Balancing different kinds of knowledge in store forecasting

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The background to today's presentation....

- ...has its roots in the practitioner - academic contrast
- Academic focus
  - "modelling, modelling, modelling"
- Working for a retailer
  - "what was the access like?"
  - "what was the competition like?"
  - "would the consumer cross the motorway there?"
  - "isn't it like St Ives?"
  - "what's the *right* forecast?"
  - **"do you think the model understands the catchment?"**

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A range of tools to use

Technique	Details	Technological and data input
Experience/experimental	'Rule of thumb' procedures often employed 'on site' where the benefits of experience, observation and intuition drive decision-making.	Low
Checklist	Procedure to systematically evaluate the value of (and between) site(s) on the basis of a number of established variables.	↑
Ratio	Assumes that if a retailer has a given share of competing floorspace in an area it will achieve a proportionate share of total available sales.	
Analogues	Existing store (or stores) similar to the site are compared to it to tailor turnover expectations.	
Multiple regression	Attempts to define a correlation between store sales and variables within the catchment that influence performance.	
Geographical information systems (GIS)	Spatial representation of geodemographic and retail data that is based on digitalised cartography and draws on relational databases.	
Spatial interaction modeling	Derived from Newtonian laws of physics based on the relationship between store attractiveness and distance from consumers. May operate 'within' a GIS.	↓
Neural networks	Computer-based models explicitly represent the neural and synaptic activity of the biological brain.	High

Source: Wood & Tasker, 2008

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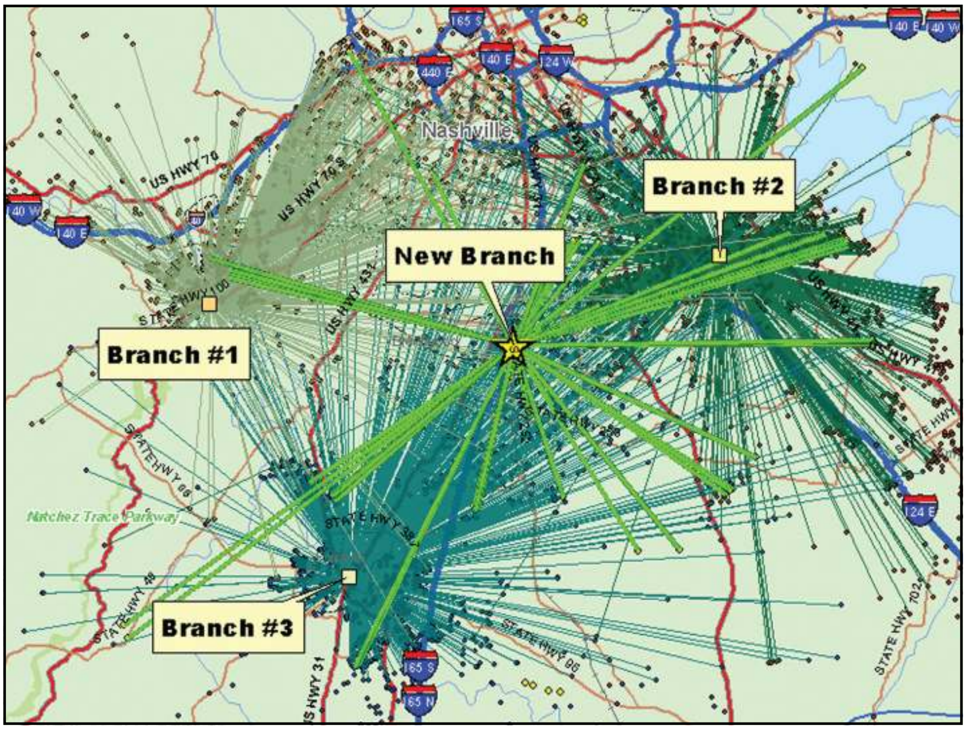

Small differences in location = big changes to forecast

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- 'Despite the latter-day advances in location modelling and geographical information systems, the outcome of locational decisions ultimately rests on micro-scale considerations; that is, the appropriateness or otherwise of the precise location within the chosen city centre, regional shopping centre, inner city arterial, secondary shopping district, retail park or whatever.'

- Brown, S (1994) 'Retail location at the micro-scale: Inventory and prospect', *Service Industries Journal*, 14 4, 542-576

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Don't rely on the technology exclusively….

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- 'Technology cannot replace thorough field analysis and good retail intuition … Too many site selection firms – on both sides of the Atlantic – mistakenly believe that the activity involves manipulating databases and models in a comfortable office. While being a great 'assist', location research technology is only as accurate as the data employed, and the judgments and care used to manage the process of application' (p 64)

- Rogers, D. (2006) 'Location Research Planning: The need for less hype', *European Retail Digest*, 49, p63-64

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Wear two heads – a modelling one and one for fieldcraft…

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- 'It's easy to sit in Nottingham and twiddle with the GIS and think you can do a sales forecast for Hale in Cornwall. You go, and then you discover that the people there are different'.

- **Mark Chivers, Head of Strategy Development & Research at Boots.**

- Tinworth, A. (2005) 'Let's find out where it's at', *Estates Gazette*, Issue 540

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Even the data providers acknowledge the limitations…

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- 'Many factors that are not easily measurable (e.g. operations) affect store performance, while other factors (e.g., visibility ratings) can only be measured in an imperfect manner. It is important to note that retail models cannot directly model situations that aren't present in a database of stores that already exist'

- Wolfe, D. (2005) '10 common mistakes in site modelling', *MapInfo Magazine*, Vol. 9, No. 1, pp. 9-11.

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Forecasting is not just modelling – it is decision-making!

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- Forecasting is more than simply pressing buttons!
- The forecast is located at the intersection of *modelled knowledge* and *observed knowledge*.
- Reflected on two case studies to:
  - Understanding the nature and benefit of the site visit.
  - How that knowledge feeds into the decision-making process.

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Site Assessment

Location Planning

Market Experience

- Street Markets
- High Streets
- Department Stores
- Specialist concentrations

Modelling Market Data

- Populations
- Migrations
- Gravity Modelling

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Two Types of Market – Different Approach

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Primary Destination Modelling – Measuring the impact of creating new destinations (Creating new flows)

Convenience Modelling – Measuring the intensity and relevance of existing flows (Feeding from flows)

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What is a Destination?

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"The ultimate goal for which something is done"

Work	City Centre
Food Shopping	Mall
Durable Shopping	Retail Park
Holiday	Superstore
School	Theatre
Leisure	Specialist stores

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Destination Analysis

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	Low		High
Multi-Purpose	Theatre Meal Opticians	Bank Transaction Newsagent Convenience Food	
Single-Purpose	Bank Appointment DIY Theatre Funeral Director Doctors	Supermarket	

Low Frequency of Visit High

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Destination Analysis

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	Low	High
Multi-Purpose	Access to relevant footfall - Visibility	High relevant footfall / Traffic Flows
Single-Purpose	Accessibility to relevant market - Visibility	Accessibility to relevant market

Low Frequency of Visit High

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Destination Markets – Site Visits

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- Understanding of Accessibility — drivetimes ---isochrones
- Confirmation of market relevance — social class---culture & lifestyle
- Assessment of competing destinations — competitor analysis
- Characteristics of destination — size / parking ---congestion, multi-level

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Convenience Markets – Site Visits

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- What and where is the destination(s)
  - offices / town centres --- business parks / Malls
- Car parks and transport nodes
  - Bus stops / tube stations --- Trams / Park and Rides
- Transport and pedestrian flows
  - Numbers ---daily hourly variations / proximity / relevance
- " Secondary" destinations
  - Adjacencies

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Prior to Site Visit

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• Understand the market	Destination / convenience
• Understand the brand characteristics	Target customer
• Identify appropriate location type	Network Plan
• Which market aspects require checking	Information Gathering
• Consolidating information with model	Sales Forecast

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Case study context - Selsdon

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- In 2002, an available site for a 25,000 sq ft Sainsbury's supermarket in Selsdon, Croydon, South London

<u>What did the visit show?</u>

- Traffic congestion but visibility from main roads
- High Street lively and low vacancy
- Car parking a problem in immediate catchment – lots of pay & display and few vacant spaces
- Main competition: a Somerfield at 8,000 sq ft, small car park. Stronger competition in surrounding towns.
- Surrounding towns were very distinct communities. Suggested that the store should attract trade strongly within Selsdon itself and where Selsdon stretched down to South Croydon and Purley.

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Selsdon catchment with 10 minute drivetime

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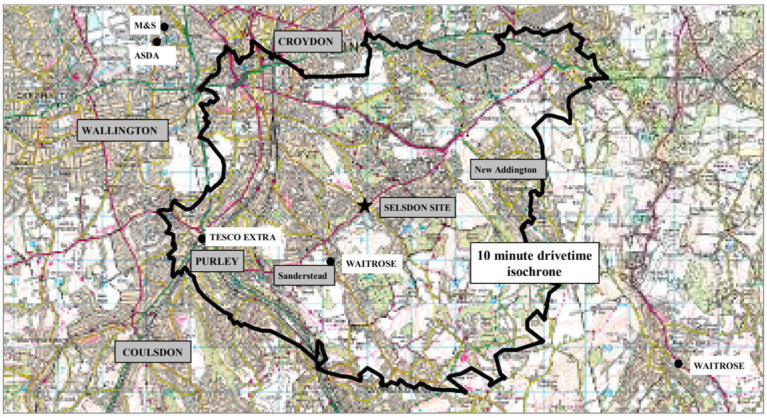

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Case study context - Selsdon

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<u>Conclusions from the site visit and implications for forecasting</u>

- Site prominent, visible and well placed to serve the identified catchment.
- Constrained nature of the car parking less of a factor given the limited parking also offered by the competition.
- Should exploit linked shopping trips.
- Concerns regarding about traffic congestion and access. Recommendations for traffic light junction with the right phasing.
- Amended gravity model output - the analyst considered the store would be unlikely to trade strongly from Forestdale and New Addington which benefited from being served by the new Croydon Tramlink.

<u>The outcome</u>

- Opened in June 2004 and traded just above expectation.

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Case study context: Hayes

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- Sainsbury's Local site was first identified in 1999.
- Located on a local shopping parade in Hayes, Kent, South-East England

What did the visit show?

- Shopping parade did not have a one-stop shop supermarket; the nearest stores being two Sainsbury's superstores at a distance of 1.5/2.5 miles.
- 150 metres away was Hayes Railway Station, a southern terminus for a suburban line that runs to Charing Cross in Central London.
- Defendable: apart from an Iceland and the site being reviewed, no other opportunities to establish a store of this size in the immediate area.
- On-street pay and display parking and a bus stop outside the site with a surface car park behind the shopping parade opposite.
- Visited on a weekday and Saturday morning and the footfall was typical compared to other shops within the Sainsbury portfolio.

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Hayes Local catchment with 0.5 and 2 mile radii

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Case study context: Hayes

Conclusions from the site visit and forecasting implications

- A simple regression model was used
- Most of the inputs were score based, which had a degree of subjectivity – e.g. population, competition, footfall, "stopability" etc.
- "Transport nodes" - it was felt that the store would cause some consumers to divert to visit the store on their way home.

Implications

- Opened June 2000: traded at less than three quarters of its estimate.
- Acted as a "top-up shop" rather than a "grab & go" store for commuters.
- Provided a lesson regarding the penalty of locating slightly "off pitch" when attempting to capture commuter trade.
- Re-merchandised to target the top-up shopper and sales gradually increased over the following year.
- With an adjustment to the model to lower the transport node score, the store ultimately traded on forecast.

The site visit – the catchment

Catchment Inventory of the competition	Assess competition specifically for: (a) Size of selling area (b) No. of assistants (c) No. of checkouts (d) Range of goods and services (e) Price policy (f) Opening hours (g) Additional services (eg petrol station, toilets, café) (h) Car parking (no. of spaces and configuration) (i) Condition of store (recently refitted?) (j) Drivetimes to and from site in question (k) Location of competitors (standalone/mall/district center/retail parks, etc) (l) Nature of store performance (eg basket or trolley trade?) (m) Observe core customers (eg age, affluence)
Study consumers through surveys	Customer 'spotting' surveys to understand: (a) Current customer shopping patterns (b) Perceptions of retail image of competitors and current stores in portfolio (c) To study areas of under-penetration
Check residential areas	Visit residential areas to review: (a) Nature of residential catchment compared to available data (if any) (b) Any areas of new housing development that may affect forecasts (c) Cultural geography of the catchment. Understand divisions between areas that may not be well represented in traditional data sets

Source: Wood & Tasker, 2008

The site visit – the site location & development scheme

Site location	
Accessibility of the site and throughout the catchment	(a) Ease of access and egress in terms of to the site and within the site itself (eg car park layout) (b) Role and perception of 'trade barriers' for the customers (eg rivers, motorways, topography, etc)
Visibility of site	(a) View from pedestrian walkways (b) View from immediate road on entry and egress (c) View from major adjacent roads
Traffic flows around site	(a) Measure flows throughout different types of day (b) Check road speeds and for one-way streets especially for model calibration if using spatial interaction models (c) Check for any new roads not recorded in current data or models
Pedestrian flows around the site	Measure flows throughout different types of day
Crime check	Examine area around the site for evidence of crime, litter, etc
Site development scheme	
Appraise the shape of the store and car park	Appraise the scheme for: (a) Size and shape of store relative to the scheme plans (b) Review the suitability of the car park shape and size relative to the scheme (esp. in terms of access) (c) Review the scheme critically –can it be improved?

Source: Wood & Tasker, 2008

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Benefits of the site visit

Techniques to employ 'on site'	Calibration of spatial interaction models	Collect data difficult to express in spatial interaction models	Other benefits of the site visit
Checklists	Road speeds	Visibility of site	Aid in selection of suitable analogue stores
Experience/gut feel/ experimental	Competitor sizes	Benefit/drawbacks of adjacent retailing	
	Competitor car park (no of spaces)	Role of 'trade barriers' (eg rivers, motorways) in customer decision-making	
	Pedestrian flows	'Quality' of the competition	
	Traffic flows	The 'feel' of the site	
	Population affluence versus database	Ease of access of store	
	Exact location of competitors	Type and structure of residential catchment	

Source: Wood & Tasker, 2008

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Knowledge conversion from the site visit into decision making

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Action	Reducing observations to data and incorporating into modelling systems	Considering knowledge outside of the model
Site visit	Observe, interpret and analyse the site	
Knowledge generation	Viewpoint formed from observation and experience	
Codification	Reduce 'knowledge' to data to incorporate into model (eg gravity or regression model)	Do not incorporate into formal modelling process and take action to amend forecast outside of the modelling
Model	Computational procedure	
Output	Output from model. Interpretation and analysis	
Forecast	Determine numerical forecast	
Determine cash return on investment	Determine profitability	
Make decision	Based on profitability but also broader strategic perspectives	

Source: Wood & Tasker, 2008

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Takeaways...

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- Until models become "perfect", forecasting is an art as well as a science
- Analyst experience critical - when to depart from model outputs
- Underlines the importance of learning and dissemination within team
- Implications for training new starters
  - The balance between modelling and fieldcraft is critical
  - Thoroughness on the visit
  - Need to understand how the models work so that they can amend distribution of trade if necessary

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