

nec4 | **Improvement**
through collaboration

Case study: Delivering the first phase of two new universities for the South African government

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Wits capital projects programme

- Started 2007
- Refurbishment of old buildings and construction of new buildings
- Wide deviations between intended and achieved outcomes in the first two projects (30% over budget in one case) created a need to change to an innovative and more fit for purpose procurement approach



FNB Building (R 81m)

Traditional approach –
design by employer and bill
of quantities (no strategy)

Culture change

Adopted strategy shifts culture from	To
Master-servant relationship of adversity	Collaboration towards shared goals
Fragmentation of design and construction	Integration of design and construction
Allow risks to take their course	Active risk management and mitigation
Meetings focused on past - what has been done, who is responsible, claims. etc.	Meetings focused on “How can we finish project within time and budget available?”
Develop the project in response to a stakeholder wish list	Deliver the optimal project within the budget available
“Pay as you go” delivery culture	Discipline of continuous budget control
Constructability and cost model determined by design team and quantity surveyor <u>only</u>	Constructability and cost model developed with contractor’s insights
Short-term “hit-and-run” relationships focused on one-sided gain	Long-term relationships focused on maximising efficiency and shared value

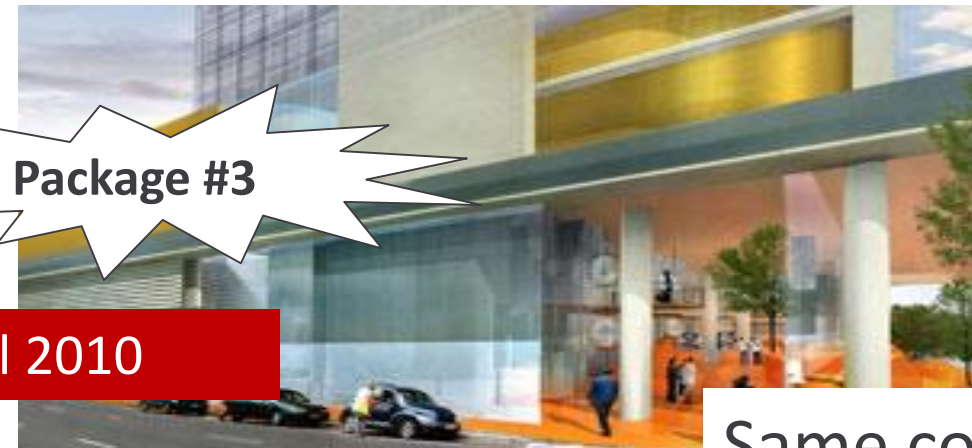
Contracting arrangements

- NEC3 Engineering and Construction Contract
- Added a z clause to create package orders in much the same way that the NEC3 PSC and NEC TSC provide for Task Orders
- Opted to use the Target Contract option with Activity Schedules
- Contractor was not allocated design responsibilities
- Used the ISO 10845 restricted competitive negotiations procedure as a contractor selection method
- Provided a bill of quantities in the first stage of the competitive negotiations
- Brought contractors into the design process after the concept report had been developed to work with the professional team
- Negotiated the second and subsequent orders

Package #1

Start January 2009

***Chamber of Mines – fourth quadrant
(R70 m)***

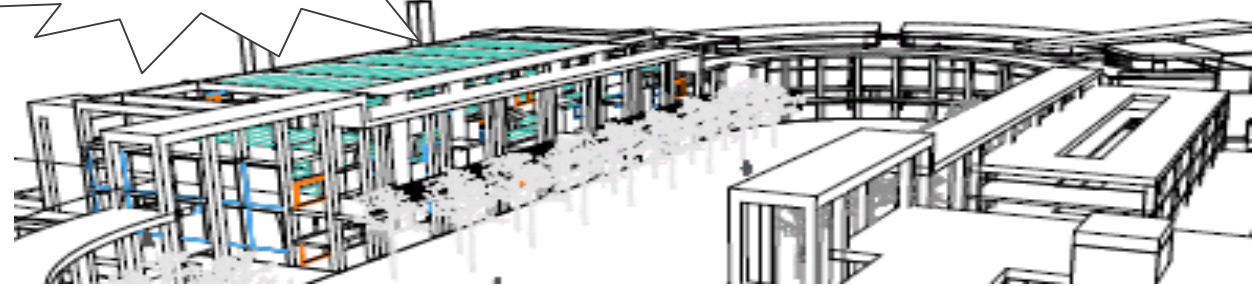


Package #3

April 2010

**Start November
2009**

Package #2



***Undergraduate Science Centre– phase 1
(R178 m)***

Package #4

**Start October
2010**

***Refurbishment of Chamber of Mines –
(R45m)***

Same contractor but different design teams

etc



Wits Junction Residence – R490m (NEC3 ECC – option A (activity schedules) non-framework contract on a develop and construct basis

Also used NEC3 ECSC as a framework contract to undertake parking and paving projects as well as a number of other options

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**Innovative construction procurement at
Wits University**
Laryea and Watermeyer

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Innovative construction procurement at Wits University

- Total expenditure of ~R1.5 billion on 40+ projects (ignoring smaller projects) over a period of ~6 years
- Most projects delivered on time for the start of the academic year
- Total cost overrun < 6% (successful delivery within 6% of the control budget for R1.5b portfolio of projects)

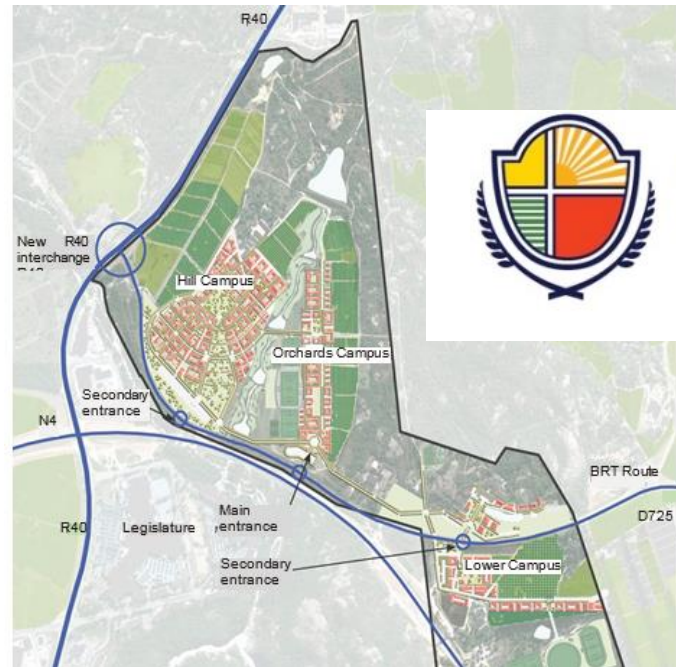
September 2011	Final report on the establishment of the New Universities submitted to the Minister of Higher Education and Training
November 2011	Department of Higher Education and Training (DHET) appoints Wits University to manage development of two new universities in the Northern Cape and Mpumalanga
August 2013	Minister established the two public universities in accordance with the Act
February 2014	Both universities commenced their first academic year (169 students at UMP and 124 at SPU)
February 2016	Project had delivered 16 new buildings within budget, as well as a range of renovated buildings, providing academic and residence space for the 2016 enrolment of 1255 students at Nelspruit and 700 students at Kimberley

Appointment of Wits as implementing agent for the two new universities was made on the back of notable performance in delivering the Wits Capital Projects Programme



SOL PLAATJE
UNIVERSITY

SPU



UNIVERSITY OF
MPUMALANGA

UMP

Budgets

2011/2012 R 50.0 m

2012/2013 R 81.3 m

2013/14 R 117.1 m

2014/15 R 373.4 m

2015/16 **R 1.26 b**

2016/2017 ~ R 1,3 b

New universities take
over responsibility for
budget execution

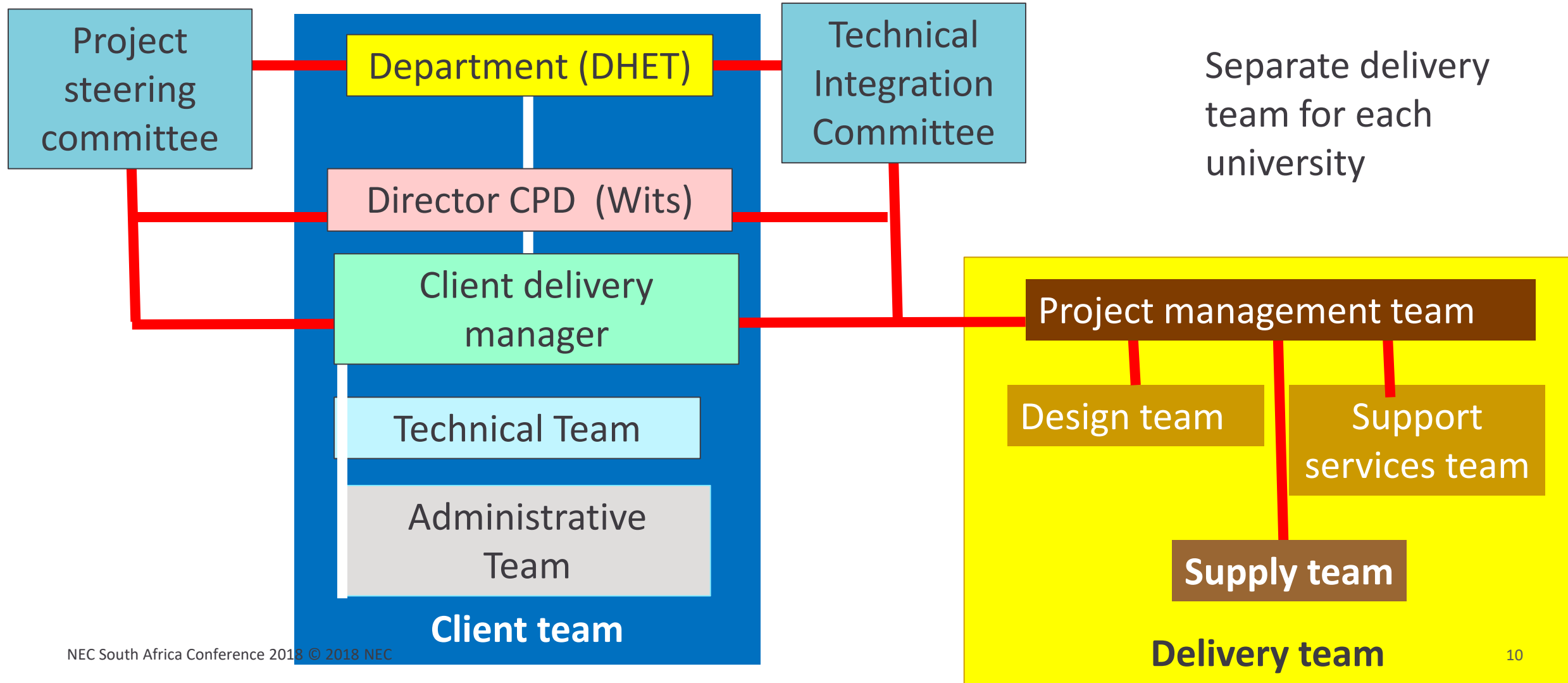
Primary objectives

- *deliver the universities within a control budget;*
- *ensure that life cycle costs and sustainability are considered;*
- *ensure that expenditure is within the annual allocations of the MTEF;*
- *ensure that teaching spaces can be occupied at the start of the academic year;*
- *provide works that are capable of being readily maintained;*
- *ensure that the design of teaching spaces is aligned with current and future best practice*

Secondary objectives

- *promote broad based black economic empowerment (B-BBEE);*
- *promote and support local participation (province wide) throughout the supply chain and local employment through the delivery of the works; and*
- *support skills development by increasing the number of people who have part qualifications, national qualifications and professional designations awarded by statutory councils.*

Procurement route and delivery arrangements



Procurement strategy

Packaging strategy	Contracting strategy	Selection method (ISO 10845-1)
Framework agreement and non-framework	NEC3 PSC -Option G (term contract)	Negotiated, quotation, qualified and open procedure
Framework agreement	NEC3 ECSC (Price list) NEC3 ECC – Option F (management contract) NEC3 ECC -Option C Target contract with activity schedules	Open restricted competitive negotiations
Non-framework agreement and framework agreement	NEC3 SC NEC3 SSC	Open and open competitive negotiations Open procedure

Procurement statistics

A breakdown the different selection methods:

- Quotation procedure – 0.5%
- Negotiation procedure – 5.8%
- Competitive tenders and competitive negotiations - 90.6%
- Other (Wits system) – 3.1%

The Wits outsourced client team cost between 4,5 and 5% of the total expenditure during the peak infrastructure delivery period of 2014to 2016. All these contracts of this team were negotiated

143 procurements were planned resulting 219 contracts against which generally two to six orders were issued per framework contract. Approximately 700 orders were issued and approximately 2734 payment certificates were authorised for a total certified expenditure of R1,62billion

At SPU approximately 19,000 furniture items were procured from 200 unique items. At UMP approximately 7,000 furniture items were procured from 250 unique items.

Delivery of facilities for 2014, 2015 and 2016 academic years



Refurbishment
of buildings



New build

University	Total student population 2016 academic year	Cost of building construction
Sol Plaatje University	700	R 614
University of Mpumalanga	1255	R 275 m

NEC3 ECC
Option F

University	Total student population for academic year		Cost of building construction
	2014	2015	
SPU	127	337	R86 million
UMP	151	828	R27 million



NEC3
ECC
Option C

2016 outcomes

Tender processes

May – Nov 2013 Architects
(architectural competition)
Mar-Oct 2014 Remainder of
professional team
Jun- Sept 2014 Contractors

Construction started in October
2014 with up to 70% of design
information unknown at the
start because of fast track
nature of the projects



C001 - Finalist Higher
Education & Research—
World Architectural
Festival (2017) Received a
commendation

Two universities opened for
the 2016 intake despite two
industry shut downs during
the construction period
Final price less price at start
less than 1% at SPU and 2%
at UMP
Buildings constructed below
DHET cost norms i.e. within
budget



Conclusions

The successful delivery of the first phase of the new universities, according to senior public servants at 2 National Treasury workshops, can be attributed to:

- Strong and robust governance arrangements
- The adoption and execution of a procurement strategy
- The putting in place of a strong client team led by a client delivery manager
- Client leadership

The NEC family of contracts provided a flexible and solid basis to implement the required strategies and the collaborative culture embraced by the client team, assisting to deliver greater certainty of project outcomes.

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Thank you