Institutional Research and Institutional Performance

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29 September 2015

Conference 2015

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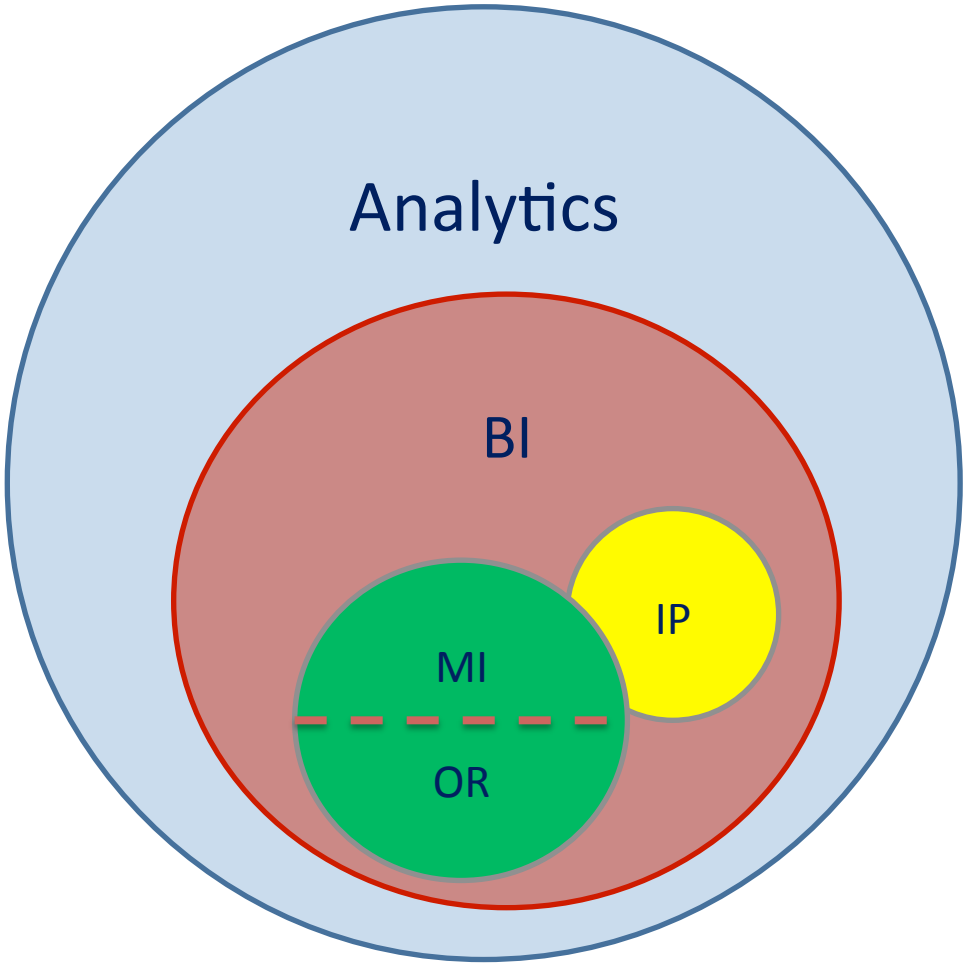
Locating institutional performance



Introduction

Why is this important?

- Pressure from **government & regulatory bodies**
  - Accountability to society
  - Awareness and comparison / benchmarking
  - Rankings
- Pressure from **internal decision bodies**
  - How do we monitor & evaluate a balanced performance
  - How do we align various levels of performance

Key question

How effective are institutions in contributing to the knowledge economy

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Introduction

Key elements for monitoring institutional performance:

- Real-time MI / BI system (people & process)
  - *Operational performance against plan / target*
- Performance indicators & scorecard
  - *Monitoring long-term performance*
- Research & benchmarking
  - *Informing strategy, direction & baselines*

Key question

where are we now and how far away from where we want to be?

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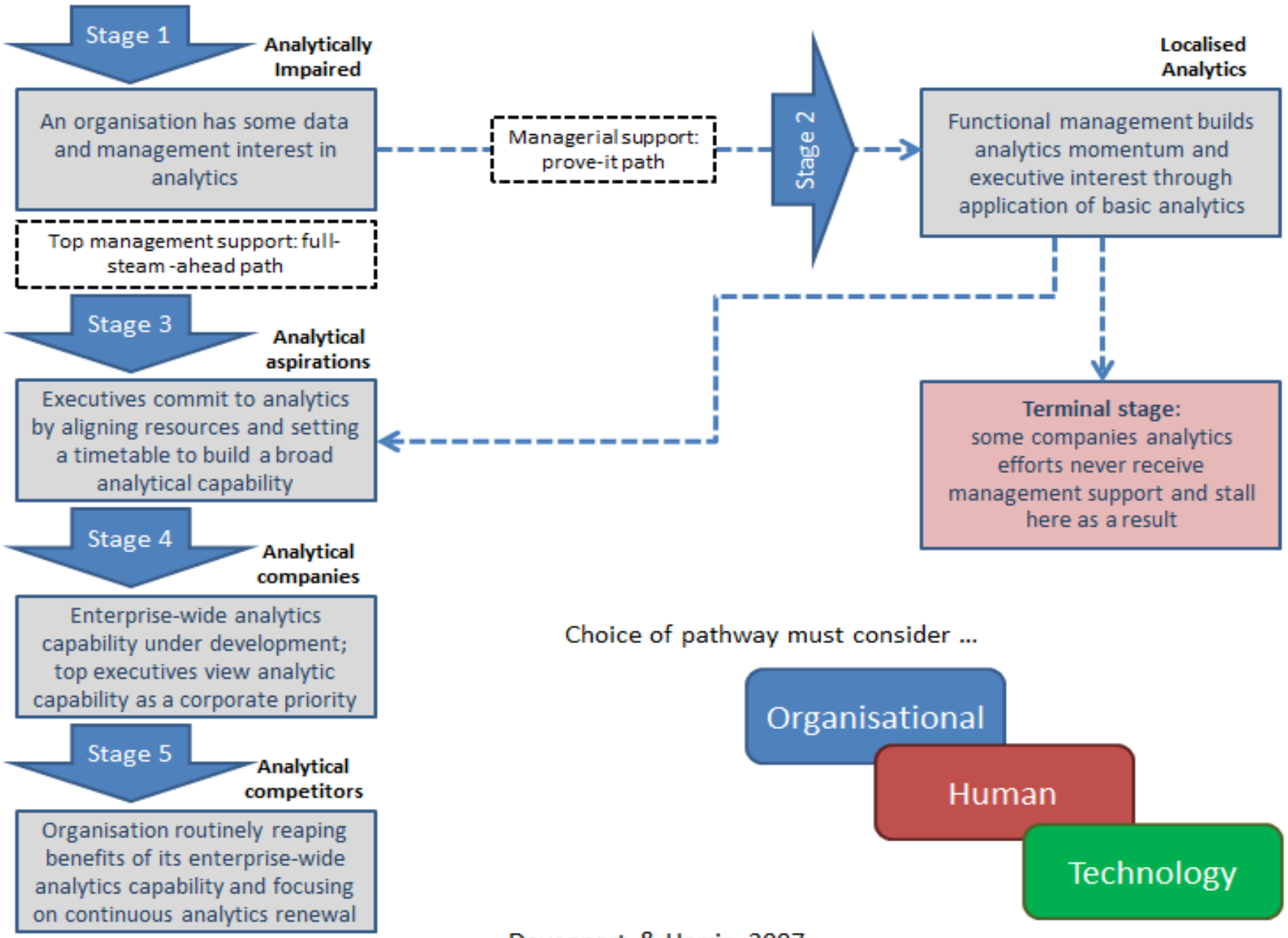
Assumptions

- Strategy / vision / mission
  - *Determines the objective in the longer-term*
- Operational plan / project management
  - *Determines the trajectory in the short-term*
- Defined measures and metrics
  - *Determines the 'how do you know where you are?'*
- Link to the business
  - *Determines responsibility & accountability*

Competing on analytics

- Davenport & Harris (2007)
  - Businesses going the route of competing on analytics
  - Considered the pathways of adoption by successful companies
  - Identified the stages towards being 'analytical competitors'
  - Highlight the role of executive 'interest'

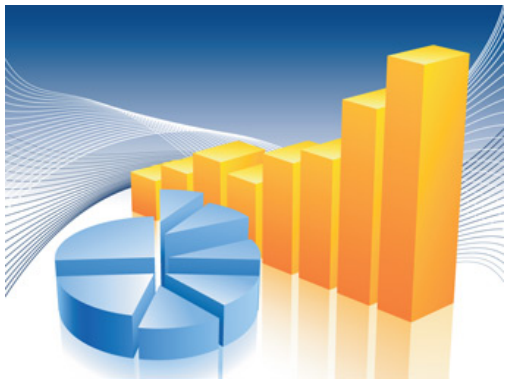
- Some resonance with HE
  - One difference would be the middle management response/uptake


Stage 1
Analytically Impaired
An organisation has some data and management interest in analytics
Top management support: full-steam -ahead path
Managerial support: prove-it path
Stage 2
Localised Analytics
Functional management builds analytics momentum and executive interest through application of basic analytics
Terminal stage: some companies analytics efforts never receive management support and stall here as a result
Stage 3
Analytical aspirations
Executives commit to analytics by aligning resources and setting a timetable to build a broad analytical capability
Stage 4
Analytical companies
Enterprise-wide analytics capability under development; top executives view analytic capability as a corporate priority
Stage 5
Analytical competitors
Organisation routinely reaping benefits of its enterprise-wide analytics capability and focusing on continuous analytics renewal
Choice of pathway must consider ...
Organisational
Human
Technology
Davenport & Harris, 2007

Analytics research in HE

Jaqueline Bichsel, 2012

- Survey of a number of institutions with membership of EDUCAUSE and AIR
- 339 distinct respondents
- Only looking at:
  - Targets and benefits
  - What is in place



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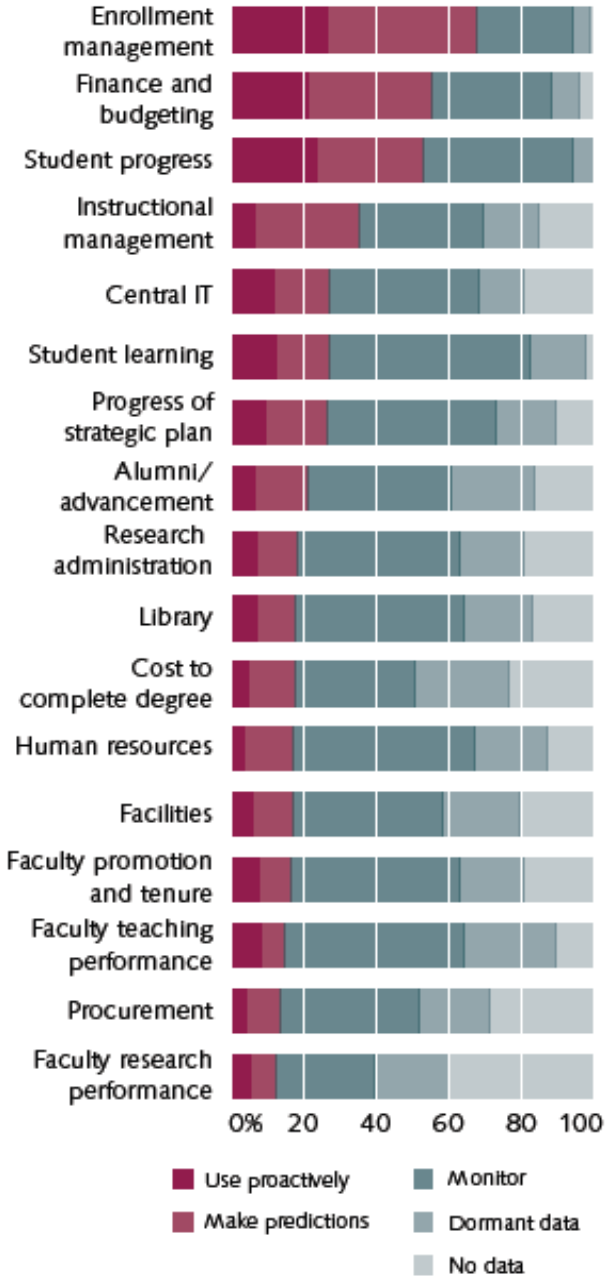

Targets and benefits of analytics

(Bichsel, 2012)

Survey respondents were asked how they use data in various functional areas.

Only three areas (enrolment management, finance and budgeting and student progress) have the use of analytics at the highest levels (proactive and predictive capabilities).

Interesting to note that student learning, and progress of strategy are midway on the list.

Research administration, faculty teaching performance, faculty research performance are way low on the results, considering these underpin the core business of HE.

Also interesting are the areas with NO DATA.

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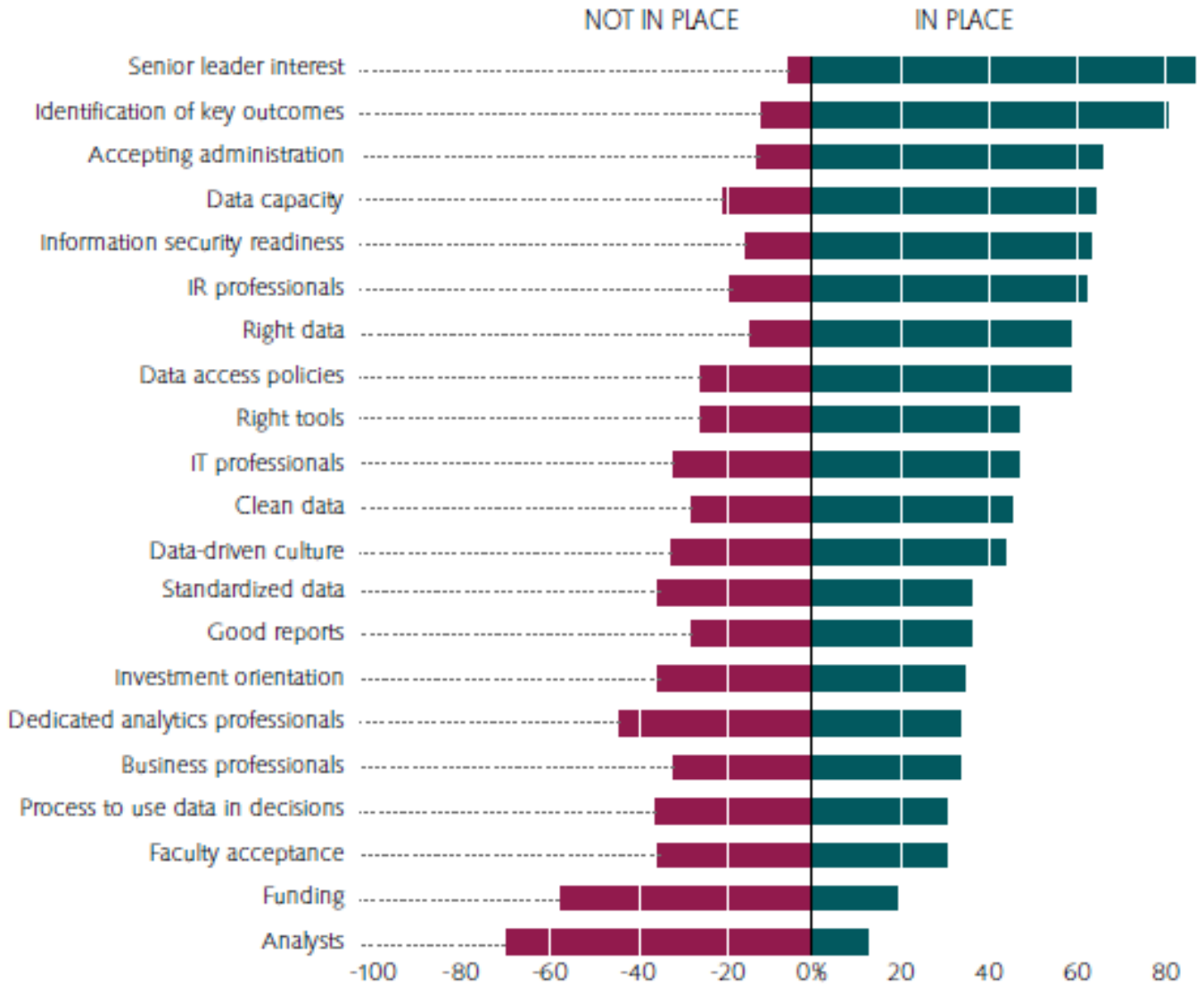
What is in place for analytics

(Bichsel, 2012)



Where do we feature in SA?

- Not very different from the results of Bichsel
  - The diversity of analytic capability is marked
  - The difference between the 'leading' and the 'rest' is large
  - The analytic capability restricted to a few functions within the institution
- There are institutions with:
  - Regular KPIs to Excom / Council – *balanced / institutional?*
  - Measuring performance routinely – *institutional vs individual/unit?*
  - Predictive capabilities used proactively – *student / finance?*
  - Early alert systems in place – *interventions / effective?*
  - Advanced analytics in place (risk, modelling, mining) – *effective?*
  - Adding 'soft metrics' to the data set – *skills, habits, behaviours?*

Institutional Performance

Effective analytics is more about people and process than data and tools!

Monitoring performance …

Monitoring performance

Institutional performance

- Strategy mapping
- Performance indicators
- Scorecards
- Reporting and dissemination
- Audience and maturity

Unit performance

- Aligning business units to the institution

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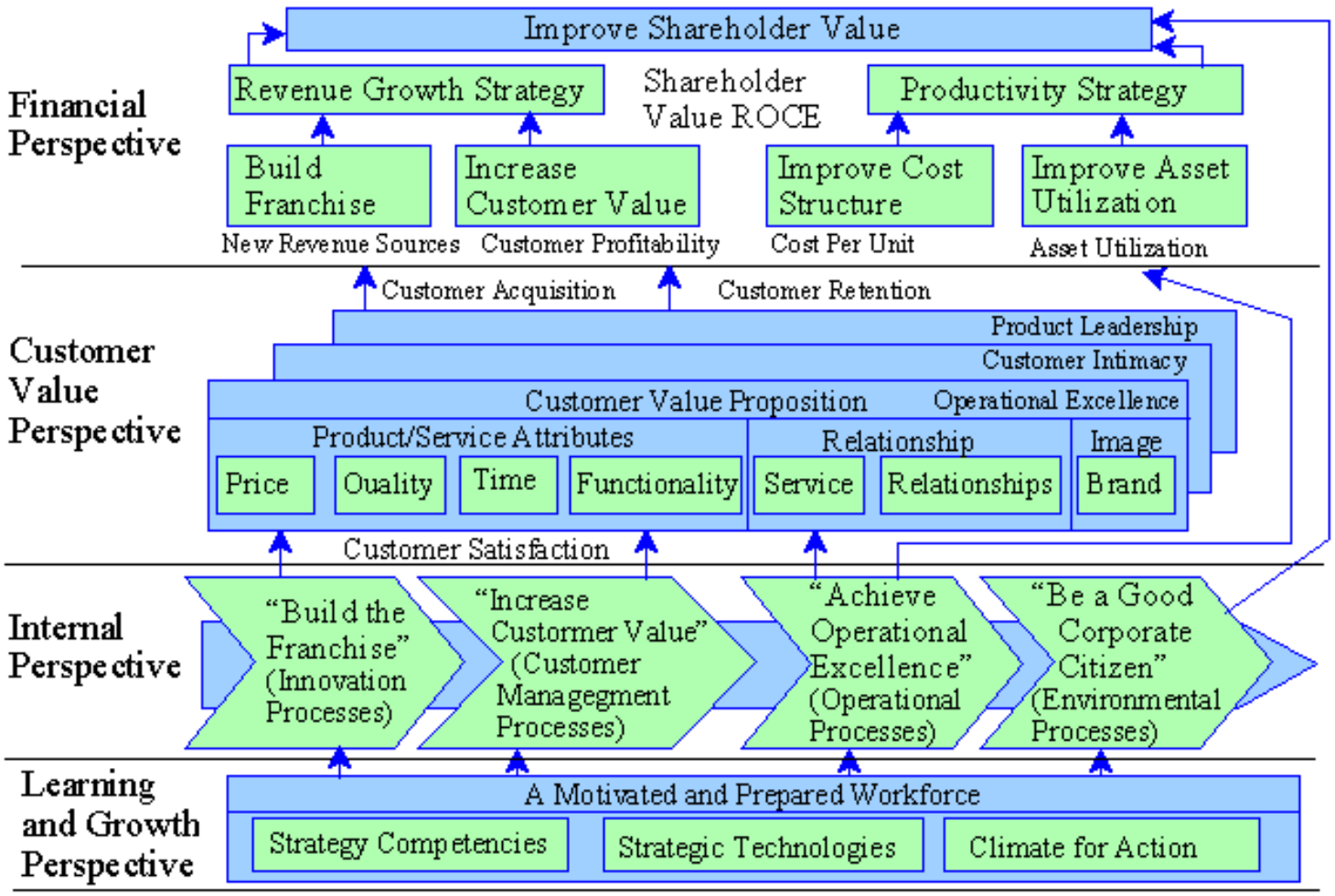
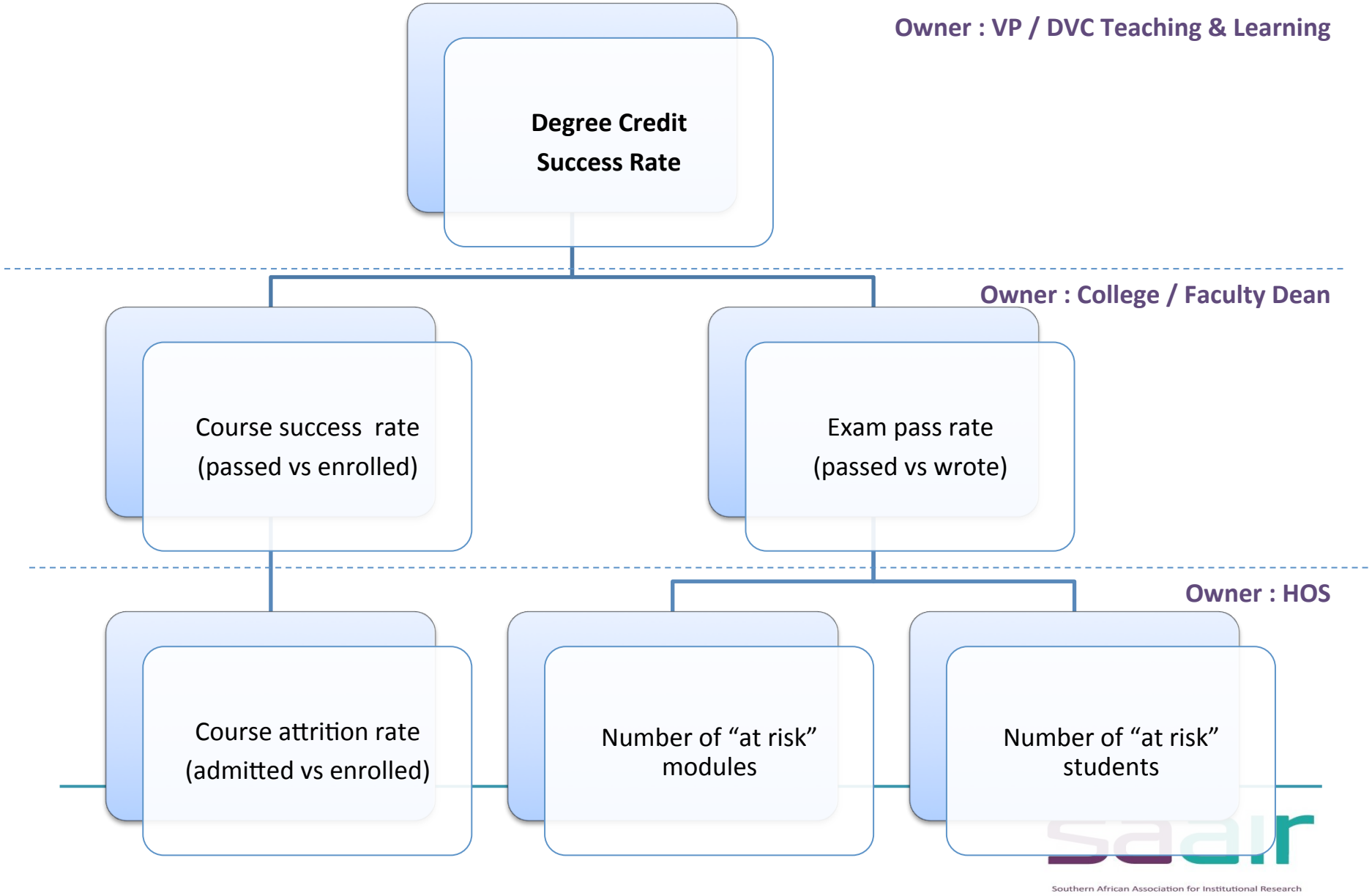
Translating mission into desired outcomes – adapted from Kaplan & Norton

The Balanced Scorecard Generic Strategy Map*



* Adapted from Kaplan & Norton Figure 3-15 page 96.

Goal 1: Undergraduate student performance



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Measure, Monitor & Report

List of indicators:

- Council
- Portfolio
- College / Department
- School / Unit
- Contributors, dependencies, weightings

Process & people:

- Assessment against targets and benchmarks
- Scorecards
- Portfolio / college / faculty / unit **champions**

Reporting & the audience:

- Packaging and reporting – visualisation, narrative, etc

Choice of indicators

Leading indicators

– leading indicators are typically ‘input’ oriented, hard to measure and easy to influence

Lagging indicators

– typically ‘output’ oriented, easy to measure but hard to improve or influence

Leading indicators

Leading indicators are process measures that assist with the incremental progress towards a target or outcome (lagging measure)

- **Process measure** thus less delay between action and system change
- They are performance drivers – key factors that **enable the outcome**
- Indicative of '**real-time**' and tracked over time
- Provides an '**early warning**' of emerging results
- **Responsive** to system changes

PERFORMANCE INDICATORS IN SOUTH AFRICAN HIGHER EDUCATION

2000–2008

Summary Report

Ian Bunting, Charles Sheppard, Nico Cloete and Lisa Belding

Cloete N & Bunting I (2000). *Higher Education Transformation: Assessing Performance*
in South Africa. CHET: Pretoria.
(www.chet.org.za/books/higher-education-transformation)

Bunting I & Cloete N (2004). *Developing Performance Indicators for Higher Education:*
A South African Case Study. CHET: Cape Town.
(www.chet.org.za/books/developing-performance-indicators-higher-education)

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PERFORMANCE INDICATORS IN SA HE 2000–2008

(1) Student enrolments and outputs and Ministerial targets:

- head count and FTE student enrolments;
- shape of head count enrolment by qualification type;
- shape of head count enrolment by major field of study;
- average success rates;
- total graduates;
- graduation rates.

PERFORMANCE INDICATORS IN SA HE 2000–2008

(2) Other trends in student enrolments:

- average annual growth rates in student enrolments;
- enrolments by population group;
- enrolments by gender.

PERFORMANCE INDICATORS IN SA HE 2000–2008

(3) Staff data for 2000–2008:

- ratio of administrative to academic staff, compared to national averages;
- ratio of FTE students to academic staff, compared to national averages;
- proportion of academic staff with doctorates, compared to national averages;
- ratio of publication units to academic staff, compared to appropriate targets for universities, comprehensive universities, and universities of technology;
- ratio of weighted research outputs to academic staff, compared to appropriate targets set in the government funding framework.

PERFORMANCE INDICATORS IN SA HE 2000–2008

(4) Financial data:

- total income and expenditure;
- deficits and surpluses;
- sources of income and comparisons to national averages;
- subsidy income plus student fees per graduate, compared to national averages.

PERFORMANCE INDICATORS IN SA HE 2000–2008

Calculations based on data listed above:

- average annual increases in enrolments;
- comparisons of average sizes of 2008 enrolments,
- FTE student to academic staff ratios;
- ratios of total research outputs to academic staff members;
- subsidy income plus student fees per graduate.

Note

No measures of client, customer, service delivery …

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List of Indicators

ID No	PI No	Performance Indicator	KPI Info	Act Wght	Benchmark (BM) Contributors	
PI 4: UG Degree Credit Success Rate						
224	4.1	Exam Admission Rate *PI Comment*: % of students that wrote vs admitted for the module per sitting *Data Definitions*: number wrote vs number admitted. Data are Exam_Sitting=6, 10; Formal=Formal; Academic_Level=UnderGraduate *Data Source*: Examination data	✓	✓ 1	97-98% ✗	☐
223	4.2	Exam Participation Rate *PI Comment*: % of students that wrote vs registered for the module per sitting *Data Definitions*: number wrote vs number registered *Data Source*: Examination data	✓	✓ 1	93% to 95% ✗	☐
222	4.3	Exam Pass Rate *PI Comment*: % of students passed vs wrote for the module per sitting *Data Definitions*: number passed vs number wrote *Data Source*: Examination data	✓	✓ 1	A minimum of 67% ✗	☐
221	4.5	Course Success Rate *PI Comment*: % of students passed vs registered for the module per academic period *Data Definitions*: number passed vs number registered *Data Source*: Examination data	✓	✓ 1	63% by 2015 ✗	☐
225	4.6	Proportion of At Risk Students *PI Comment*: % of students that are classified with a risk rating above x *Data Definitions*: (still to be defined) *Data Source*: Student Risk Modelling	✓	✗ 1	✗	☐
226	4.7	Proportion of At Risk UG Modules *PI Comment*: % of UG modules that are classified as At Risk *Data Definitions*: A count of number of UG, formal modules classified as At-Risk in any year relative to all the UG formal modules in that year *Data Source*: Module Risk Modelling	✓	✓ 1	Below 15% ✗	☐

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List of Indicators

- Indicator definition – interpretation
- Data definitions – accuracy
- Define the data source – consistency
- Set benchmarks – base line and trajectory
- Contributors – aggregated measures
- Weightings – impact and importance
- Leading & lagging – mixture of these, leading are key
- Dependencies – double measure

Monitoring & Evaluation

- Set annual targets – trajectory & milestones
- Measure metric movement – trend analysis
- Attainment of the annual target – progress
- 'Prognosis' of attaining the benchmark – forward looking
- Conversion to a score – create a 'common currency'
- Display details – visualisation
- Automation …

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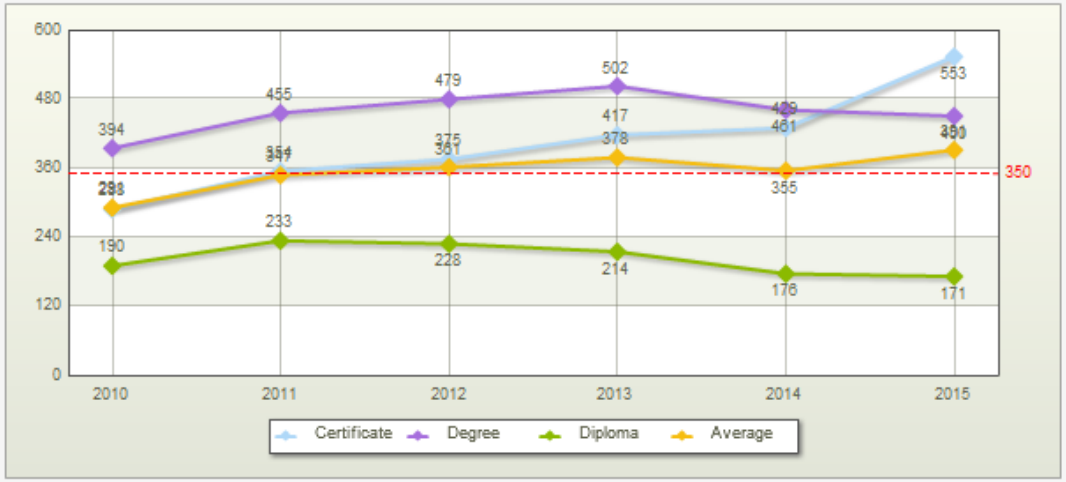
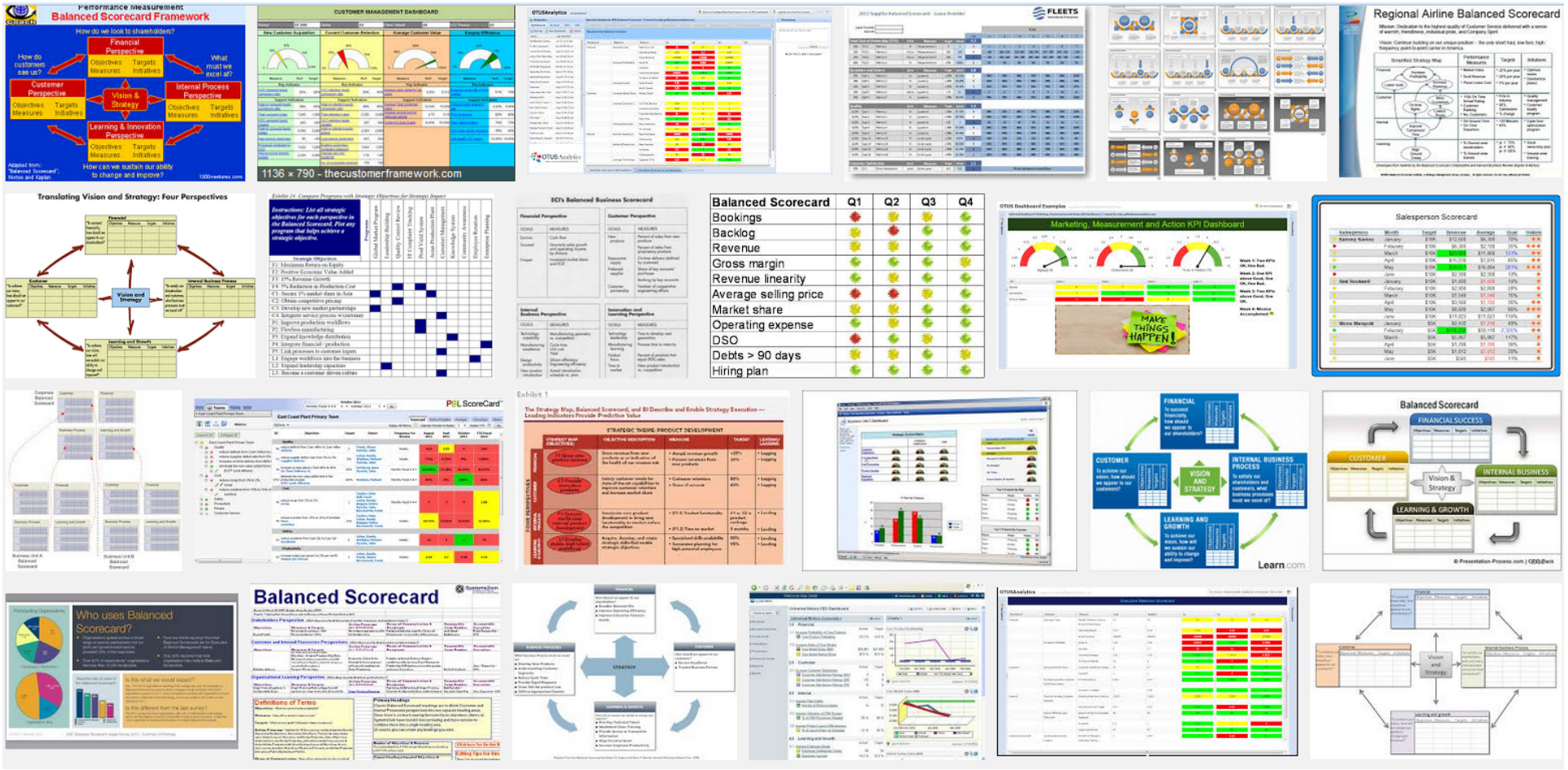
Monitoring & Evaluation

PI No	Performance Indicator	KPI Wght	Bench Mark Source	2013	2014	2015
			GOAL :			
2.1	First-year UG retention rate *Data Definitions*: The proportion of the entering cohort retained into year two for all UG programmes split by qualification type *Data Source*: Cohort data *PI Comment*: % retained into year 2	✓	72% by 2015 Data from cohorts 2004 to 2014 indicate a range from 63% to 76%, an annual increase of 2% from 68% in 2012	Target : 70% Actual : 69% Total: 14, Average: 7	Target : 72% Actual : (None) (-1) Total: -1, Average: -1	
2.4	Average enrolment per UG module *Data Definitions*: The total enrolments relative to the number of modules for all UG programmes split by qualification type. The measure will be on the average over all types. *Data Source*: Course data per cohort (qualification type) *PI Comment*: Number of module enrolments per module	✓	Below 350 from a high of 387 in 2013 when load was at a high	Target : Below 350 Actual : 378 Total: 6, Average: 3	Target : Below 350 Actual : 356 Total: 14, Average: 7	



Metric	2010	2011	2012	2013	2014	2015
Certificate	288	354	375	417	429	553
Degree	394	455	479	502	461	450
Diploma	190	233	228	214	176	171
:Average	291	347	361	378	355	391

Scorecards



Scorecards

- Two approaches:
  - Retain limited no (6 to 10) key indicators and monitor the changes over time, display in a dashboard
  - Identify a large number of indicators that measure many aspects of the business and **aggregate** or **disaggregate** the results

	2004						
	Qtr 1 2004			Qtr 2 2004			
	Actual	Plan	Trend	Actual	Plan	Trend	Owner
Net Profit and Loss							
Revenue							Pellow, Frank
Product Revenue .	$5,052,978.76			$6,253,813.68			Hanson, Mark
Units Sold	9,829			14,990			Hanson, Mark
Average Price Per Unit	88.18			71.24			Holt, Holly
Costs							Penor, Lori
Product Cost .	$4,186,276.47			$5,185,894.44			Adams, Jen
Average Discount .	4.32%			4.77%			Adams, Jen
Net Profit							Allen, Tony
Net Profit .	$866,702.29			$1,067,919.24			Adams, Jen
Net Profit Margin % .	17.15%			17.07%			Adams, Jen

Excel Web Access - profitability by product

	A	B	C	D	E	F	G	H
1	Order Date	Qtr 2 2004						
2								
3		Data						
4	Filter rows	Sales Amount	Total Product Cost	*Net Profit*	Net Profit Margin	Avg Discount		
5	Bike	$ 8,689,006.30	$ 7,348,375.94	$ 1,340,630.36	15.42%	3.42%		
6	Mountain Bike	$ 2,579,437.69	$ 2,006,000.49	$ 573,437.21	22.23%	5.61%		
7	Touring Bike	$ 3,272,098.99	$ 2,828,975.82	$ 443,123.17	13.54%	2.80%		
8	Road Bike	$ 2,837,469.61	$ 2,513,399.63	$ 324,069.98	11.42%	2.16%		
9	Component	$ 1,768,260.08	$ 1,344,526.31	$ 423,733.77	23.96%	1.22%		
10	Clothing	$ 260,207.86	$ 216,887.42	$ 43,320.44	16.64%	2.70%		

Scorecards

- To **Aggregate** or **disaggregate** :
  - Compute a ‘common currency’
    - Relate metrics varying in quantum
  - Need to weight metrics differently
  - Identify correlations, dependencies and contributing factors
    - Understand ‘double counting’

Change in Score

Progress towards Benchmark

	2011	2012	2013
Council PIs of UNISA	n : 33 Score : 6,24	n : 35 Score : 6,57	n : 33 Score : 6,30
PI Grouping	**2011**	**2012**	**2013**
1.1 UNDERGRADUATE STUDENT PERFORMANCE	n : 7 Score : 6,00	n : 8 Score : 5,75	n : 8 Score : 4,25
1.2 POSTGRADUATE STUDENTS AND RESEARCH PERFORMANCE	n : 5 Score : 6,00	n : 5 Score : 6,40	n : 5 Score : 6,40
2.2 PEOPLE DIMENSION	n : 6 Score : 5,00	n : 6 Score : 6,00	n : 6 Score : 6,33
2.3 SERVICE DIMENSION	n : 7 Score : 6,00	n : 8 Score : 6,00	n : 7 Score : 5,14
2.4 GOVERNANCE AND SUSTAINABILITY DIMENSION	n : 6 Score : 8,67	n : 6 Score : 9,33	n : 5 Score : 9,60
2.5 STAKEHOLDER RELATIONS DIMENSION	n : 2 Score : 5,00	n : 2 Score : 6,00	n : 2 Score : 10,00

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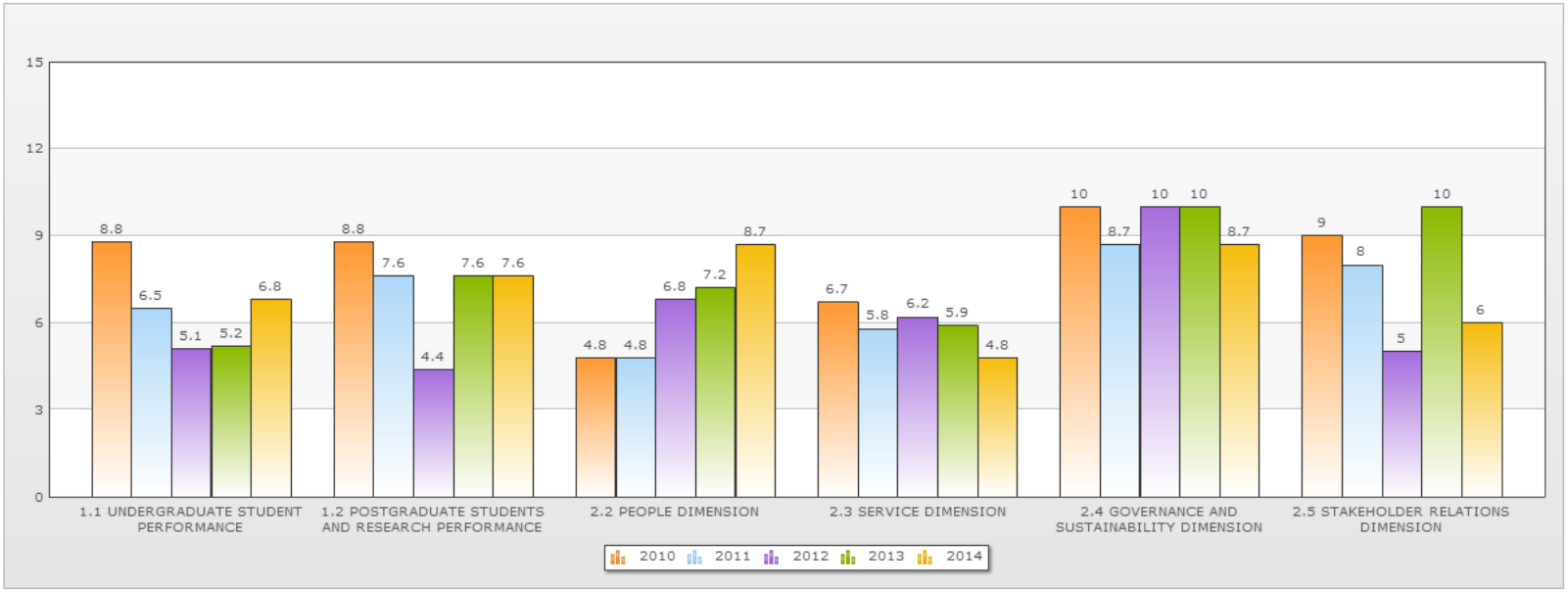
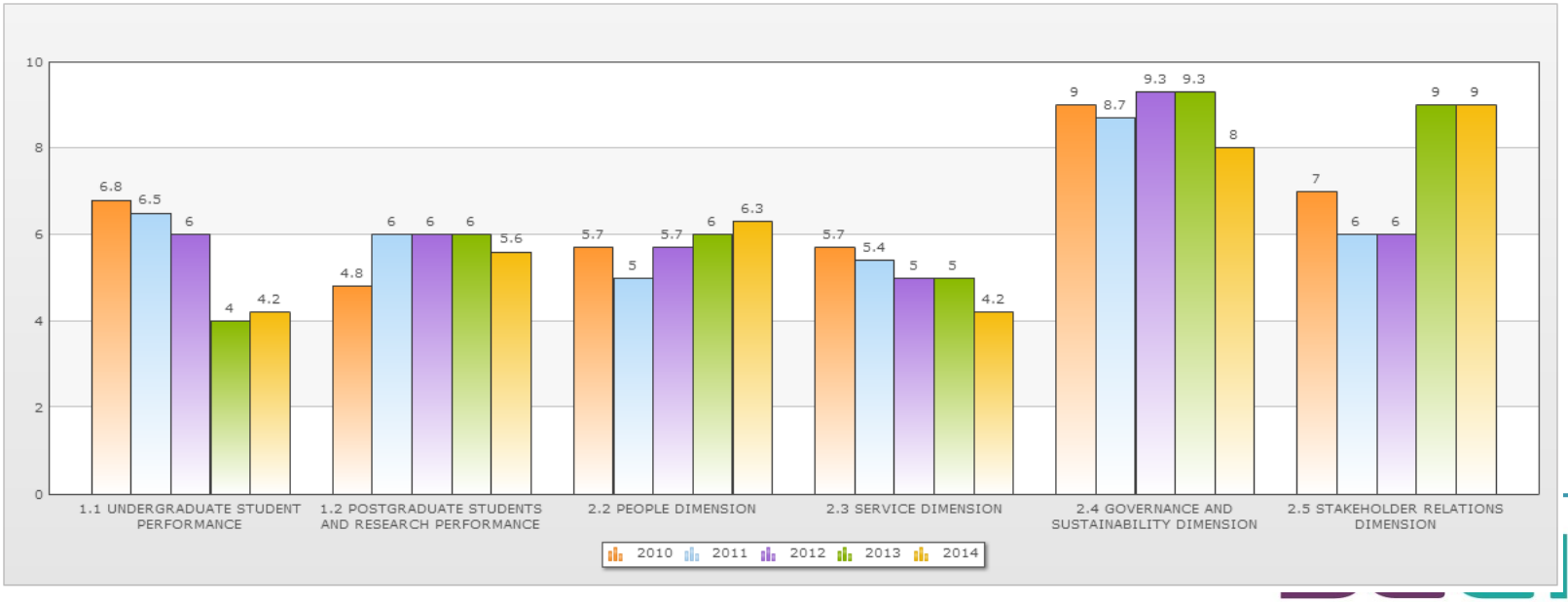
Various Analyses

- Progress against annual targets – short-term changes in the metric
- Progress against benchmark – longer term assessment or 'prognosis'
- Combined analysis – combination of the scores of the above

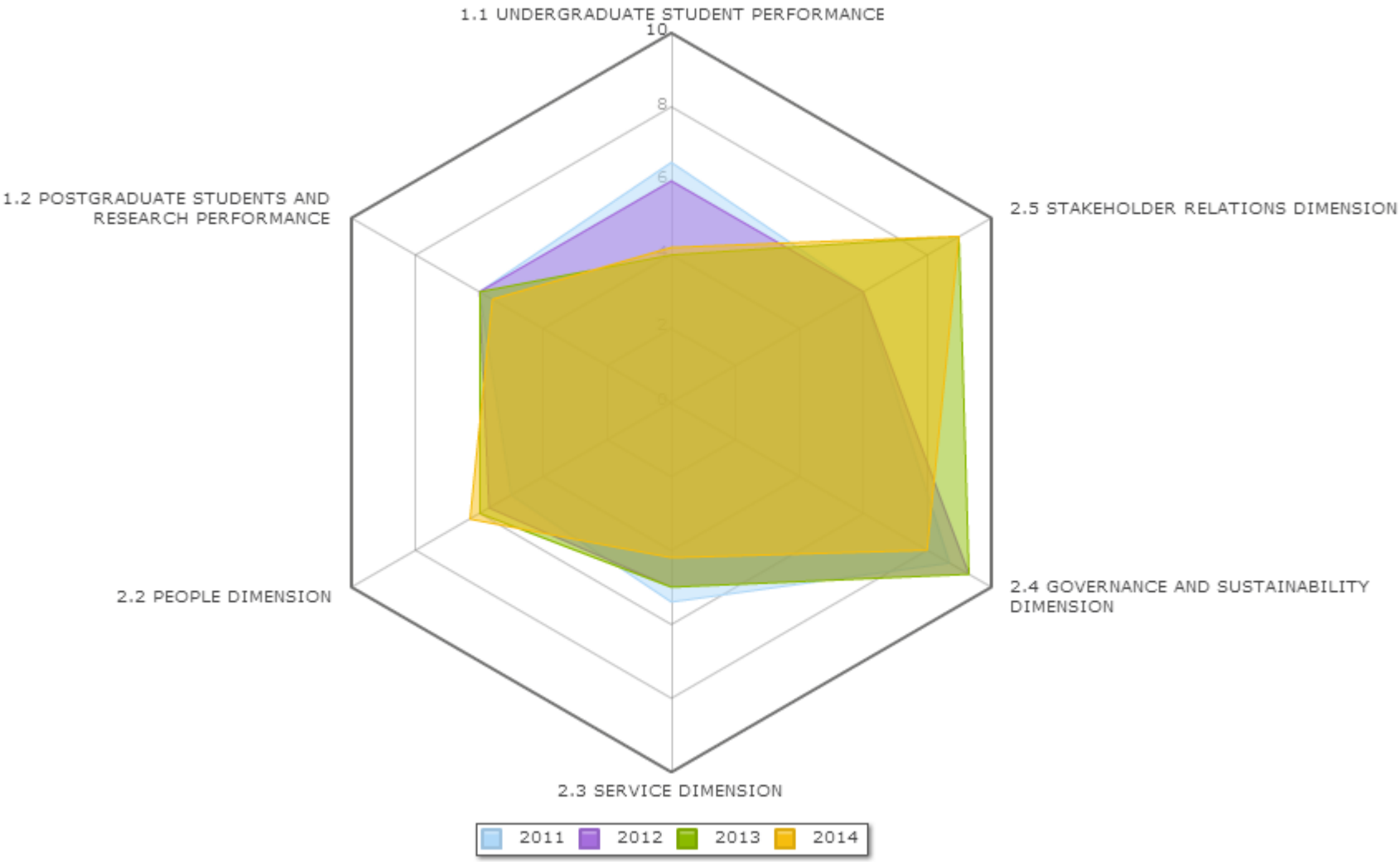
Example -The average scores of progress against annual target compared with benchmark





Packaging & the Audience

- User-interactive online tools – automation, visualisation
- Detailed narrative report – data, information, explanation and interpretation
- Extended executive summary – synthesis of the salient points and important messages
- Infographic presentation – the 'essence' of the analysis



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Challenges

- Appropriate measures – must measure the business
- Continuity – must measure the same thing each iteration
- Accountable, responsible, actionable – must be ownership
- Time – iterative process allowing refinement
- Aligning all levels of the institution – 'marrying' institutional and personal performance
- Audience maturity – time and effort to change behaviour

Thank you …

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