



Looking DAPR

How Dynamic Anomaly and Pattern Response Will Change the Management of Facilities

- What is DAPR?
- What are the benefits?
- How and where is DAPR used?
- What has DAPR to do with FM?
- Do something!

“The future will be better tomorrow.”

Dan Quayle

- Special – mission is to be the foremost risk/reward management firm, “helping organisations to improve by making better decisions”
- Services – projects, systems, coaching/training, interim managers
- Sectors – technology, finance, NGOs, professional services, outsourcing, FM
- Some Highlights – British Computer Society Award 2004/2005 for PropheZy and VizZy, DTI Smart Award 2003, DTI Foresight Challenge Award of £1.9M for The Financial Laboratory, Taskforce 2000, Investment Banking CCC’s, ***IT for the Not-for-Profit Sector, Clean Business Cuisine***

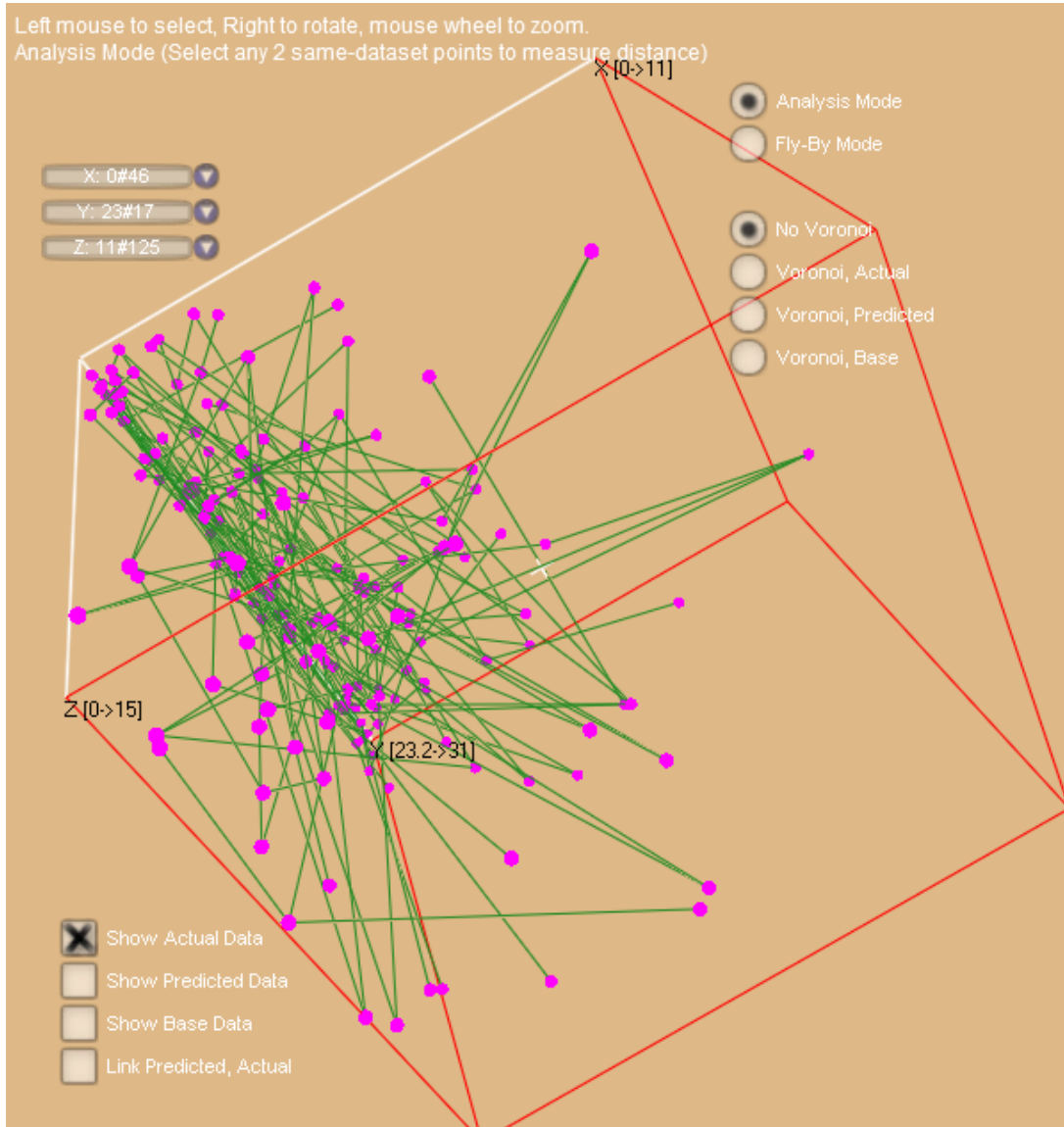


“I use not only all the brains I have, but all I can borrow.”

Woodrow Wilson

- Dynamic
 - Initiates an action
 - Real-time
- Anomaly & Pattern
 - Identifies unusual behaviour
 - Reinforces successful patterns
- Response
 - Adaptive, moves with the data
 - Integrative, can work without rebuilding the entire IT architecture

“Inertia can develop a momentum of its own.”
attributed to Douglas Hurd by Lord Howe



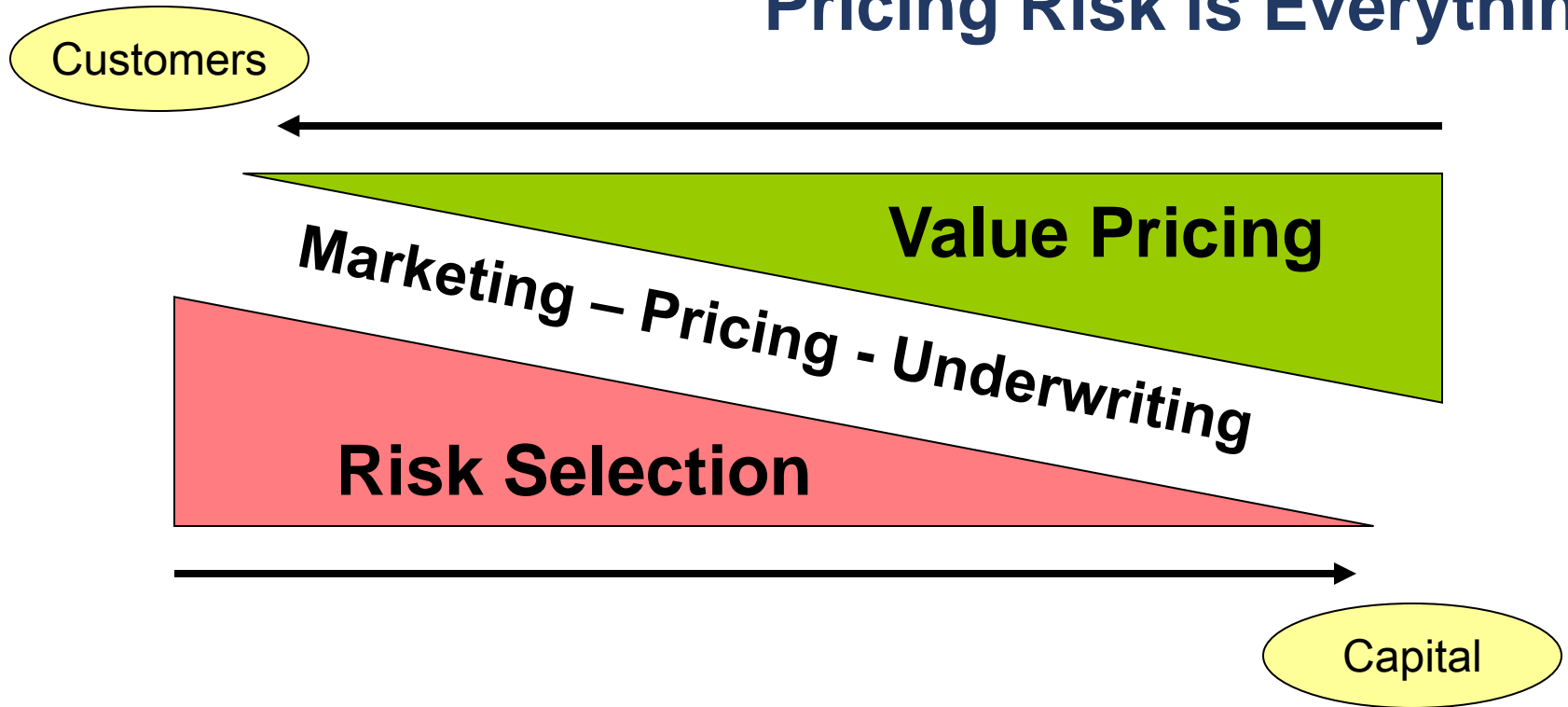
- Perceptrons, 1957
- Neural networks & AI, 70's & 80's
- Modern statistics, 80's & 90's
- Predictive analytics, 90's (note: analytic)
- Statistical learning theory, mid 90's
- DAPR, e.g. PropheZy and VizZy - 2003

“96.37% of all statistics are made up.”

Kevin D. Quitt

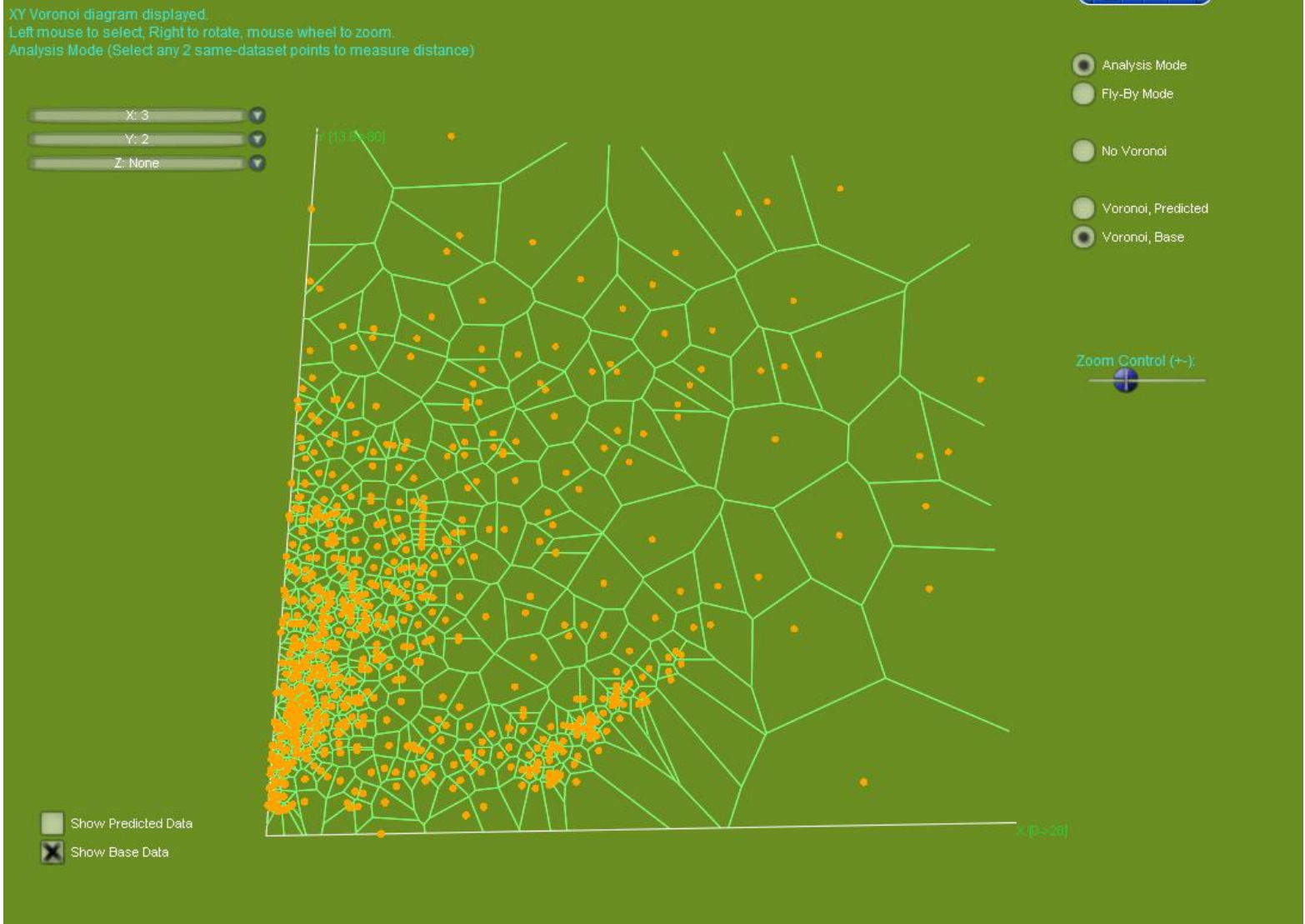
What are the Benefits?

Pricing Risk is Everything



“Errors using inadequate data are much less than those using no data at all.”

Charles Babbage



How and Where is DAPR Used?

- Finance – liquidity prediction, fails correction, customer targeting, operational risk and losses, trade performance benchmarking, compliance
- Government – fraud detection, anti-money laundering, property costs
- CRM/Direct Mail – targeting, customer intimacy
- Project Evaluation – scorecards for grants and projects
- Television – scheduling, anomalous programmes
- IT – real-time workflow and information routing

“Get a detailed grip on the big picture.”

Chao Kli Ning

What has DAPR to do with FM?

- Data overload
 - Internal data
 - External data
- Difficulty in sharing best practice
- Difficulty in evaluating performance
- Need to manage client expectations

What has DAPR to do with FM?

- **BENCHMARKS**
 - Setting performance targets
 - Evaluating sites
 - Costing bids
- **SCORECARDS**
 - Real-time predictors for staff
 - Communicating with clients

“Although this may seem a paradox, all exact science is dominated by the idea of approximation.”
Bertrand Russell

PropheZy - TOCS Training Set 2001 to 2003

Microsoft Excel - TOCS - Test Set 3.xls

File Edit View Insert Format Tools Data Window Help

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	COSTS £ per m2 NIA per annum	Location Code	C2 Insurance	C3 Internal R&M	C4 M&E R&M	C5 External R&M	C9 Security	C10 Cleaning	C14 Water/ Sewerage	C15 Energy	D4/5 Post/ Courier	Total	Month	Year
1														
2	Aberdeen	1	5.19	17.33	13.83	7.91	20.46	19.40	12.02	15.85	12.34	124.34	7	2003
3	Basingstoke	2	5.32	16.20	13.14	7.57	21.57	20.02	1.30	15.47	13.18	113.77	7	2003
4	Birmingham	3	5.74	19.07	13.83	8.73	21.57	18.79	0.90	15.47	12.76	116.85	7	2003
5	Bracknell				13.14	8.17	21.57	20.64	1.30	15.47	13.18	116.93	7	2003
6	Bristol				13.14	7.82	20.46	19.72	1.54	15.47	12.55	113.37	7	2003
7	Cambridge	6	5.13	16.20	13.83	7.57	21.57	21.88	0.97	15.47	13.18	115.79	7	2003
8	Cardiff	7	5.72	16.20	13.14	7.57	20.46	18.41	1.29	15.47	12.34	110.60	7	2003
9	Crowley	8	5.87	18.06	13.83	8.17	21.57	20.33	1.15	15.47	13.18	117.62	7	2003
10	Croydon	9	5.71	18.06	13.83	8.17	21.57	19.90	1.17	15.47	13.18	117.05	7	2003
11	Edinburgh	10	5.70	18.03	13.83									2003
12	Glasgow	11	5.70	18.03	13.83									2003
13	Guildford	12	5.59	18.06	13.83									2003
14	High Wycombe	13	5.09	18.06	13.83									2003
15	Leeds	14	5.74	18.03	13.83									2003
16	Liverpool	15	5.57	18.03	13.83									2003
17	London - City	16	6.83	19.23	17.98									2003
18	London - Docklands	17	6.90	19.96	17.98									2003
19	London - Hammersmith	18	6.50	19.15	17.98									2003
20	London - Midtown	19	6.83	19.15	17.98									2003
21	London - West End	20	6.83	19.96	17.98									2003
22	Maidenhead	21	5.38	18.06	13.83									2003
23	Maidstone	22	5.38	16.22	13.83									2003
173	Edinburgh	10	1.93	15.61	23.68									2001
174	Glasgow	11	1.93	15.61	23.68									2001
175	Cardiff	7	1.93	15.61	24.42									2001
176	Manchester	23	1.93	15.61	23.93									2001
177	Leeds	14	1.93	15.61	23.93									2001
178	Birmingham	3	1.93	15.61	23.93	7.15	20.00	13.64	0.75	16.97	11.50	111.49	1	2001
179	Bristol	5	1.93	15.61	24.19	7.97	20.00	15.26	0.75	16.97	11.50	114.07	1	2001

Windows Taskbar: Start, 18:49

Thanks to Actium Consult for use of their invaluable TOCS data – www.actiumconsult.co.uk

PropheZy – Predictions for 2004

Microsoft Excel - TOCS - Towns Cut from Test 3 - Predict.xls

File Edit View Insert Format Tools Data Window Help

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	COSTS £ per m2 NIA per annum	Location Code	C2 Insurance	C3 Internal R&M	C4 M&E R&M	C5 External R&M	C9 Security	C10 Cleaning	C14 Water/ Sewerag	C15 Energy	D4/5 Post/ Courier	Total	Month	Year
1														
2	Aberdeen	1.00	5.28	17.78	14.27	8.12	20.77	19.69	12.13	16.89	12.52	126.51	3	2004
3	Basingstoke	2.00	5.45	16.62	13.56	7.77	21.89	20.32	1.30	16.89	13.37	121.87	3	2004
4	Birmingham	3.00	5.84	19.57	14.27	8.96	21.89	19.07	0.90	16.89	12.95	117.29	3	2004
5	Bracknell	PropheZy Addin			13.56	8.38	21.89	20.95	1.30	16.89	13.37	115.83	3	2004
6	Bristol	Cast Forecast Properties			13.56	8.02	20.77	20.01	1.61	16.89	12.74	116.91	3	2004
7	Cambridge	6.00	5.25	16.62	14.27	7.77	21.89	22.21	0.99	16.89	13.37	115.88	3	2004
8	Cardiff	7.00	5.82	16.62	13.56	7.77	20.77	18.69	1.29	16.89	12.52	115.75	3	2004
9	Crawley	8.00	5.97	18.52	14.27									2004
10	Croydon	9.00	5.84	18.52	14.27									2004
11	Edinburgh	10.00	5.80	18.50	14.27									2004
12	Glasgow	11.00	5.80	18.50	14.27									2004
13	Guildford	12.00	5.72	18.52	14.27									2004
14	High Wycombe	13.00	5.21	18.52	14.27									2004
15	Leeds	14.00	5.84	18.50	14.27									2004
16	Liverpool	15.00	5.66	18.50	14.27									2004
17	London - City	16.00	6.96	19.73	18.55									2004
18	London - Docklands	17.00	7.03	20.48	18.55									2004
19	London - Hammersmith	18.00	6.62	19.65	18.55									2004
20	London - Midtown	19.00	6.96	19.65	18.55									2004
21	London - West End	20.00	6.96	20.48	18.55									2004
22	Maidenhead	21.00	5.51	18.52	14.27									2004
23	Maidstone	22.00	5.51	16.64	14.27									2004
24	Manchester	23.00	5.84	18.50	14.27									2004
25	Milton Keynes	24.00	6.01	16.62	13.56									2004
26	Newcastle	25.00	5.26	18.50	13.56									2004
27	Norwich	26.00	5.21	16.62	13.56									2004
28	Nottingham	27.00	5.77	18.50	13.56	8.37	21.89	20.63	0.90	16.89	13.37	117.46	3	2004
29	Oxford	28.00	5.48	16.62	13.56	7.77	20.77	19.69	1.20	16.89	12.52	117.46	3	2004
30	Plymouth	29.00	4.56	16.46	13.56	7.56	21.89	20.32	1.43	16.89	13.37	116.75	3	2004
31	Reading	30.00	6.18	17.45	13.56	8.02	20.77	19.07	1.20	16.89	12.74	116.75	3	2004
32	Reading	31.00	5.54	18.57	14.27	8.02	21.89	20.32	1.00	16.89	13.37	117.46	3	2004

Select Range dialog box:

Describe your Data: Classification Problem

Primary Dimension Column: <None>

Select Source Range:

First Row Contains Labels

Selected Range Whole Sheet

Specify Range: []

Where do you want the resultant data?:

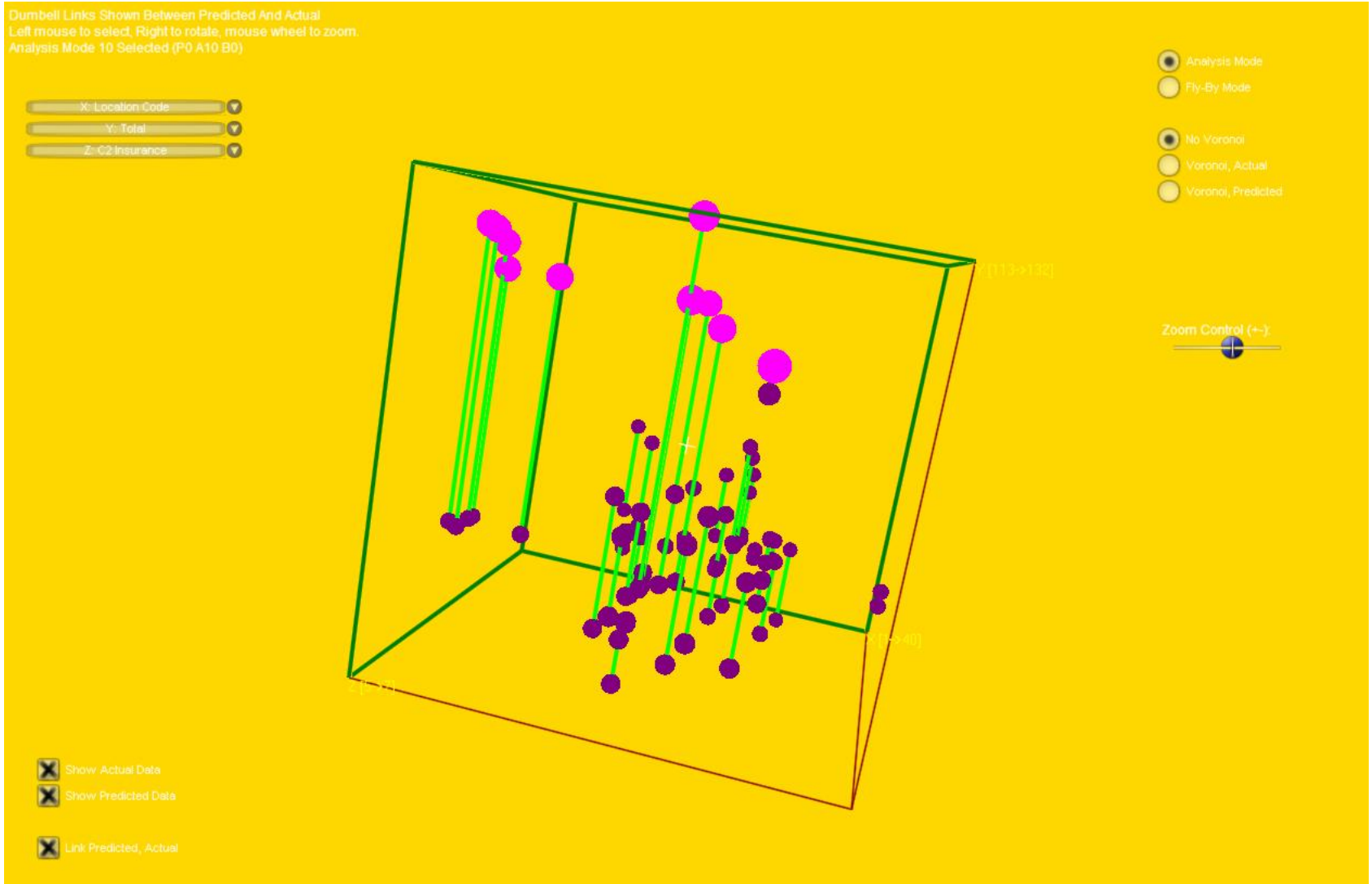
Next unused Column

Specify Column: []

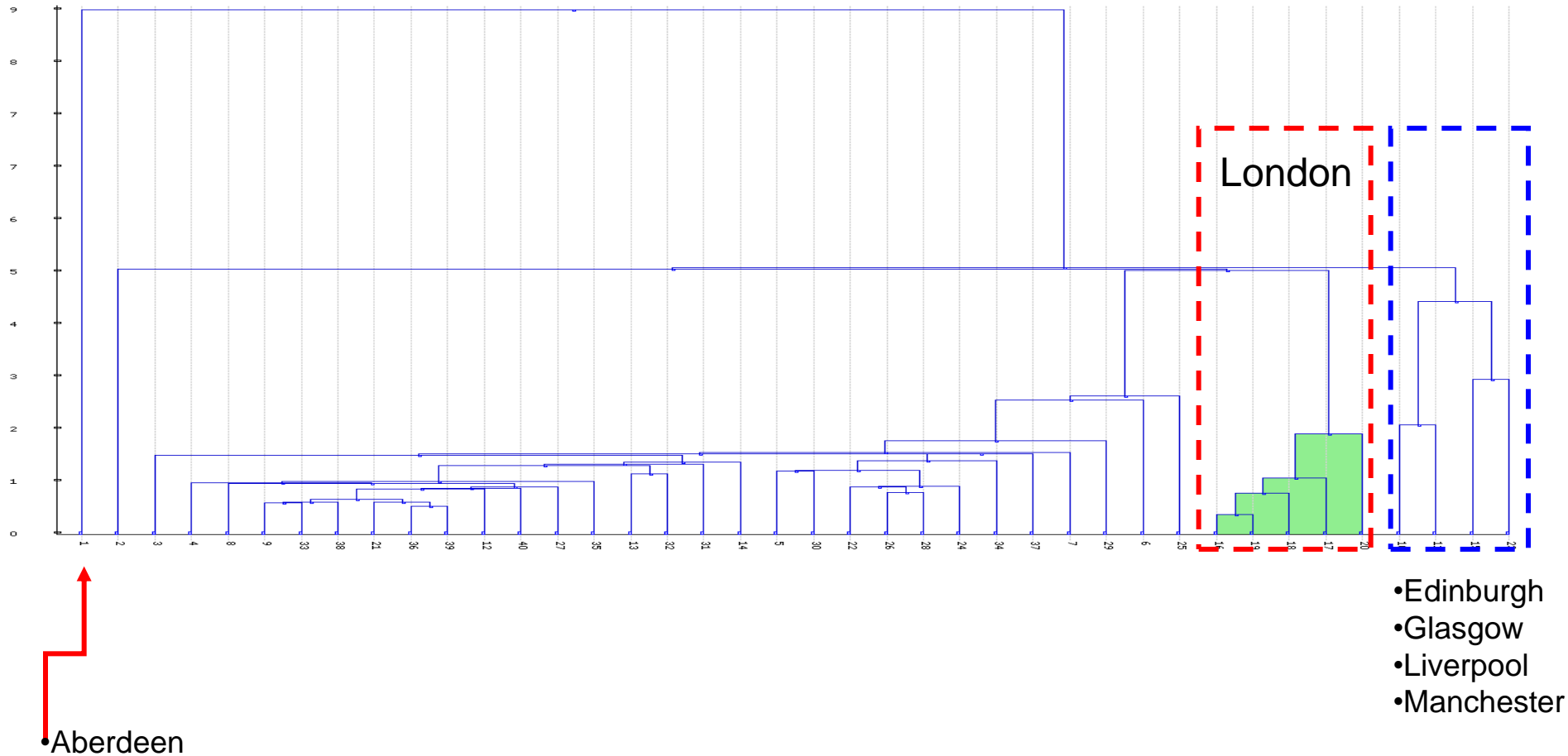
< Back Next > Cancel

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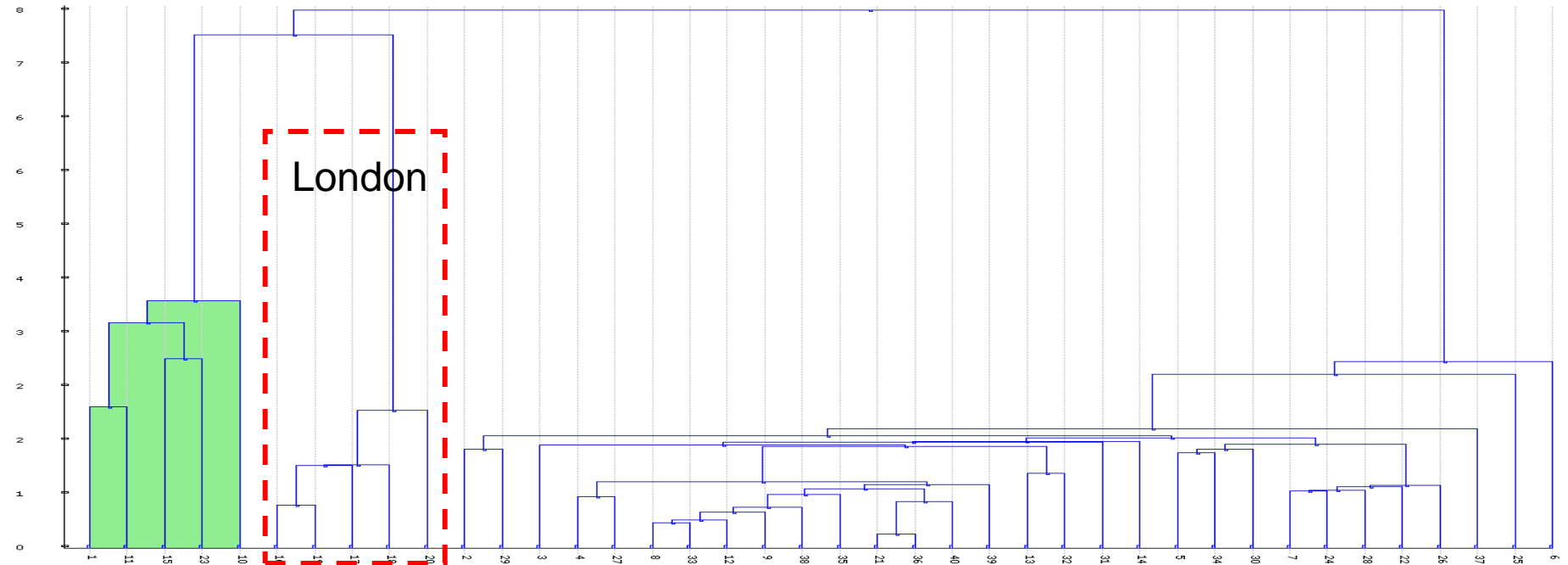
Search for Anomalies



Analyse Anomalies - Predicted



Analyse Anomalies - Actual



- Aberdeen
- Edinburgh
- Glasgow
- Liverpool
- Manchester

Problems

Winners

£4.69	Basingstoke
£3.78	Swindon
£3.52	Norwich
£2.96	Oxford
£2.84	Milton Keynes
£2.59	Maidstone
£1.82	Cardiff
£0.88	Reading
£0.71	Plymouth
£0.44	Southampton

-£4.79	Richmond
-£3.77	Guildford
-£4.49	Uxbridge
-£4.39	St Albans
-£5.34	Crawley

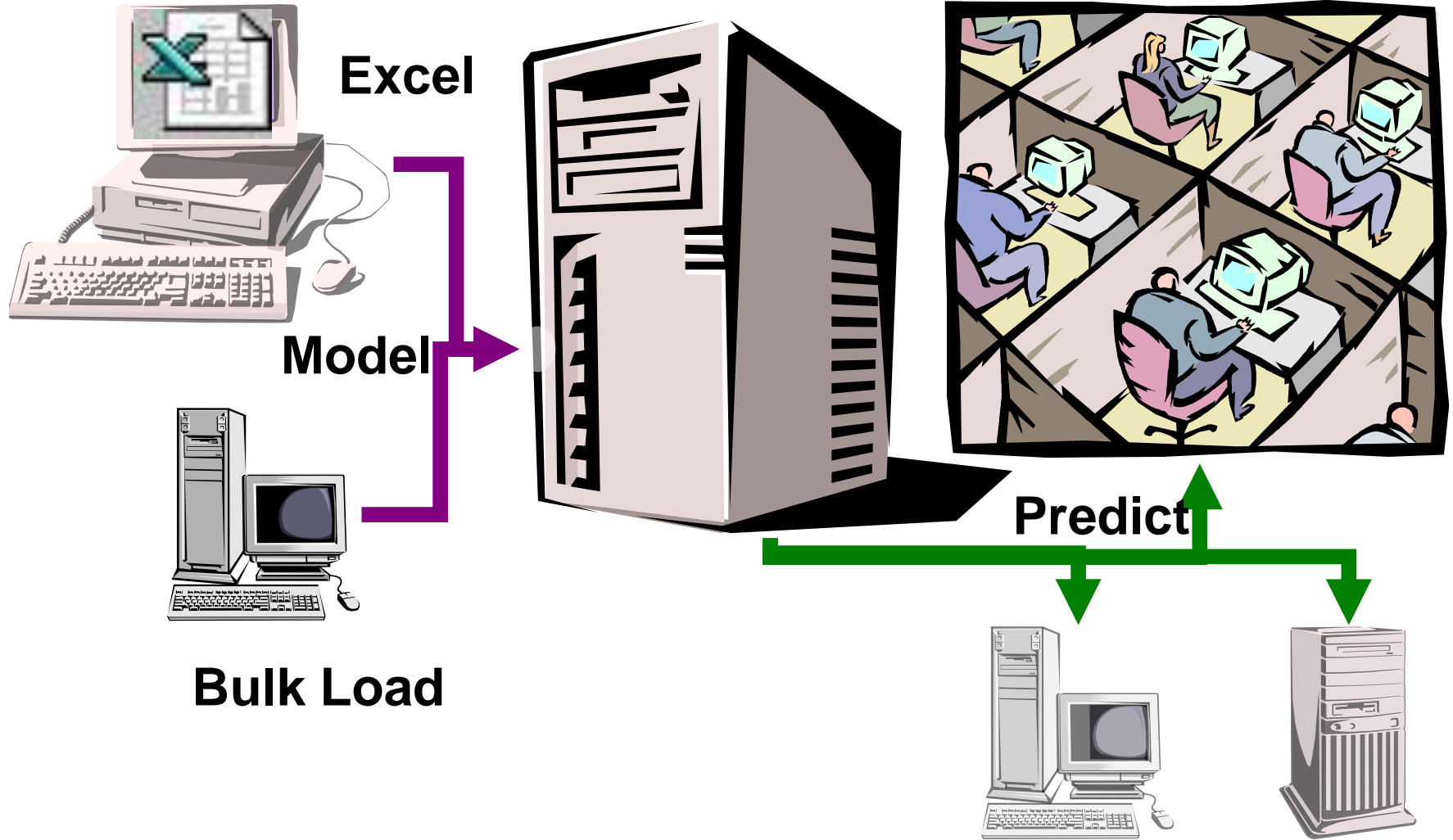
Losers

-£14.50	Edinburgh
-£12.93	London - Docklands
-£12.79	London - City
-£12.27	London – Midtown
-£11.36	Glasgow
-£11.28	London – Hammersmith
-£11.15	London - West End
-£10.98	Manchester
-£10.56	Liverpool
-£ 5.34	Crawley

“The purpose of models is not to fit the data but to sharpen the questions.”

Samuel Karlin

How – IT Architecture



Deploy Across the Web

fm cost form.html Search Web Search Site Options fm cost

FM Company Site Cost Estimator

Item	Actual £	Predicted £
Location	Uxbridge Watford Woking <input type="button" value="Submit"/> <input type="button" value="Reset"/>	Watford
Insurance	£ 5.51	£ 5.51
Internal R&M	£ 18.52	£ 18.52
M&E R&M	£ 14.27	£ 13.90
External R&M	£ 8.38	£ 8.38
Security	£ 21.57	£ 21.57
Cleaning	£ 19.40	£ 19.40
Water/Sewerage	£ 1.20	£ 1.20
Energy	£ 16.89	£ 15.80
Post/Courier	£ 13.18	£ 13.18

PropheZy!

£118.92	£117.46
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- Need to investigate anomalies OR reinforce patterns
- Testable proposition
 - reasonable historic data (not necessarily large volumes) – consistent, valid
 - clear classification of outcomes
- Data changes moving forward
- Ability to use the predictions
- Feedback loop on predictions

“Get a big picture grip on the details.”

Chao Kli Ning

- New levels of performance measurement
- New ways of working
- New ways of learning

- Get some data and start analysing targets!

“Prediction is extremely difficult. Especially about the future.”

Niels Bohr

Contact us for a private discussion on radical improvement.

Michael_Mainelli@zyen.com

“The future just ain’t what it used to be and, what’s more, it never was.”

Ira Hays

