


New Zealand Modelling User Group

# New Zealand Modelling User Group

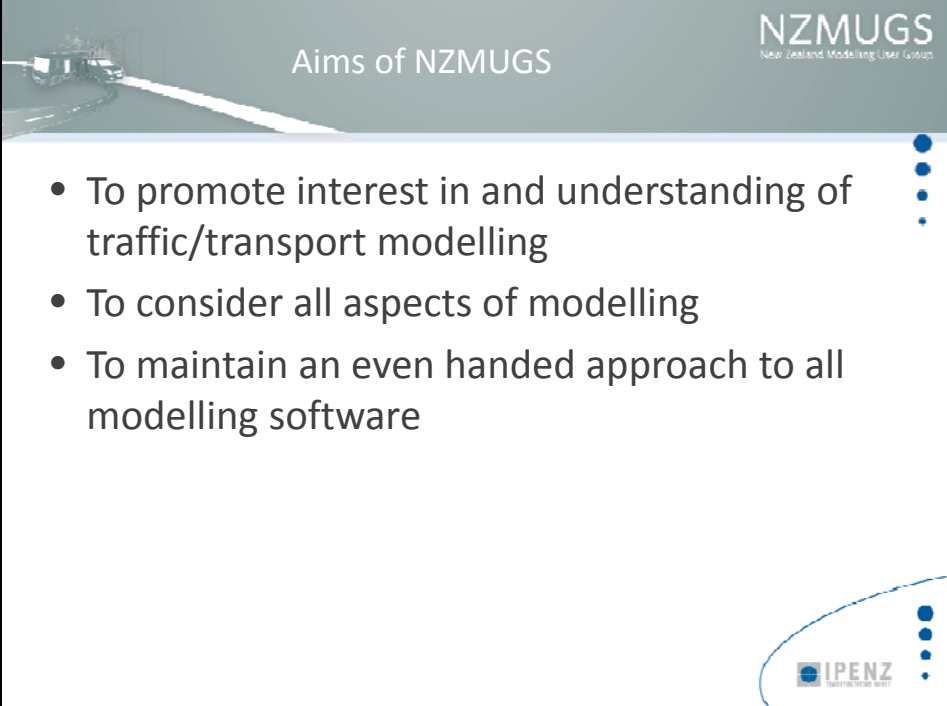

Ian Clark



New Zealand Modelling User Group

## Aims of NZMUGS

- To promote interest in and understanding of traffic/transport modelling
- To consider all aspects of modelling
- To maintain an even handed approach to all modelling software



## History of NZMUGS


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- Established as IPENZ Transportation Sub Group in 2008
- Emerged from microsimulation group
- Initial areas of interest:
  - Microsimulation guidelines
  - Peer reviews

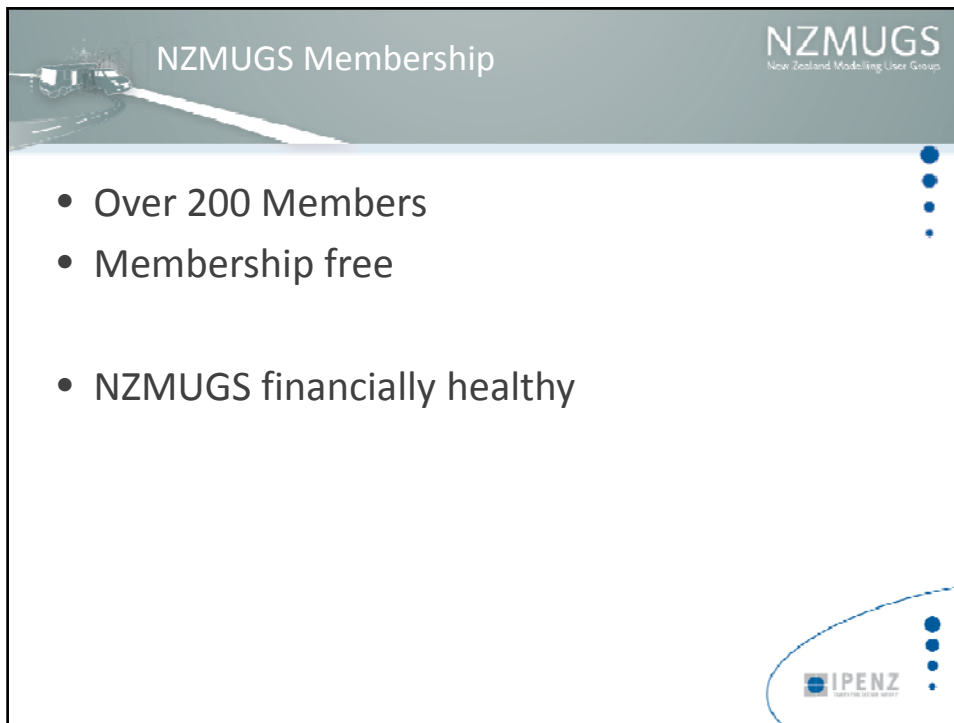
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## NZMUGS: what's in a name?

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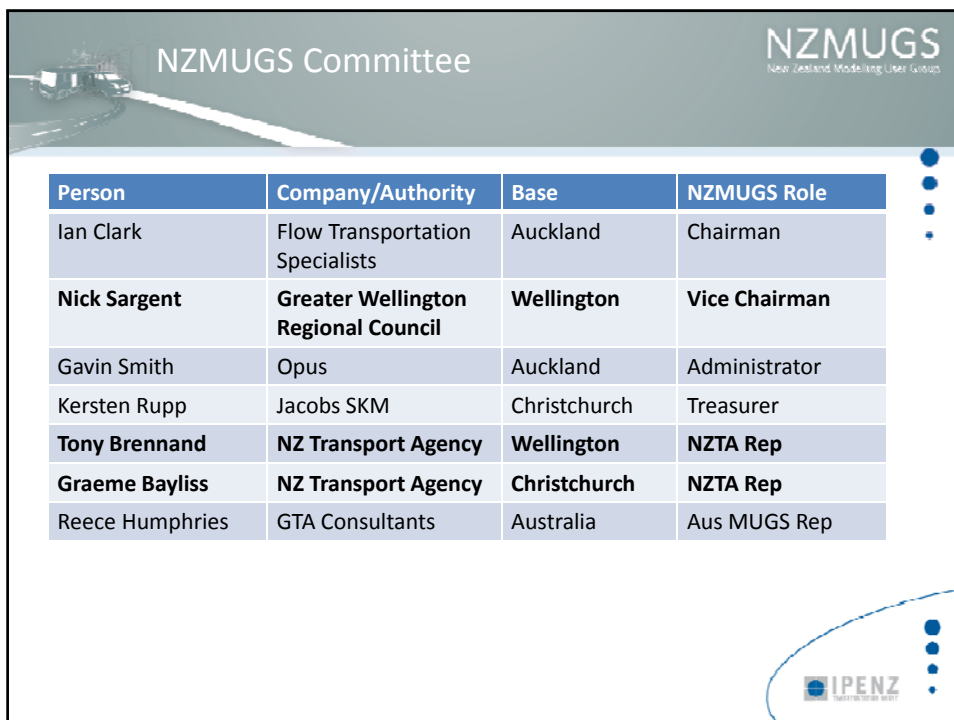


**NZMUGS Membership**

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- Over 200 Members
- Membership free
- NZMUGS financially healthy

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**NZMUGS Committee**

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Person	Company/Authority	Base	NZMUGS Role
Ian Clark	Flow Transportation Specialists	Auckland	Chairman
<b>Nick Sargent</b>	<b>Greater Wellington Regional Council</b>	<b>Wellington</b>	<b>Vice Chairman</b>
Gavin Smith	Opus	Auckland	Administrator
Kersten Rupp	Jacobs SKM	Christchurch	Treasurer
<b>Tony Brennand</b>	<b>NZ Transport Agency</b>	<b>Wellington</b>	<b>NZTA Rep</b>
<b>Graeme Bayliss</b>	<b>NZ Transport Agency</b>	<b>Christchurch</b>	<b>NZTA Rep</b>
Reece Humphries	GTA Consultants	Australia	Aus MUGS Rep

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NZMUGS Committee(2)

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Person	Company/Authority	Base	NZMUGS Role
Darren Fidler	Jacobs SKM	Christchurch	
Andrew Mein	Aurecon	Auckland	
<b>Angus Bargh</b>	<b>SCIRT</b>	<b>Christchurch</b>	<b>Ex Vice Chairman</b>
Andrew Murray	Beca	Auckland	
Terry Church	Flow	Auckland	
Nathan Harper	Opus	Hamilton	
Bevan Wilmshurst	TDG	Christchurch	
Bob Hu	Opus	Wellington	
<b>Jojo Valero</b>	<b>Auckland Council</b>	<b>Auckland</b>	

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NZMUGS Activities

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- Annual conferences
- Published papers

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The slide features a dark grey header with a small image of a road at night on the left. The text 'Conference Themes' is centered in the header, and 'NZMUGS New Zealand Modelling User Group' is on the right. The main content area is white with a list of four bullet points. On the right side, there are two vertical columns of blue dots. The IPENZ logo is in the bottom right corner.

### Conference Themes

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- Latest developments in software
- Initiatives and innovation
- “How good are we”?
- “Beyond travel time savings”

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### Outside Conference Speakers

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- Lawyer
- Commissioner
- Campaign group
- Urban designer
- Inventor of electric car technology

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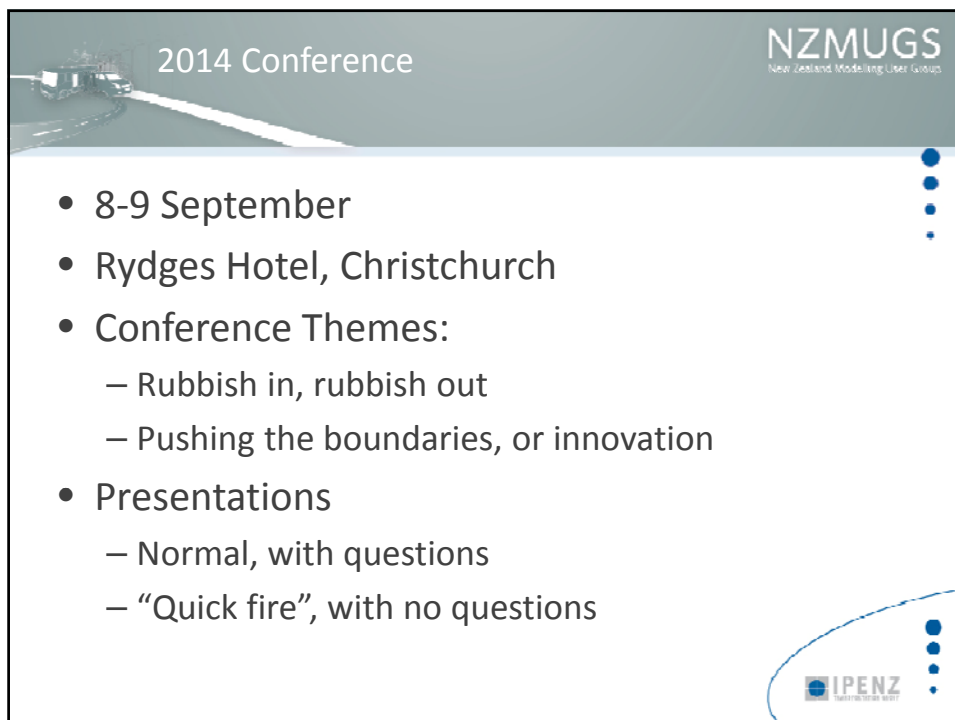


**Notable Conference Presenters**

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- Stephen Druitt
- Tom van Vuren
- Rahmi Ackelik
- Mike Florian
- Other software developers

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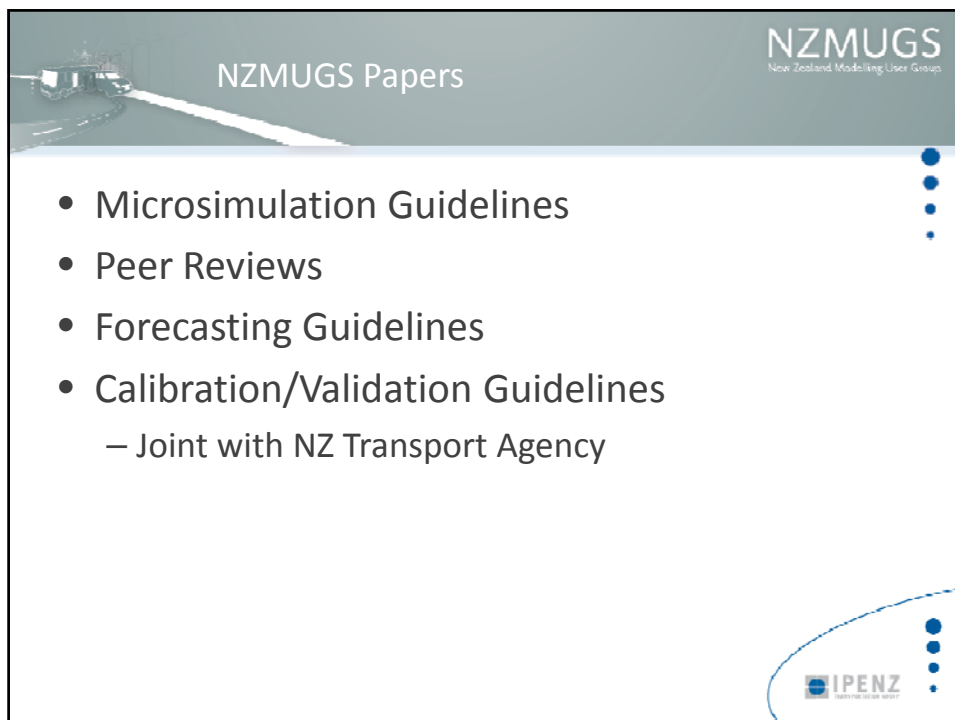


**2014 Conference**

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- 8-9 September
- Rydges Hotel, Christchurch
- Conference Themes:
  - Rubbish in, rubbish out
  - Pushing the boundaries, or innovation
- Presentations
  - Normal, with questions
  - “Quick fire”, with no questions

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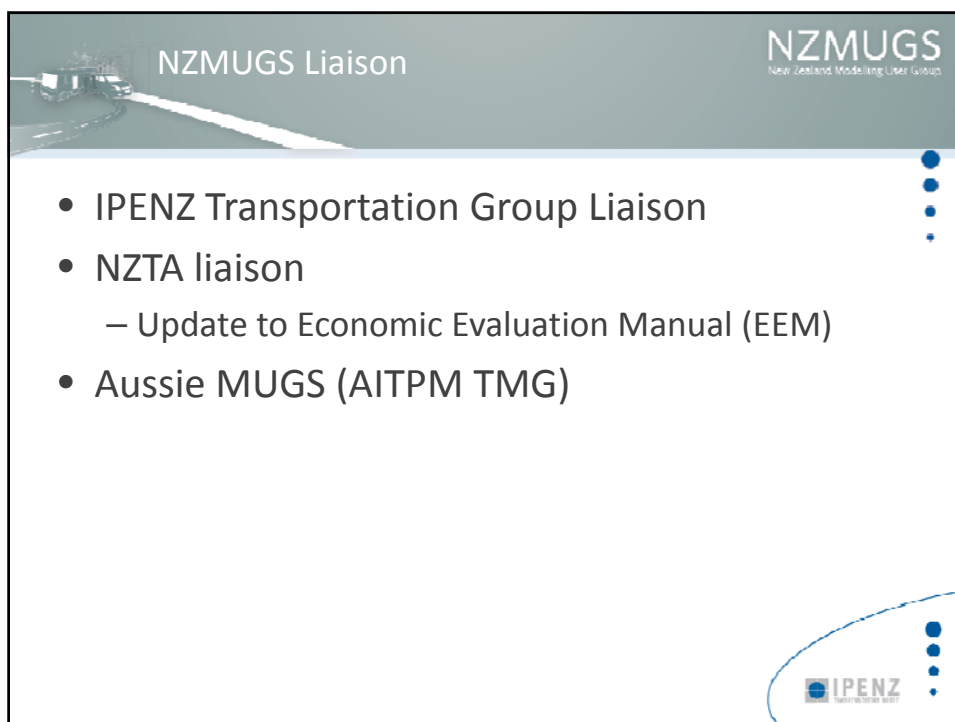
The slide features a dark grey header with a road scene on the left. The text 'NZMUGS Papers' is centered in the header, and the 'NZMUGS New Zealand Modelling User Group' logo is on the right. The main content area is white with a list of bullet points. A vertical column of four blue dots is on the right side, and the IPENZ logo is in the bottom right corner.

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## NZMUGS Papers

- Microsimulation Guidelines
- Peer Reviews
- Forecasting Guidelines
- Calibration/Validation Guidelines
  - Joint with NZ Transport Agency

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## NZMUGS Liaison


- IPENZ Transportation Group Liaison
- NZTA liaison
  - Update to Economic Evaluation Manual (EEM)
- Aussie MUGS (AITPM TMG)

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# Hot Topics in Modelling

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Software developments

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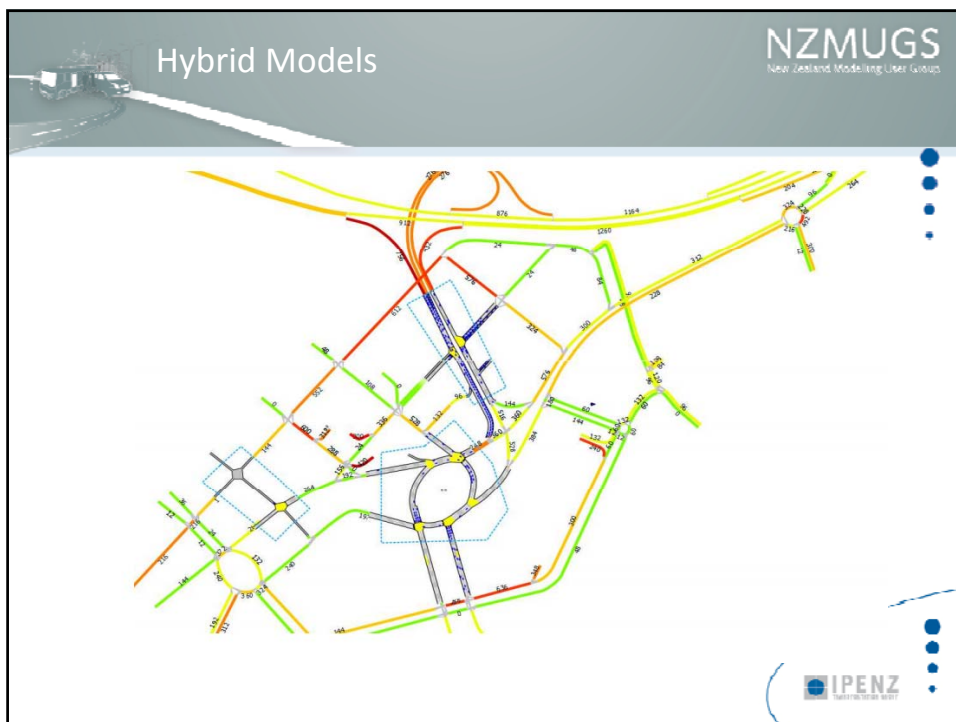
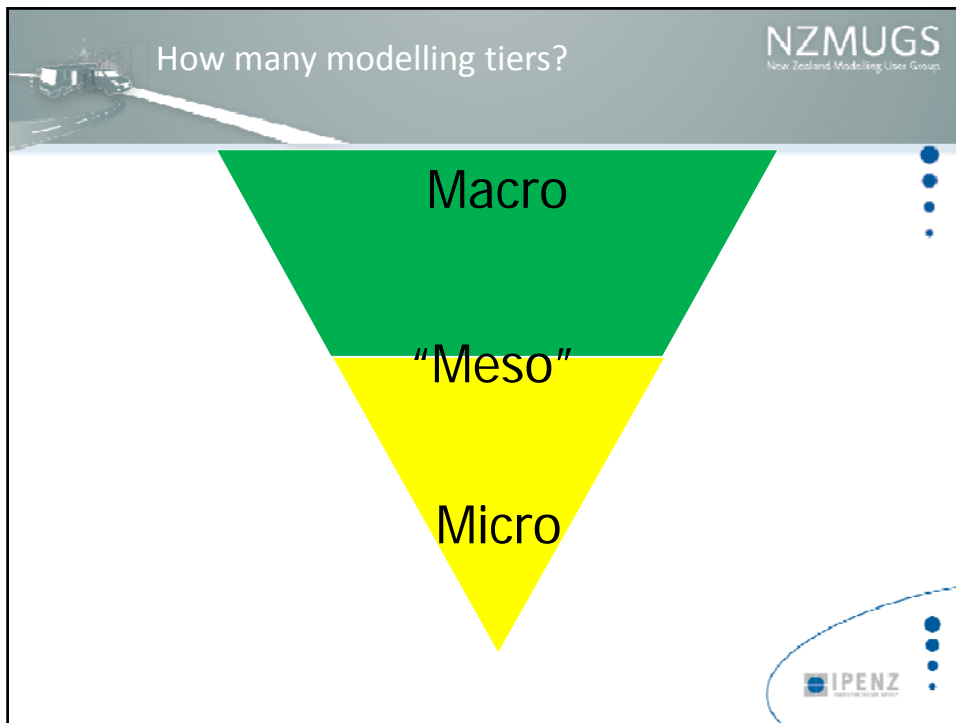
**NZMUGS**  
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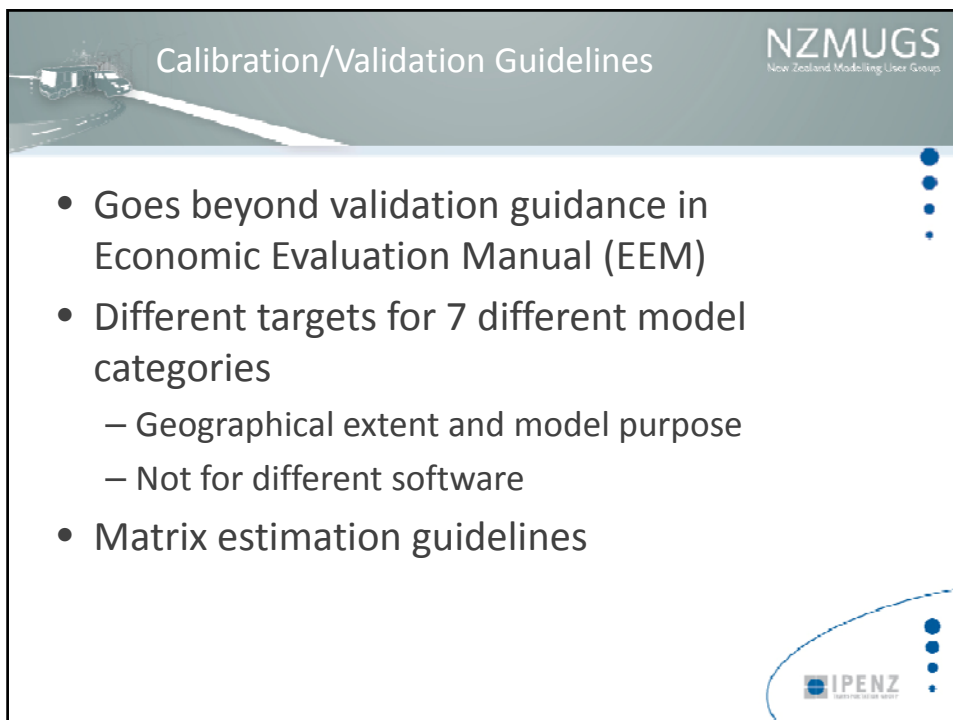
FINAL SETTINGS OBTAINED WITH INCREMENTS 10 48 -1 18 48 1 -1 1  
- (SECONDS)

LINK NUMBER	FLOW INTO LINK	SAT (PCU/H)	DEGREE OF SAT (%)	MEAN OF PER CRUISE (SEC)	MEAN TIMES (SEC)	UNIFORM DELAY (PCU-H/H)	RANDOM+ OVERSAT OF MEAN Q' DELAY (PCU-H/H)	COST OF DELAY (\$/H)	STOPS OF STOPS (\$/H)	MEAN MAX. AVERAGE EXCESS OF (PCU)	PERFORMANCE INDEX (\$/H)	EXIT NODE	GREEN TIMES (SECONDS)				
101	1126	9999	11.1	11.4	0.2	0.0 + 0.1	( 0.9)	0 ( 0.1)	0	0	1.0	1	80 110				
102	379	1650	88.1	18.4	76.0	4.5 + 3.5	(119.7)	119 (15.7)	16	16	129.3	1	80 110				
103	426	104L	88.1	18.4	76.0	3.1 + 0.9	( 55.8)	86 (12.7)	38	+	68.5	1	110 65				
104	1424	3300S	88.1	18.4	76.0	2.1 + 2.2	( 70.5)	47 (23.3)	38	+	93.8	1	110 65				
105	604	1000	88.1	18.4	76.0	0.0 + 1.0	( 13.6)	0 ( 0.0)	1	1	13.6	1	65 80				
106HL	36	1800	88.1	18.4	76.0	0.5 + 0.1	( 7.8)	93 ( 1.2)	1	1	9.0	1	65 80				
107	203	1800	88.1	18.4	76.0	2.9 + 2.4	( 75.1)	128 ( 9.0)	9	9	84.1	1	65 80				
201	809	1800	76.3	28.2	4.9 + 1.6	( 92.2)	92 (25.9)	25	+	25	118.1	2	102 52				
202	174	1650	60.3	30.8	1.7 + 0.8	( 34.7)	100 ( 6.1)	6	6	40.7	2	102 52					
203	364	9999	10.1	14.4	0.2	0.0 + 0.1	( 0.8)	0 ( 0.1)	0	0	0.8	2	52 102				
204	532	1650	84.1	14.4	46.7	5.1 + 2.6	(109.0)	98 (20.2)	20	20	129.2	2	52 102				
205	313	9999	8.1	14.4	0.2	0.0 + 0.0	( 0.2)	0 ( 0.0)	0	0	0.2	2	52 102				
206	1257	3600	88.1	18.4	37.0	10.6 + 2.3	(183.3)	89 ( 39.2)	39	39	222.5	2	52 102				
TOTAL																	
DISTANCE TRAVELLED (PCU-MM/H)		TOTAL TIME SPENT (PCU-H/H)		MEAN JOURNEY SPEED (KM/H)		TOTAL UNIFORM DELAY (PCU-H/H)		TOTAL RANDOM+ OVERSAT OF DELAY (PCU-H/H)		TOTAL COST OF DELAY (\$/H)		TOTAL PENALTY FOR EXCESS QUEUES (\$/H)		TOTAL PERFORMANCE INDEX (\$/H)		TOTALS	
1349.1		80.3		16.9		35.4		18.0		( 752.6)		+		( 153.4)		= 911.0	
7.2		0.7		10.4		0.5		0.1		( 7.8)		+		( 0.0)		= 9.0	
1341.9		79.6		16.9		34.9		17.9		( 748.8)		+		( 152.2)		= 902.0	

ROUTE





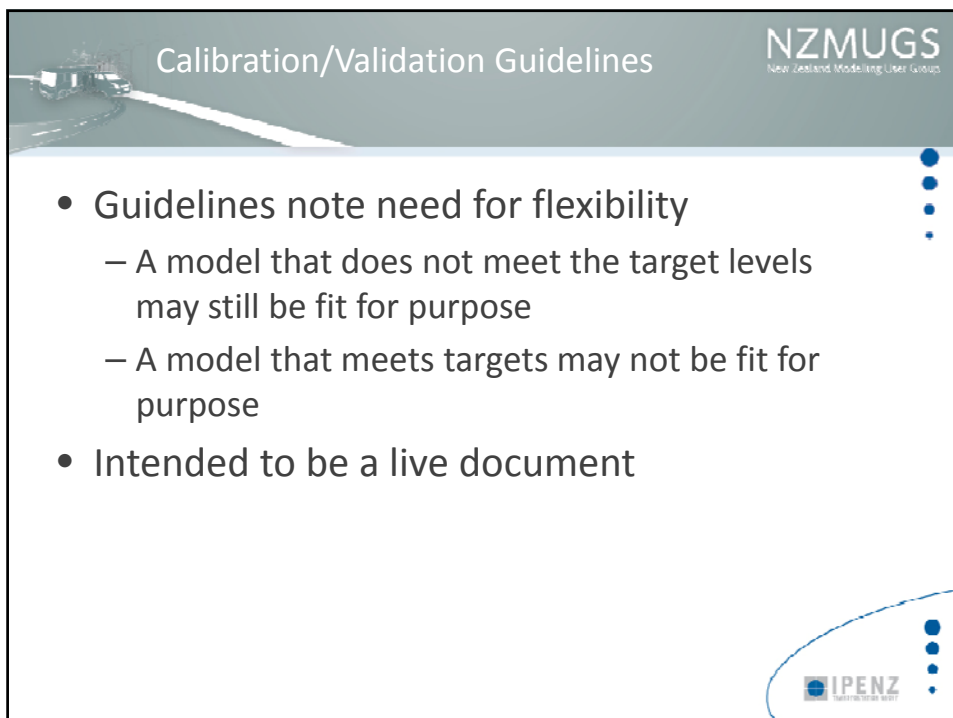


Calibration/Validation Guidelines

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- Goes beyond validation guidance in Economic Evaluation Manual (EEM)
- Different targets for 7 different model categories
  - Geographical extent and model purpose
  - Not for different software
- Matrix estimation guidelines

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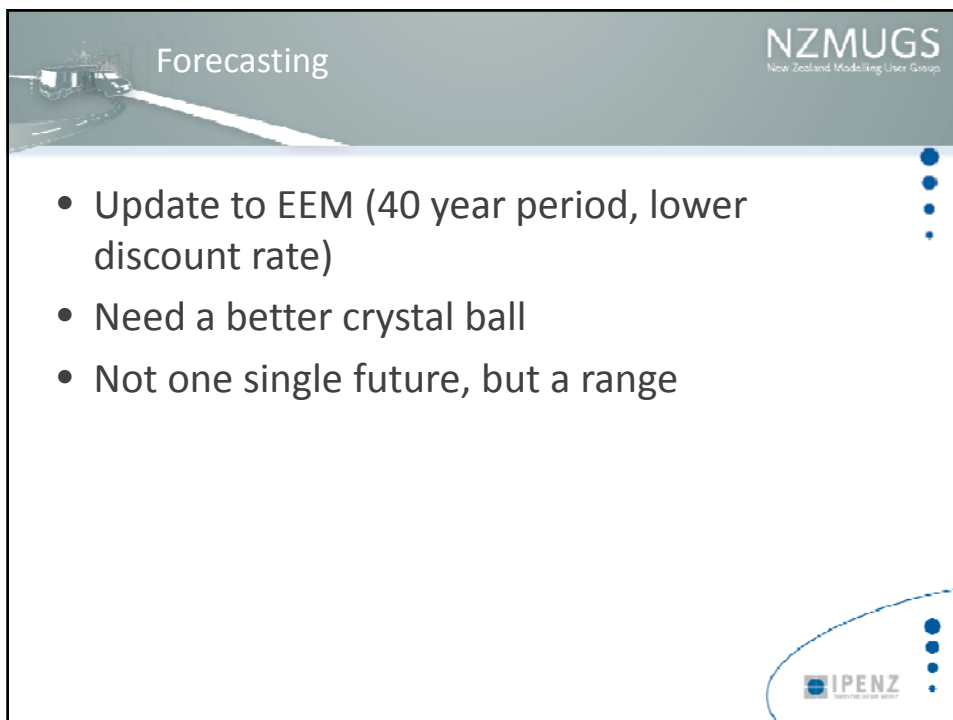


Calibration/Validation Guidelines

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- Guidelines note need for flexibility
  - A model that does not meet the target levels may still be fit for purpose
  - A model that meets targets may not be fit for purpose
- Intended to be a live document

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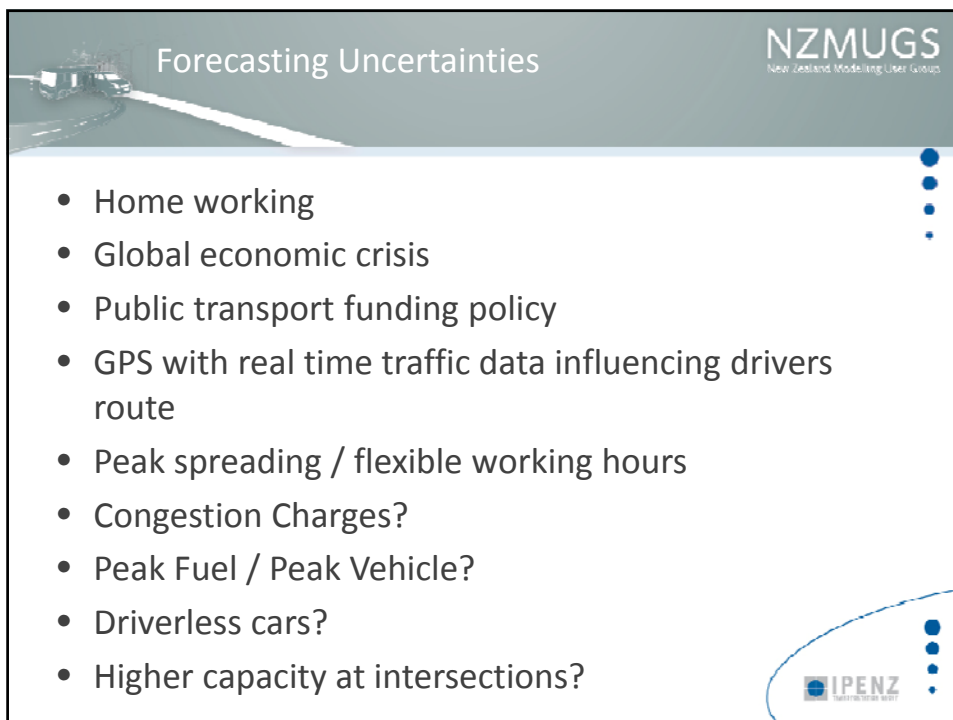


Forecasting

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- Update to EEM (40 year period, lower discount rate)
- Need a better crystal ball
- Not one single future, but a range

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Forecasting Uncertainties

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- Home working
- Global economic crisis
- Public transport funding policy
- GPS with real time traffic data influencing drivers route
- Peak spreading / flexible working hours
- Congestion Charges?
- Peak Fuel / Peak Vehicle?
- Driverless cars?
- Higher capacity at intersections?

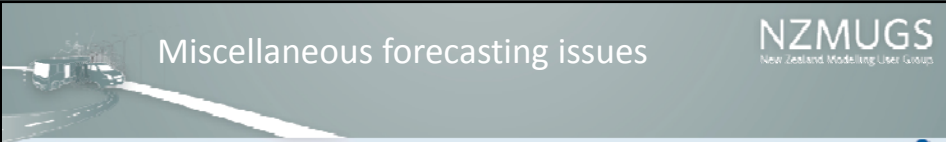

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## Forecasting

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- Do we spend too much time on base model validation, and not enough time on forecasting?
- Need for demand and capacity to be broadly “in balance”

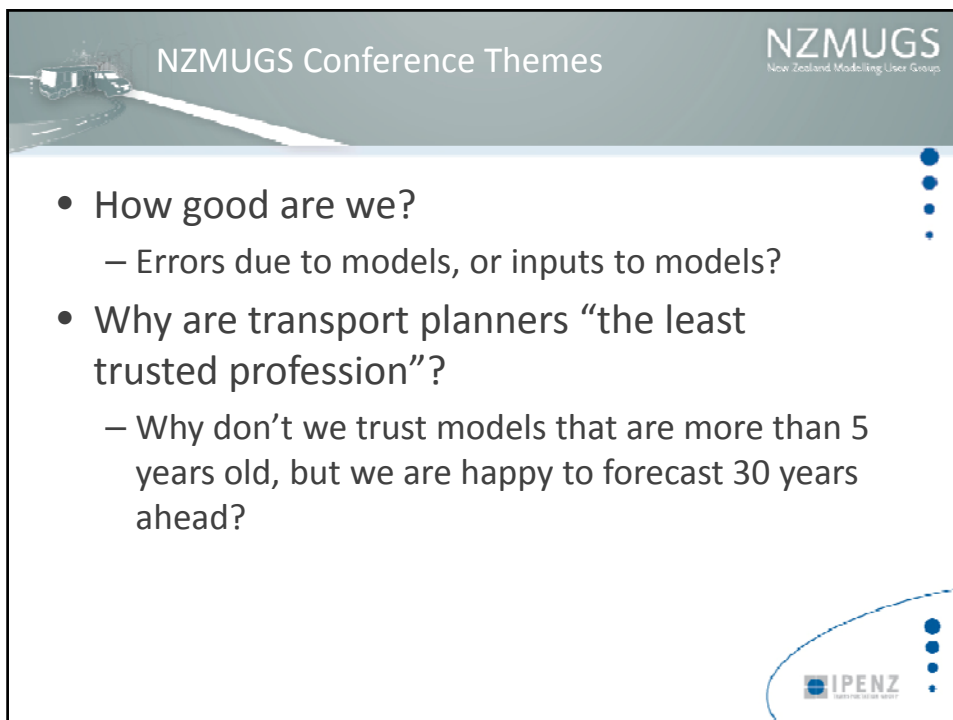


## Miscellaneous forecasting issues

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- Transfer Penalties
  - Borrowing/drawing from elsewhere
- Toll Modelling






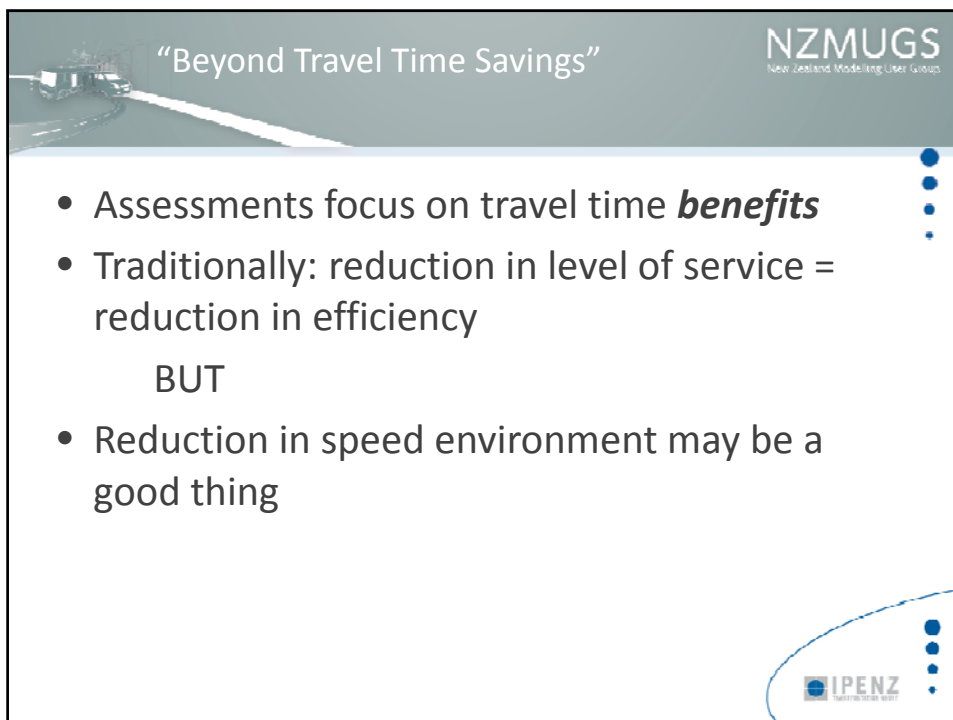
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NZMUGS Conference Themes

- How good are we?
  - Errors due to models, or inputs to models?
- Why are transport planners “the least trusted profession”?
  - Why don’t we trust models that are more than 5 years old, but we are happy to forecast 30 years ahead?



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“Beyond Travel Time Savings”

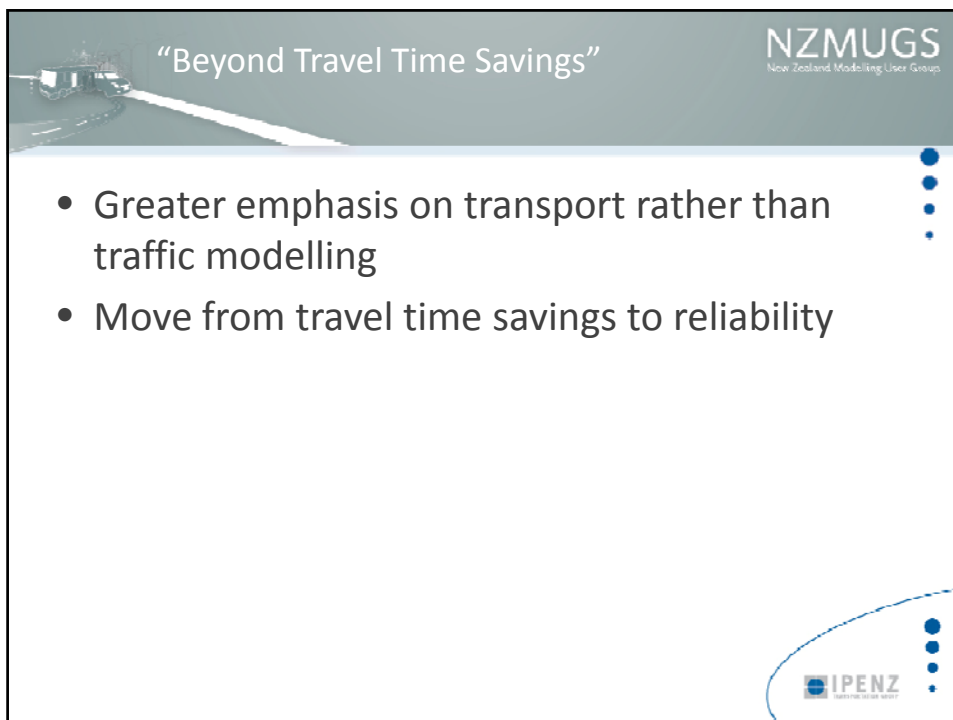
- Assessments focus on travel time **benefits**
- Traditionally: reduction in level of service = reduction in efficiency

BUT

- Reduction in speed environment may be a good thing



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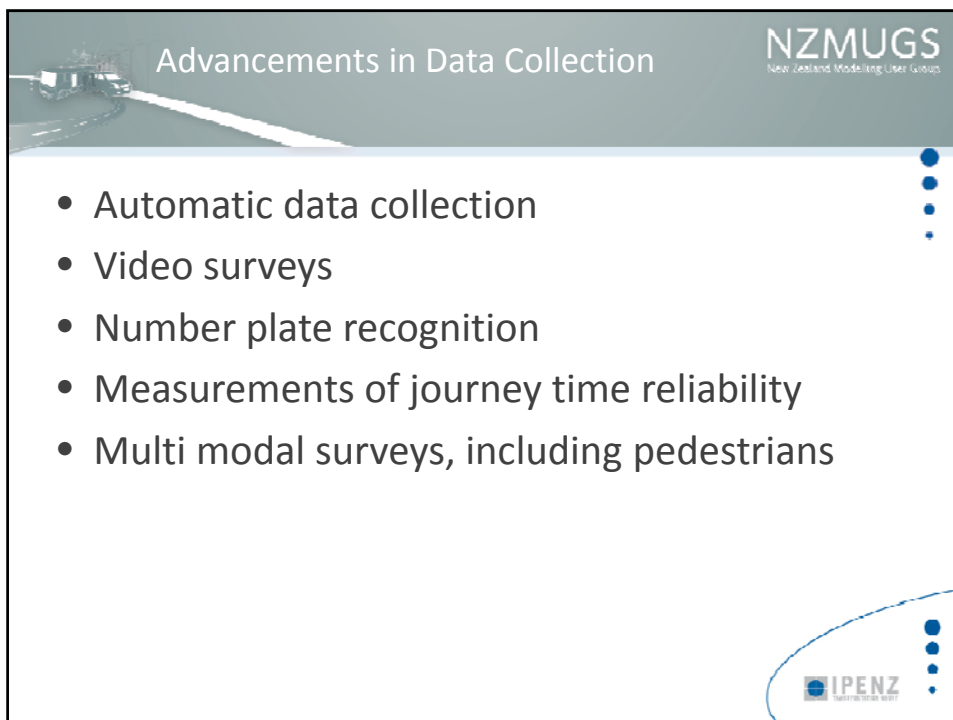


**“Beyond Travel Time Savings”**

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- Greater emphasis on transport rather than traffic modelling
- Move from travel time savings to reliability

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**Advancements in Data Collection**

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- Automatic data collection
- Video surveys
- Number plate recognition
- Measurements of journey time reliability
- Multi modal surveys, including pedestrians

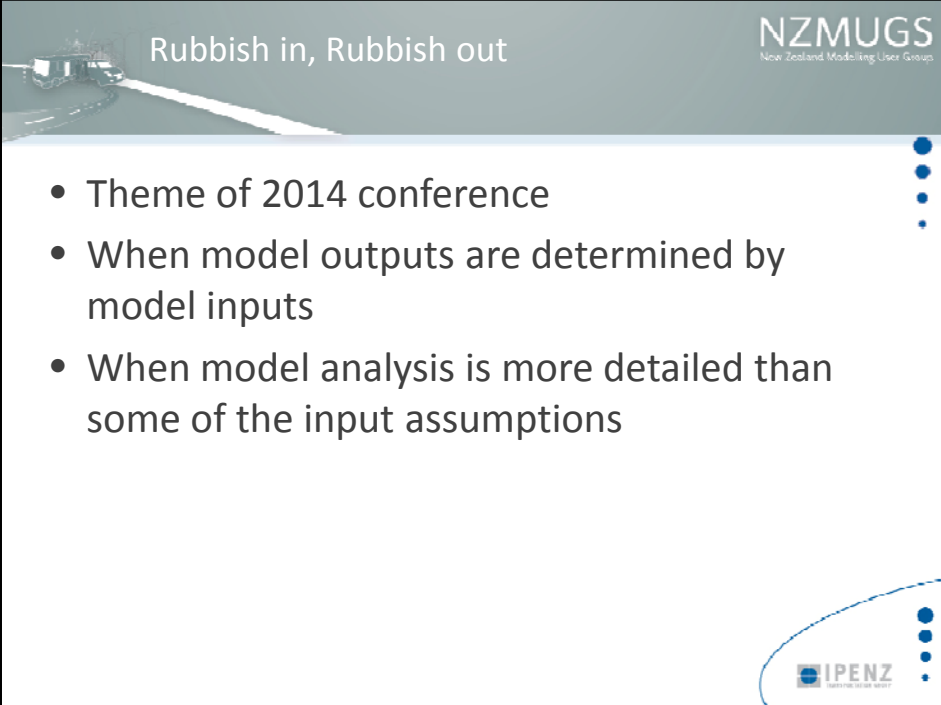
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Rubbish in, Rubbish out

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- Theme of 2014 conference
- When model outputs are determined by model inputs
- When model analysis is more detailed than some of the input assumptions

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Conclusions

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- Questions?  
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[Gavin.Smith@opus.co.nz](mailto:Gavin.Smith@opus.co.nz)



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