Big Data, New Technologies and Advancing Urban and Regional Development Strategies

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Introduction

- Do economic development strategies and interventions – festivals etc – have an impact?
  - Large literature on the topic over a long period
    - most methods rely on surveys, Input Output analysis or other models to demonstrate impact
      - But questions of scale and time lag
    - Methods are not overly precise nor robust, can cost more to evaluate the program than implement it, especially in Australia
    - Data is available in Oz, but it is very imprecise
  - Does the Rise of Big Data provide new opportunities for researchers and practitioners?
The research question

• Is ‘big data’ a new tool for evaluating economic development programmes?
• Will it help...
  – identify priority areas and socio-economic problems?
  – monitor the performance progress and/or final impacts of economic development initiatives?
• Rising awareness of big data, ‘Internet of Things’ (IoT), smart connected devices, social media and other sources,
  – But, there is still a lot of confusion and no guidance on how these things can assist and enrich decision-making in economic development
What we did...

• **Round Table 1** (24 x face-to-face and on-line) discussion with economic practitioners
  – Review of the available literature on new and emerging data sources;
  – Investigated data sources and vendors, their pricing, availability and utility
    • limited interviews and on-line searching;
  – Developed a decision framework and applied it to two case studies

• **Round Table 2** (25 x face-to-face and on-line) with practitioners on our preliminary findings and the presentation of a decision framework
What we found...

• Most work in this field documents what is potentially available – Twitter, Inside AirBNB, Facebook etc

• But provides little guidance on how to apply these data to the real-world problems confronting cities and regions as they develop;
What we found...

• There are new data sources, including:
  – Spendmapp by Geografia
  – Neighbourlytics
  – Tourism Tracer

• potentially offer a stronger evidence base on outcomes
<table>
<thead>
<tr>
<th>Name</th>
<th>Cost or Package Type</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Media</strong></td>
<td></td>
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<tr>
<td>Twitter – Standard</td>
<td>Free</td>
<td><a href="https://twitter.com/">https://twitter.com/</a></td>
</tr>
<tr>
<td>Hootsuite</td>
<td>Subscription costs for government and larger organisations available on request</td>
<td><a href="https://hootsuite.com/">https://hootsuite.com/</a></td>
</tr>
<tr>
<td>Twitonomy</td>
<td>A free version is available</td>
<td><a href="http://www.twitonomy.com/">http://www.twitonomy.com/</a></td>
</tr>
<tr>
<td>Discover Text</td>
<td>USD $99 Professional, $2000 Enterprise Add on packages for specific Twitter data analysis is available/</td>
<td><a href="https://discovertext.com/solutions/">https://discovertext.com/solutions/</a></td>
</tr>
<tr>
<td>Sprout Social</td>
<td>Subscriptions start at $99 per user month</td>
<td><a href="https://sproutsocial.com/">https://sproutsocial.com/</a></td>
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<tr>
<td><strong>Tourism</strong></td>
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</tr>
<tr>
<td>Inside Airnbnb</td>
<td>Price available on request</td>
<td><a href="http://insideairbnb.com/">http://insideairbnb.com/</a></td>
</tr>
<tr>
<td>AirDNA</td>
<td>Free – limited locations available</td>
<td><a href="http://insideairbnb.com/">http://insideairbnb.com/</a></td>
</tr>
<tr>
<td><strong>Government</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighbourlytics</td>
<td>One off fixed price or reoccurring packages and custom dashboards available on request.</td>
<td><a href="https://www.neighbourlytics.com/">https://www.neighbourlytics.com/</a></td>
</tr>
<tr>
<td>Local Employment Sites – eg Adelaide Northern Jobs</td>
<td>Depending on council involvement, data may be readily available</td>
<td><a href="https://www.northernadelaidejobs.com.au/">https://www.northernadelaidejobs.com.au/</a></td>
</tr>
</tbody>
</table>
What we also found...

• Reports from the International Economic Development Council directly address new approaches to measuring impact but have a strong focus on government provided data sets;

• Importantly, US governments treat data collected by governments as belonging to the people,
  – while Australian governments work on the premise that data collected by governments belongs to the Crown
  – No simple solutions coming from US experience
Decision Framework

**Need**

**Purpose** – What is the priority need addressed by the project/activity/program?

**Objective** – What evidence is needed?

**Data** – What data types match this need?

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**Value**

**Access** – Are the data accessible?

**Scale** – Are the data at the right geographical scale?

**Unit** – Are the data at the right unit of analysis?

**Sources** – Who provides those data sources and at what cost?

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**Time**

**Activity span** – Does the data capture the right time span?

**Timeliness** – Is the data available in real or delayed time?

**Repeated** – does the data allow time series analysis with repeated collections?

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**Utility**

**Presentation** – Is the presentation of the data appropriate?

**Depth** – can the data be cross-analysed?

**Re-use** - Are the data useful for other projects/activities/programs?
Case 1: Tourism event

- A city council is considering hosting the start and finish of the Tour Down Under in their council region.
- The expression of interest specifies that the offer is by application and the council anticipates a bid of approximately $35k.
- This bid cost does not include other organisational expenses (see next slide) estimated to be around $600k.
- Attendance to the event is usually in excess of 100,000 for a stage.
- What data should be gathered to evidence the effectiveness of the $635k investment?
Case Study 1 - Discussion

- Pre, post and during event spending (Spendmap)
- Employment positions advertised (Seek etc)
- Increased fitness levels (MapMyRun and Strava)
- Sponsor investment in the region
- Direct and indirect measures
- Objectives were generally
  - Economic
  - Regional Profile
  - Relationship and funding
  - Arts, culture, heritage, community
<table>
<thead>
<tr>
<th>Objective Type</th>
<th>Direct</th>
<th>Indirect</th>
<th>New Measures</th>
<th>Current Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>• Local Spending</td>
<td>• Local Business Participation &amp; Diversification</td>
<td>• Spendmapp</td>
<td>• ABR</td>
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<tr>
<td></td>
<td>• Employees</td>
<td>• Number of new businesses</td>
<td>• Seek</td>
<td>• Local Business Survey</td>
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<td></td>
<td>• ABR</td>
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<tr>
<td>Regional Profile</td>
<td>• Visitation</td>
<td></td>
<td>• AirDNA, Inside Airbnb</td>
<td>• Local Tourism Centre</td>
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<tr>
<td></td>
<td>• Attendance</td>
<td>• Perceptions and sentiment</td>
<td>• Social Media Monitoring Tools</td>
<td>• SA Tourism Commission</td>
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<tr>
<td></td>
<td>• Media Exposure</td>
<td>• Perceptions and sentiment</td>
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<td>Relationships &amp; Funding</td>
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<td>• Attraction of investment – private &amp; government</td>
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Case 2: Retail Business Anchor

• Council is approached by a bulk retailer with a proposition to establish a new store in the main street.
• They seek a $50k grant or rate holiday to help them establish the venture.
• Assuming the council is inclined to agree, what data should be gathered on the effectiveness of the $50k investment?
<table>
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<tbody>
<tr>
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<td>• Local Spending</td>
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<td>• Spendmapp</td>
<td>• ABR</td>
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<tr>
<td></td>
<td>• Investment Value</td>
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<td>• Cost defrayments – in part, joint venture</td>
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<tr>
<td></td>
<td>• Employees</td>
<td>• Number of new businesses</td>
<td>• Seek</td>
<td>• Local Business Survey</td>
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<td>• Skills &amp; human capital</td>
<td>• Local employment sites (eg. Northern Adelaide Jobs)</td>
<td>• ABR</td>
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<td>• Changes in business</td>
<td>• Economic</td>
<td>• Registered Training Organisations</td>
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<td>• Cluster effects</td>
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<td>• Displacement</td>
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<td>Issues</td>
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<td>• Local Business</td>
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<td></td>
<td>Participation &amp;</td>
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<td>Diversification</td>
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<td>• Spendmapp</td>
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<td>• Neighbourlytics</td>
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<td>• ABR</td>
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<td></td>
<td>• Local Business Survey</td>
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<td>• Planning &amp; development applications</td>
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<td>• Analysis from previous examples</td>
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Findings

• Availability
  – Many of the questions asked by practitioners and their councils can be investigated using ‘big data’
    • And some councils have done so
  – Potential benefits
    • Virtually a real time analysis
    • Data at a spatial scale not available elsewhere
    • Commercial providers keen to meet the needs of clients
      – Relatively sophisticated software packages and unique data sources
        » Eg Mastercard spending data
    • Capacity to generate the knowledge key governmental decision makers want
Findings

But

- Lack of skills in handling/assessing such data
  - Practitioners not ‘digital natives’
- High cost of data
  - $50k pa for Spendmapp when budget is $20k
- The sorts of activities that can be measured by such data are not the only development activities
  - And many practitioners put their priorities elsewhere
- The data is indicative, does not establish causality
- Other established products in the market – eg systems based on Census data
- Limited appetite for a regional/state or national approach to purchasing, analysing and disseminating the data
- Big data is continually changing
  - Lock in to a soon to be redundant product/system
  - Potential for data to no longer be available
Conclusion

• To date, big data is not the solution for gaining better insights into economic development in Oz
  – May change in the near future
  – May provide a solution in jurisdictions where economic development is organised on larger geographic scales and is better funded
  – Offers a potential role for academic institutions
  – Needs to be driven by established and well developed data sources
  – Some role for peak organisations – eg Economic Development Australia – to provide a facilitation/co-ordination role
There are some impediments...

- **Cost:**
  - With limited evaluation budgets (the roundtables suggested $20,000 annually) some new data sources are unaffordable

- **Expertise/skills:**
  - Some of the emerging data sources require analytical skills – and available time;

- **Uncertainty:**
  - Applications in big data are changing and evolving rapidly
  - New data sets and commercial packages are increasing in availability
  - Some though also disappear or change availability or accessibility
  - The choices today may be restrictive compared to the near future