

# Integrating Intuition and Analytics: Learning to be a Complete Strategist

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A presentation to Community Colleges Australia –  
NSW providers – Sydney, 13 November 2009

# Rationale for session

- If you are a manager in a Community College, the future of your organisation could depend on your ability to develop new strategies.
- These new strategies are needed to meet unprecedented challenges
  - generated by the global financial crisis and climate change
  - and other external forces on the sector such as policy moves towards making funding more competitive.



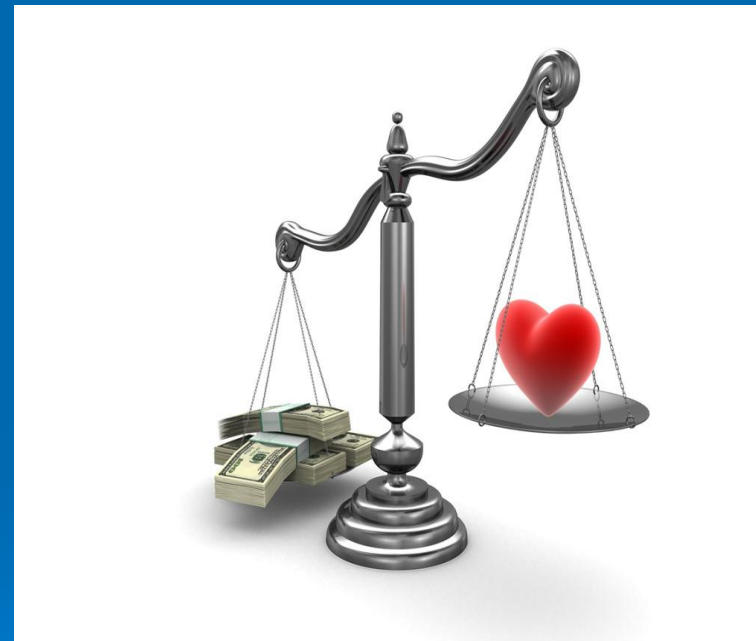
# Rationale for session

- The key challenge for leaders and managers of community colleges is to continue developing as strategists. But what does that mean?
- Our research shows that the big problem is that managers often rely too much on gut instinct and intuition. And if they use statistics, they struggle to link the stats to the intuition. The two approaches are not synchronised.



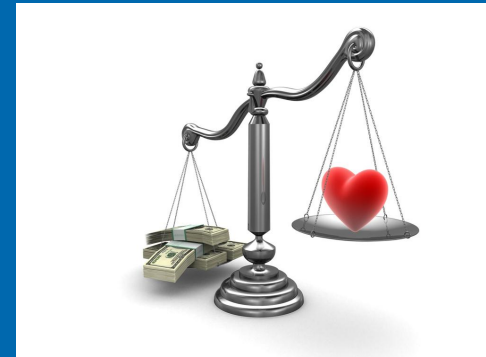
# Rationale for session

- And the bigger gap is on the side of analytics
- And that is why we set up *JMA Analytics* (see [www.jma.com.au](http://www.jma.com.au))
- And are working around Australia with VET managers



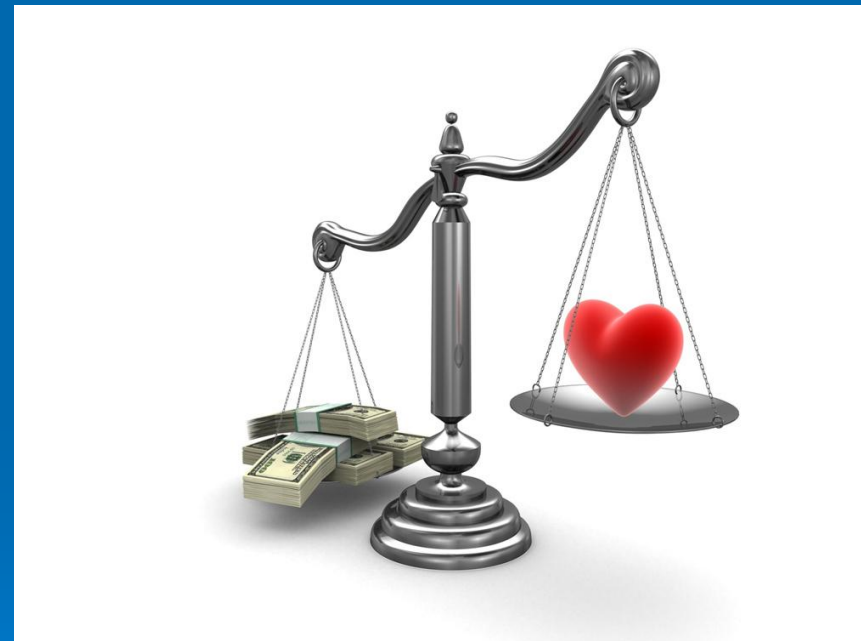
# Aim of session

- To provide you with the **initial rationale and framework** for your future learning – to become the complete strategist, able to coordinate your intuitive knowledge with the newly emerging and exciting field of analytics.
- Then it is over to you to continue your learning.



# Structure of session

1. The recent emergence of analytics to complement intuition
2. How to coordinate and combine intuition and analytics
3. Using analytics in education: Anonymous College case study



# 1. Intuition and Analytics

# Analytics

“...the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions”

(Davenport and Harris, *Competing on Analytics*, 2007, p.7)

# Intuition

“... gut-feel, ideological persuasion, and emotional attraction.”

(Davenport and Harris, *Competing on Analytics*, 2007, p.7)

# Approaches to Strategy Making

- Pfeffer and Sutton (2006) and Bonabeau (2003)
  - Overwhelming majority of senior managers make strategic decisions based upon gut-feel, ideological persuasion, or emotional attraction.
  - This approach rarely produces strategies that provide a competitive edge

# Exercise: Stages model for competing on analytics



# 2. Coordinating Intuition and Analytics

# Intuition vs. Analytics

We also know that basing our strategies solely on analytics can result in decisions that do not take into account the emotional and/or social dimensions of decision making

# Intuition vs. Analytics

Sloan (2006) provides the following model for combining analytical and intuitive approaches

Circumstance Assessment



Problem Assessment



Decision Making

# Circumstantial Assessment

## Intuitive

- Recognise circumstance as unusual or problematic through experience
- Decipher patterns
- Determine what to pay attention to
- Unravel mess using experience and knowledge

## Analytical

- Clarify circumstances
- Sort issues
- Discern specific opportunities/risks
- Prioritise
- Gather substantiating data
- Order facts (chronology/weight)

# Problem Assessment

## Intuitive

- Identify possible causes
- Determine how to verify true causes

## Analytical

- Analyse problem against established objectives, standards,
- models, theories
- Identify logical fit between possible causes and data

# Decision Making

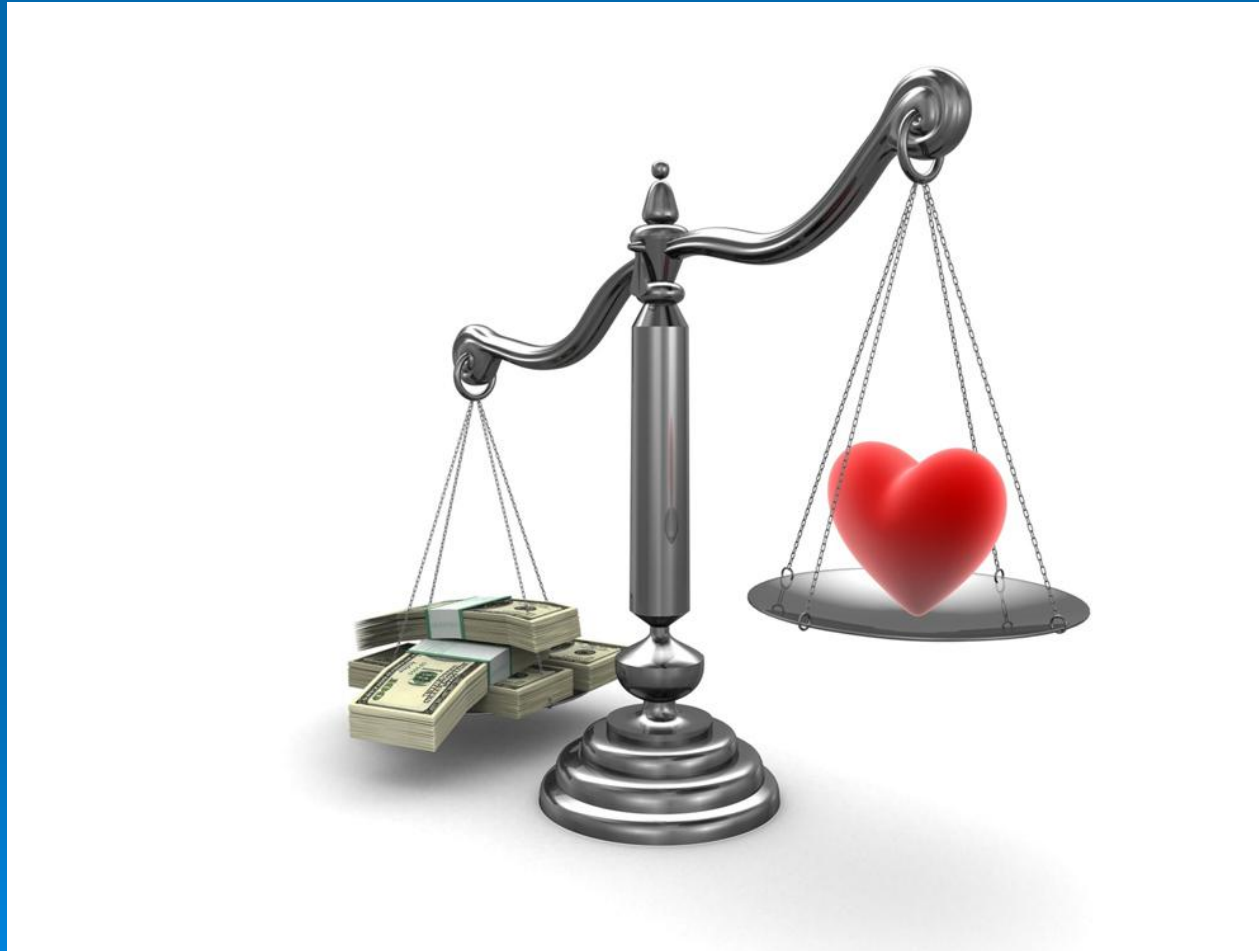
## Intuitive

- Form first opinion/hunch
- Identify feelings and intensity about correct decision
- Identify and generate possible options and alternatives

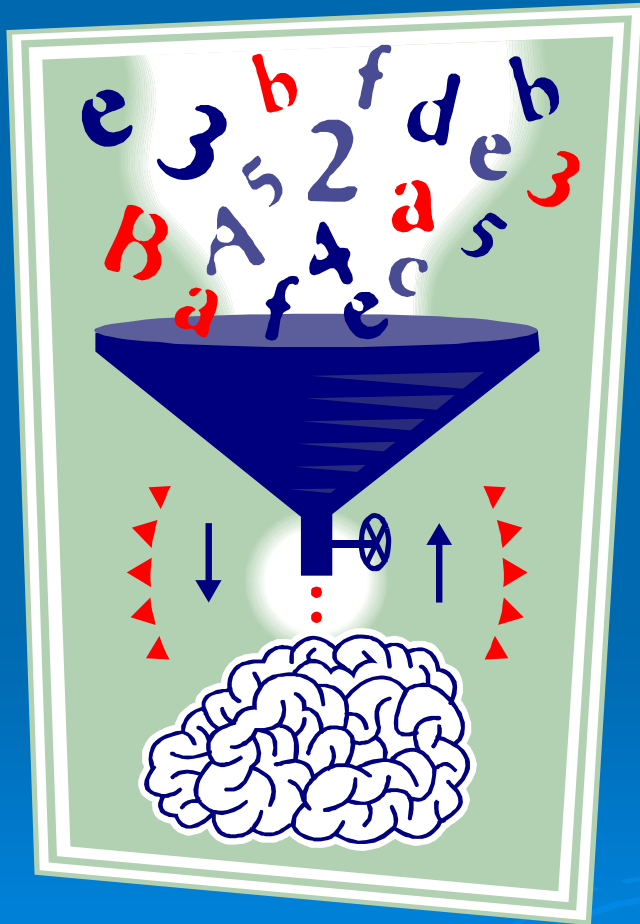
## Analytical

- Use structured, linear process to test and eliminate options
- Use systematic checks and balances

# Exercise: Coordinating intuition and analytics



# Exercise: Combining intuition and analytics



# 3. Using Analytics in Education

- **‘Anonymous’ College Case Study**
- (the CEO of code-named Anonymous College co-presented this session in Sydney on 13 Nov 2009. He generously gave permission for these slides to be placed on this website.)



# Handout: Analyses conducted for Anonymous College

1. Predictive modelling  
– forecasting SCH  
and enrolments
2. Risk analysis –  
students at risk
3. Market  
segmentation  
analysis



# AVETMISS DATA

- NAT000080
  - Individual Student Data
  
- NAT000120
  - Student Enrolment Data

# Results

- Student Market
- Risk Assessment
- Forecasts

# STUDENT MARKET

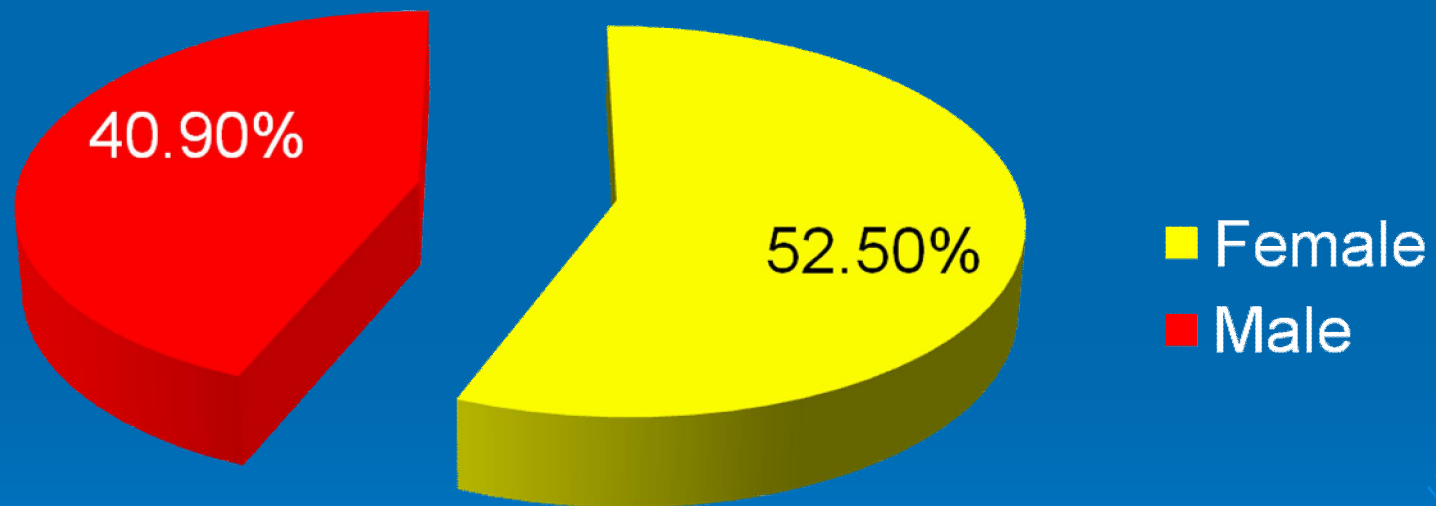
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# Student Market

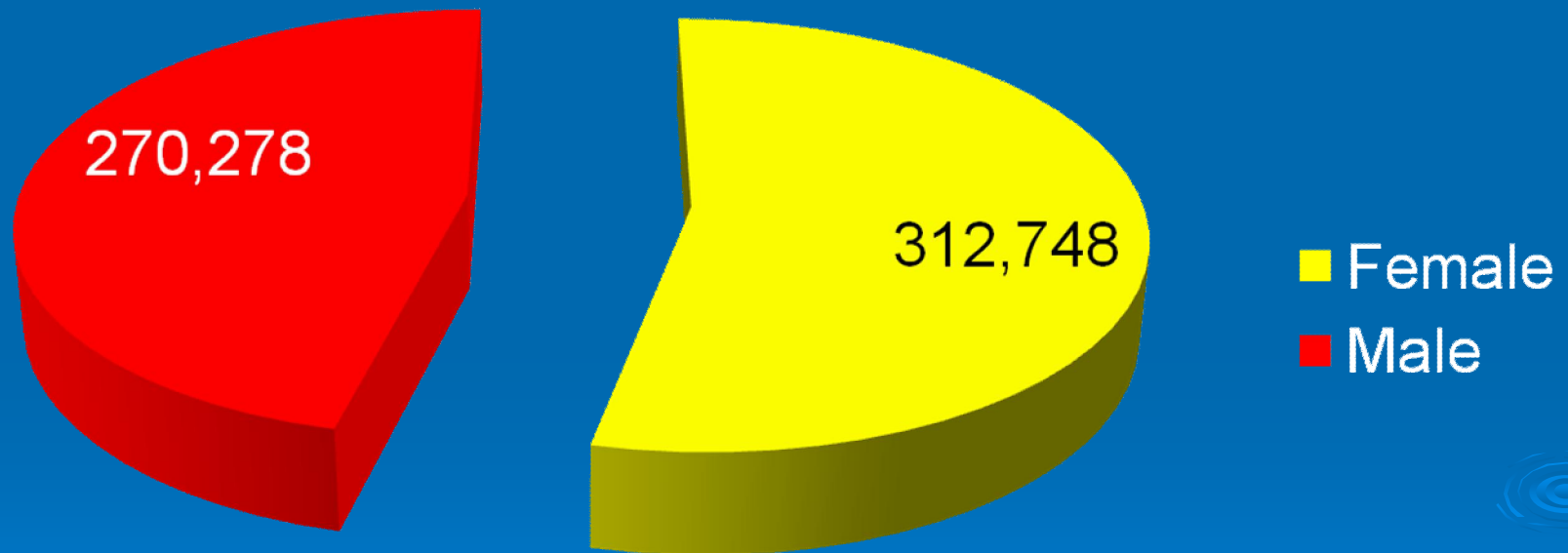
*What are some of the demographic features of your student market?*

- *Gender*
- *Age*
- *Employment Status*

# Gender Profile by Individual Enrolments 2005 - 2009

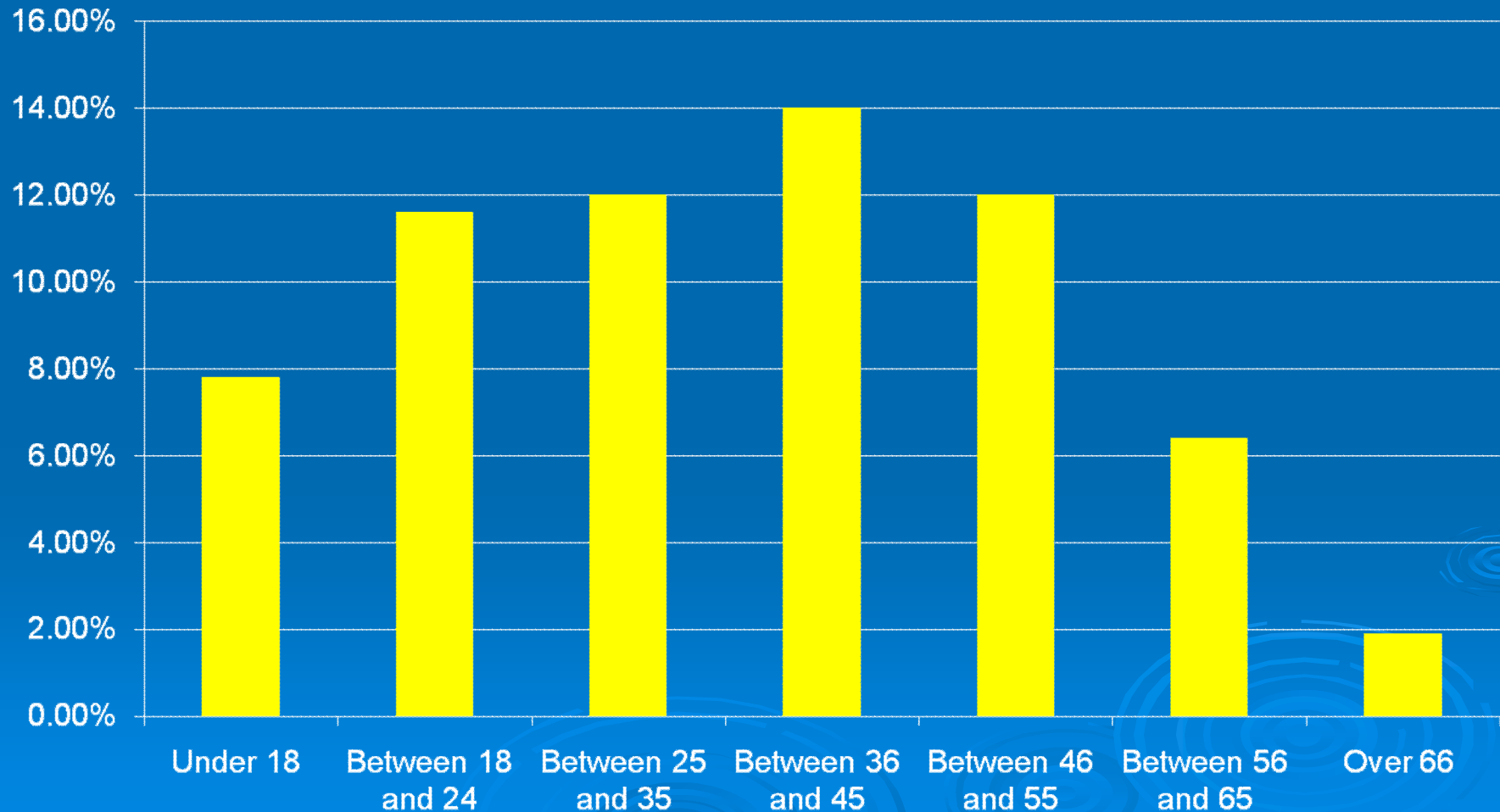


# Gender Profile by SCH 2005 - 2009



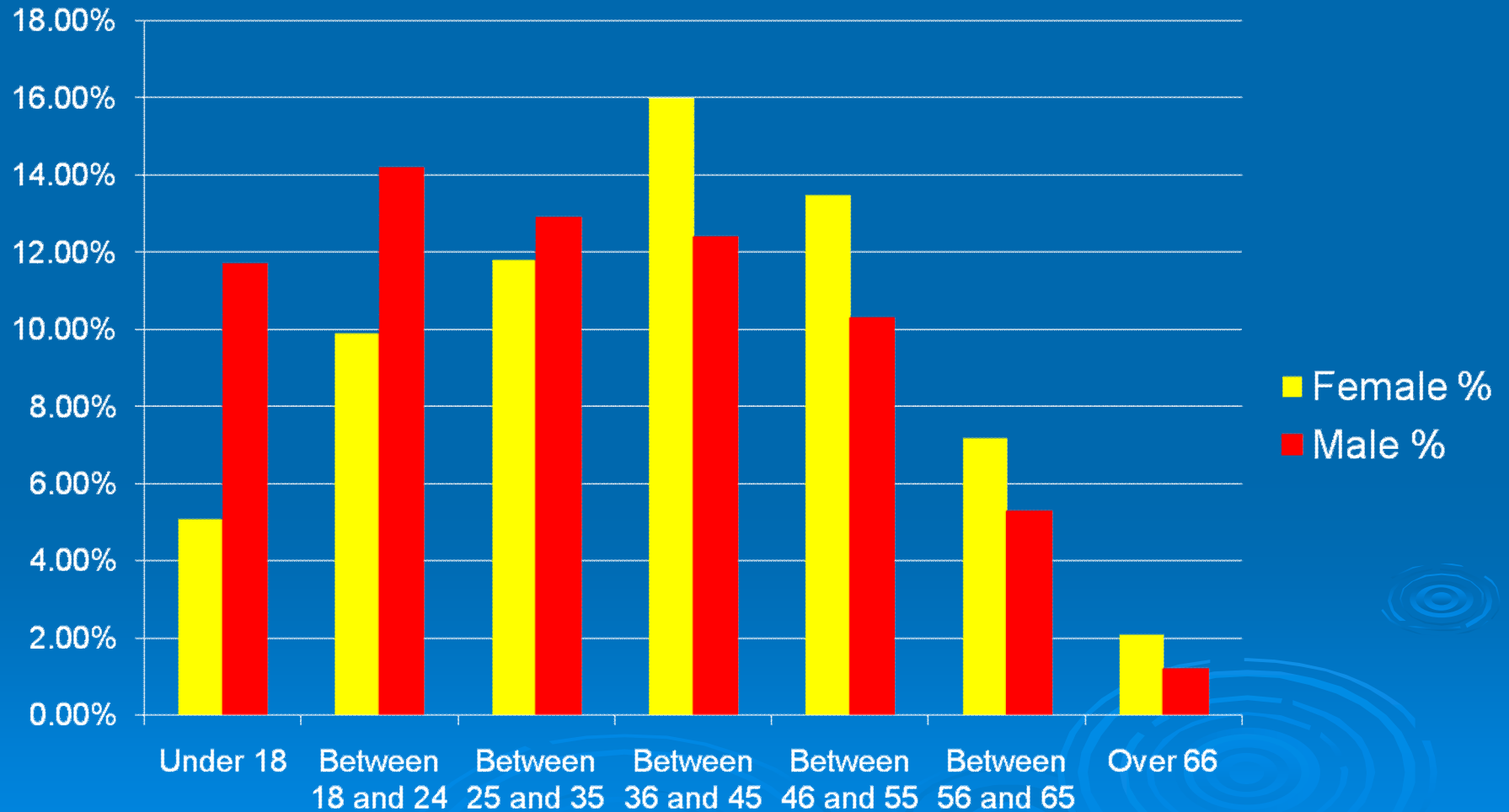
# Individual Enrolments (Age) 2005 - 2009

Count

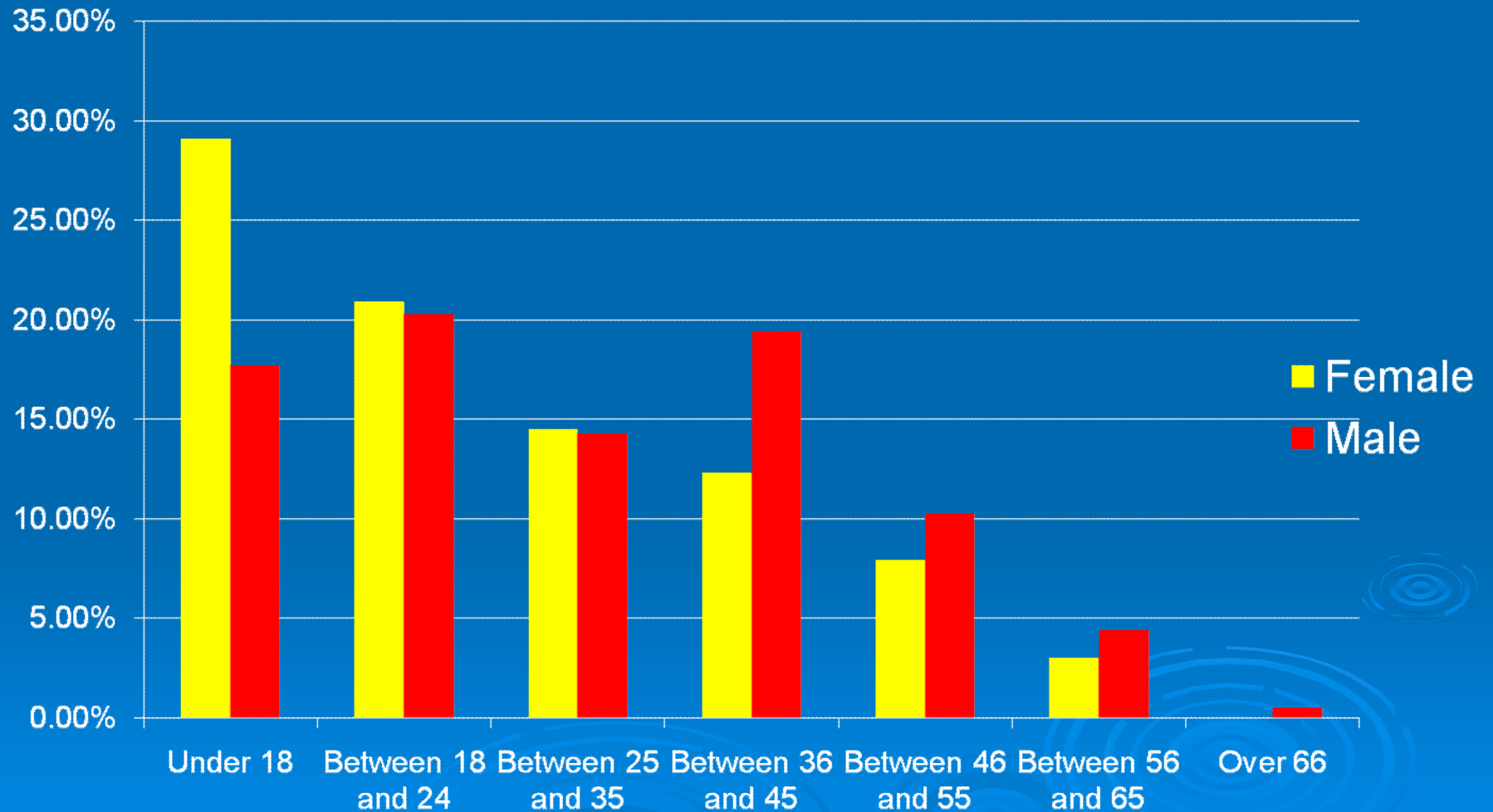


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# Individual Enrolments (Age by Gender) 2005 - 2009



# SCH (Age by Gender) 2005 – 2009

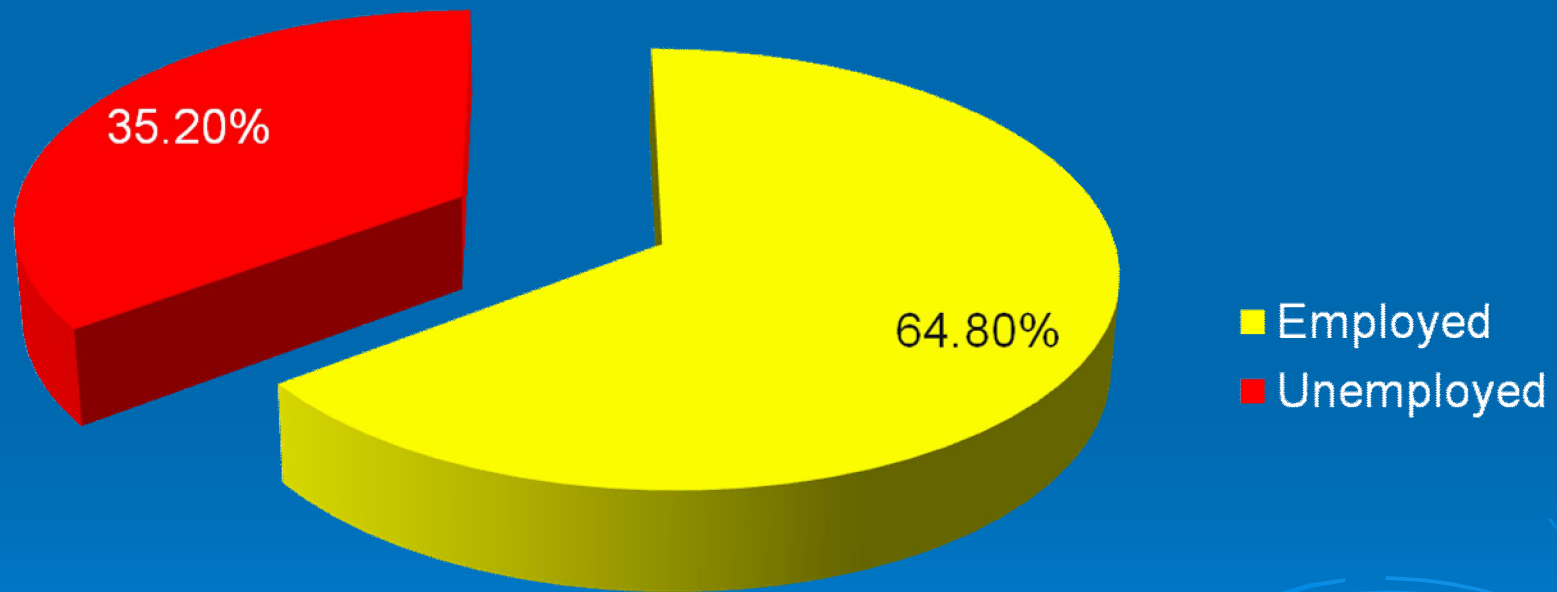


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# Indigenous Profile: 2005 - 2009

	Count	Column N %
Yes - Aboriginal	551	7.2%
Yes - Torres Strait Islander	4	0.1%
Aboriginal AND Torres Strait Islander	53	.7%
<b>Subtotal: All Indigenous Students</b>	<b>608</b>	<b>8.0%</b>
No - neither Aboriginal nor Torres Strait Islander	1327	17.4%
Missing	5684	74.6%

# Employment Profile 2005 - 2009



# Analysis of the data by strategic managers

# RISK ANALYSIS

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# What is Risk? (within an educational context)

*Define “risk” within an educational context*

# What is Risk? (within an educational context)

*The likelihood of an individual either withdrawing or failing from one or more enrolled courses*

# What is Risk? (within an educational context)

*In your educational practices, amongst which enrolees does your institution hold the most significant risk?*

# Risk

*Risk is calculated as the probability (expressed in percentage terms) of a person either withdrawing or failing*

# Anonymous College - Overall Risk

Overall risk per student = 15.7%

- Risk of Withdrawal = 4.3%
- Risk of Failure = 11.4%

# Anonymous College Risk and Subject Type

- Risk amongst assessable courses = 19.4%
- Risk amongst non-assessable courses = 5.1%

# Anonymous College - Gender and Risk

Males have a slightly higher risk of non-completion than females

- Females = 9.3%
- Males = 10.1%

# Age and Risk

	Unsuccessful		Successful	
	Count	Row N %	Count	Row N %
Under 18	<b>93</b>	<b>16.9%</b>	<b>457</b>	<b>83.1%</b>
Between 18 and 24	<b>96</b>	<b>11.5%</b>	<b>736</b>	<b>88.5%</b>
Between 26 and 35	<b>96</b>	<b>11.2%</b>	<b>764</b>	<b>88.8%</b>
Between 36 and 45	<b>105</b>	<b>10.5%</b>	<b>893</b>	<b>89.5%</b>
Between 46 and 55	<b>72</b>	<b>8.5%</b>	<b>780</b>	<b>91.5%</b>
Between 56 and 65	<b>32</b>	<b>6.8%</b>	<b>438</b>	<b>93.2%</b>
Over 66	<b>3</b>	<b>2.2%</b>	<b>136</b>	<b>97.8%</b>
Other	<b>97</b>	<b>3.8%</b>	<b>2466</b>	<b>96.2%</b>

# Age and Gender and Risk

	Unsuccessful completion			
	Female		Male	
	Count	Row N %	Count	Row N %
<b>Under 18</b>	<b>36</b>	<b>40.4%</b>	<b>53</b>	<b>59.6%</b>
<b>Between 18 and 24</b>	<b>44</b>	<b>46.8%</b>	<b>50</b>	<b>53.2%</b>
<b>Between 26 and 35</b>	<b>51</b>	<b>54.8%</b>	<b>42</b>	<b>45.2%</b>
<b>Between 36 and 45</b>	<b>65</b>	<b>63.1%</b>	<b>38</b>	<b>36.9%</b>
<b>Between 46 and 55</b>	<b>34</b>	<b>48.6%</b>	<b>36</b>	<b>51.4%</b>
<b>Between 56 and 65</b>	<b>20</b>	<b>62.5%</b>	<b>12</b>	<b>37.5%</b>
<b>Over 66</b>	<b>1</b>	<b>33.3%</b>	<b>2</b>	<b>66.7%</b>

# Risk Assessment

High risk area:

- Risk of failure higher than risk of withdrawal
- Assessable AQTF courses
- Generally speaking, risk decreases with age
  - Males
    - Under the age of 24
  - Females
    - Over the age of 25

# Analysis of the data by strategic managers

# FORECASTING

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# Forecasts

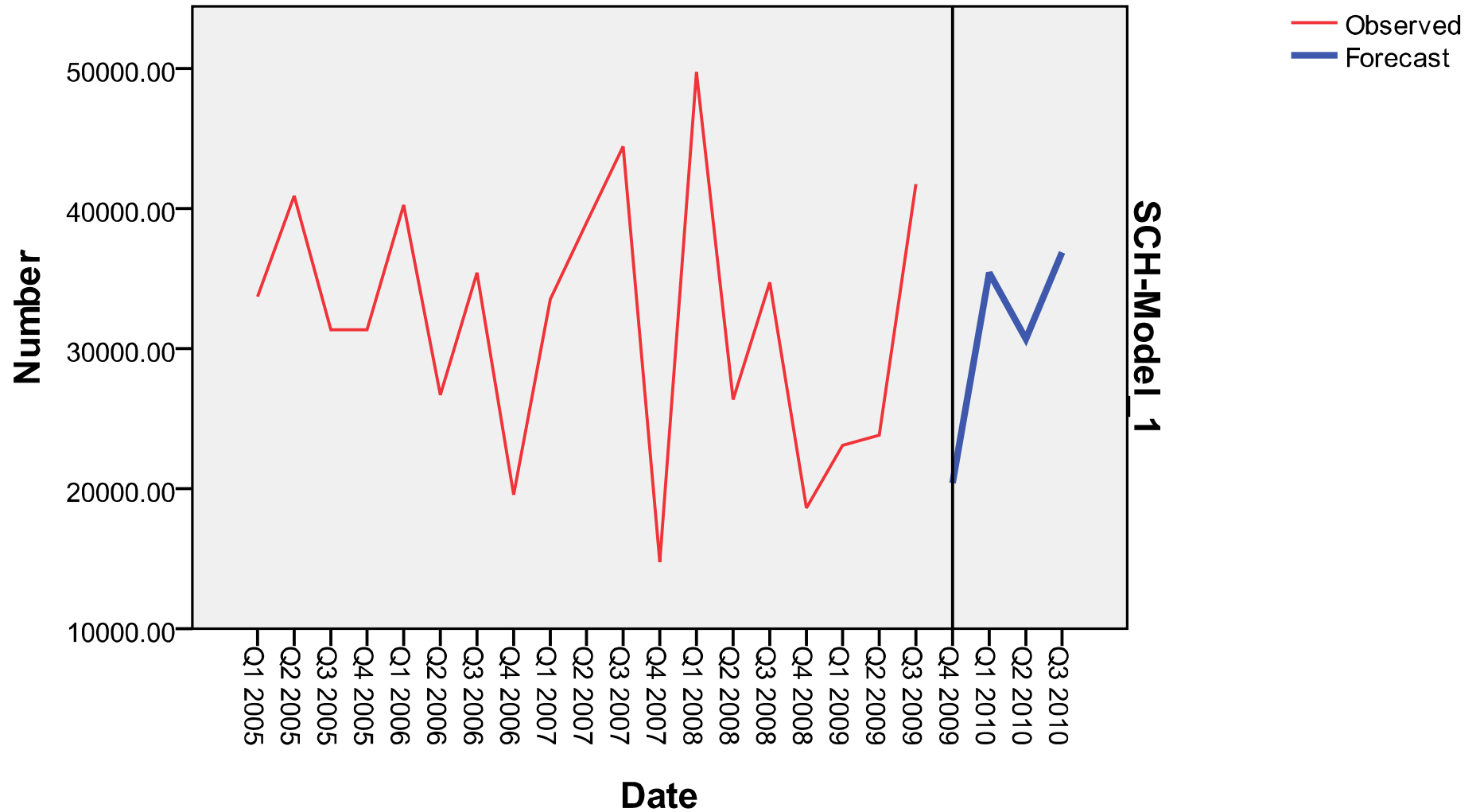
- SCH
- Individual Enrolments
- Subject Enrolments

# Forecasts

*What was your SCH, Individual Enrolments, and Subject Enrolments for 2008?*

*Make a prediction for SCH, Individual Enrolments, and Subject Enrolments for 2009 and 2010.*

# SCH (Quarterly)

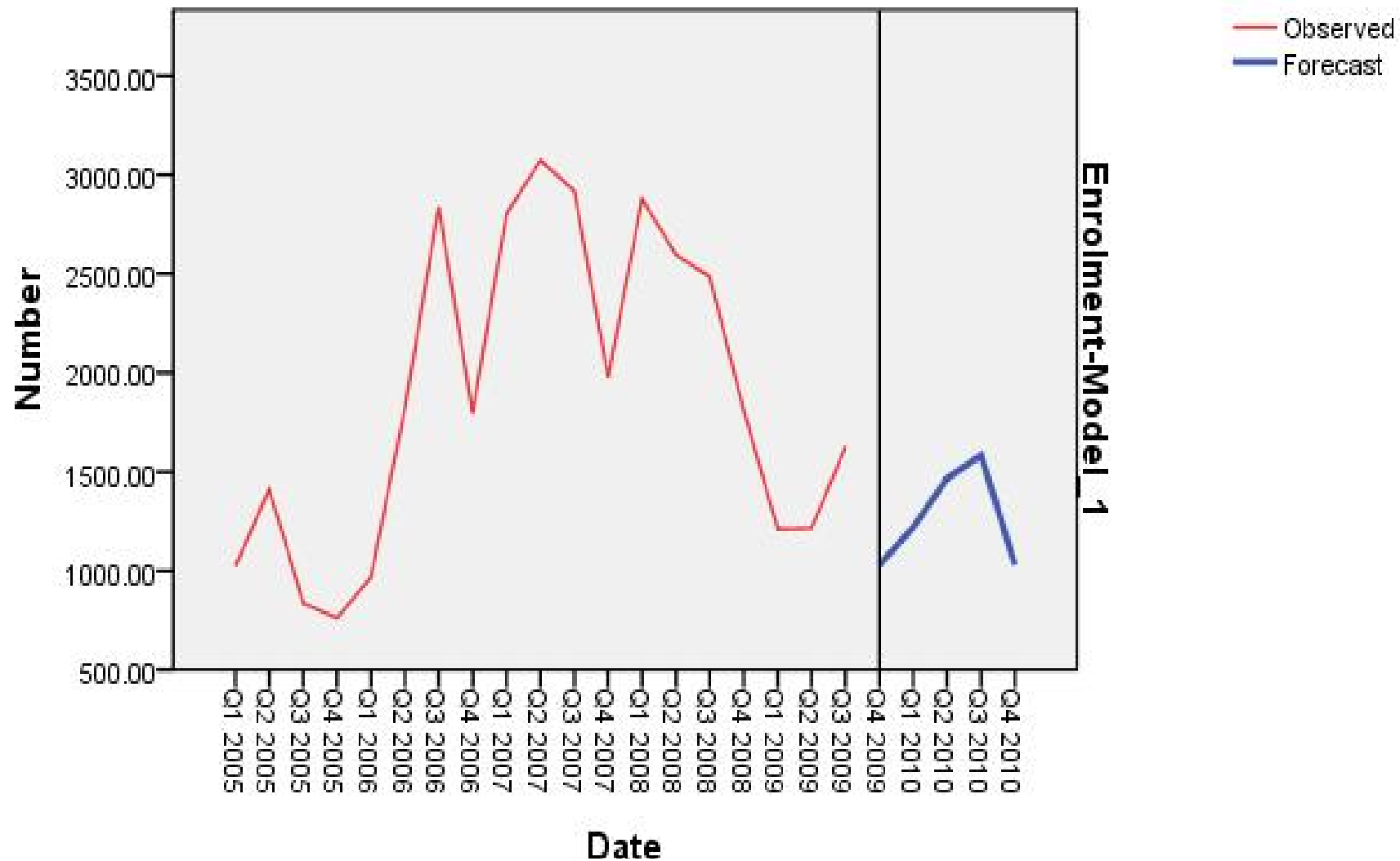


# SCH Forecasts

SCH for 2010 should remain around the same level as that of 2008

Predicted SCH 2010 = 123,337

# Subject Enrolment (Quarterly)

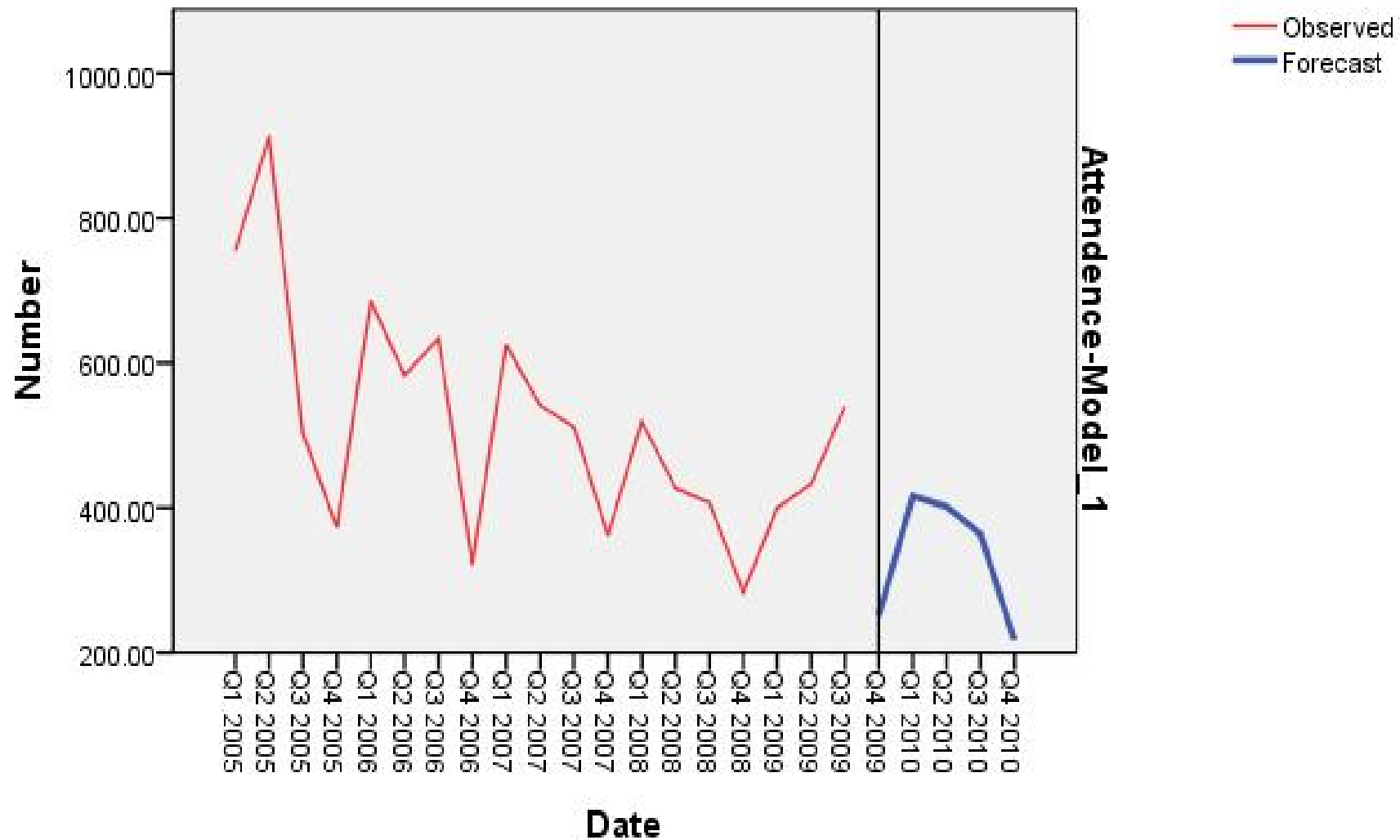


# Subject Enrolment Forecasts

Subject enrolments for the year 2010 should show a slight increase on that of 2009

Predicted Subject Enrolment for 2010 = 5302

# Individual Enrolments (Quarterly)



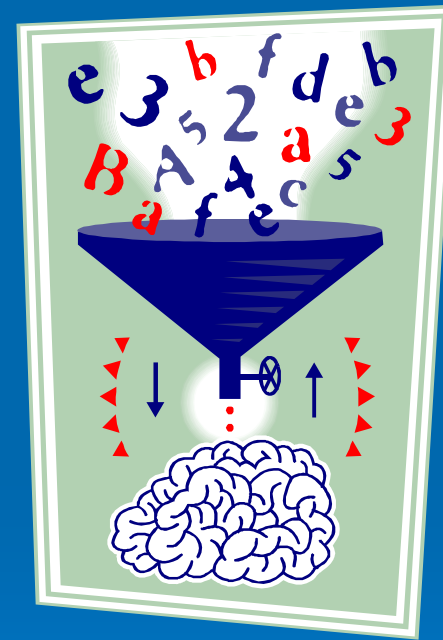
# Individual Enrolment Forecasts

Individual enrolments for the year 2010 should see a decline in comparison to 2009

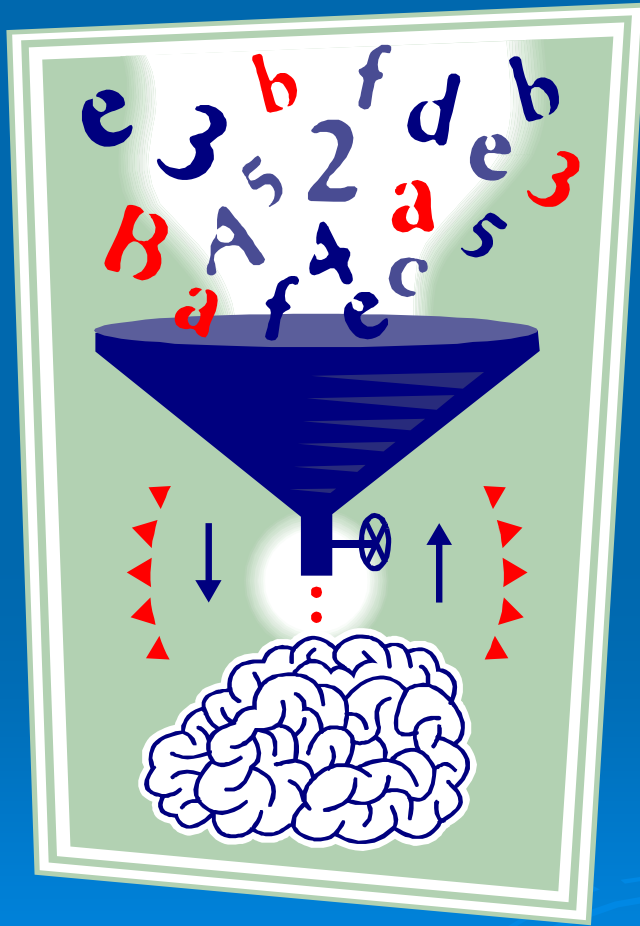
Predicted individual enrolments for 2010 = 1397

# Analysis of the data by strategic managers

# Exercise: What capabilities are needed for analytics?



# Take home messages



# Thank you

Dr John Mitchell  
John Ward

➤ See: [www.jma.com.au/JMAAnalytics](http://www.jma.com.au/JMAAnalytics)