global Competitiveness Report 2012/2013

144 countries participated



Why do we need a UoST?

- Institutions are drivers of competitiveness
- Higher education is a driver of competitiveness
- This imperative is spelled out in the needs of the new economy
- Name change is driven by global paradigms and trends
- Namibia cannot live in isolation by choice

University / Institute of Technology - wikipedia

A learning institution(s) awarding different types of degrees and operating often at variable levels of the educational system.

An institution of [higher education](#) and advanced engineering and [scientific research](#) or professional [vocational education](#), specializing in [science](#), [engineering](#), and [technology](#) or different sorts of technical subjects.

IT may also refer to a [secondary education](#) school focused in vocational training.

Comparison of types of universities

- David Brooke, 2005

University of Technology	Traditional University
1. Research active to inform teaching – seeking an international teaching reputation	Research intensive – seeking an international research reputation
2. Curriculum development around the graduate profiles defined by industry and professions	Curriculum developed around the academic constructs of the disciplines
3. Focus on strategic research, applied research, research into professional practice	Focus on pure or “blue skies” research
4. Multi-level entry and exit points for students	Focus predominantly on degree and post-graduate level study
5. Concerned primarily with the development of vocational/professional education	Concerned to some extent with higher education as an end in itself
6. Technological capabilities as important as cognitive skills	Cognitive skill more important than technological capabilities
7. Seeking to develop and embrace new technologies and crafts	Acts as a repository of historical knowledge and craft as well as integrating the new



Why the Pursuit of Name Change?

- Roy du Pre, 2012

- **Examples of New Era Universities (Career-Oriented)**
- **Post-war Japan** – universities changed the way they worked in order to provide a skills base
 - Result? Japanese economic miracle of the late 20th century
- **Germany** – *Fachhochschulen* concentrated on high-level technological and engineering skills required by industry; followed by the *Berüfsakademie* concept which combined full-time employment with full-time study
 - Result? ‘German Excellence’ and ‘German Engineering’
- **India** – highly successful *Indian Institutes of Technology (IIT)*
 - Result? India now leads the world of ICT
- **Switzerland** – *Technical High Schools* followed by *Universities of Applied Sciences* providing highly skilled knowledge workers
 - Result? Highest per capita income in the world (mainly as sellers of knowledge)
- **UK** – *Polytechnics* for decades trained graduates on post-school level for the workplace and
 - Later became ‘new era’ universities. Some succumbed to academic drift but others lead the way in technological innovation
- **South Africa** – *Technikons* were established in 1979, received degree-awarding status in 1993 and were re-designated *universities of technology* in 2004
- **Australia** – *Universities of Technology* were established in the 1980s and 1990s, and
- **Malaysia, Iran, UAE** soon followed suit



Namibian Higher Education Landscape

- to date

- **Academy for Tertiary Education, 1980**
- **Technikon Namibia, 1985**
- **University of Namibia, 1992**
- **Polytechnic of Namibia, 1994**
 - Amalgamation of Technikon Namibia and the College for Out-of-School Training

What drives change?

- *“If you don’t like where you are, then change it.
You are not a tree.”*

Towards NUST

- *The Origin of the Concept*

- ***The Rector's Perspective***, drafted on New Year's Eve 1995
- Concept paper has been the blueprint for development
 - qualifications: focus on S&T
 - applied research
 - modern infrastructure
 - community engagement
 - cooperative learning
 - internationalisation & benchmarking

Towards NUST

- *The Origin of the Concept*

- Rector proposed in Concept Paper – ***The Rector's Perspective, 1996***
- Polytechnic proposed renaming to **Presidential Commission on Education, Culture & Training, 1999**
- Polytechnic proposed renaming to National Planning Commission for ***Vision 2030, 2004***
- Renaming captured in **PSP-2 (2004-2008)**
- **Application** submitted to **Minister of Education, 2009**

Benefits of University Designation

- From Application to Ministry, 2008

- Immediately enhance the reputation and status of the institution nationally and globally.
- Increase public respect and interest in the institution.
- Recognise the value of science and technology education in national development.
- Provide students with a greater choice in higher education, and a national environment in which they will not be discriminated against in respect of scholarships loans, grants and qualifications.
- Immediately enhance the reputation and status of the institution nationally and globally.
- Increase public respect and interest in the institution.
- Recognise the value of science and technology education in national development.

Towards NUST

- The Origin of the Concept

- First study recommended the renaming, **2010**
- Cabinet directed a **Comprehensive and Holistic Study of the HE landscape, 2010**
- **Comprehensive and Holistic Review and Reform of the Entire HE System in Namibia wrt Vision 2030, completed 2012**
- **Cabinet** directed MOE to “rename the **Polytechnic of Namibia** as **University of Science and Technology**”, **2012**
 - with conditions
 - Keep certificates and diploma courses for a period of not more than 5 years

Main Recommendations

■ NCHE STUDY, 2012

1. **Establish FET colleges** offering vocational training in multiple regions of Namibia, as well as in Windhoek itself, offering programmes on NQF Levels 2,3,4,5, and 6.
2. **Re-establish the colleges of education** for the training of primary school teachers only.
3. **Establish 2 or 3 university colleges over the next 20 years** in appropriate regions of Namibia outside Windhoek. These university college would only offer certificate, diploma and selected undergraduate degree programmes, would have no dedicated research functions, and would potentially operate as multi-campus institutions.

Main Recommendations

■ NCHE STUDY, 2012

4. **Allow NAMCOL to formally offer some higher education certificate and diploma programmes by distance mode**, and for the time being also allow PoN an UNAM to continue their distance education activities until a more detailed cost-benefit study has been carried out on distance higher education in Namibia.
5. **Rename PoN as a university of technology** so that the higher education system will consist of a university sector made up of a general university, a university of technology, and a single discipline private university; and a college sector made up of university colleges, education colleges, nursing colleges, a variety of private colleges, and FET colleges.

Main Recommendations

- NCHE STUDY, 2012

7. **Limit further expansion of UNAM into certificate and diploma programmes** and support in concentrating on post-graduate study and specifically doctoral study.

These recommendations have become directives by virtue of Cabinet approval.

Implementation

■ NCHE STUDY 2012

Phase 1: 1-2 years: This phase could consist of the following:

1. Establish a high-level inter-ministerial committee involving at a minimum the Ministries of Education, Finance, Economic Planning and Labour.
2. Develop a system of formal approval of academic programmes for funding purposes by the Minister of Education.
3. **Rename PoN as a university of technology.**
4. Expand NAMCOL's mandate to formally offer some higher education certificate and diploma programmes by distance education mode.

Implementation

■ NCHE STUDY 2012

Phase 2: 3-4 years: This phase could consist of the following:

1. Develop and implement a comprehensive academic planning framework for HE institutions in Namibia including a system of knowledge priority areas of academic thrusts; a knowledge classification system; an enrolment planning system linked to academic planning goals; and a higher education management information system supporting both academic planning and enrolment planning;
2. Develop a comprehensive credit accumulation and transfer framework, as well as a system for the articulation of qualifications.

Implementation

■ NCHE STUDY 2012

Phase 2: 3-4 years: This phase could consist of the following:

- 3. Develop a policy framework on the setting of tuition fees in higher education** which correlates with an amended set of provisions for student financial aid.
- 4. Establish set aside funding for meritorious projects submitted by higher education institutions** on developing suitably qualified Namibian as academic staff members through 'growing your own timber' programmes.
- 5. Re-establish the colleges of education** for the training of primary school teachers only.

Implementation

■ NCHE STUDY 2012

Phase 2: 3-4 years: This phase could consist of the following:

6. **Re-establish the colleges of education** for the training of primary school teachers only.
7. Carry out a **detailed cost benefit analysis** of allowing PoN and UNAM to continue their **distance education activities** or of incorporating these activities into NAMCOL.
8. **Limit any further expansion of UNAM into certificate and diploma programmes** and support it in concentrating on postgraduate study and specifically doctoral study.

Implementation

■ NCHE STUDY 2012

Phase 3: 5-10: This phase could consist of the following:

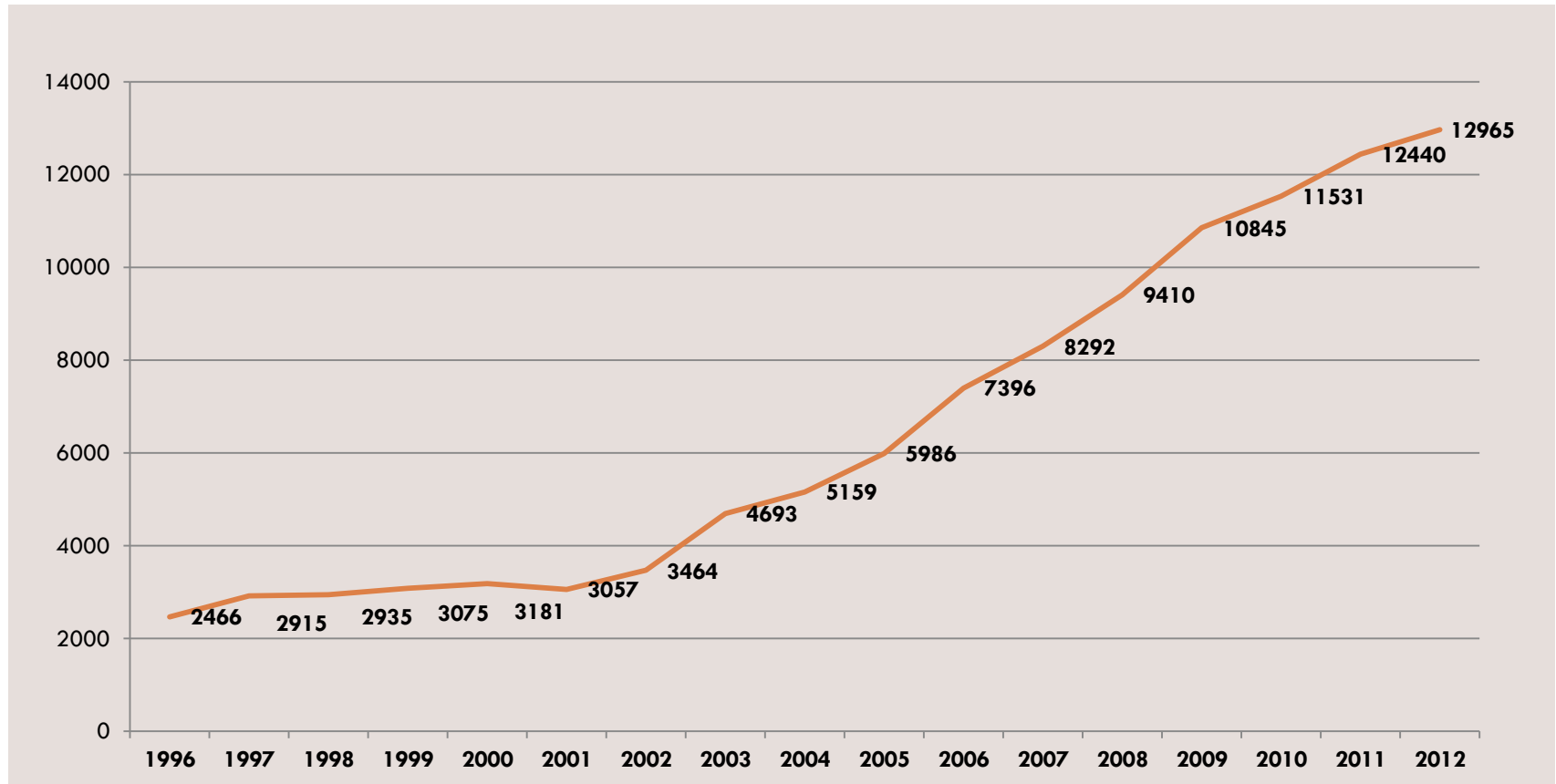
1. **Establish FET colleges** offering vocational training in multiple regions of Namibia, as well as in Windhoek itself, offering vocational training programmes on NQF Levels 2,3,4,5, and 6.
2. **Establish 2 or 3 university colleges** over the next 20 years in appropriate regions of Namibia outside Windhoek.

NCHE STUDY 2012

- Summary

- **HE System to consist of:**
 - General university
 - University of technology
 - Single discipline university
 - A College Sector
 - University colleges
 - Education colleges
 - Nursing colleges
 - A variety of private colleges
 - FET colleges

Polytechnic Enrolments 1996 - 2012



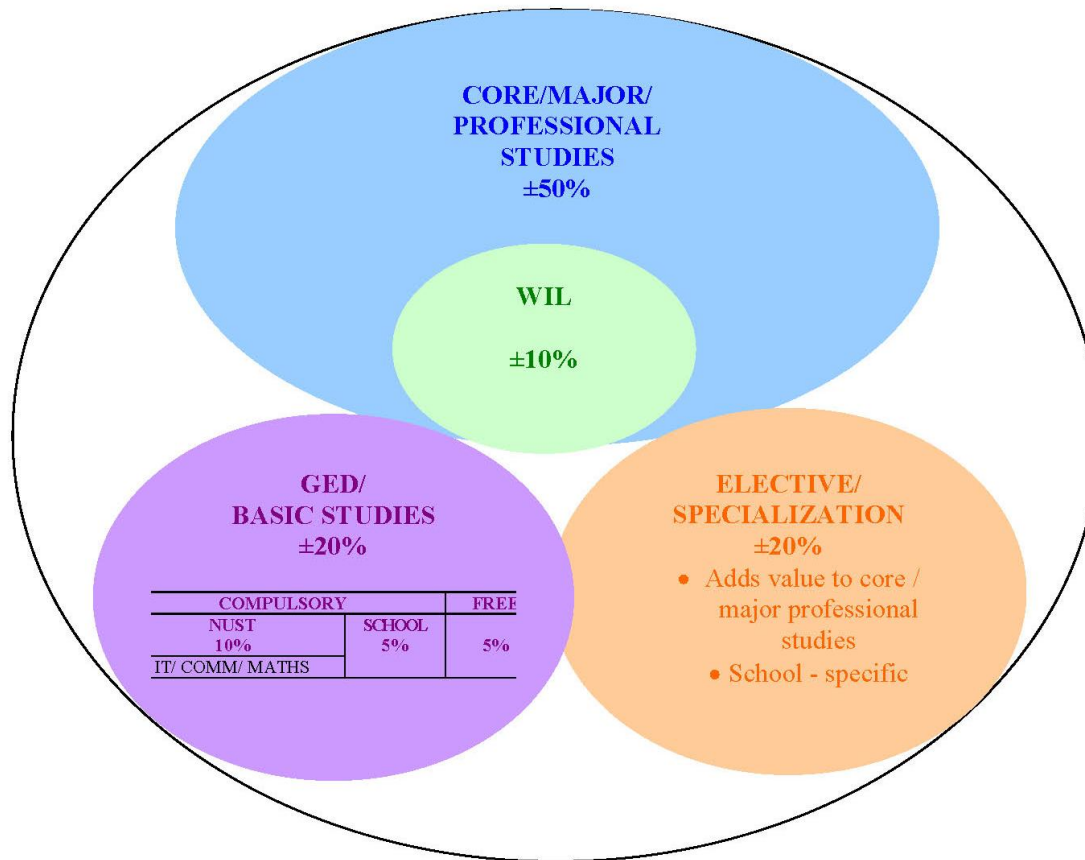
- **A technical/technological university**
- **Primarily focussed on SET or STEM disciplines**
- **Curriculum model educates specifically for the workplace**
- **Well-connected to industry**
- **Renowned for excellence in:**
 - a. **Teaching**
 - Primary: bachelors, masters, doctorates
 - Secondary: certificates, diplomas
 - b. **Applied Research**
 - c. **Service**
 - d. **International outlook**
 - e. **Industry income**
 - f. **Citations**

Primary Qualifications & Mix

- **Primary**
 - Bachelors
 - Masters (MS)
 - Doctorates (PhD)
- **We need to define qualification mix**
 - Undergraduate (eg. 70%) vs graduate (eg. 30%)
 - There's a need to define the transformation timeline
- **Secondary**
 - Certificates
 - Diplomas
 - Most will be phased out over the next 5 years
 - Selected ones may remain, or new ones may be introduced

NUST Curriculum Model

3-YEAR BACHELOR'S DEGREE [360 CREDITS]



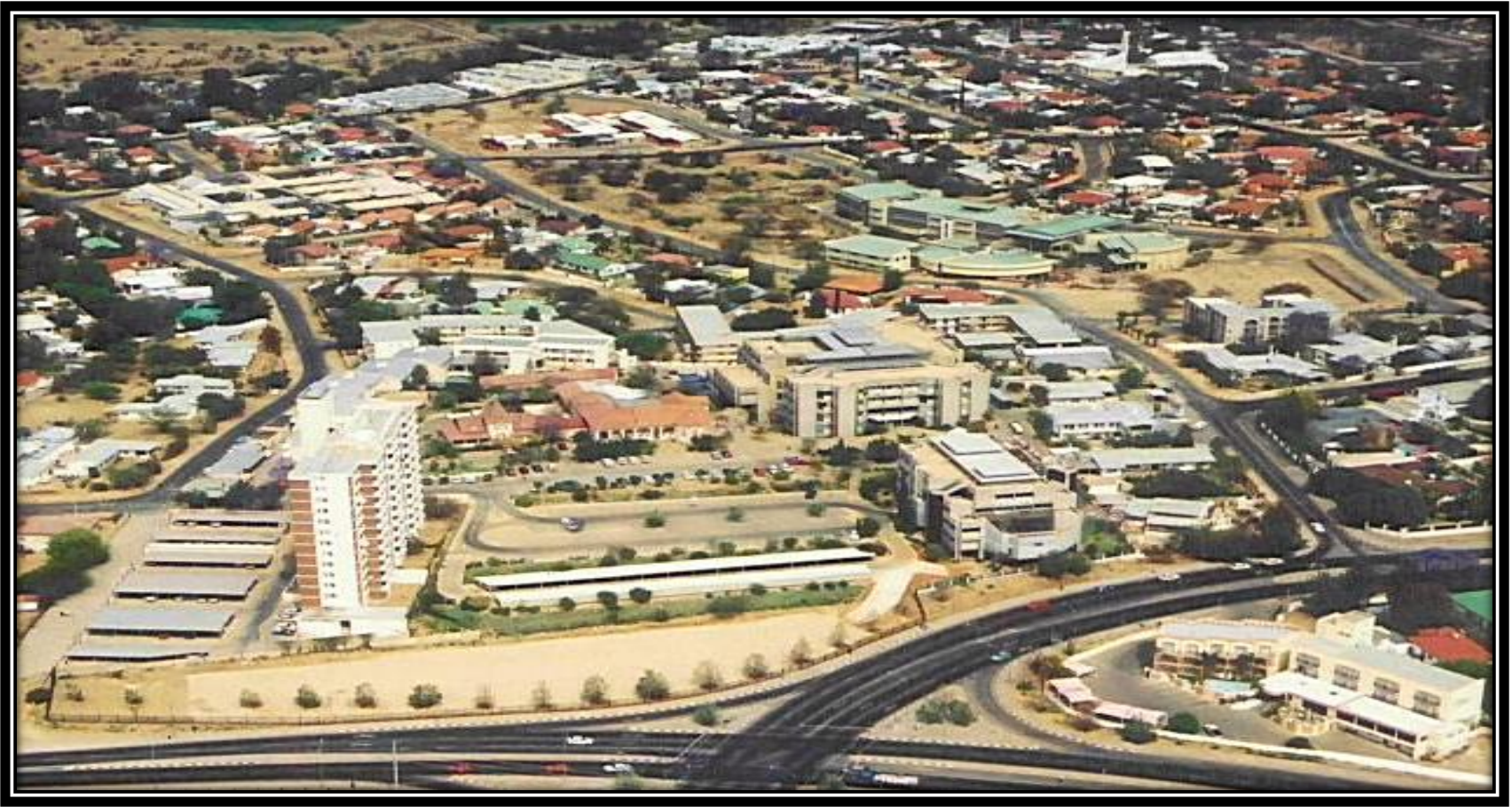
NOTES

1. BASIC STUDIES: ±20 of credits
Basic studies consist of three parts.
 - i. NUST Compulsory Courses: PIS/ MATH/ ENGLISH COMMUNICATION
 - ii. School Compulsory Courses: To be decided by each School/Faculty
 - iii. Electives: Include courses such as Sociology, Law Psychology, Entrepreneurship, Law. Etc. Each School/Faculty to decide on the electives for students in this category.
2. ELECTIVE/SPECIALISATION: ±20% of credits. These are school specific. Each School will develop its own list of electives.
3. CORE MAJOR (60%) includes WIL (10%).

1. B.Sc: 50% of core in Natural Sciences
2. Foundation year in each School/Faculty



Campus 2008



Campus Development Framework

EXISTING BUILDINGS

- | | |
|---------------------------|--------------------------|
| 1. ADMIN BUILDING | 10. ASSETS & STORE |
| 2. MONRESA RESIDENCE | 11. GUEST HOUSE |
| 3. ELIZABETH HOUSE | 12. LIBRARY |
| 4. STUDENT AFFAIRS | 13. ENGINEERING BUILDING |
| 5. POLY HEIGHTS RESIDENCE | 14. AUDITORIUM BUILDING |
| 6. HOEPKER RESIDENCE | 15. TECHNOLOGY BUILDING |
| 7. SHANGRI-LA RESIDENCE | 16. CTL |
| 8. OFFICE BUILDING | 17. HOTEL SCHOOL |
| 9. LECTURE BUILDING | |



PROPOSED BUILDINGS

- | | | | |
|-----------------------------|--------------------------|--------------------------------|------------------------------|
| 18. HEALTH SCIENCE BUILDING | 23. KLEINES HEIM | 28. RESIDENCES | 33. GYM/ RETAIL BELOW SQUARE |
| 19. ENGINEERING EXTENSION | 24. SWIMMING POOL | 29. RETAIL / CAFE'S | 34. PARKING STRUCTURE |
| 20. BUSINESS SCHOOL | 25. SPORTS CLUBHOUSE | 30. STUDENT CENTRE | 35. GRADUATION SQUARE |
| 21. PARKING BUILDING | 26. SPORTS FIELD | 31. BUSINESS INNOVATION CENTRE | |
| 22. HOTEL SCHOOL EXTENSION | 27. MULTI - PURPOSE HALL | 32. CED | |

leonbarnard
architects

CAMPUS DEVELOPMENT FRAMEWORK



POLYTECHNIC
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South African Universities vs Polytechnic of Namibia

- Enrolment Distribution

University Type	General Programmes (%)	Professional Programmes (%)	Vocational Programmes (%)
General	28	40	32
Comprehensive	16	25	59
Technology	8	20	72
Polytechnic of Namibia	4	42.2	53.8

Polytechnic Enrolment Distribution

Current vs Future

Broad knowledge Area	Current (%)	Future (%)
SET	26	> 50% (70%)
Business & Management	69	25
Humanities & Social Sciences	5	5

This means a re-focussing on SET and reducing emphasis on business & management disciplines.

We need to agree the development timeline.

These should be defined in the Strategic and Transformation Plan.

NUST

to be renown for:

- **Some primary domains**

- Natural sciences
- Health Sciences
- Agricultural Sciences
- Mathematics & Statistics
- Engineering
- Information Technologies
- Environmental Sciences & Sustainable Development

- **Some secondary domains**

- Management
- Economics, Finance
- Humanities, Social Sciences
- Interdisciplinary

Awards

- **PMR Diamond Arrow (2009 - 2012)**
 - best higher education institution in Namibia
- **Silver Pigeon Award (2012)**
 - Best national contribution at the 2012 International Architecture and Design
- **Media Institute of Southern Africa (MISA) Golden Key Award (2011)**
 - Most open and transparent government/public institution in Namibia
- **Award of Excellence for Institutional Achievement in Distance Education (2010)**
- **Special Achievement in GIS Award (2009)**
 - Education & Training in Geographic Information Systems (GIS)
- **Cisco Local Academy Award (2009); Cisco Global Recognition Award (2007)**
- **EDUNIVERSAL 1 Palm Awards**
 - amongst 1 000 best Business Schools (2009)
 - rated programmes (2011)
- **Sam Nujoma Innovative Enterprise Development Award (SNIEDA)**
 - Women in Engineering (WIE) (2009)
 - Namibia Business Innovation Centre (2010)
 - Centre for Entrepreneurial Development



Webometrics ranking of world universities

- Established in 2003. One of the oldest and most respected ranking systems.
- The ranking is released twice a year, in February & August.
- Method:
 - Analysis of web domains. Although the data is purely web collected, the results are not surprising (Harvard, MIT on top).
- Webometrics includes more than 20 000 universities worldwide.
- **In Namibia, Polytechnic #1, Unam #2.**

Sub-saharan Africa & World ranking – August 2012

Sub-Saharan Africa	World Ranking in		University
	August 2012	February 2012	
1 (1)	336	(387)	UCT
2 (2)	337	(455)	Stellenbosch
3 (4)	611	(646)	Pretoria
4 (5)	671	(651)	Rhodes
5 (7)	773	(778)	Kwazulu Natal
6 (3)	777	(473)	Wits
7 (6)	1012	(729)	Unisa
8 (8)	1017	(992)	Western Cape
9 (9)	1174	(1177)	Makerere
10 (16)	1319	(1608)	Polytechnic of Namibia
.....
35 (38)	3521	(3738)	University of Namibia

World University Ranking

– *Times Higher Education, 2012-2013*

Institution	Year Established	Score	Staff	Enrolment		
				Under-graduate	Graduate	Total (rounded)
1. California Institute of Technology (CALTECH)	(Throop University 1891)	95.5	1 501	978	1 253	2 100
2. University of Oxford	1096	93.7	10 424	11 723	9 327	21 000
3. Stanford University	1891 (1977)	93.7	1 910	6 927	8 796	16 000
4. Harvard University	1992	93.6	4 604	7 245	4 000	11 000
5. Massachusetts Institute of Technology (MIT)	founded 1861 (opened 1865)	93.1	1 018	4 503	6 686	12 000
6. Princeton University	1746	92.7	1 100	5 000	2 500	7 500
7. University of Cambridge	1209	92.6	8 500	12 077	6 371	18 000
8. Imperial College London	1907	90.6	7 170	6 491	9080	15 500
9. University of California, Berkeley	1868	90.5	?	25 774	10 125	36 000
10. University of Chicago	1890	90.4	2 168	5 134	10 304	15 000

THES World Ranking 2012-2013

California Institute of Technology,
Pasadena, United States (1)

CATEGORY	SCORE
Overall score	95.5
Teaching	96.3
International outlook	59.8
Industry income	95.6
Research	99.4
Citations	99.7

Caltech

- 124-acre campus predates nearby Hollywood
- More than 30 Caltech students have won Nobel prizes, and one alumnus - Harrison Schmitt - has walked on the moon
- Home to Nasa's Jet Propulsion Laboratory
- It has a faculty of about 300 teaching
- About 2,000 students

THES World Ranking 2012-2013

Massachusetts Institute of Technology, Cambridge, United States (5)

CATEGORY	SCORE
Overall score	93.1
Teaching	92.9
International outlook	81.6
Industry income	92.9
Research	89.2
Citations	99.0

- In 150 years, MIT has produced more than 70 Nobel laureates, eight of whom are members of its current faculty
- From its 168-acre Charles River campus, more than 10 000 students are instructed in:
 - architecture and planning
 - engineering
 - humanities
 - arts and social sciences
 - management
 - science
 - health sciences and technology

THES World Ranking 2012-2013

University of Cambridge,
Berkeley, UK (7)

CATEGORY	SCORE
Overall score	92.6
Teaching	91.2
International outlook	83.6
Industry income	59.1
Research	95.6
Citations	92.6

U.Cambridge

- Founded in 1209 by Oxford scholars who quit after a dispute with the local citizenry
- Cambridge alumni loom large in the making of the modern world:
 - Newton on laws and motion
 - Rutherford splitting the atom
 - Darwin on evolution
 - Turing's prototypical computer
 - Crick and Watson with DNA
- Cambridge now employs more than 8 500 staff
- Has over 18 300 students

THES World Ranking 2012-2013

University of California Berkeley,
Berkeley, United States, 9

CATEGORY	SCORE
Overall score	90.5
Teaching	85.1
International outlook	59.7
Industry income	65.4
Research	99.3
Citations	99.3

UC Berkeley

- Vitamin E was identified here
- A lost Scarlatti opera found
- Flu virus identified
- America's first no-fault divorce law drafted
- A gold-rush by-product, the university by San Francisco Bay was chartered in 1868
- To date, more than 20 faculty members have become Nobel laureates
- Today's student body consists of about 36 000 members, more than 10 000 of them postgraduates

THES World Ranking 2012-2013

ETH (Swiss Federal Institute of Technology)
Zuerich, Switzerland (12)

CATEGORY	SCORE
Overall score	87.8
Teaching	82.5
International outlook	95.7
Industry income	---
Research	92.7
Citations	86.6

ETH, Zuerich

- ETH Zurich (heir to the Federal Polytechnic Institute, set up in 1855)
- You don't have to be Albert Einstein to study here but Einstein received his diploma here in 1901
- Every Swiss citizen who has sat the Matura (matriculation) is eligible - but it doesn't hurt
- Now teaches around 15 000 students in 16 faculties

The Way Forward

Major events of 2013

1. Consult Ministry of Education on HE review and transformation
 2. Complete Strategic and Transformation Plan
 3. Change Act (by Parliament)
 4. Transform Polytechnic to NUST
- *These should run in parallel.*

Thank you

*It's momentous year;
It's an exciting year.*

*“Nothing is impossible,
because I'm possible”*

THANK YOU!

