

**IMAP Implementation Committee
Briefing Paper
Urban Manufacturing research**

BACKGROUND

1. At the IMAP Implementation Committee meeting of 13 February 2015 Mr Cameron Brenton, Coordinator City Business, CoPP provided an update on the Urban Manufacturing project. Key points included:
 - 1.1. IMAP funding needed to be spread across the 3 stages of the project on a dollar for dollar basis with funding partners
 - 1.2. Carlton Connect funding was under review resulting in Stage 1 of the project to be re-scoped
 - 1.3. Stage 1 outputs included:
 - Definition of urban manufacturing
 - Location
 - Significance of sector to economy
 - Need/justification for next steps
 - survey
2. The IMAP Implementation Committee resolved to:
 - 2.1. Approve the scope and funding of the revised Stage 1 Urban manufacturing Project, comprising \$20,000 funding from Carlton Connect (out-of-round funding) and \$20,000 from IMAP in 2014/15.
 - 2.2. Note the intention to submit a full funding application to Carlton Connect for subsequent stages of the Urban Manufacturing project, and that any decision to proceed with subsequent stages will be contingent on the outcomes of Stage 1. The potential funding approach comprises:
 - 2.2.1. Release of further funds within the approved IMAP budget for the Urban Manufacturing Project, as required, for any subsequent stages (i.e. \$50K, being the balance of the approved \$90K);
 - 2.2.2. Potential contributions from State Government departments, and
 - 2.2.3. Matching of any further IMAP and State Government funding by Carlton Connect
 - 2.3. Approve the updated IMAP Three Year Implementation Plan and changes to the current year's budget to incorporate the Urban Manufacturing project funding over 3 stages.

PHASE 1 - PROJECT UPDATE

3. A stakeholder workshop was held on 28 May 2015 comprising local, state and federal government, industry leaders and associations, makers and education providers. While the workshop provided a platform to inform stakeholders of the project, valuable insights were gained. Participants communicated the need to broaden the project to include Moreland Council region and explore a technological method for conducting the survey.
4. The IMAP Implementation Committee approved the Agreement between IMAP and the University of Melbourne and authorised the CEOs to sign the agreement on behalf of the IMAP Implementation Committee.
5. As first hypothesized in the original proposal, the information required to examine a complete picture of all three approaches – land, sector, and economic; is currently not in existence for Victoria to provide key data for economic analysis of economic development in small manufacturing sectors. Each dataset provides significant data, however no dataset provides comprehensive and consistent data across each approach. (*refer 7.1 attached report*)
6. The Project Management Team and Steering Group continue to meet and assess each stage of Phase 1 and agreed to approach Moreland Council for involvement in the project and a proposed \$10,000 contribution. The Steering Group also resolved to support the development of an online geographical mapping survey of makers across the IMAP area and surrounds to map examine clusters, supply chains, customers and movement of makers over the life of the project. The mapping is through a crowd source platform conducted by CrowdSpot and Harvest Digital Engagement.
7. An update on the review of Carlton Connect funding was provided to the Steering Committee on 11 June 2015 by the University of Melbourne and Carlton Connect. It was conveyed to the Steering Committee that in light of any projected timeline of available funds under the review of Carlton Connect that the Project should move straight to an application for ARC Linkage Grant funding. As a result of the impending application, the Steering Committee instructed that Phase 1 & 2 be combined to complete the online survey and sufficient evidence of the research is available to report back to the IMAP Implementation Committee for endorsement and continuation of the project, prior to any application for ARC Linkage Grant funding.

ISSUES

- Unforeseen circumstances are the result of changing funding options from the Carlton Connect Initiative Fund (CCIF). One of the conditions of continued IMAP funding for Phase 2 was matching funding to be provided by an additional CCIF applications. However, the CCIF program is currently under review by its funders, and as a result of this, the funding scheme which would have provided matching funding for Phase 2, has been suspended.
- The project continuance is now provisional on IMAP reviewing the funding alternative and realigning Phase 2 & 3 with an application for ARC Linkage Grant funding which requires 25% matched funding. It is not envisaged any additional funds above the allocated \$90,000 would be required and financial partnerships with state government and Moreland Council of \$10,000 each would be secure. MPA have already committed to \$10,000 and have indicated a further contribution to the project in Phase 2 & 3.
- The online mapping survey component of Phase 2 has been incorporated into Phase 1 and as a result only a pilot number of clipboard surveys have taken place and included in the draft Phase 1 report.
- Originally Phase 1 report was due in late October 2015, however, due to the updated schedule a Phase 1 and to meet the ARC Linkage Grant funding application deadline of September 2015, a draft report is required for consideration by IMAP at the 28 August 2015 meeting.

PROJECT OUTCOMES

8. A comprehensive draft report (Attachment 13a) 'The Dilemma of Urban Employment Land – An Inquiry into the viability of small urban manufacturing in Inner Melbourne' has been submitted outlining findings from the analysis of existing data, inception workshop, and framing of the qualitative and quantitative studies that comprise the research. The report summarises the original project proposal and several strategic decisions modifying the scope and path of the research.

RECOMMENDATION

9. That the IMAP Implementation Committee resolves to;
 - 9.1. Accept the draft Phase 1 report and agrees to a revised integration of Phase 2 & 3.
 - 9.2. Endorse the continuation of the Urban Manufacturing Project and instructs the Steering Committee to apply for ARC Linkage Grant funding in September 2015 in line with the original IMAP resolution of matched funding.
 - 9.3. Accept the Steering Committee's recommendation to request Moreland Council as a partner in the project.



urban manufacturing project

THE DILEMMA OF URBAN EMPLOYMENT LAND

*An Inquiry into the Viability of Small
Urban Manufacturing in Inner
Melbourne*

Phase 1 Report

11 August 2015

A partnership project

Inner Melbourne Action Plan
Making Melbourne More Liveable



RESPONSIBILITY AND ACKNOWLEDGEMENTS

This report has been prepared by a team of professionals from the five Inner Melbourne Action Plan (IMAP) councils and the University of Melbourne. The lead authors are Jennifer Day from the University of Melbourne and Virginia Miller from the City of Port Phillip. University of Melbourne students Jane Archer, Lu Fan, Targol Khorram, and Justin Malkiewicz also made significant contributions, as did Bryn Davies from SGS Economics and Planning.

A special thanks goes out to Yuriy Onyshchuk and Christabel McCarthy at the City of Melbourne for opening their data sources to the project team.

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CONTENTS

| | |
|---|-----------|
| EXECUTIVE SUMMARY | 4 |
| 1. INTRODUCTION..... | 8 |
| 2. BACKGROUND AND MOTIVATION..... | 10 |
| 3. EMPIRICAL APPROACHES: LAND, SECTOR, AND ECONOMIC | 12 |
| 3.1 <i>The Land Approach</i> | <i>12</i> |
| 3.2 <i>The Sector Approach.....</i> | <i>13</i> |
| 3.3 <i>The Economic Approach.....</i> | <i>14</i> |
| 4. WHAT MAKES A MAKER? DEFINITION OF THE SECTOR..... | 15 |
| 4.1 <i>The issue of definition</i> | <i>15</i> |
| 4.2 <i>Making versus manufacturing</i> | <i>16</i> |
| 4.3 <i>Using industry classifications to define the sector.....</i> | <i>16</i> |
| 4.4 <i>Existing definitions used in practice.....</i> | <i>18</i> |
| 4.5 <i>Existing definitions used in research and policy analysis.....</i> | <i>19</i> |
| 4.6 <i>Delaying definition.....</i> | <i>21</i> |
| 5. DEVELOPMENT AND MODIFICATION OF THE IMPLEMENTATION APPROACH | 23 |
| 5.1 <i>Phase 1 developments</i> | <i>23</i> |
| 5.2 <i>Next steps – Extending Phase 1</i> | <i>26</i> |
| 5.3 <i>ARC Linkage Grant – Partner Expectations.....</i> | <i>27</i> |
| 6. PHASE 1 DETAILED APPROACH, PILOT PROJECTS | 30 |
| 6.1 <i>Land: Creative clusters in Yarra.....</i> | <i>30</i> |
| 6.2 <i>Sector: Qualitative storytelling approaches.....</i> | <i>36</i> |
| 6.3 <i>Economic: Quantitative inquiry.....</i> | <i>40</i> |
| 7. PHASE 1 FINDINGS, EXISTING DATA | 45 |
| 7.1 <i>Data sources.....</i> | <i>45</i> |
| 7.2 <i>Working definitions.....</i> | <i>49</i> |
| 7.3 <i>Census Journey to Work data.....</i> | <i>50</i> |
| 7.4 <i>ABR Data</i> | <i>59</i> |
| 7.5 <i>CLUE</i> | <i>62</i> |
| 7.6 <i>Next Steps</i> | <i>65</i> |
| 8. PHASE 1, FINDINGS FROM THE WORKSHOP..... | 66 |
| 8.1 <i>Workshop Format</i> | <i>66</i> |
| 8.2 <i>Attendance.....</i> | <i>67</i> |
| 8.3 <i>Additional findings from workshop-related informal interviews.....</i> | <i>67</i> |
| 8.4 <i>Workshop findings</i> | <i>68</i> |
| 8.5 <i>Strategic decisions and action items.....</i> | <i>71</i> |
| 9. REFERENCES..... | 72 |
| APPENDIX A. SURVEY DRAFT AND HARVEST/CROWDSPOT SURVEY LOGIC..... | 77 |
| SURVEY LOGIC – MAPPING MELBOURNE'S MAKERS..... | 83 |

Introduction

This report describes the progress made in Phase 1 of the IMAP/University of Melbourne study of small urban manufacturers to the economies of the IMAP area. The core purpose of this report is to detail the findings to-date from Phase 1. A second but important purpose is to provide sufficient information to enable the Steering Committee and the funders to make a decision as to whether the project should move ahead into further funding phases, and whether the team should advance an ARC Linkage Grant in November with IMAP commitment and funding contributions.

Further to these objectives, this Executive Summary and report describe the progress of, and findings from, the research to-date, including:

1. Findings from the analysis of existing data
2. Findings from the Inception Workshop
3. Framing of the qualitative and quantitative studies that comprise the research
4. Survey development and sampling framework.

This Executive Summary and report also describe several strategic decisions that we have made that have somewhat modified the scope and path of the research, including our proposed future actions arising from these developments. These changes include:

1. Expanding the project scope to include Moreland
2. Creating an electronic survey and project site that also provides a visible symbol of makers' participation in the project
3. Preparing an ARC Linkage grant application, due November 2015
4. Amending some of the project timelines, including the submission of the Phase 1 report on 12 August rather than in late October, so that IMAP can consider joining the Linkage Grant application. These include
 - a. Moving the survey forward into Phase 1
 - b. The Phase 1 report (this report) is submitted early, in Month 6 instead of Month 7
 - c. Phase 1 is extended to December 2015; this extension replaces Phase 2
5. Phase 2 funds will not be expended in 2015, but rather will be used as commitment to the ARC Linkage grant, should IMAP make the commitment.

Summary of Study Objectives

The core goal of this study is to deliver policy-relevant findings that can guide the IMAP councils in making strategic decisions about the use of employment land in the IMAP area. Underlying the core inquiry of this project is our over-arching hypothesis that small, high-value added, highly-innovative urban manufacturers in Melbourne can benefit significantly from the agglomeration economies associated with inner-urban locations, and that there is great value to the urban economy in preserving a place for manufacturing innovators in the central city and immediate inner suburban areas.

Our interaction with local government strongly suggests that local government is well aware of the potential downsides of losing industrial land. The challenge is an absence of a robust evidence base to enable them to argue for retention of industrial areas in strategic locations. It is in generating this evidence base that this project can add the most value. We take a multi-faceted approach designed to address several dimensions of the urban employment problem:

1. **The land approach** (understand how employment land in inner Melbourne is currently being used)
2. **The sector approach** (understand the value of central locations for businesses in the small manufacturing sector)
3. **The economic approach** (Understand the economic impacts and contributions of small urban manufacturers (the economic approach))

The over-arching goal of generating understanding in these three areas is to extract the implications for policy, planning controls and design in inner city industrial zones. Key outputs of the study include:

- Systematic capture of value chain data for delivery planning , covering in-bound logistics, operations, outbound logistics, marketing and sales, after sales service, strategic management, human resources, technology and procurement¹.
- Exploration of barriers to entry or growth for urban manufacturers, for example, accessing finance or government assistance
- Further mapping of select firms' spatial linkages with suppliers, collaborators, workers, distributors, customers and retailers with a view to understanding economies of scale and scope attaching to agglomerations
- Estimation of agglomeration economies effects for the IMAP region and the State of Victoria, for urban manufacturers, differentiated by location (urban versus suburban)
- Estimation of lost innovation and value added due to displacement effects.

Findings: Analysis of Existing Data

As we hypothesized in the original proposal, the several datasets currently in existence for Victoria that each provide key data for economic analysis of economic development in small manufacturing sectors, but none of them provide a complete picture for all three approaches – land, sector, and economic – analysed for small manufacturing firms. Some existing datasets provide spatial information – such as land use zoning and VicCLUE data – but do not combine it with sector data about firms occupying the spaces that is specific enough for economic analysis. These datasets can tell us something about where to find industrial-zoned land in the IMAP region, but do not provide us with information about how small makers are distributed in this space (the land and sector approaches), or how being located within this space affects their productivity and innovation (the economic approach). Finally, none of the existing data tell us anything about why firms leave the IMAP region – either via relocation or firm death – and where they go if they do relocate (the economic approach). Section 7 of this report explores what kinds of analysis and conclusions are possible using these existing datasets.

Findings: The Inception Workshop

The Inception Workshop confirmed that our proposed research path is considered by government and makers to be viable and important. Additionally, it created new insights to inform the study, and helped us to establish additional networks and partnerships to assemble data for the project analysis. The major conclusions were:

Makers endorse the work because it empowers them, and because we have identified issues that reflect their experience. One clear message from the workshop is that our approach adds value for many stakeholders, at least in part because it draws attention to the issues the face in dealing with their local governments.

¹ After the framework developed by Porter M. (1985) "Competitive Advantage: Creating and Sustaining Superior Performance"

Government partners are interested, in part because of the enthusiasm of makers. The workshop generated several potential new partners and datasets, including the Australian Business Register and the Minister for Planning's office.

Makers want a technological symbol of their participation and our commitment. One major lesson with which we left the workshop, is that the project team's initial thinking about data collection was in need of updating. Our plans initially included standard, clipboard-based survey data collection methods. The makers responded strongly and negatively to this approach on a number of levels. Also, they argued, they want a tangible symbol of their participation in the project.

Moreland Council Should Be Included as a Study Partner. Our makers from Moreland strongly recommended that we engage Moreland Council to join the project team. After consultation with the Steering Committee, we engaged the head of economic development in Moreland Council and secured both partnership and a proposed \$10,000 partner contribution for Phase 2 from Moreland.

Pilot Projects and Survey

Section 6 of this report describes three pilot projects that comprise Phase 1, and which are currently underway. Each of these projects is headed jointly by Jennifer Day and a Master of Urban Planning student from the University of Melbourne, as part of her/his thesis project. They address the three approaches (land, sector, and economic). There are two qualitative and one quantitative inquiries.

In order to respond to makers' request for a visible symbol of their participation in the project, the Project Management Team has decided to implement a combined survey and makers map will as part of Phase 1. This is possible using existing project funds. The Steering Committee has agreed to move the survey and analysis forward to Phase 1. The full project survey (in draft form) is provided in Appendix A.

Moving toward an ARC Linkage Grant Application

The Project Management Team has decided to seek Steering Committee and IMAP approval to develop an ARC Linkage Grant application in the upcoming months, to continue the project work. This issue will be raised with the IMAP leadership in the August IMAP meeting. This change arises from a number of developments in the project, including changing funding options from the Carlton Connect Initiative Fund (CCIF) in combination with lessons learned from the Inception Workshop held on 28 May.

One of the conditions of continued IMAP funding for Phase 2 was matching funding to be provided by an additional CCIF application. However, the CCIF program is currently under review by its funders, and as a result of this, the funding scheme which would have provided matching funding for Phase 2, has been suspended.

To continue the work, the PMT proposes that we submit an ARC Linkage grant application in November with a total project budget of around \$300-400,000. ARC Linkage grants are grant schemes wherein industry or government partners join with a University-led team to produce research for their mutual benefit. In this scheme, industry partners must make financial and in-kind contributions to the project. Generally, successful applications have cash contributions from partners totalling a minimum of 25 percent of the project budget. This implies that \$75-100,000 needs to come from the industry partners. If the IMAP allows us to apply its \$20,000 allocated for Phase 2 toward this financial contribution, we intend to generate the rest from other industry partners.

These timeline changes introduce another variation in the original project timeline. We note that

our Phase 1 reporting schedule is modified over the original schedule, give the need for IMAP to consider funding Phase 2 in advance of the November deadline for ARC Linkage grants. Originally, the Phase 1 report was set to be due in late October 2015. However, due to the updated schedule, the Phase 1 report must be made available to IMAP on 12 August. This is why the findings for the three pilot projects described in Section 6 are not yet ready.

1. INTRODUCTION

This report describes the progress made in Phase 1 of the IMAP/University of Melbourne study of small urban manufacturers to the economies of the IMAP area. We describe the framing of the project, which has advanced significantly since the previous report. We also describe the progress of, and findings from, the research to-date, including:

5. Findings from the analysis of existing data
6. Findings from the Inception Workshop
7. Findings from the qualitative studies
8. Survey development and sampling framework.

There are also several strategic decisions that we have made that have somewhat modified the scope and path of the research. This report also describes these developments and the proposed future actions arising from these developments. These changes include:

1. Expanding the project scope to include Moreland
2. Moving the survey forward into Phase 1
3. Creating an electronic survey and project site that also provides a visible symbol of makers' participation in the project
4. Moving toward an ARC Linkage Grant application, due November 2015
5. Amending some of the project timelines, including the submission of the Phase 1 report on 12 August rather than in late October, so that IMAP can consider joining the Linkage Grant application.

The vast majority of this report provides new information, content, and findings. For the sake of clarity, there is some content in this report that is summarised from the original project proposal. We do this for readers who have not read or would like to be re-briefed on the proposal language. For readability and to facilitate quick digestion for all readers, we provide signposts along the way to ensure the familiar reader can skim that content.

The IMAP area includes the Cities of Melbourne, Port Phillip, Stonnington, Yarra and Maribyrnong that have prepared the Inner Melbourne Action Plan (IMAP). The core goal of this study is to deliver policy-relevant findings that can guide the IMAP councils in making strategic decisions about their policy strategies related to urban industrial-zoned land in the IMAP area. Underlying the core inquiry of this project is our over-arching hypothesis that small, high-value added, highly-innovative urban manufacturers in Melbourne can benefit significantly from the agglomeration economies associated with inner-urban locations, and that there is great value to the urban economy in preserving a place for manufacturing innovators in the central city and immediate inner suburban areas. We hypothesize that the potential loss of urban manufacturing from central locations would come at greater costs to the Melbourne community than simply displacing some jobs to outlying suburbs. We suspect that this loss would include loss of innovation from the overall economy, loss of agglomeration economies, and other economic losses.

Right now, as part of the review and implementation of *Plan Melbourne*, urban policy is being formed and implemented in the IMR that will directly impact the capacity of urban manufacturers to remain in central locations. The purpose of this study is to help the local governments participating in IMAP to develop informed strategies as they make decisions about whether there is value in preserving industrial-zoned land in Melbourne's inner suburbs, and also about the possible impacts of using the various policy levers available to government. As industrial uses compete with housing in a city where housing is among the most expensive in the world, now is the time to generate the new knowledge necessary for local governments to make informed decisions about how to manage the industrial land in their jurisdictions.

The above-described inquiries are aligned with IMAP's *Investment Logic Map*, which identifies competition for space and a loss of economic diversity as major challenges for the IMAP area. In our original proposal, we proposed a research program that develops strategic responses that are specifically-targeted to the IMAP area, to address these challenges for the IMAP area, with particular respect to the small manufacturing sectors. We are seeking to deliver policy-relevant findings in the short term (one year), medium term (18 months) and long-term (five years) in a research program that addresses the challenge of creating and maintaining jobs by fostering small urban manufacturers and their supporting industries, and by examining the economic impacts of doing so.

Our interaction with local government strongly suggests that local government is well aware of the potential downsides of losing industrial land. The challenge is an absence of a robust evidence base to enable them to argue for retention of industrial areas in strategic locations. It is in generating this evidence base that this project can add the most value. Phase 1 of this project was designed to provide the base analysis to substantiate the need we assert for this evidence base.

This report describes the progress made thus far in Phase 1. The main conclusion from Phase 1 is that the findings are as we expected when we wrote the project proposal: existing data are not sufficient to explore our core inquiries farmed around the land, sector, and economic approaches, described in Section 3 below. Compilation of new data is required if we are to understand the queries we set out to address.

Figure 1 shows the IMAP area situated in the Greater Melbourne Metropolitan Region.

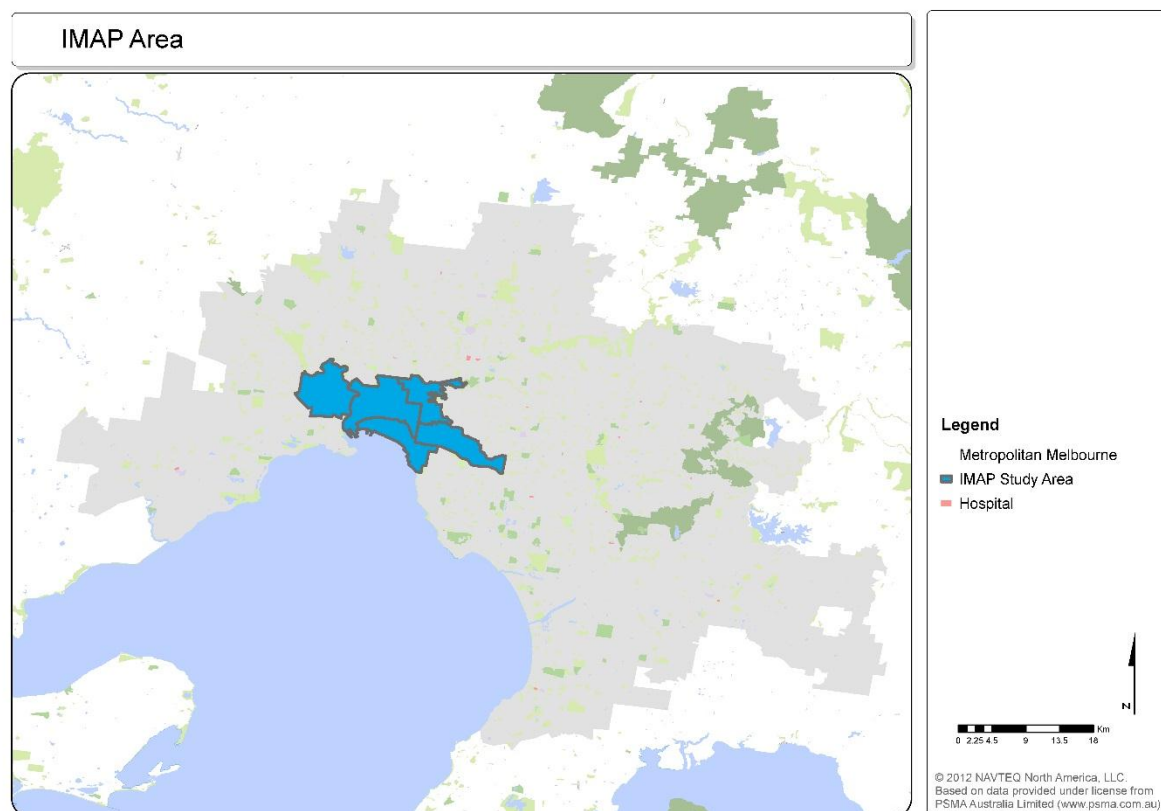


Figure 1.1. IMAP Area Situated in the Greater Melbourne Metropolitan Region

2. BACKGROUND AND MOTIVATION

This section provides a very brief conceptual backdrop for examining the above-described queries. A fully-cited discussion of the content summarized here appears in our original project proposal.

Empirical evidence in the United States strongly suggests that there has been a revival in small scale, local, and distinctly urban manufacturing in metropolises characterised by their knowledge-intensive activities (The Pratt Center, 2014). The latter include a growing interest in one or more of: fair trade, sustainability, local product orientation, health of the local economy, and/or product customisation. Driven by these underlying economic forces, the manufacturing that has remerged in US cities is high value-add, either because it is ‘high-tech’, or because it is ‘high-touch’ – capitalising on a host of competitive advantages including sophisticated design and astute market insight.

In Melbourne, the empirical evidence of such activities is limited at best: the actual structural changes in the manufacturing sectors are not well understood. There is some anecdotal evidence supporting the emergence of these trends here, but we strongly suspect that Melbourne’s public policy climate tracks that of the United States in its tendency. In short, while manufacturing may have changed considerably in Melbourne, the sector is still conceptualised by some in politics, public policy, planning and the general public as a relic of the city’s industrial period. While the conventional wisdom is that manufacturing is no longer suited to the inner city, some in local government in Australia do consider manufacturing a vibrant and important part of the local economy. This work challenges those that see manufacturing as a relic and provides the evidence for action and decision-making to support the making sectors.

A first step in our proposal is to refine currently-available data to take the investigation of small urban manufacturers beyond the anecdotal. Current publically and council-available data such as that from the Census and the Australian Business Register, are currently not suitable for an analysis of spatial distribution or sectoral character of small manufacturing firms in the IMAP region. Because of this, economic analysis of Melbourne’s small manufacturers – their contributions to the local, state, and national economies in terms of short-term jobs and longer-term innovation – are currently not possible. Nor is spatial analysis of where firms locate and how they use central locations toward the generation of efficiencies and innovation, possible.

What we do know is that industrial land across inner Melbourne is under considerable pressure for rezoning to so-called higher and better uses. Furthermore, we anticipate the possibility of a vicious cycle, with a lack of long term vision and zoning uncertainty leading to disinvestment that in turn results in underutilisation and strengthened pressure for rezoning. We contend that there is ample opportunity to realign the land concerns of councils and the industrial activities in Melbourne. Manufacturing and its supporting activities no longer exclusively require large workshops and warehouses housing a single firm. New manufacturing sectors compete with commercial and other uses in small home-based businesses and on commercial and mixed-use zoned lands. The needs of high-service, “high touch” producers in the manufacturing area are not well understood in Melbourne.

Undoubtedly, there is strong latent demand for housing in central-city areas. Residual land values for industrial properties are likely to be significantly higher under most housing redevelopment scenarios compared to continued use as ‘employment land’. However, property market valuations do not factor in the wider economic, social and environmental benefits attaching to retention of a diverse pool of employment generating land uses in the inner city. Left to its own devices, the market may well be generating inefficient outcomes in these areas and for the metropolis as a whole. But the evidence to judge this in either direction is currently not available.

Given the lack of substantive research to the contrary, the popular conceptualisation of industrial lands located in the inner Melbourne as ‘no longer fulfilling their function’² may be ill-informed and outdated, resulting in the unnecessary suppression of economic activity and job creation. As the eminent economic geographer, Saskia Sassen, observes, new manufacturing is not well-understood by “....economic development experts and planners, or misunderstood as an anachronism because its connection to the advanced knowledge sectors is not noticed”³. In short, an important source of worthwhile work lying between that undertaken by ‘symbolic analysts’ and that transacted by ‘in person service workers’⁴ may be foregone, adding to the hollowing out of the labour force.

Moreover, this unwitting displacement of existing and latent manufacturing activity may be eroding cities’ environmental sustainability. For example, locally produced goods can be more environmentally sustainable due to reduced material-intensity, orientation towards local markets reducing total vehicle kilometres, sensitivity to subtle changes in client demand leading, and reduced waste and excess production. More generally, in the absence of propitious spaces for this locally focussed and customised production, environmental entrepreneurship and leadership may be dampened.

² Plan Melbourne (2014) Initiative 1.6.1, page 49

³ Sassen, S. (2014) Jane Jacobs revisited: the link between older material economies and today’s knowledge economy. http://www.thecitiescafe.com/?page_id=47. This source is no longer available online, but was accessed on 10 March 2015.

⁴ Here, we use the typology of occupations developed by Robert Reich in the “The Work of Nations” (1991)

3. EMPIRICAL APPROACHES: LAND, SECTOR, AND ECONOMIC

This section briefly describes the analytical approach that we expanded upon in the original project proposal. Toward understanding the complex urban systems underlying small urban manufacturing, this research examines the issue from three angles: a land perspective, a sector perspective, and an economic perspective. Scholars and practitioners interested in urban economies are aware that the land, sector, and economic approaches are actually heavily interdependent and endogenous. However, for analytical purposes, it is useful to distinguish the three areas. This is because the theoretical concerns, research approaches, and practical policy realities for land use, sector activity, and economic outcomes are often very different, and each must be fully considered. The overarching goal of generating understanding in these three areas is to extract the implications for planning controls and design in inner city industrial zones. The content-driven objectives of this study are to:

1. Understand how industrial zoned land in inner Melbourne is currently being used (the land approach)
2. Understand the value of central locations for businesses in the small manufacturing sector (the sector approach)
3. Understand the economic impacts and contributions of small urban manufacturers (the economic approach).

Phase 1 funding supports development of a base of evidence that cuts across all three of these approaches in the short term, and treats them all more thoroughly in the longer term. Future ARC or other grant funding will support deeper inquiry across all objectives, but more heavily focused on Objective 3. The remainder of this section describes these approaches and explains our rationale for including each. Section 3 describes the proposed phased implementation of the research program.

3.1 THE LAND APPROACH

The primary activity in the land approach would be a cataloguing and analysis of the economic activities occurring in industrial-zoned areas. The land approach is crucial for two reasons. First, urban policy is currently being formed that will heavily influence the use of a significant amount of industrial-zoned land – and other land that houses industrial uses – in the IMR. Second, local governments participating in the IMAP are seeking updated information to inform their decisions about whether there is value in preserving industrial-zoned land in the IMR, and in using the available policy levers to facilitate urban making on other types of lands such as commercial and mixed use. There is currently a possibility for divergence from the dominant paradigm of housing being the highest and best use of the industrial land. Now is the time to generate the new knowledge necessary for local governments to make informed decisions about how to use the industrial land at their disposal. Second, the impacts of urban manufacturing extends far beyond the trade-off between industrial and residential zoning. Urban manufacturers may not be primarily located on only industrial land – and instead may be using commercial and mixed-use office spaces, particularly for the non-manufacturing parts of their businesses.

The land approach creates the possibility of a renewed understanding of what constitutes manufacturing in today's service-oriented economy. Industrial zoning is based on notions of manufacturing as land-intensive, machinery-intensive processes that are not appropriate for contemporary central cities because of their polluting smokestacks, noise concerns, and warehousing requirements. As evidence from New York suggests, new urban manufacturing no longer necessarily comes with these concerns. Just-in-time shipping reduces the need for large warehouses that store weeks or months' worth of supplies. Many small urban manufacturers are actually hybrid entities of sorts, concurrently providing a product and a service. Some of these concurrent products and services are very high-end, such as \$12,000 custom bicycles that come with

a two-day experience of visiting the factory to be fitted and meet the craftsmen who will produce the bicycle. Our questions are in whether these uses can benefit from central locations in terms of the capacity of inner cities to develop agglomeration economies among small manufacturers. It is time to rethink urban manufacturing and its role in the central city, and the following questions query this hypothesis:

1. What kinds of economic activities are being conducted on industrial-zoned urban land in inner Melbourne?
2. Are manufacturing activities occurring on other types of lands, such as mixed-use and commercial zoned lands? Is there a particular type of manufacturing that is suitable for these types of lands?
3. Is there evidence of a high-innovation, high-value-added manufacturing sector developing in the inner region?
4. What other uses are occurring on industrial-zone urban land? Is the land being used largely by entities that comply with the industrial zoning requirements?
5. Are new types of manufacturers, with economic scopes different to those of traditional manufacturing, emerging in the IMR? Do we have reason to rethink how we define urban manufacturing and support its presence in inner cities?

3.2 THE SECTOR APPROACH

The sector approach examines the interactions of inner-city land uses with the requirements of firms to survive, innovate, grow, and prosper. Concerned with the needs that firms have in order to continue carrying out their core business, this line of inquiry examines the barriers and impediments that occupancy of high-value, highly-accessible urban land provides – if any. The activities and questions in this approach are informed by economic theory on *agglomeration economies* and innovation.

Agglomeration economies are the productivity benefits that firms receive from being located in close proximity to concentrations of firms and people. They are often differentiated into two sub-categories, *urbanization economies* and *localization economies*. Urbanization economies are the productivity effects of being in a large labour market featuring a large concentration of readily accessible firms across a variety of sectors, while localization economies are the productivity benefits associated with being near firms that are involved in similar or complementary industries. Both are what economists call *positive externalities*.

The reliance by small firms on agglomeration economies is well-documented. Small firms tend to be at the forefront of innovation, and thrive in the presence of other innovators. As firms grow, their processes become standardized and established, and they tend to become less innovative. They also become less reliant on the *positive externalities* associated with highly urbanized, fertile central-city environments. A good example of this effect is Microsoft, which moved away from Silicon Valley when its Windows operating system became established as the industry leader.

In Melbourne, it is possible that displacement of urban manufacturers from central cities could have a stifling effect on innovation, creation, growth, and prosperity of individual firms. It is also possible that, rather than merely relocating, firms that are forced to leave the inner suburbs simply close, removing their value added and their innovative capacity from the pool of Australian industries. Crucial to understanding whether preserving industrial land uses is necessary, and whether allowing development of making on other types of land zones, is an understanding of how these small manufacturers interact with each other, learn from each other, and grow from that experience. Crucial also is an understanding of the barriers and impediments that stifle that innovation and growth. Toward this end, this line of inquiry examines the needs of small manufacturers in the IMR according to the following questions:

1. Is the central location required for these firms to survive, grow, and prosper?
2. Are we seeing evidence of agglomeration economies forming among small manufacturers in the IMR?
3. What factors do firms consider when deciding to locate in an inner city?
4. What types of local firm interactions are important for firm growth? What kinds of linkages do they exploit? Ignore?
5. What are the growth goals of inner-city manufacturing firms?
6. What are the major impediments to growth, e.g., space, regulatory environment, rents?
7. Are strong links to universities compelling small manufacturers to locate in central cities? What is lost when they move away from the university environment?
8. Why do boutique manufacturing firms leave the inner city? Is it because they have graduated to a more mature stage of development, or do they leave while still in stages where proximity to other firms is crucial? Where do they go? Do they survive?

3.3 THE ECONOMIC APPROACH

The economic approach examines the impacts that small urban manufacturers exert on the urban economy, including the effect on wages, jobs, and innovation in the region. We hypothesize that impediments experienced by small manufacturing firms can have a stifling effect on the entire economy. Conversely, that these small firms can exert positive influences on their own and other related and supporting sectors. If small, high-value manufacturing creates positive effects for the urban economy, and if the contributions of this sector can be made more productive through public policy initiatives or investments, then policy makers would surely want to know this. The questions below are indicative of the queries that we would make through the economic approach:

1. What would be the overall economic cost (local, state, and national) of continued loss of urban industrial land in terms of jobs, value-added, and innovation, within the small urban manufacturing sectors?
2. Are there demographically-differentiated economic costs associated with loss or movement of small manufacturing firms, e.g., loss of modest-wage jobs or jobs for the young and recent university graduates?
3. Do small manufacturers support other sectors, e.g., legal and accounting services? What fertile effects would occur outside of the manufacturing sector?
4. What components of the industrial value chain are suffering the most from land restrictions? (informed by input-output analysis)
5. How do Australian and Victorian macro-economic trends and restrictions affect local manufacturing outputs?
6. Is council assistance in the form of start-up grants or business incubation, associated with firm longevity and value-added over the medium term?
7. Are universities exerting significant influence on creating fertile environments for firm growth in the small manufacturing sectors?
8. Is firm birth, growth, and innovation limited by the diminishing quantity of industrial-zoned land in the IMR? (this question is related to both land and economic approaches, and will build on the land approach)

4. WHAT MAKES A MAKER? DEFINITION OF THE SECTOR

This section has two purposes. First, we describe why it is necessary to delay a precise definition of “high-value, highly-innovative urban maker.” Second, we review the literature that will ultimately inform how we define our makers and the scope of our study. Third, we make some concluding remarks about how we will move forward.

4.1. THE ISSUE OF DEFINITION

Many of our government partners, along with a significant number of Workshop 1 participants, have stressed a need for a definition of what we mean by “maker.” Definition is a complex issue which we address in this section.

Certainly, for the purposes of statistical analysis, it was necessary to define key terms like “small” and “manufacturing.” Creating a precise definition is sometimes necessary; for instance, when using the CLUE data, to establish cut-offs between small and very small businesses, or to establish which ANZSIC codes to explore.

However, the exploration of the definition is built into this project. We have known from project conception that the state of knowledge about what Melbourne’s makers do and who they are, is limited. For this reason, one of our first tasks has been to explore the field of makers using two types of in-depth qualitative analysis, which is also described later in this report.

We must, then, be careful not to settle on definitions too early. This would engender unnecessary false precision. While we generally acknowledged that a definition is needed to allow for analysis of the sector and subsequent action, the definition of the ‘urban manufacturing’ or ‘urban makers’ sector depends on what question is being asked, or the policy challenge that is attempting to be addressed, in addition to being reliant on the actual profile of makers in the IMAP and Melbourne areas.

There are many ways we could define the sector, but they depend on what purpose the definition is serving. With this study at an exploratory stage it would be unwise to define the sector too tightly when it is not yet known what exactly we’re looking at. For similar reasons, we have also decided to hold off on deciding whether to include the level of innovation and value-added of individual makers in our project scope.

Our definition, therefore, is intentionally broad at the moment, will be tightened as we extract findings from the qualitative analysis that is currently underway, and will be finalized before the final survey is put into action. Further tightening will depend on purpose. We do know that the final definition that emerges will need to be flexible and considered in the Melbourne/Australian context. Our preliminary work suggests that the definition will need to encompass a diverse range of production activities. The following examples of actual firms provide a preliminary glimpse of what a definition must consider:

- 1) A fashion designer who produces clothing prototypes onsite but manufactures at scale elsewhere
- 2) A production company that produces commercials/tv shows/movies
- 3) A software company that makes video games on-site but only sells them electronically
- 4) A bicycle company that produces bicycles on-site but achieves a large amount of its value-added from the service component of its business, i.e., the experience of having a \$12,000 bicycle fitted to the individual.
- 5) A sales showroom for electric cars designed and manufactured elsewhere.

- 6) A tofu maker that makes tofu locally according to standard processes that have remained virtually unchanged for more than 30 years, but has innovated in the sales and marketing of tofu.

4.2. MAKING VERSUS MANUFACTURING

Thus far, we have not taken care to distinguish “makers” from “manufacturers.” As above, this is intentional at this point in the project. Part of the reason for this lack of distinction is as above: that we are uncertain about the composition of the maker/manufacturer community in Melbourne, and do not wish too-preliminarily to disregard firms from the analysis that could be instructive in addressing our research and policy questions.

The USA based *Urban Manufactures Alliance* differentiates makers from manufactures based on scale, with makers becoming manufactures when their products are made at scale (Urban Manufacturers Alliance, 2015). Both makers and manufacturers typically have the same land use requirements, using the same type of zone. However, “maker” businesses typically don’t create a lot of jobs or provide jobs for populations that are low income, new immigrants, or have limited English skills (Friedman & Byron, 2012). That said, makers are particularly useful in a zoning and land use discussion as they are typically more visible than traditional manufacturing and provide good examples of innovative businesses.

4.3. USING INDUSTRY CLASSIFICATIONS TO DEFINE THE SECTOR

Despite the intentional broad nature of the initial definition, is instructive to understand how the other thinkers have conceptualized small makers for their research and policy analysis.

One way to consider defining manufacturers is via their ANZSIC codes. In considering the activities that predominately occupy industrial land, at a broader level the industrial sector is commonly defined through the use of Australian and New Zealand Standard Industrial Classification codes (ANZSICs). These classifications are required by the Australian Business Register for any firm turning over more than \$75,000 per year and meeting certain commerce requirements. In practice and for research, they provide one indicator of the primary function of a business.

Box 1. An Overseas Classification System

New York City defines “Industrial” uses as manufacturing, transportation and warehousing, construction, wholesale retail, and film⁵. A business is defined as belonging to one of those sectors according to what their self-identified NAICS (North American Industrial Classification System) is. NAICS are equivalent to Australia’s ANZSIC.

There are a number of benefits and challenges associated with using ANZSIC codes to define makers. In theory they allow for consistent identification over geography and time. Since each firm must report under an ANZSIC code, we have information for all firms.

One major advantage of ANZSIC codes is that they are very clear about distinguishing firms that produce something from firms that primarily market, warehouse, or engage in service activities. However, the accuracy and relevance of ANZSIC codes in representing industries, evolves as those industries evolve. This is particularly the case for smaller and micro firms that undertake a range of activities across industrial classification codes (for example designing, manufacturing, marketing, and sales all on the one premise). Generally, a firm is classified under only one code, and firms tend to not shift their ANZSIC code even if the focus of the firm changes.

⁵ While the New York City government includes film NAICS in their definition of industrial, this is often excluded from definitions of urban manufacturing.

Additionally, not all businesses that categorise themselves as manufacturing actually manufacture at scale themselves. This is common in the fashion and apparel industry, and other industries where prototyping then contract manufacturing is normal practice. Furthermore, there are some industry classifications that produce products but are listed in the ANZSIC codes outside of manufacturing; for instance, in Printing and Publishing. Whether to include these types of firms in a definition again depends on the purpose of the definition.

One way in which to cast a wide net to define the sector broadly but retain some level of differentiation between the types of manufactures and how 'core' making is to their business, is to compliment Industry classifications with Occupation classifications (ANZSCO). Such a process, developed by the ARC Centre of Excellence for Creative Industries & Innovation (Higgs, Cunningham, & Pagan, 2007) for assessment of the creative industries, would allow for both the primary function of the business (ANZSIC) to be considered in conjunction with the primary function of employees (ANZSCO). This would account for production related employees working in a non-manufacturing or industrial business, and vice versa.

Table 4.1 **Error! Reference source not found.** illustrates how the combination of industry and occupation data could allow for the development of a matrix for determining employment within the urban manufacturing sector. It would differentiate between:

- Urban Manufacturing Occupations within the core Urban Manufacturing Industries ('Specialist');
- Those in the Urban Manufacturing Occupations in employment in other industries ('Embedded');
- and
- The non-urban manufactures management and support occupations that are employed within the specific Urban Manufacturing Industries ('Support').

Table 4.1. Trident Method for Determining Employment within the Urban Manufacturing Workforce

| | Urban Manufacturing Industries | Employed in Other Industries | |
|---------------------------------|--|---|--|
| Urban Manufacturing Occupations | Specialists urban manufactures <i>"Specialist"</i> | Embedded urban manufacturers <i>"Embedded"</i> | Total Employed in Urban Manufacturing Occupations |
| Other Occupations of Employment | Management and Support Staff <i>"Support workers"</i> | | |
| | Total Employment within Businesses within Urban Manufacturing Industries | | Total Employment in the Urban Manufacturing Sector |

Source: Adapted from Creative Industries Trident (Higgs *et al* 2007)

4.4. EXISTING DEFINITIONS USED IN PRACTICE

Governments and industry groups provide insight into how making and manufacturing are defined in Melbourne and other settings. The Australian Bureau of Statistics (ABS) through the Australian and New Zealand Standard Industrial Classification (ANZSIC) codes defines manufacturers as *units mainly engaged in the physical or chemical transformation of materials, substances or components into new products (except agriculture and construction)* (Australian Bureau of Statistics, 2015).

Importantly 'units', while commonly described as plants, factories or mills that characteristically use power-driven machines and other materials-handling equipment, also includes the transformation of *materials, substances or components into new products by hand, or in the home* (Australian Bureau of Statistics, 2015).

Additionally, the ABS definition allows for units primarily engage in physical or chemical transformation to also undertake activities incidental to their primary manufacturing role, including selling product direct to consumers from the same premises as it is made. This allows for bakeries, custom tailors, and so on to be included in the manufacturing sector (Australian Bureau of Statistics, 2015). If units also sell other products that they did not manufacture themselves, then the rules for the treatment of mixed activities is applied and their classification is based on their predominant activity.

The ABS definition of manufacturing includes the assembly of component parts of manufactured products. These can be either self-produced or purchased from other manufacturers (Australian Bureau of Statistics, 2015).

Similar to the ABS definition, a manufacturing firm in the United States is defined as a firm *engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products*. As in Australia, the assembly of component parts of manufactured products is considered manufacturing, as is the development of new products by hand or in a workers home (United States Census Bureau, 2015).

In the United States a similar industrial classification system to Australia's ANZSIC codes is used, known as NAICS (North American Industry Classification System).

Part of the challenge with existing industrial classification codes such as ANZSIC and NAICS is that they may fail to accurately account for the increasing breadth of activities that are being undertaken within the manufacturing sector (NYCEDC, 2013). Global operations have broadened the scope of manufacturing, with the value derived from customers broadening from the good alone to also include services and knowledge associated with the good (Fleury et al., 2007). This has been acknowledged by some government bodies, with the European Commission (2004) "Manufuture Vision for 2020" calling for a transition in the manufacturing sector:

- from resource-based to knowledge-based manufacturing;
- from linearity to complexity;
- from individual to system competition; and
- from mono-disciplinarily to trans-disciplinarily

Acknowledging these transition challenges, the United States based Urban Manufacturers Alliance (UMA) defines urban manufacturing as all production that occurs in urban areas (with urban defined as Metropolitan Statistical Areas with populations greater than 100,000). This includes the production of products for use or sale through the use of machines, tools, chemical, biological processing, or formulation (Urban Manufacturers Alliance, 2015). The UMA distinguishes urban

manufacturers and makers from hobbies and crafts when product begins to be made at scale (Urban Manufacturers Alliance, 2015).

4.5. EXISTING DEFINITIONS USED IN RESEARCH AND POLICY ANALYSIS

This section describes how some of the issues around our problem are operationalized in policy analysis and scholarship. We include how authors differentiate makers from manufacturers as they operationalize research, how they use industrial classification codes, how studies of small makers and manufacturers define thresholds like *small*, *innovative*, or *high-value added*. This section also situates our project in the international literature that seeks to understand the land, sector, and economic dimensions of urban making.

Firm size is clearly an important feature of urban makers and manufactures, particularly when differentiating them from the traditional, large scale manufactures that have more historically dominated the manufacturing sector. Differences in productive technologies, capital intensities, and scale economies influence an industry's technological firm size (Beck, Demircuc-Kunt, Laeven, & Levine, 2008).

As noted, urban makers and manufacturers tend to be small and micro businesses, however finding a definition of what constitutes a small and micro business is challenging. As noted by Storey (1994) there is no single, uniformly acceptable, definition of a small firm. Employment numbers and sales turnover are generally used as an indicator of business size, however what constitutes a small business in one sector or industry within a sector may not be considered small in another sector or industry within a sector.

For example, a retail store with 100 employees is, within the retail sector, relatively much larger than a manufacturing firm with 100 employees is within the manufacturing sector. Additionally, within a sector such as manufacturing a 'small' business in the petrochemical industry is likely to be a much larger in absolute terms than a 'small' car repair business.

As such, Storey (1994) notes that business size definitions at a sectorial level which are based on objective measures, such as number of employees or sales turnover may result in all firms may be regarded as small in some sectors, while in others, no firms may be classified as small. This is illustrated in the definition applied by the U.S. Government Small Business Administration, in which a small business in the manufacturing sector is, for the most part, considered to be a business of less than 500 people (Small Business Administration, 2015). Based on 2010 data, this threshold results in 99 per cent of U.S. manufacturing businesses being considered small [(Mistry & Byron, 2011), see Table 4.3].

With this in mind, Storey (1994) goes on to note that *debates about definition turn out to be sterile unless size is shown to be a factor which influences the 'performance' of firms* (pg. 16).

In attempting to determine what constitutes a small business base on performance, Bolton (1971) and later Aitkinson and Meager (1994) highlight that the management structure of a business, and how it changes with business size is generally a good indicator in which to separate micro, small and medium businesses. Small, and particularly micro businesses are generally characterised by the absence of a formalised management structure, with the owner-manager having a heavy influence on the daily decisions of the business. Management in small firms is generally informal, personal, with the character and preoccupations of the manger significant influences (Wright, 2012).

Aitkinson and Meager (1994) identify that when business reach a size of between 10 and 20 employees, managerial appointments generally occur, and as such the owners are no longer the

exclusive source of managerial decisions. The move from less than 10 to more than 10 employees therefore appears to mark an important break from micro to small businesses.

These 'break points' in the management structure of small and micro businesses are reflected in the European Commission definitions of micro and small business within the broader Small Medium Enterprises (SME) grouping.

The European Commission use three main factors to determine business size – number of employees and either turnover or balance sheet total. It is compulsory to respect the staff headcount thresholds (includes full-time, part-time, seasonal, casual, and owner-managers), but an SME may choose to meet either the turnover or balance sheet ceiling, and may exceed one of them without losing its status. The break points between business size categories are illustrated below.

Table 4.2. European Commission SME Size Thresholds

| Company category | Employees | Turnover | or | Balance sheet total |
|------------------|-----------|----------|----|---------------------|
| Medium-sized | < 250 | ≤ € 50 m | | ≤ € 43 m |
| Small | < 50 | ≤ € 10 m | | ≤ € 10 m |
| Micro | < 10 | ≤ € 2 m | | ≤ € 2 m |

Source: European Commission (2012)

Analysis of manufacturing business sizes in the United States in 2010 reveals that a majority (around 70 per cent) of manufacturing businesses employ fewer than 20 people. In America's major cities the percentage of businesses with less than 20 employees is even higher, particularly in New York (82.7 per cent of manufacturers employ less than 20 people), Los Angeles (80.3 per cent), and San Diego (74.7 per cent) (Mistry & Byron, 2011).

Table 4.3. U.S. manufacturing businesses by size (2010)

| Number of employees | Percentage of manufacturing establishments in the US |
|---------------------|--|
| 1-4 | 36.0 |
| 5-9 | 17.4 |
| 10-19 | 15.5 |
| 20-49 | 15.1 |
| 50-99 | 7.4 |
| 100-249 | 5.7 |
| 250-499 | 1.9 |
| 500-999 | 0.7 |
| 1,000+ | 0.3 |
| | 100 % |

Source: NIST/ Hollings MEP (2010) in Mistry and Byron (2011)

Beyond business size, overseas literature on urban makers and manufacturers has also focused on the level of innovation and value-add exhibited by manufacturing businesses.

Manufacturing is the turning of ideas into products and services, and in a highly competitive global market, relies heavily on innovation in order to generate value. Value can be created in a number of ways, including through unique production processes, high brand recognition, rapid delivery times, or highly customised services (Livesey, 2006).

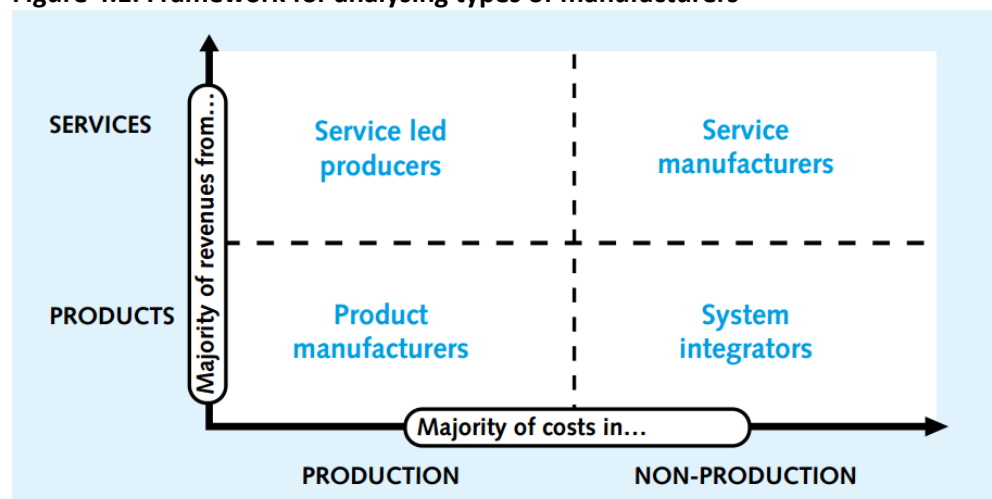
This broader recognition of value-add is reflected in the work of (Friedman & Byron, 2012) who identify “high-value / high-performance” subsectors of manufacturing that include makers of both “high-tech” and “high-touch” products. High-touch manufacturing refers to production that relies on a high level of human interaction that results in high levels of market insight and customisation. With this appreciation of value-add both technologically advanced goods and those made by traditional processes are included.

The Institute of Manufacturing (in Livesey 2006) developed a framework for analysis high value manufacturing. This framework categorises manufacturers into one of four types, all of which can be high value-add depending on the context and capabilities of individual businesses. The four manufacturer types include:

- **Service led producers** who provide customers with services based on a significant production capability. These businesses are strongly based around production, but derive a substantial proportion of their revenue from services.
- **Product manufacturers** who focus on generating value through production. These are the more traditional manufacturers with the majority of their costs in production and a majority of their revenues from selling products.
- **Service manufacturers** who have little or no production and generate value from services which are based around a product. They sell products but a majority of their costs are not associated with production. This includes businesses that build one-off specialist products that requires significant R&D and design input.
- **System integrators** who control the channel to customers and manage an external production network. These are generally companies that once produced but have detached from production and now entirely provide services.

Figure 4.1 presents a matrix of how these four manufacturing types derive revenue from products or services, and incur costs on production and non-production.

Figure 4.1. Framework for analysing types of manufacturers



Source: Livesey 2006

4.6. DELAYING DEFINITION

For the moment, as we describe above, we use the above literature and working definitions to inform our work. However, how we eventually define the small, high-value making/manufacturing sector for our study area will emerge from the upcoming empirical work.

However, the review above does highlight some important considerations as we explore this definition. We will continue to consider these as the project progresses. One major task of our data-collection processes, described below and currently underway, will be to observe the composition of construction of the making/manufacturing sectors. This empirical approach will allow us to explore whether our hypothesis that Melbourne is trailing the USA experience, has some foundation. It will also allow us to explore how Melbourne's industry is unique or different from that experience, thus exposing the particular contributions of local conditions and policy to the making sectors.

5. DEVELOPMENT AND MODIFICATION OF THE IMPLEMENTATION APPROACH

The purpose of this section is twofold. First, this section briefly describes the implementation approach that we expanded upon in the original project proposal. Second and importantly, this section describes some of the changes that the Steering Committee has decided are appropriate given the findings to-date, and which have thus been integrated into the project workflow since the original project proposal was submitted. This section describes the major amendments to the project timelines that arise out of the work we have completed to-date. This section largely summarizes the major action items that are described in more detail and justified in previous sections.

This section provides a high-level overview of the project approach. We operationalize this approach in three pilot projects. Sections 6 and 7 below describe in more detail the Phase 1 sub-projects, which are currently underway.

This core purpose of this report is to detail the findings from Phase 1. A second purpose is to convince the Steering Committee and the funders that the project is worthwhile moving ahead into further funding phases, particularly an ARC Linkage Grant. Phases 2 and 3 are mentioned in this section to frame the future of the project, but they are not part of the core purpose of this report. This section details the approach that we have taken for Phase 1, and describes Phases 2 and 3 in less detail.

From the beginning of the project, we have envisioned a multi-phase project implementation wherein each phase cross-cuts the three approaches we describe above, with ongoing reflection on the public policy implications of the findings. The short-term funds would fund Phases 1 and 2. Future funding, either via an ARC Linkage Grant or Centre of Excellence, would fund further investigations of these issues, perhaps on a national scale. In this section, we describe the three research phases, including a brief overview of the methods of data collection and data analysis that we would employ in each. In the foregoing sections, we also describe some expected observations and outcomes in the ongoing reflection during the project.

Table 5.1 below shows the original project timeline. Table 5.2 below shows the new project timeline, which reflects the changes we describe in this section. The core differences between the original and the updated timeline are:

1. The Phase 1 report (this report) is submitted early, in Month 6 instead of Month 7
2. Phase 1 is extended to December 2015; this extension replaces Phase 2
3. Phase 2 funds will not be expended in 2015, but rather will be used as commitment to the ARC Linkage grant, should IMAP make the commitment
4. The timeline reflects the ARC Linkage projected application deadline of November; this may be adjusted again as new information emerges and deadlines are set by the ARC.

5.1. PHASE 1 DEVELOPMENTS

This section describes the modifications to Phase 1 arising out of the project workflow thus far. In the original project proposal, the core tasks for Phase 1 were:

1. Leveraging existing data – describing the lessons that can be learned from existing data, and what questions cannot be addressed
2. Qualitative inquiries – using qualitative exploration to explore the issues facing the IMAP's urban makers

3. Survey development and piloting – using the qualitative inquiry to inform the design of a survey instrument to address some of the economic approach questions, which would then be piloted.

All of these objectives are on track for on-time completion by the original Phase 1 report deadline of October 2015. These were to be reflected in the Phase 1 report as originally conceived. As we describe below, due to changes in funding conditions, we have modified the timeline for some of these components – particularly, the qualitative inquiries and the survey development.

Leveraging Existing Data

This area of inquiry has been completed according to the original workflow plan; we present the findings in Section 7 below. We propose no modifications to this component of the workflow.

There are several datasets currently in existence for Victoria that each provide key data for economic analysis of economic development in small manufacturing sectors, but none of them provide a complete picture for all three approaches – land, sector, and economic – to be analysed for small manufacturing firms. Some datasets provide important spatial and sector data, but do not provide it at a fine-enough information on employment to isolate small makers. For instance, Industry Atlas data provide sector information by LGA, highlighting success cases such as the large and growing machinery and medical technology sectors in Yarra. However, the data in their current format do not allow for the isolation of small and very small manufacturing firms (fewer than 20 employees, fewer than five employees). Similarly, existing Australian Business Register data are available to the IMAP councils in geocoded (or geocodable) format. However, this data does not include firm size or other critical data such as value added and capital investment. These data could provide a spatial picture of how industrial-zoned land is used in the IMAP region (the land approach), but do not allow us to discover the sector-based economies and constraints that exist for the makers occupying these spaces (the sector approach).

Some existing datasets provide spatial information – such as land use zoning and VicCLUE data – but do not combine it with sector data about firms occupying the spaces that is specific enough for economic analysis. These datasets can tell us something about where to find industrial-zoned land in the IMAP region, but do not provide us with information about how small makers are distributed in this space (the land and sector approaches), or how being located within this space affects their productivity and innovation (the economic approach). Finally, none of the existing data tell us anything about why firms leave the IMAP region – either via relocation or firm death – and where they go if they do relocate (the economic approach). Section 7 of this report explores what kinds of analysis and conclusions are possible using these existing datasets.

Qualitative Inquiry

This section first describes the qualitative inquiries as originally conceived, and subsequently describes how the timelines for the qualitative inquiries have changed. This includes an explanation of why the findings from the qualitative inquiries are not included in this Phase 1 report.

One significant finding of this report is that even a compilation of all available data from the ABR, Census JTW, VicCLUE, Valuer General, and other relevant datasets, there are still significant gaps in our understanding of how small manufacturers derive their economies of scale, capitalise on information networks, and leverage their location and proximity for growth (the economic approach). More fundamentally, there are also significant gaps in our understanding of what it means to be a small manufacturer, how manufacturing functions integrate with service and other functions to create service-oriented production like high-end bicycles, three-dimensional printing, and biotechnology products with strong service dimensions (the sector approach). Even more

fundamentally, there are still be significant omissions in our understanding of how urban land is used in the IMAP region (the land approach).

The qualitative inquiries that we undertake as part of Phase 1 have been designed to inform the development of the survey while increasing our understanding of causal effects and nuanced forces acting on small urban makers. We expect to find a significant number of non-complying, non-industrial uses, including music venues, cafes, live/work artists lofts, midnight bakers that supply the local cafes, and maybe even squatters. The presence of a high concentration of actual industrial uses, or alternatively, a high concentration of industrial uses that do not align with traditional manufacturing definitions as defined in the ANZSIC codes. Whether we, in subsequent phases, ignore the non-complying uses or integrating them into the complex narrative that we will probably uncover, is dependent on us first knowing that they are there. Sections 6 describes the two qualitative inquiries in detail.

The understanding we have developed from the qualitative inquiries about small urban makers in the Melbourne region has helped us to deepen our theory base and is now at work informing the economic hypotheses that we describe above, around the economic approach. At the outset of the project, we did not have enough understanding of the current business climate in the IMR to settle on this or some other specific hypotheses as the important ones to test, and the dynamics of small, high-value added urban manufacturing is not well-understood. Because of the qualitative inquiries, we are now in a better position to develop and validate hypotheses to be tested with the survey, regarding kinds of uses occurring in firms located on industrial-zoned lands in the IMAP area (the land approach), the factors that facilitate firm survival and prosperity decline and demise (the sector approach), and the local, state, and national economic impacts of these small firms (the economic approach).

In the original workflow plan, the qualitative inquiries were to be completed by October 2015 and the findings included in the Phase 1 report. However, the Steering Committee has decided that an ARC Linkage Grant application will be developed in the upcoming months. This issue will be raised with the IMAP leadership in the August IMAP meeting. This development introduces a variation in the original project timeline. We note that our Phase 1 reporting schedule is modified over the original schedule, give the need for IMAP to consider funding Phase 2 in advance of the November deadline for ARC Linkage grants. Originally, the Phase 1 report was set to be due in late October 2015. However, due to the updated schedule, the Phase 1 report must be made available to IMAP on 12 August. This is why the findings for the three pilot projects described in Section 6 are not yet ready.

Survey Development: Testing Hypotheses on the Land and Sector Approaches

In the original project description proposed to and approved by IMAP, the survey was only to be developed and piloted in Phase 1. Implementation of the survey on a large scale was to be part of Phase 2. However, due to unforeseen circumstances, which this section describes, the Steering Committee has decided to move the survey implementation ahead into Phase 1. We see this as a positive development: the survey is largely read for implementation, and we have generated synergies that make it more efficient to start the survey earlier.

The survey design is integrated with both the qualitative findings and international evidence from places like New York, so that it can include hypotheses that can test for possible future scenarios that may emerge in Melbourne.

The survey is designed to be an electronic land-use survey and business inventory of firms on lands in the IMAP area, and also a sample of firms located outside the IMAP area. A survey of firms located outside the IMAP area will allow us to address hypotheses about why firms leave the IMAP

area and whether agglomeration effects are real in the IMAP area. A sampling framework is currently being devised to reflect both the land and sector approaches. Survey strata reflecting the land approach will sample firms operating within the IMAP region, in order to develop a picture of how industrial-zoned land is used in the region, and how small manufacturers situate themselves spatially. The land approach sampling strata will be spatial, reflecting industrial-zoned land and other land that could house industrial uses, e.g., mixed-use zoning or zoning code exceptions. Survey strata reflecting the sector approach will target particular firms within certain manufacturing sectors. These strata would come from ABR data on small manufacturers, and would target particular sectors.

This survey is designed to collect data on products and services, firm size, output, employment, growth and location history, and organizational structure (non-profit, etc.). It will collect information on non-manufacturing activities being conducted as part of the firm's activities, the amount of innovation investment that the firms make, firms reliance on central locations for growth and innovation, considerations that firms make when choosing inner city locations, firm interactions and linkages, growth goals, links to universities and government, major impediments to growth, e.g., space, regulatory environment, rents, why boutique manufacturing firms leave the inner city, and when they do, where they go and whether they survive.

With the insights gained from the qualitative studies, we will continue to refine the existing survey instrument to reflect the particular local conditions that we encounter. We will generate a dataset of a statistically valid sample of firms within the IMAP area and also at strategically-selected areas outside of IMAP (for control and comparison), designed to understand business structures, processes and linkages, as well as additional hypotheses we generated during the Inception Workshop (described below). Sampling will be designed to allow for spatial representativeness of the data and appropriate statistical power.

5.2. NEXT STEPS – EXTENDING PHASE 1

The aforementioned, unforeseen circumstances are the result of changing funding options from the Carlton Connect Initiative Fund (CCIF) in combination with lessons learned from the Inception Workshop held on 28 May. One of the conditions of continued IMAP funding for Phase 2 was matching funding to be provided by an additional CCIF application. However, the CCIF program is currently under review by its funders, and as a result of this, the funding scheme which would have provided matching funding for Phase 2, has been suspended.

Fortuitously, a development during the Inception Workshop underscored the need to change the project phasing. The workshop findings are described in detail in Section 8 below, but we briefly summarize here. In short, the project team has decided that, in order to respond to makers' request for a visible symbol of their participation in the project, a combined survey and makers map will be implemented electronically in Phase 1. This is possible using existing project funds. The Steering Committee has agreed to move the survey and analysis forward to Phase 1.

Also, the Project management Team has decided to seek Steering Committee and IMAP approval to develop an ARC Linkage Grant application in the upcoming months, to continue the project work. This issue will be raised with the IMAP leadership in the August IMAP meeting. This development introduces another variation in the original project timeline. We note that our Phase 1 reporting schedule is modified over the original schedule, give the need for IMAP to consider funding Phase 2 in advance of the November deadline for ARC Linkage grants. Originally, the Phase 1 report was set to be due in late October 2015. However, due to the updated schedule, the Phase 1 report must be made available to IMAP on 12 August. This is why the findings for the three pilot projects described in Section 6 are not yet ready.

The ARC Linkage grant application will be completed with the University of Melbourne in partnership with IMAP using existing committed IMAP funds, and seeing additional state government partners (MPA has already made a commitment). The ARC partnership would move forward to test the larger economic questions as outlined above. These questions include impacts that small urban manufacturers exert on the urban economy, including the effect on wages, jobs, and innovation in the region. Underlying this approach is our hypothesis that the impediments experienced by small manufacturing firms can have a stifling effect on the entire economy, and conversely, that these small firms can exert positive influences on their own and other related and supporting sectors. The products of this grant could include the following:

- Analysis of value chain data for each enterprise, covering in-bound logistics, operations, outbound logistics, marketing and sales, after sales service, strategic management, human resources, technology and procurement⁶.
- Exploration of barriers to entry or growth for urban manufacturers, for example, accessing finance or government assistance
- Further mapping of select firms' spatial linkages with suppliers, collaborators, workers, distributors, customers and retailers with a view to understanding economies of scale and scope attaching to agglomerations
- Estimation of agglomeration economies effects for the IMAP region and the State of Victoria, for urban manufacturers, differentiated by location (urban versus suburban)
- Estimation of lost innovation and value added due to displacement effects.

5.3. ARC LINKAGE GRANT – PARTNER EXPECTATIONS

The IMAP made very clear when it committed funding for Phases 1 and 2, that it would not commit additional funds beyond Phase 2 for the project, and that the \$40,000 it committed (\$20,000 for Phase 1 and an additional \$20,000 for Phase 2) must be matched by the University of Melbourne. Given the explanation we provide in the previous section, the matching funding for Phase 2 is not forthcoming. For this reason and the others also described above, we have decided to extend Phase 1 and seek to apply Phase 2 funds to an ARC Linkage grant.

ARC Linkage grants are grant schemes wherein industry or government partners join with a University-led team to produce research for their mutual benefit. In this scheme, industry partners must make financial and in-kind contributions to the project. Generally, successful applications have cash contributions from partners totalling a minimum of 25 percent of the project budget.

We expect to submit an ARC Linkage grant application in November with a total project budget of around \$300-400,000. This implies that \$75-100,000 needs to come from the industry partners. If the IMAP allows us to apply its \$20,000 toward this financial contribution, we intend to generate the rest from other industry partners.

The current list of promising partners for the ARC Linkage grant are:

- IMAP Councils
- The City of Moreland
- The Metropolitan Planning Authority (MPA)
- The Australian Business Register
- DEDJTR
- Bank of Melbourne

⁶ After the framework developed by Porter M. (1985) "Competitive Advantage: Creating and Sustaining Superior Performance"

Table 5.1. Original Timeline for Phases 1 and 2

| | | | | | | | | | | | |
|----------|-----------------|--------------------|---------|---------------------------|----------------|---------|---------------------------|--|----------------|--|--------------------------------|
| Month 1 | Team assembly | | | | | | | | | | |
| Month 2 | Ethics approval | | | | | | | | | | |
| Month 3 | | Inception Workshop | Phase 1 | | | | | | | | ARC Linkage Grant Application* |
| Month 4 | | | | | | | | | | | |
| Month 5 | | | | | | | | | | | |
| Month 6 | | | | Dissemination Workshop #1 | | | | | | | |
| Month 7 | | | | | Phase 1 Report | | | | | | |
| Month 8 | | | | | | Phase 2 | | | | | |
| Month 9 | | | | | | | | | | | |
| Month 10 | | | | | | | | | | | |
| Month 11 | | | | | | | | | | | |
| Month 12 | | | | | | | Dissemination Workshop #2 | | | | |
| Month 13 | | | | | | | | | Phase 2 Report | | |
| Month 14 | | | | | | | | | | | |
| Month 15 | | | | | | | | | | | |
| Month 16 | | | | | | | | | | | |

*Depending on funding begin date and ARC application timelines

Table 5.2. Updated Project Timeline: Phases 1, Extension of Phase 1, and ARC Linkage Grant Application

| | | | | | | | | | | |
|--------|-----------------|--------------------|--------------------|------------------------|-------------------------------------|---|---------------------------|-------------------------|--------------------------------|--|
| Mar-15 | Team assembly | | | | | | | | ARC Linkage Grant Application* | |
| Apr-15 | Ethics approval | | | | | | | | | |
| May-15 | | Inception Workshop | Phase 1 (original) | | | | | | | |
| Jun-15 | | | | | | | | | | |
| Jul-15 | | | | | | | | | | |
| Aug-15 | | | | Phase 1 Report to IMAP | | | | | | |
| Sep-15 | | | | | IMAP Commits to Linkage Application | Phase 1 (extended): qualitative studies; survey design, data collection, and analysis | | | | |
| Oct-15 | | | | | | | Engagement Workshop | | | |
| Nov-15 | | | | | | | | | | |
| Dec-15 | | | | | | | | | | |
| Jan-16 | | | | | | | Dissemination Workshop #3 | Extended Phase 1 Report | | |
| Feb-16 | | | | | | | | | | |
| Mar-16 | | | | | | | | | | |
| Apr-16 | | | | | | | | | | |

*Depending on funding begin date and ARC application timelines

6. PHASE 1 DETAILED APPROACH, PILOT PROJECTS

This section summarizes three pilot projects that comprise Phase 1, and which are currently underway. Each of these projects is headed jointly by Jennifer Day and a Master of Urban Planning student from the University of Melbourne, as part of her/his thesis project. These students are listed as report authors.

This section first describes two qualitative approaches that will inform the third, quantitative inquiry. None of these projects is currently advanced sufficiently that we can report substantive findings at the time of this report.

We submit this Phase 1 report without these findings included. We note that our Phase 1 reporting schedule is modified over the original schedule, give the need for IMAP to consider funding Phase 2 in advance of the November deadline for ARC Linkage grants. Originally, the Phase 1 report was set to be due in late October 2015. However, due to the updated schedule, the Phase 1 report must be made available to IMAP on 12 August. This is why these project findings are not yet ready.

6.1 LAND: CREATIVE CLUSTERS IN YARRA

Background and motivation

The last fifty years has seen urbanisation emerge as a dominant demographic trend (Xing, Horner, El-Haram, & Bebbington, 2009). Urbanisation has highlighted not only the strengths of cities but also their weaknesses. There is growing concern regarding the future of cities and how they can continue to accommodate growing populations. This challenge becomes particularly daunting when discussed within the framework of sustainability and liveability. Within policy and academia there is growing support for the “compact city” as an urban form, which in theory could minimise environmental degradation and greenhouse gas emissions while also providing more housing (Jenks & Jones, 2009). Features of the “compact city” include higher density development, increased mixed use and renewal of under-utilised urban areas, such as docklands and old industrial areas (Jenks & Jones, 2010). Concurrently these older and under-utilised areas of Fordist production are becoming more popular as places to live with people attracted to their central locations, alternative living spaces and possibility for live/work scenarios (Hamnett & Whitelegg, 2007).

These features and preferred development patterns have affected city development policies in a number of ways, including a growing pressure on local governments to consolidate under-utilised urban land in their jurisdictions and rezone to residential to accommodate higher density development. However there are issues associated with the drive for urban consolidation, one of which is the rezoning of industrial and commercial land to mixed or residential use. Governments are hesitant to make these changes in light of issues regarding local employment and economic development (City of Yarra, 2010). There is a push to protect land for industries that favour/service the inner city environment and are creative and innovative in purpose. It is believed cities will be more resilient if they can grow and foster their creative industries and knowledge economies (Landry, 2012). As creative industries become a more important part of the urban economy governments are increasingly keen to know where creative industries are, how they operate and how they can be fostered (Gibson & Brennan-Horley, 2009).

The City of Yarra's newly released Yarra Economic Development Strategy 2015-2020 identifies the creative sector in Yarra as containing important and emerging creative industries. The creative sector in Yarra represents 11% of total employment in the LGA and 21% of all businesses. Within the creative industries Architecture, Design and Visual Arts, Software and Interactive Content and Advertising and Marketing are highlighted as employing the most workers. Two areas have been highlighted as Creative Clusters, the Gipps Street Precinct and Cremorne. These two precincts have also been highlighted in Plan Melbourne as Urban Renewal areas. Plan Melbourne does not clearly define "urban renewal" but if residential development is expected to occur in these areas The City of Yarra states that it must not compromise economic function (City of Yarra, 2010). This conflict between increasing housing and protecting economic vitality is a local manifestation of the development tensions discussed above.

Currently zoning is the predominant mechanism employed by the City of Yarra to protect and foster economic development in the Gipps Street and Cremorne precincts⁷. The commercial two zone (C22) that prohibits residential development has been applied over both areas. This is in response to concerns regarding the impacts residential development may have on land prices and land availability which in turn will affect the viability of the area as a creative precinct and employment hub (City of Yarra, 2010). A number of researchers have observed how residential development can affect the landscape of employment districts; see for example, (Hamnett & Whitelegg, 2007; Zukin, 1989). While positives are associated with the arrival of permanent residents, especially if the area is suffering from high vacancy rates and deterioration, it can put pressure on existing businesses by increasing land prices. However prohibiting residential development also has negative side effects as land owners may sit on property waiting for rezoning to occur, leading to disinvestment and poor amenity.

This thesis will look at the Gipps Street and Cremorne precincts in the City of Yarra and hopes to add some clarity to the development versus conservation argument by finding out what is occurring in these areas. Before a decision is made regarding their future it is important to understand more clearly what is happening within their boundaries. Can the firms in these areas be classified as creative? Has the City of Yarra been accurate in its labelling of these two areas as Creative Clusters? If so is the best way to foster these clusters through the restrictive zoning policy? Why are firms choosing these locations and how does this affect future policy decisions? What do firms enjoy about these spaces and areas? Ultimately this paper will aim to shed some light on how firms function in these areas and on their locational decision. If there is evidence the firms in these areas are gaining a competitive advantage from their location then it may be pragmatic to support the City of Yarra's current prohibitory zoning.

Research questions

In order to ascertain whether or not creative clusters are present in Collingwood and Cremorne a key question to ask that stems from the literature is: Are vertical and horizontal linkages present between firms? It would also be beneficial to understand if firms are choosing to locate in these precincts in order to take advantage of these linkages. It is the aim of this thesis to gain further understanding of why firms choose to locate in the precincts and if there's evidence to support Michael Porter's cluster theories, discussed below.

⁷ Council's economic development unit also support business/ economic development by linking businesses with potential clients/ customers as well as providing skill development and networking opportunities.

The overarching research question is as follows:

Are creative firms locating in the Gipps Street and Cremorne precincts in order to benefit from the competitive advantages associated with clusters?

This research will be broken down into two key questions:

Are firms locating in these areas to be in close proximity to local suppliers and customers?

Are firms locating in these areas to access local knowledge networks?

It is the hypothesis of this thesis that clustering benefits are not the main draw cards for firms who choose to locate in Gipps Street and Cremorne. It is likely that there are other factors such as rental prices and building typology that have a larger influence. However if this hypothesis is supported it does not necessarily mean these areas aren't providing valuable spaces for Melbourne's creative industries.

Theoretical and Empirical Framing

A significant amount of literature has been written on the Post-Fordist city and the way in which changing production and consumption patterns are impacting the urban economy. The Fordist economy aimed to take advantage of economies of scale through the standardisation of products that appealed to mass markets (Scott, 1997). Manufacturing in the Post-Fordist economy however has seen more producers creating smaller, specialised batches of output that cater to niche markets (Scott, 1997). This change in production has expressed itself on the city, changing spatial patterns, demographics and economies (Hutton, 2000). As many cities in the developed world deindustrialise and lose their large manufacturers attention has been drawn to those cities that have been able to successfully navigate these changes (Landry, 2012). There has been increasing attention paid to the role of culture and creativity and the potential of these areas to address a number of concerns regarding economic development and deindustrialization (Bagwell, 2008). In policy creative industries are often seen as sources of innovation, providing a limitless supply of new ideas which in turn help to stimulate economic growth, mitigating the effects of deindustrialisation and building a cities "knowledge economy" (Bagwell, 2008).

Not only has the scale of production changed but also the type of goods that are produced and how they are marketed to the customer. Hutton (2000) discusses the rise of creative services in the post modern city, a reflection of the growing demand for goods that provide the consumer with distinctive, unique products, reflecting their personal preferences. There are now more consumers who are willing to pay for designer and bespoke goods, services and experiences, which has contributed to the rise of the creative sector (Evans, 2009). Products are not simply about functionality but are now seen as extensions of ourselves and the persona we want to project. Scott (1997) discusses how increasingly the cultural geography of place is intertwining itself with the economic geography of production. Every city and country wants that competitive advantage that comes from being "known" for a certain product or service, for example the Danish and furniture, or the Italians and leather products. Where and how a commodity is produced can add to the imagery surrounding the product and in turn helps to brand and differentiate the area it was made (Heebels & van Aalst, 2010). This type of recognition, this successful commodification of creativity, talent and culture, is seen as being key in the resilience of urban economies (Scott, 1997).

The growth of creative firms has also expressed itself spatially on cities and found expression in the emergence of new production spaces (Hutton, 2006). These production spaces are generally found in the inner city and the CBD fringe, in converted industrial and warehousing spaces (Heebels & van Aalst, 2010; Hutton, 2006). Some argue that the rise of creative industries has helped to resurrect the inner city and renew degraded industrial areas. Florida (2005) writing on the “creative class” has been extremely influential. His argument is that talented people seek out cities and this individual talent is converted into economic opportunity which in turn supports and feeds back into the home city. Globally there is a growing belief that attracting talent and mobilising creativity can transform economies and communities (Foord, 2009). This belief is shown in the number of cities that have creative strategies: Creative New York, Creative Berlin and Creative London to name a few (Foord, 2009). It is also evident in the growing competition between cities to be seen as liveable, offering a high quality lifestyle which is aimed at attracting the creative classes.

A number of articles address how to define what a “creative” businesses or industry is. Some institutions such as the World Bank argue creative industries produce something that is protectable under intellectual property law (Foord, 2009). The United Nations Conference on Trade and Development states creative industries derive value from copyright and distributing creative content (Foord, 2009). Bagwell (2008) who examines British creative policies found activities which have their origin in individual creativity and talent tend to be considered creative. What often links creative industries is that a high degree of individual skill is needed to create the product/service and firms tend to be small and medium sized enterprises (Bagwell, 2008). In the Australian context the Australian Centre of Excellence for Creative Industries and Innovation has developed six creative industry groupings: music and performing arts, film and television, advertising and marketing, software and interactive content, writing, publishing and print media, architecture, design and visual arts (Foord, 2009). The New Zealand Institute of Economic Research has developed a similar list: advertising, software and computer services, publishing, television and radio, architecture, design, designer fashion, music and performing. Both these lists have been developed by attempting to capture locally significant IP through patents, trademarks, copyrights and design rights (Foord, 2009).

A key feature of creative businesses and workers is that they can often operate at the edge of the formal economy (Gibson & Brennan-Horley, 2009). Creative workers take many forms including freelancers, hobbyists, workers from home and it cannot be assumed that they’re all working in a formal space from nine to five. Importantly it is hard to understand exactly what creative people do, where they are and how they operate from a purely quantitative stance. Because of this, Gibson & Brennan-Horley (2009) argue undertaking ethnographic studies of creative workers is key in uncovering how they use and shape the city. Discussing the post modern city, Hutton (2000) argues there are unifying characteristics of creative firms and workers, including they tend to: create small specialised outputs, converge together into agglomerations, often on the CBD fringe and depend on the ability to tap local sources of value adding externalities. What they produce also tends to function in part as “personal ornaments, modes of social display or aestheticised objects (Scott, 1997)”. As such a competitive advantage generally stems from being able to cater specifically to the consumers needs, which can change quickly and are often influenced by external trends and values. As creative firms often require quick access to suppliers, sub contractors and customers clustering is another defining characteristic of creative industries (Scott, 1997).

(Porter, 1998, p. 10) defines a cluster as “a geographic concentration of interconnected companies, specialised suppliers, service providers, associated institutions and firms in related industries.” Martin and Sunley (2003) who critically discuss Porter’s theory state two core

characteristics of clusters are that firms are linked, either vertically or horizontally and that these linkages involve relationships or networks that produce benefits. This is reiterated by Heebels & van Aalst, (2010) who state that firms that cluster experience a competitive advantage due to their close proximity to suppliers and customers and the knowledge exchanges that come out of casual encounters. In 2004 the United Kingdom's Department of Trade and Industry developed A Practical Guide to Cluster Development in which they pinpoint "the presence of functioning networks and partnerships " as the key identifier of a successful cluster. After a review of a number of creative cluster policies Foord (2009) found that a "creative cluster" was generally taken to mean a grouping of creative industries, firms or activities that are spatially concentrated. (De Propriis, Chapain, Cooke, MacNeill, & Mateos-Garcia, 2009, p. 11), list four key characteristics of creative clusters, they are: a community of creative people, a catalysing place, a place that offers diversity, stimuli and freedom of expression and a place that provides an ever changing network of interpersonal exchanges that nurture uniqueness. The rationale behind the adoption of creative cluster policies is endless with justifications including: economic development, regeneration, city branding, education and training, social access, improved amenity, preservation of heritage buildings, more balanced development patterns, growth in employment and high value output (Hutton 2000, Foord 2009). Proponents argue that clusters are particularly valuable as they can help smaller firms obtain external economies of scale, strengthening their competitive ability (McDonald, Huang, Tsagdis, & Josef Tüselmann, 2007). Smaller firms which may struggle working in isolation are supported by the cluster. The importance of clusters in the transmission of tacit knowledge is reiterated by a number of researchers (Bathelt, Malmberg, & Maskell, 2004; O'Connor, 2004). The transmission of tacit knowledge is particularly important for creative firms who often "learn by doing" and their skill is tangible one, tied to place (O'Connor, 2004).

However, a number of researchers including Heebels & Aalst (2010) and Darchen and Tremblay (2014) question the assumption that there is direct link between creative industries and economic development or that creative firms do benefit from agglomeration. Heebels & Aalst (2010) studied the creative quarters of Prenzlauer Berg and Kreuzberg in Berlin. Their focus is on the production side and understanding how local networks and learning contribute to innovation. Simultaneously they are interested in understanding how much urban amenity and the visual landscape contributes to locational decisions. They argue that "zooming in" on particular clusters and the contained firms can help to answer questions regarding knowledge exchange in clusters and its importance. Overall they concluded that face to face contact was not considered overly important to entrepreneurs in creative services and predominantly saw other firms as competitors. Darchen & Tremblay (2014) focus on the video game agglomeration in Melbourne's CBD to see if it showed characteristics of a cluster such as cross fertilisation and interaction with other creative industries. They conclude that the agglomeration could not be considered a cluster as different agencies had very little to do with each other or other creative industries. They had all chosen the CBD has a location simply due its accessibility to public transport and supporting institutions. This research shows that while creative firms may locate close to one each other this does not mean that they are "clustering" and benefiting from each others presence.

Methods

Two case studies, Gipps Street and Cremorne in the City of Yarra, are the focus of this research. As described above these two locations were chosen as they have been designated as Creative Clusters in The City Of Yarra's Economic Strategy.

(Merriam, 2014) discusses the case study approach in *Qualitative Research: A Guide to Design and Implementation*. Case studies are an appropriate approach when one wants to understand phenomena that are complex and consist of multiple variables. They provide a holistic account and can help advance a field's knowledge base. The case study approach is appropriate in this case as this thesis is predominantly concerned with ascertaining why firms are choosing these locations and locational choices may be affected by many variables. In order to attempt this research within the scope of a masters thesis it is also prudent to concentrate on two, relatively small and somewhat defined areas. While the results will only be applicable to two rather small locations it is hoped the findings can help to advance the knowledge base in this area.

Qualitative research will make up the majority of the research phase and will be based predominantly on conducting interviews with firms located in the two case study sites. As the research is concerned with creative industries, these are the firms that will be targeted. Firms will be selected via online searches, referrals, and firm listings collated after site visits. That the firm falls under a creative industry is the only filter that will be applied, no limit will be put on firm size, as it may offer up interesting insight into the makeup of firms in the areas. Interviews will be conducted face to face and should take no longer than an hour. Questions will be aimed at understanding how the firms interact with other firms in the clusters, with their customers and suppliers.

How to define Creative is still a work in progress however the Australian Centre of Excellence for Creative Industries and Innovation's categories will most likely be used as they closely reflect the categories adopted by the City of Yarra. These groupings are: Music and performing arts, Film and television, Advertising and marketing, Software and interactive content, Writing, publishing and print media, Architecture, design and visual arts.

Similar methods were employed by Heebels & Van Aalst (2010) and Smit (2011) when they wanted to understand why entrepreneurs were attracted to certain geographical locations. Heebels & Van Aalst (2010) undertook 40 semi-structured interviews with owners of micro enterprises (5 employees or less). The purpose of the interviews was to enhance understanding regarding the location decisions of entrepreneurs. Smit (2011) had a similar objective and conducted 63 interviews with entrepreneurs in order to better understand their location decisions. Smit (2011) began the interviews with two open ended questions regarding location decisions and concluded with more direct questions regarding their chosen district.

Interviews carried out as part of this research will also take a semi structured form and will be a mixture of open ended and more structured questions. This format has been chosen as I'm interested in learning about issues I may not have considered but also would like information on specific factors, such as how often they have face to face contact throughout the day (Merriam, 2014).

Some empirical research will also be undertaken to ascertain what is happening in both precincts. The aim of the empirical research is predominantly to gain an understanding of the local amenity and morphology, and to build on the data regarding what firms are in the areas. Local amenity and building type have been highlighted by a number of researchers, with Hutton (2006), Smit (2011), Heebels & Van Aalst (2010) the key draw cards for creative industries. Observations regarding precinct amenity could help inform future strategies concerned with infrastructure and service provision and urban design.

Background and motivation

The location of industrial land and their effect on shaping the urban form and communities have been the subject of a considerable number of studies. In the recent years Manufacturing is pushed out of cities because of rising cost of land and increasing environmental awareness. The ongoing process of globalization seems to speed up this shift and transfer of industrial land to residential and mixed-use development.

In recognition of the importance of future of manufacturing within the inner cities and the significant and ongoing challenge that the manufacturing sector is facing globally, the sector approach aims to examine the relation between inner city presence and requirements for firms to survive. The geographical scope chosen for this study is “IMAP area” which includes Cities of Melbourne, Port Phillip, Stonington, Yarra and Maribyrnong. This study is focused on the inner city due to social and cultural conditions that are associated with the inner city which are difficult to replicate elsewhere. Through this study we aim to understand what motivates the small manufacturers to choose and stay in their inner city location and how it would affect their business if they have to relocate to outer suburbs. In some cases the inner city location is vital for small manufacturers and they may decide to close down the business if they are forced to move or pushed out of cities.

One of the factors that may have direct effect on the importance of inner city location for small manufacturers is the shift from traditional manufacturing to a more service oriented manufacturing. While the share of manufacturing has declined in large cities in developed countries, the share of services has grown. The increasing growth in services and the manufacturer’s willingness to add service to their product calls for a more in-depth study of “new manufacturing” and “urban manufacturing.”

The sector approach aims to gain understanding of the changing face of the Australian manufacturing sector by investigating the characteristics of “urban manufacturing”. The focus will be on small/innovative/urban manufacturing, which is different from traditional manufacturing and hence has different requirements and deals with different constraints.

Research questions

Sector approach aims to add to the literature on the subject of urban manufacturing by examining the requirements of urban manufacturers/firms to survive.

This exploratory research primarily asks, “Does being serviced create different ways of operation, different needs and different constraints for inner city presence of small manufacturers in Melbourne?” In addition, this research aims to answer the following sub-questions:

- What is the level of service component in “new manufacturing” firms and how that works spatially?
- What are the methods of innovation used in small firms?
- What are the specific ways in which the firms produce and package products and services
- How important is the Inner City location for small firms?

According to literature one of the main characteristics of urban manufacturing is the added service component of it compare to traditional manufacturing. Saskia Sassen has written series of articles about the changes in manufacturing sector. Sassen (2009) defines “urban manufacturing “as a type of advanced manufacturing that services the service sector. She claims that “A particular type of manufacturing is very much part of today’s urban economies, including the most advanced ones. I like to call this “urban manufacturing”” (Sassen, 2006). In her article, “Urban manufacturing: economy, politics and space in today’s cities, Sassen (2006) mentions the following characteristics for urban manufacturing:

- 1) It is networked and, therefore, needs an urban location.
- 2) It is quite customized and needs to be in proximity to its customers
- 3) It inverts the historic relation between manufacturing and services

Moreover Sassen criticises the long-time ignorance of the urban manufacturing sector by policy makers because the policy was oriented towards retaining the big, standardized manufacturers. She points out the fact that these “big manufacturers didn’t need to stay in the city because they didn’t need the urban economy with its multiple supplier and contracting chains and diverse craft talent pools”(Sassen 2009). This research will identify urban manufacturers based on the characteristics mentioned by Sassen and will examine those characters and aims to add to it by conducting in depth interviews with the manufacturers.

Theoretical and Empirical Framing

Values and constraints that inner city presence brings for firms can be investigated from various perspectives. There has been an increasing interest in the concept of industrial clusters and firms’ willingness to be concentrated in certain urban locations. The existence of industrial clustering was acknowledged by Weber and Friedrich (1929b) and the first attempt to explain why firms tend to cluster together was made by Marshall in 1925 [ebook published in 2013; (Marshall, 2013)]. Marshall proposed three reasons for this behaviour by firms. The reasons related to the development of a local pool of specialised labour, the increased local provision of the non-traded input specific to an industry, and the maximum flow of information and ideas.

It is important to clarify that the notions of ‘knowledge’ vary in the literature. Following Maskell (2001) this study is more focused on the Tacit dimension of knowledge. Gertler (2003) defines Tacit knowledge by explaining that there are many tasks that involves skills and collaborations that cannot be written down on paper or presented in a formal conference. He explains that this type of knowledge can only be shared effectively between people who share a common social context, language and culture. Tacit knowledge is, therefore, dependent on face-to-face contact and close spatial proximity.

Sociological literature attempt to find a relation between, social networks, communication and the process of innovation in firms (Granovetter, 1985). Gordon and McCann (2007) report that firms in a social network tend to show “trust-based” behaviours. They mention three key features of this behaviour: “the first is that firms within the social network are willing to undertake risky co-operative without fear of opportunism; the second is that firms are willing to reorganise their relationships without fear of reprisals; and the third is that firms are willing to act as a group in support of common mutually beneficial goals”.

Studies prove that firms benefit from agglomeration economies. Two different types of agglomeration economies discussed in the literature; location externalities and urbanisation

externalities. According to the location externalities, knowledge spillover occurs between agents within an industry. Based on localisation economies, Carlino (2001) reports that the proximity of firms within a common industry often facilitates innovation and growth. The urbanisation externalities looks at knowledge spillover occurring between firms from different industries (Jacobs, 1969, 1986).

However, Literature is not consistence in accepting the argument that tacit knowledge requires spatial proximity. Zucker, Darby, and Armstrong (1998) argue that Knowledge Sharing is less likely in industries with a rapid pace of technological change. Another interesting argument is raised by Boschma (2005) that claims “physical proximity does not imply social proximity”. Boschma doesn’t believe in necessity or sufficiency of spatial proximity for learning. However, he reports that “it may facilitate learning by strengthening the other dimensions of proximity, namely cognitive, organizational, social and institutional proximities “ (Boschma 2005).

Although a wide body of literature states that industry clusters can offer numerous benefits for firms within those clusters, Audia and Rider (2010) argue that cluster location seems to be very disadvantageous for companies in declining industries. Interviews with small firm manufacturers within the inner city Melbourne will help us to understand if spatial proximity and being close to centres that produce knowledge is important for them or not. Another interesting outcome from interviews would be to understand how much these firms interact with their customers and how important is it for them to be close to inner city amenities.

In terms of spatial proximity and innovation, Literature shows that geographical proximity facilitates localised knowledge spillover between innovative firms and research institutes. Malmberg, Maskell, and Uppsala universitet (2006) report about the benefits of regular face-to-face interaction in the process of localized learning. Innovation can take many forms, literature distinct between incremental and radical innovation. For the purpose of this report, we chose to examine the incremental innovation rather than radical innovation. The reason is that incremental innovation is driven more by market-pull than technology-push. Since we are dealing with a sector that is adding service to its offer, we estimate that firms in this sector would be influenced by market challenges and customer demands and involved in incremental innovation by continually re-develop their offer.

Constraints related to innovation are generally categorized under the following factors: finance, management and marketing, skilled labour, and information. Through interview with firms we would be able to understand if these are applicable to small urban manufacturers.

In order to be able to measure innovation in firms this project adopts the framework introduced by Koberg, Detienne, and Heppard (2003), this framework has a softer approach towards measuring innovation and uses the following factors:

- “Procedural (management-determined innovations in rules and procedures)
- Personnel-related (innovations in selection and training policies and in human resource management practices)
- Process (new methods of production or manufacturing)
- Structural (modifications to equipment and facilities and new ways in which work units are structured).”

We will adopt this framework and consider firms as innovative if within the past two years they had introduced innovations in at least two of the four areas identified by Koberg *et al.*

The focus of this study will be on the changing face of manufacturing which is more service oriented compare to traditional manufacturing. In a manufacturing context the term “servitization” was introduced by VanDerMerwe and Rada (1988). They report that there is clear evidence that manufacturing firms are “servitizing” by adding services to their product. Scholars have used different terms to describe this new generation of manufacturing. Drucker (1990) used the term “New Manufacturing” for the first time and since then it has been adopted by some scholars and analysts. Marceau, Cook, Dalton, and Wixted (2002) explain the recent growth in service industries by arguing that it is not a sign of the arrival of ‘service economy’ or ‘post-industrial’ society. Rather, it suggests the growth of what they call “new manufacturing” in which manufacturers are increasingly incorporating services into their offerings to customers. Their study suggests the growth of a multiplicity of competitive strategies in which:

- As an essential part of what has been called ‘new manufacturing’, manufacturers are increasingly incorporating services into their offerings to customers,
- Service firms are increasingly adding a range of services to products produces by others.
- Project-based firms are linking services and products to services.

The most important overall message from their study is that “manufacturing is clearly not in decline”. They argue manufacturing is in a process of transformation to meet the demands of new markets.

Methods

A qualitative methodology has been adopted to investigate the research question through interviews with manufacturers. The activities and the methods applied at this part are informed by reviewing literature on urban manufacturing, industrial cluster, knowledge slipover, innovation and sevicization.

“Urban manufacturers” are an unknown sector, they are new and they have their own unique characteristics. In order to get the most out of the interviews and to give the opportunity to the makers to tell us about what we don’t know, a story telling interview approach has been adopted following Snowden (1999) and Sandelowski (1991). Sandelowski (1991) reports that in the shift from positivism towards interpretation in social science, researchers began to pay attention to the narrative nature of human beings.

Snowden (1999) refers to story as “a valuable tool to understand our current situation, anticipate possible futures and to prepare the organisation for action” and storytelling as a powerful mechanism for the disclosure of intellectual or knowledge assets and transferring complex tacit knowledge.

Based on the storytelling approach introduced in the literature, the interview questions are designed in a semi-structured format. Through these semi-structured interviews we want to query the following questions:

- What challenges do service-oriented makers face in their current locations?

- How important is an Inner city location for their business.
- Innovation through servicisation, Is there a competitive advantage?

Selection of firms

Selection of firms for interview is of outmost important. The study is designed for urban manufacturers and we need to make sure that the firms that we choose meet the criteria of “urban manufacturers”, Sassan’s description of urban manufacturing will guide us in this part. Firms will be chosen from the “IMAP area “which includes Cities of Melbourne, Port Phillip, Stonnington, Yarra and Maribyrnong.

In terms of firm’s size, we have identified and limited our study to the following description of firm size:

- Very small: 1-5 employees
- Small: 1-20 employees

We have investigated the ANZSIC code to recognize the sector/sectors that have the highest number of very small and small firms, According to (ANZSIC), 2006 the category that we are interested in has the most representatives in “other manufacturing” sector. This section contains the following subsection:

- Class 2591 Jewellery and Silverware Manufacturing
- Class 2592 Toy, Sporting and Recreational Product Manufacturing
- Class 2599 Other Manufacturing n.e.c.

Hence, our sample firms will be chosen from the geographical area of IMAP and within the subsections of “other manufacturing”.

6.3 ECONOMIC: QUANTITATIVE INQUIRY

Background and motivation

Land use pattern and its change lie at the heart of modern thinking of urban development, as land use deals with the spatial aspects of human activities and the way it is adapted, or could be adapted, to serve human needs (Best, 1981).

In the current context of metropolitan growth and economic development, policy debates over land management and zoning depend upon the forces governing the geographic relationship of different land use types. While there is a national census that details the demographic status of population and housing, there is no consistent census on land use, employment and employers.

Being a generally lower order land use, manufacturing land lies central to decision making on land use change, with pressure for change to higher order uses. However, small urban manufacturing continues to emerge as a more intense, smaller land requirement and service orientated land use that has become more interactive with other land uses. But how have SUM come to establish within the inner urban context, and what are the key driving factors for their location choice?

Within the literature, there is a fairly developed understanding of manufacturing firm's decision making for large scale producers that require vast land quantities with a primary location decision making based on outer suburban areas with sound transport access due to logistics, land costs and the availability to large lower skilled labour markets. However, the understanding of SUM within an inner urban environment is not understood.

Research questions

This pilot project seeks to contribute to our understanding of a lessor studied urban spatial structure of small urban manufacturing, by empirically investigating the location decisions that impact on the employee and employer for small urban manufacturing within inner Melbourne.

Small urban manufacturing firms have established as a genuine and valid economic input for consideration, protection or incubation, but is the inner Melbourne location required for these firms to establish, grow and prosper?

Historically other land uses were not overly compatible with industrial and manufacturing firms, with specific zoning required to protect the externalities from production. However, existence of high valued SUM firms within inner city Melbourne may lead to other land uses being more compatible, hence considering a policy response from the Local Government Authority (LGA) and the Melbourne Planning Authority (MPA) on the broader land use mix may now be appropriate.

What is challenging to understand for small urban manufacturing firms within the inner metropolitan context is the divergence away from location theory being central to the reduction of costs rather than the labour market factors.

If SUM in inner urban locations are centred on high valued manufacturing, and the labour force required is more highly qualified then a lack of support for these uses in inner urban location may push these manufacturers to outer urban locations or cease to exist at all in the local market. Hence, an understanding of the potential ramification of relocation from a stated preference perspective within the survey is required. This methodical step will test any economic loss that may be resultant from location pressure being placed on SUM firms.

Crucially, if the location decision of SUM is driven by access to labour markets, say over clustering potential, the result of this land use change pressure away from inner urban locations may result in detriment to both the industry, the labour market and the economy.

Methods

A quantitative methodology has been adopted to test the primary driver of location choice for SUM, with additional support from qualitative location based employee information, such as ABS journey to work data. There is a finer grain of detail required to understand the location decisions for SUM, which generally encompass five (5) major decision making factors:

- ACCESSIBILITY – Transport, proximity to the airport, freeway / highway, Melbourne CBD, Port of Melbourne, road Infrastructure, rail Infrastructure, public transport and retail.
- ACCESSIBILITY – to markets, suppliers, customers, competitors, service sector (legal, finance etc.) or materials.

- LABOUR - Access to a skilled or un-skilled workforce
- CAPITAL - Cost of land / rent, Access to capital, New facility, Existing facility
- LAND - appropriate planning zone, proximity to owners residential location or mixed use residential areas and access to large landholdings
- INNOVATION – Proximity to creative spaces, peer firms, innovative communities or local technology.

The survey was designed to gain data on the relationship between businesses and their location decision with respect to each of the identified decision factors. The survey allows some prime facie conclusions in regard to SUM decision-making process and consequences in light of pressure for re-location out of the inner Melbourne area. These spatial consequences have often been ignored (McMillen, 1989), resulting in limited available valid data or improper statistical inference. The unit of observation considered was each SUM firm, whilst the behaviour of these firms are considered a binary choice with each location factor providing an explanatory variable as the primary reason or next valid reason to locate within inner Melbourne.

Out of the five (5) factors identified, the labour market is likely to have the strongest local economic input within the inner urban context, providing the strongest connection between the SUM industry and the community. Other factors such as innovation and accessibility to customer / supplier markets are also likely to be encouragement factors for SUM to locate in inner Melbourne. However, capital and land factors appear likely to discourage SUM from locating within inner Melbourne given higher costs of land and limited land availability.

Underlying this approach is that the knowledge and experience required within SUM firms is considerably different to traditional large format industry / manufacturers. Hence, a different policy response may be required from a land use perspective.

Theoretical and Empirical Framing

There is a fair level of existing literature on location theory to understand the criteria for site selection, such as labour, access and the availability of resources. The most prominently and clearly defined papers are by Weber (Weber, 1909; Weber & Friedrich, 1929a, 1929b), Marshall (1920) and (Moses, 1958), who consider a historic approach based on the principle of profit maximisation. For these theories to hold in the context of SUM within inner Melbourne, each firm must prioritise accessibility, labour, innovation over the land and capital costs, i.e. a firm will pay a higher property costs (be it either purchase or rent), which is offset by a stronger desire to be located within inner Melbourne. Bartik (1985) follows a similar cost benefit analysis assuming revenue opportunities across locations are similar but allows for a variation in costs in determining the location decision. Once again, this explanation does not appear to validate the location decision of SUM to be within inner Melbourne.

Perhaps contrary to the establishment of SUM in inner Melbourne, [Erickson and Wasylenko \(1980\)](#) notes the manufacturing sector tends to be more cost-oriented and sensitive to location variance, in comparison to population driven services such as retail that are revenue sensitive.

The literature generally identifies that firm choices, in particular where they have clustered together, are complex and multi-dimensional in terms of their geographic location. It then focuses to measurable outcomes in an attempt to understand the changes, which is what is being proposed within this pilot survey of the key five (5) factors of location decision.

Historically, manufacturing firms were located primarily in industrial zonings, which are quite restrictive for mixed land uses but made sense to firms because of distribution and transport network. However, with the increasing globalisation and mobility of goods metropolitan, nationally and internationally, the location of where and why firms choose to locate within an inner urban locations is not as clear.

Kohlhase and Ju (2007) form a view that the source of labour was a key factor in location choice, with firms likely to pay a premium, such as rent and congestion, for higher costs of locating in locations that were labour rich, or where specialist labour skills were required. Whilst they did not consider SUM in particular, the location of SUM within an inner urban context may be driven by the population and activity density, access to labour and other physical factors that an inner urban context offer.

C. Mills (2004) forms a different view arguing the need for physical communication will drive a firm's location choice, considering that a firm's production must rely on the physical communication, otherwise the location decision is null and void. If manufacturing firms do not require this communication, they will not pay a premium to locate in the inner urban areas regardless of the density. It is not clear if the need for physical communication is less relevant for manufacturing firms, or if advances in technology within supply chain networks and distribution allow firms greater choice to their location.

Freestone and Murphy (1998) form a similar view, considering the location of firms is influenced by the wider structure of planning controls and infrastructure. In the context of re-zonings and other higher valued uses encroaching on land suitable for manufacturing, their conclusion would be a probable outcome but their review does not necessarily analyse the decision making process but rather the outcome of policy leading to favourable or unfavourable outcomes.

What is clear from the literature on firm location decisions is that there are a myriad of important and influencing factors, such as cluster potential, planning controls, infrastructure and a firm's need for communication that are most dominant. However, the location of SUM within the inner urban context moves away from price sensitive and transport measures and may be more intertwined with how SUM's have evolved over time.

Once it has been established that firms are locating within an urban context, equally relevant is the development policy response that either supports their development or attempts to development economic advantage. Doeringer and Terkla (1995) highlight the improper use of development policy which are poorly implemented and/or not commercially relevant. C. E. Mills (2000) contends that a structural response occurs between firms, residents and the labour market given the changing technology and preferences. This is particularly relevant if SUM in inner urban Melbourne have become more efficient over time, or are choosing to locate in inner urban locations for lifestyle or other preferences.

Much of the literature on location decisions for small urban manufacturing tends to restrict analysis to a total employment aggregate, or limits its manufacturing sector review to broad categories (Lopez & Olivera, 2005). Evidence that the manufacturing sector should be maintained within the inner urban environment is harder to come by, especially if the sector is highly price sensitive and maximises distribution efficiencies. Although Guillain, Le Gallo, and Boiteux-Orain (2004) suggest inner urban employment may be associated with sector specialisation for firms that innovate and are more technically advanced.

The differing of opinion, evidence and literature interpretations confirm the complexity in understanding location decisions related to manufacturing, particularly within the inner urban environment. To firstly understand the location decision of SUM, will then give a greater understanding to the economic impacts should these firms be placed under pressure to relocate due to policy implications. In a data poor environment, it is not clear what would be the outcome of SUM if they are driven out of the inner urban area due to pricing or zoning changes.

7. PHASE 1 FINDINGS, EXISTING DATA

The project team has analyzed existing data sources and found what we expected: they are insufficient to address the land, sector, and economic questions that we raise in this project. This section describes firms in the IMAP area using the available data, and critiques the data sources against the project objectives.

7.1 DATA SOURCES

This section provides some summary statistics of the outputs from the available data for small urban manufacturing (SUM) firms. The outputs allow consideration for survey questions and can be used as key parameters for model testing. Data on each chosen industry sector is also required to address specialisation for SUM in comparison to other manufacturing firms.

We began the project activities by reviewing the datasets that the IMAP councils routinely develop, buy, or acquire from other government agencies. The Cities of Melbourne and Port Phillip provided the University team with a thorough list of their datasets, which number in the dozens. From those lists, we were able to see that there are only a handful that had data applicable to our inquiries. In the remainder of this section, we describe these datasets and their capacities and limitations, and we provide an illustration of these capacities and limitations.

Each dataset provides an insight into some aspects of the economic, land or sector approaches. However, no dataset provides comprehensive and consistent data across each approach. The datasets we describe in this section, and review in forthcoming sections, include:

- Australia Bureau of Statistics Census (2001, 2006, 2011), including the Journey to Work (JTW) data
- City of Melbourne Census of Land Use and Employment (CLUE) survey
- Australian Business Register (ABR) data.

This section additionally addresses the issue of why we have not developed descriptive statistics from some of the various other business datasets available in Australia.

Australia Bureau of Statistics Census (2001, 2006, 2011)

The Census of Population and Housing “Census” from the Australian Bureau of Statistics (ABS) provides information on population and is a geographically-comprehensive source of population and employment profile data. The data is undertaken at a person and household level but reported in Census geographies.

In addition to demographic and household data, journey to work information can also be derived from the ABS Census. The data profiles the location and occupation of workers and details the number of jobs by industry. The Census provides is with employment statistics by location, ANZSIC code (three digit), and occupation in reasonably-large geographies called Destination Zones.

The Journey to Work data does not link employer information, akin to other international examples of employee-employer datasets in the international literature, e.g., (Jensen, 2010;

Lane & Stephens, 2006), but matches the employee survey response with the workplace location.

For our project purposes, there are a few notable shortfalls with the JTW data including:

- The large geographic area the destination zones encompass. In the 2011 Census, for instance, the Melbourne CBD was a single destination zone, as was each of the other IMAP LGAs. These broad geographies do not allow analysis of clustering and small-area nuance.
- The data does not specify a particular industry, i.e. one can not attribute employee data specifically for SUMs.
- The lack of consistency of DZ with other reports geographic levels from the Census. The DZ are a unique geography, which compares to the majority of other Census geographic areas which are combined from a base Statistical Area 1 (SA1) or Census Collection District (CCD).
- The lack of consistency in DZ boundaries between each census period. This is particularly problematic given the time-series nature of the investigation, one can not confirm the extent the boundary changes has impacted the economic outcome.

Destination Zones are not inter-related with Planning Zones, and can contain a variety of land uses that may not be economic activity generators, such as residential land and public open space. This is problematic when comparing employment between DZ's within a single census year or over a time series. For example if a public open space accounts for a considerable proportion of a particular DZ, then the data may be skewed to a lower employment density relative to other DZ's.

Another problematic issue with this data are the timeframes (5 year interval), which may not allow the explanation of the true situation in regard to firms and their interaction with the labour market, particularly where major global and local economic factors, such as the Global Financial Crisis, have occurred.

By far the most important and limiting aspect of the Census for this study is that it does not provide information on firm sizes. This is not a flaw of the dataset: it is not meant to provide economic data. There are other purpose-built datasets in Australia whose purpose is to provide this data, but as we will demonstrate, this data is also not useful for this study because it lacks crucial information.

Given the above, we can use the Census data to estimate the size of a sector, i.e., how many people work in certain kinds of industries and in certain kinds of jobs, which we do below. However, the Census gives us no way of knowing whether those people work in small, medium, or large firms.

City of Melbourne Census of Land Use and Employment (CLUE) Survey

The City of Melbourne has prepared the Census of Land Use and Employment (CLUE) survey, which provides comprehensive information about firms (identified within CLUE as 'Establishments') within the City of Melbourne. The CLUE is prepared by undertaking a physical inspection of these firms within the entire City of Melbourne area which is broken into a city block geographic level. Figure 1 shows the CLUE area. The key data variables recorded of particular relevance in the reviewing the labour market within SUM firms includes:

- industry structure and type (ANZSIC code and number of establishments or business locations).
- floor space type and use (office, retail, industrial, accommodation, entertainment, office vacancy rates).
- employment type and status (full time, part time, casual, contractor, male and female).
- building information (number of floors, year of construction, gross floor area, lettable area).
- venue and capacity measures (ie. off street car parking spaces, bicycle and shower facilities, conference and meeting seats etc.).

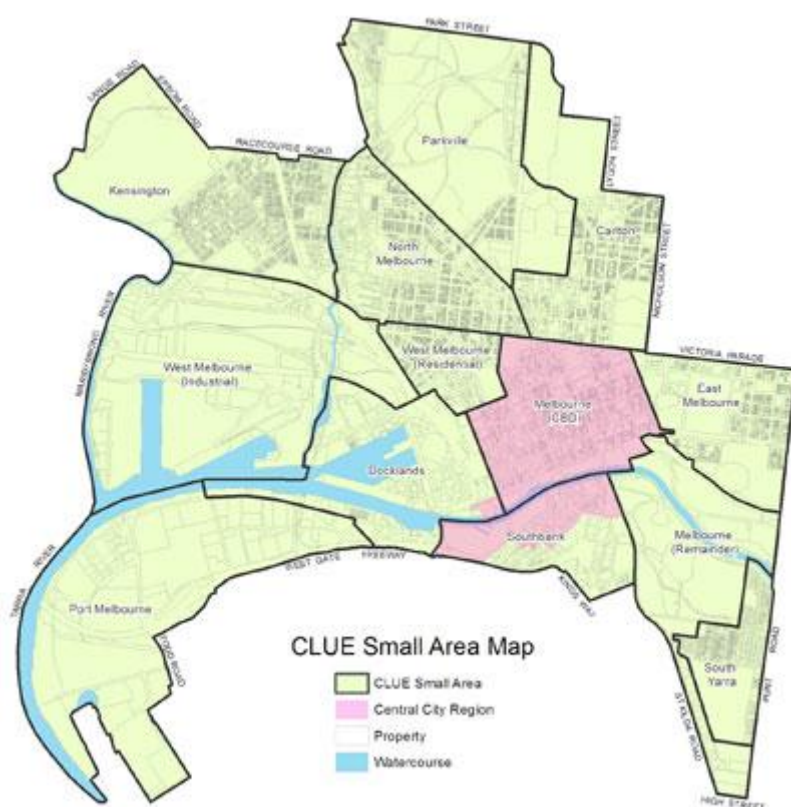


Figure 7.1. CLUE Area

[Source: CLUE small area and block maps, (City of Melbourne, 2015)]

In addition to the firm data variables, the floorspace is also identified in terms of how it relates to parts of floors for individual businesses, such as manufacturing, workshop / studio and other storage measures. A total of 13 standard defined small areas are publically available from the City of Melbourne based on official suburbs including Melbourne Central Business District (CBD), Melbourne (remainder), Southbank, Docklands, West Melbourne (residential), West Melbourne (industrial), Parkville, East Melbourne, Port Melbourne, South Yarra, Carlton, North Melbourne and Kensington.

Unlike the JTW data, the CLUE data provides information of firm size, in addition to providing many other important indicators and a firm's precise location. The CLUE has been collected since 1962, and has been regularly collected – every two years – since 2000 (City of

Melbourne, 2014). The dataset thus provides useful longitudinal picture of land use and employment in the City of Melbourne.

The major drawbacks of the CLUE data for this project's purposes are:

1. The dataset is available only for the City of Melbourne, and not for the other IMAP councils. Some CLUE-type censuses have been attempted in other Victorian localities such as Whittlesea and Geelong, but these have been sporadic both geographically and temporally.
2. The dataset is not set up to track individual firms from census to census.

Australian Business Register data (ABR)

ABR data provides a measurement on all registered businesses, which are required to formally register for taxation purposes. Firm characteristics available of relevance for this project include entity name, business name, main business address, additional business location address and ANZSIC code. Whilst limited data is released at a firm level, the comparison and understanding that the ABR data provides at an industry level provides a guide to the number of firm births, firm deaths and net position. Around 80 percent of the addresses for these firms have been geocoded, and these geocoded files were made available for the research team. This gives the actual location of each firm, which is valuable information in studies of sector and economic effects. This geocoded ABR data is available for all of Australia, so comparisons of the IMAP area with other parts of the Melbourne region are possible with the dataset.

Despite the fine-grained detail and wide scope of the ABR data, there are significant limitations that prevent it from being useful for our study. Most notably, the data that the ABR provides currently for most research does not provide information that can inform research about firm productivity, growth, or size. This makes it impossible for small makers to be identified from the dataset.

Interestingly and recently, the ABR purged around two million registered firms from their rolls, on the grounds that the firms did not meet the criteria for engaging in commerce. Many of these were hobbyists. These purged firms may contain some small makers. We expect our qualitative research to address the issues of some firms that were dropped from ABR rolls.

Other Employer–Employee Datasets

One of the challenges when reviewing industries and how they operate is the data limitations from both an employee and employer perspective, with the ABS not undertaking employment level data at an employer level, considering only the Census user survey responses. This challenge is cited most notably by Rosen (1985), stating:

“on the empirical side of these questions the greatest potential for future progress rests in developing more suitable sources of data on the nature of selection and matching between workers and firms. Virtually no matched worker-firm records are available for empirical research, but obviously are crucial for the precise measurement of job and personal attributes required for empirical calculations”

Australia does not have a consistent or comprehensive employee-employer dataset. In 1995, the Australian Workplace Industrial Relations Survey attempted to sample employer information from an industrial relations perspective but is not widely used and is dated (ALMEIDA-SANTOS & Mumford, 2004).

Employee – Employer datasets are increasing being used at an international level within New Zealand, United States and other countries. One of the key benefits of these datasets is the ability to track employees and firms over a time series, particularly with regard to understanding a firm location decisions should a firm relocate, but also other factors such as skill level change, wage levels and the interactive role the labour market places on firms. In the remainder of this section, we review of employee-employer datasets to inform the survey questionnaire for SUM firms.

One of the most comprehensive employee–employer databases is the Norwegian LEED which provides data on employees (including demographic data on age, gender, education levels), employee jobs (including data on wages, hours worked, position, benefits) and firms (including data on industry). Similar to the CLUES database, a discrete number is allocated to each individual and firm to allow tracking over a time series (Hunnes, Møen, & Salvanes, 2007).

A large employee-employer dataset used for the manufacturing sector is established within the United States and is named the Worker Establishment Characteristics Database (WECD) – *refer attachment 1 for survey variables*. This dataset enhances the U.S Census with a range of other datasets (Carrington & Troske, 1998). WECD contains a significant dataset of 16,000 manufacturing firms with around 200,000 manufacturing employees and matches workers to establishments within a standardised geography and industry code. The Japanese Matched Employer–Employee Database (MEED) undertakes a similar approach to the US, but only considers firms with 30 or more employees.

Even with such significant employer-employee datasets, direct measures of worker productivity and qualitative factors are challenging to obtain within empirical research

In the remainder of this chapter, we illustrate the kinds of outputs that are possible with the CLUE, ABR, and JTW datasets. We conclude that the accuracy and scope of each data set and any correlation that can be made between the data sets is problematic for the analysis of SUM firms. There are several explanations for this, but the over-arching lesson is that the existing data are insufficient to address our questions. A new quantitative data-collection instrument is needed.

One of the key challenges with the data is the compilation of a comprehensive data set that encompasses all data elements from each of these data sets, but relevant and descriptive of SUM. Whilst some international examples have progressed to comprehensive employee and employer data sets to understand movements over time, the available data within the Australian and inner Melbourne context offer limited guide to SUM.

7.2 WORKING DEFINITIONS

As we describe in Section 4, future project work will see finer definitions of some key terms emerge from empirical and qualitative analysis. However, for this preliminary data analysis, it was necessary to make some determinations about firm size so that statistics could be reported.

The following categories were developed for data sources where employee numbers were available.

- Very Small: 5 or fewer employees
- Small: 6-20 employees
- Medium: 21-50 employees
- Large: >51 employees.

Other variable that could be used to define SUM include economic output or floorspace requirements, but these variables are not reported with confidence.

In addition to firm size, it was necessary for the statistics below to be specific about which industrial categories were to be included. At this stage, as per the “What makes a maker” section above, we did not wish be too prescriptive about what kinds of firms should be included as makers. We are still asking important questions of the data, such as whether tofu makers and other producers of relatively standard products are engaged in innovative activities.

For this reason, the results shown below reflect all ANZSIC codes that indicate that a made product is the central focus of the business. In short, we allowed all of the firms listed under the “Manufacturing” category in to be included. Additionally, outside of the manufacturing sectors, there are ANZSIC categories for firms engaged in activities that result in made products. These largely correspond to print media, film, and television products such as printing and publishing, studio and set design, and other similar categories. These additional categories, about 10 ANZSIC codes, were also included in the statistics generated below. We used three-digit ANZSIC codes because the categories reflected, e.g., textile product manufacturing or motor vehicle manufacturing, are specific enough to be comprehensible to a general audience and meaningful for analysis, but not too specific that the number of makers engaged in those categories is very few.

7.3 CENSUS JOURNEY TO WORK DATA

The journey to work data allows for a shift share analysis to understand the comparative advantage / dis-advantage of industries by ANZSIC code for a given area relative to the wider area, in this case the inner Melbourne area relative to metropolitan Melbourne. This analysis confirms the role inner Melbourne plays within each specialist industry for producing a good or service. The purpose of analysing shift share analysis is to:

- Identify industries in which the inner Melbourne location has sustained a comparative advantage, allowing for a deeper understanding of industries than are positive in policy making.
- Confirming industries that offer a relative dis-advantage, to consider industries that may need further review or industries that may not be appropriate in the spatial context.

Using historical Journey to Work data by industry between the previous two census periods (2006 and 2011), the change in local employment for the manufacturing workforce, we seek to understand:

- How much change is attributed to the wider Metropolitan Melbourne growth overall? (National growth effect)
- How much change was attributable to the overall performance of manufacturing industry in Metro Melbourne? (Industry mix effect)
- How much change can therefore be attributed to Inner Melbourne's competitive performance in the manufacturing industry relative to the rest of metro Melbourne? (Regional competitive effect)

When considering the results of the shift share analysis, it is important to note the growth of employment within certain locations does not necessarily result in a replica of existing or moved facilities (Guillain et al., 2004). They can either operate autonomously by complementing firms or result in a loss of existing facilities.

They extend this point further by considering the type of service that drives geographic proximity. For example, manufacturing firms may not have strong linkages to other manufacturing firms, but may benefit from proximity to common suppliers, whilst service sector firms such as legal have strong linkages.

Melbourne Employment overview

Given the high land values within the inner urban area of Melbourne there appears to have been a movement towards specialisation in a number of industries, suggesting these firms may be attracted to a local economy and any benefits these may allow for. For example, Collingwood appears to have a high concentration of furniture, clothing and fabric manufacturers.

The ABS census across 2006 and 2011 shows us that the number of employed people in metropolitan Melbourne has increased from 1.5 million to 1.7 million over the five years. The five largest industries were health care & social assistance (12%) retail trade (11%), However, manufacturing was the only industry that recorded a significant decline in employment with small declines seen in the agriculture and wholesale trade industries.

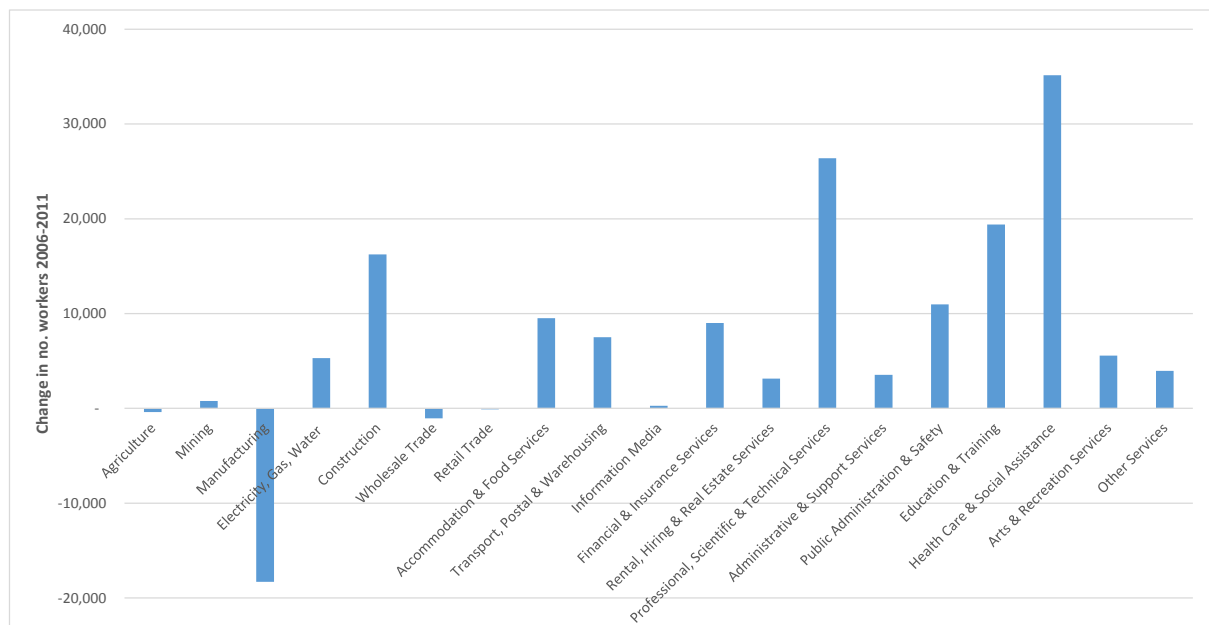


Figure 7.2. Manufacturing Employment Change by Sector, 2006-2011

(Source: Australian Bureau of Statistics Journey to Work Data, 2006 and 2011)

Growth in total employment across Melbourne between 2006 and 2011 was 9%. Over the same period employment across the manufacturing industry in Melbourne has declined by 9%. This is consistent with manufacturing within inner Melbourne which has declined by 7% over the same period. This translates to 1,996 less people working across the manufacturing industry in Inner Melbourne.

While many of the sub-sectors within manufacturing industry decreased employment, a number of sub-sectors actually increased, the largest being pharmaceutical and medicinal products followed by professional and scientific equipment. The following chart shows the highest and lowest absolute changes in employment for the sub categories (ANZSIC 3 digit) across the manufacturing industry within inner Melbourne between 2006 and 2011.

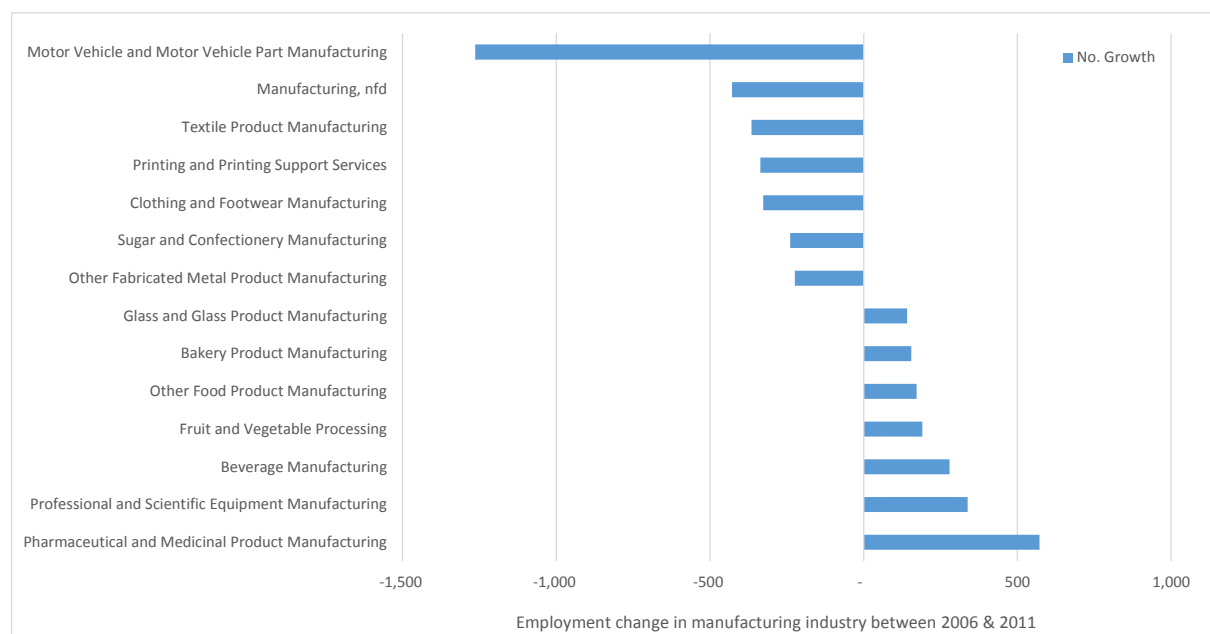


Figure 7.3. Manufacturing Employment Change by Sector, 2006-2011

(Source: Australian Bureau of Statistics Journey to Work Data, 2006 and 2011)

For the same sub manufacturing industries the following chart illustrates the growth or decline in comparison to the wider Metropolitan Melbourne. Generally speaking, the inner Melbourne area observed more substantial growth and more severe losses for each sub-sector compared to metropolitan Melbourne.

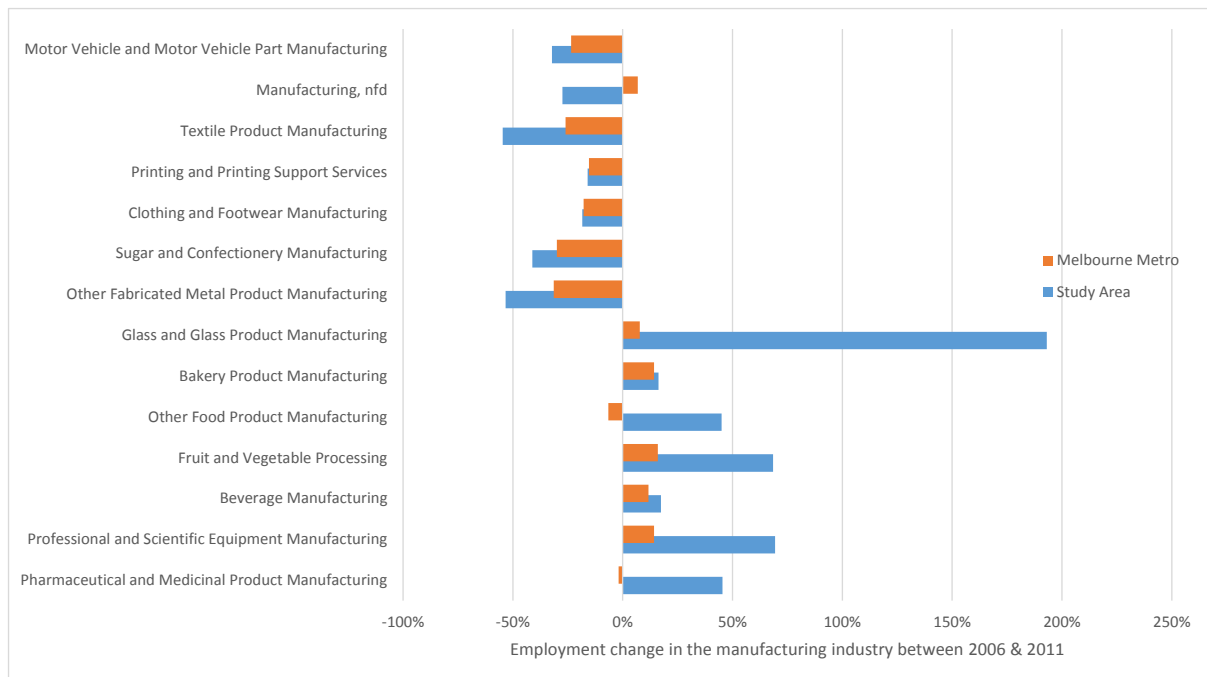


Figure 7.2. Manufacturing Employment Change by Sector, Melbourne Metro and IMAP Area, 2006-2011

(Source: Australian Bureau of Statistics Journey to Work Data, 2006 and 2011)

The purpose of this shift-share analysis seeks to determine the manufacturing industries growth by establishing:

- **National Growth Effect** – $27,021$ (2006 Study Area Manu) * 9% (total employment growth Melbourne) = $2,406$ jobs are attributed to the Metropolitan Melbourne growth in general.
- **Industry Mix Effect** – $27,021$ (2006 Study Area Manu) * -9% (manufacturing growth Melbourne) = $-2,365$ (expected growth) then subtracting $-2,406$ (national growth effect) = $-4,771$. This decrease of employees can be attributed to the fact that the manufacturing industry performance is worse than metropolitan Melbourne economy performance overall.
- **Regional Competitive Effect** – $-1,996$ (total regional growth) – $-2,365$ (expected growth) = 369 employees in the manufacturing industry in inner Melbourne that can be attributed to advantages the industry has in the local area.

Considering this employment change as a percentage compared to metropolitan Melbourne, the manufacturing sub-sector industries have a dynamic mix of performance outcomes, with the following chart illustrating the growth or decline in comparison to the metropolitan Melbourne for small and larger firms within each ANZSIC.

Another way to understand industry potential is to create a four-quadrant sector classification system, wherein all firms are categorized according to their industry size and recent performance. Using the JTW data, we classify sectors as one of the following, in terms of employment numbers:

- large and growing
- large and declining

- small and growing
- small and declining

We define “large” to be a sector one with more than 200 employees in the metropolitan area. While this cut-off is reasonably arbitrary, the distinction matters little to the interpretation of the data, as we can see in Figure 7.3. This figure shows the distribution of sectors in each of the four quadrants, and clearly indicates that there are many more small sectors than large ones, as expected. Figure 7.4 is much more interesting. It shows only small sectors (less than 200 employed in the metropolitan area), and indicates that there are many more small and declining sectors than small and growing sectors.

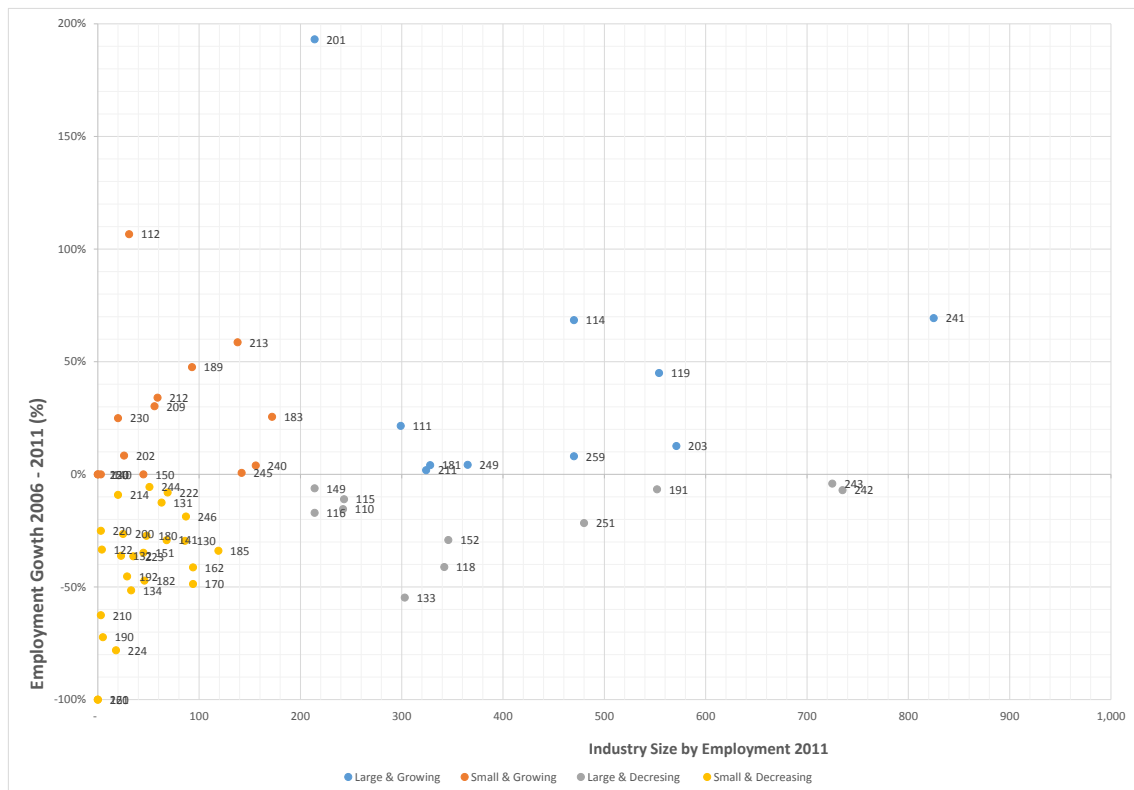


Figure 7.3. Manufacturing Employment Change by Sector and Industry Size, Small and Large Sectors, 2006-2011

(Source: Australian Bureau of Statistics Journey to Work Data, 2006 and 2011)

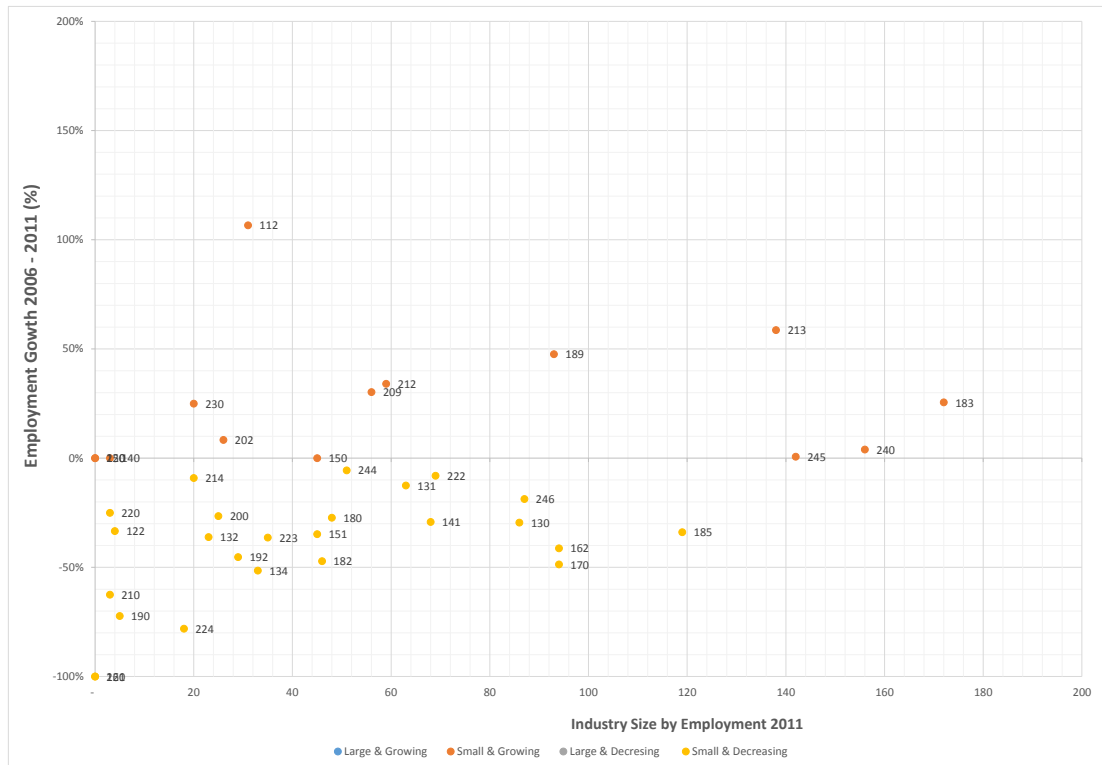


Figure 7.4. Manufacturing Employment Change by Sector and Industry Size, Small Sectors, 2006-2011

(Source: Australian Bureau of Statistics Journey to Work Data, 2006 and 2011)

When focusing in further detail within the inner Melbourne study area to consider each of the five (5) municipalities and the four shift share components, manufacturing recording higher employment growth across each sub area despite lower than average employment growth in the metropolitan Melbourne.

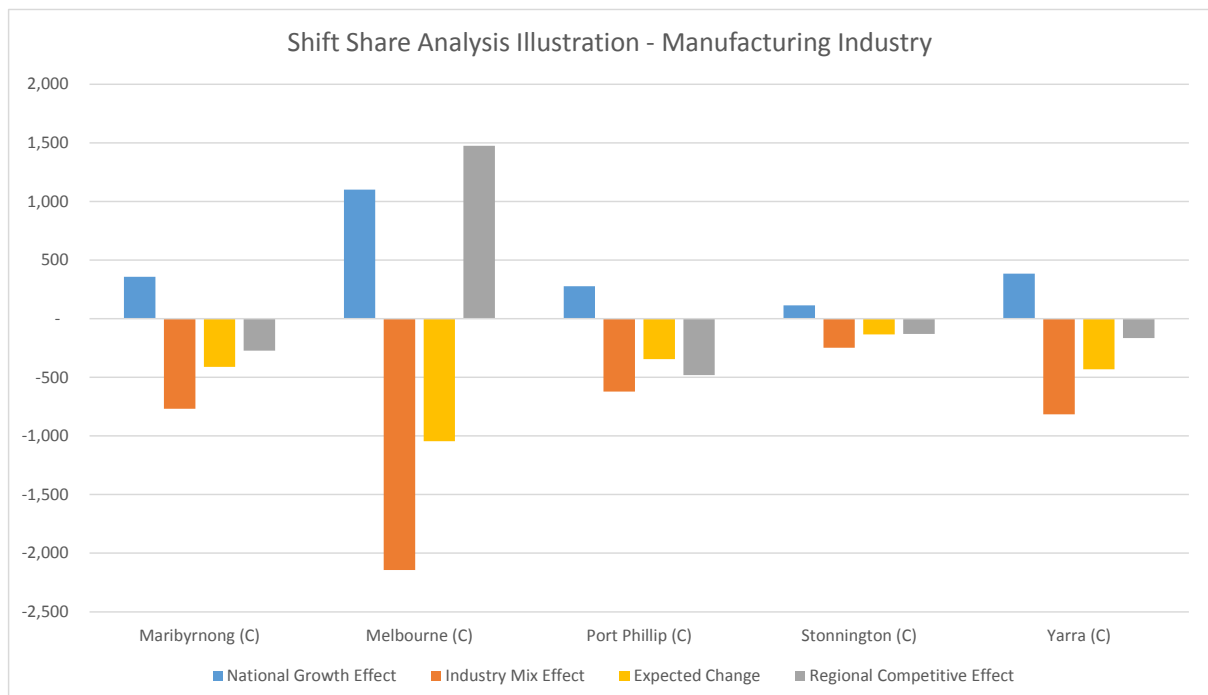


Figure 7.5. Manufacturing Shift Share Results by City, S2006-2011

(Source: Australian Bureau of Statistics Journey to Work Data, 2006 and 2011)

Less than half (41%) of the manufacturing industries recorded positive employment growth between 2006 and 2011. The overall employment growth of metropolitan Melbourne contributed -115% of employment reductions, while factors unique to the study area contributed 22% of employment growth. These declines were also impacted by declines in employment attributed to changes across each industry sector.

As a whole, pharmaceutical and medicinal product manufacturing (592 jobs), professional and scientific equipment manufacturing (270 jobs) and “other food product” manufacturing (202 jobs) received the greatest benefits as a result of regional competitive effect. To assist in understanding the shift share analysis by industry sub-sector, the manufacturing industries have been broken into four different types:

- Type 1: includes industries benefiting from metropolitan wide economic and industry growth as well as experiencing regional competitiveness causing them to experience more substantial growth. Across the study area these industries include a number of food and beverage industries as well as professional and scientific equipment which could be experiencing benefits from access to transport networks, supportive services nearby, access to skilled workers etc.
- Type 2: These are industries that are underperforming compared with wider metropolitan growth. Industries such as basic chemical product manufacturing have the potential to contribute substantially to employment growth locally. Identification of factors influencing the disadvantage to inner city locations could assist in improving the performance in this sector (e.g. skills shortage, limited transport infrastructure, industry linkages).
- Type 3: These industries represent mostly declining industries across metropolitan Melbourne where businesses should focus on finding new opportunities or markets. This is the most common category across inner Melbourne and include industries such as motor vehicle and motor vehicle part manufacturing, printing and printing support services.
- Type 4: These are industries benefiting from regional competitiveness despite the metropolitan decline and should identify their competitive advantages and use to drive further growth. A good example of this is the pharmaceutical and medicinal products industry which experienced job reductions across the metropolitan area while Inner Melbourne attracted an increase of 569 jobs.

Summary by Industry across LGA’s highlighting any key growths/declines

At the manufacturing industry division level (3 digit ANZSIC code), many industries showed negative employment growth between 2006 and 2011. A summary of results is:

- Food manufacturing: generally increasing with strong increases in both dairy and fruit moving into Melbourne. Sugar and confectionary is made a significant exit from Port Phillip LGA with a 274 job decline.
- Beverage manufacturing grew across each LGA, especially Melbourne which increased by 243 jobs, except Yarra (120 job losses).

- Clothing, textiles and footwear manufacturing has experienced significant (and often the highest) job losses as these industries are typically moving to international countries with a cheaper labour force.
- Wood product manufacturing declined nationally and locally.
- Pulp, paper and converted paper manufacturing declined except within Port Phillip which remained stable.
- Basic chemical and chemical product manufacturing: This industry produced a growth industry in pharmaceutical and medicinal product manufacturing, particularly across Melbourne LGA (292 jobs) and Yarra (300 jobs).
- Polymer product and rubber manufacturing is declining nationally and within the study area
- Non-Metallic mineral product manufacturing: Maribyrnong has growth in the glass product manufacturing field with 136 jobs while cement, lime, plaster and concrete product manufacturing showed a 213 job increase in Melbourne.
- Fabricated metal manufacturing, had one sub industry that experienced decline in Maribyrnong LGA which was the other fabricated metal product manufacturing with 152 jobs lost.
- As expected the motor vehicle manufacturing industry experienced declines across the study area and wider metropolitan and this business is expected to move operations to international countries. The biggest impact was in Melbourne with a 1,139 job decline between 2006 and 2011. However, most of the manufacturing firms within this sector are likely to be large format / scale manufacturers.
- Machinery and equipment manufacturing: This industry had mixed results across the sector except in the professional and scientific equipment manufacturing industry which recorded a large growth in Melbourne (210 jobs) and Yarra (90 jobs).
- Furniture and other manufacturing: experienced mostly declines across the metropolitan and locally within LGA's.

Type 1: Regional competitiveness and metropolitan growth

There are 8 industries where the local industry is growing at a faster rate than the Metropolitan Melbourne industry levels.

Table 7.1. Fast Growth of Local Industry, 2006-2011

| | Actual Employment Growth (2006-2011) | National Regional Effect | Industry Mix Effect | Regional Competitive Effect |
|---|--------------------------------------|--------------------------|---------------------|-----------------------------|
| Fruit and Vegetable Processing | 194 | 25 | 20 | 149 |
| Bakery Product Manufacturing | 155 | 85 | 51 | 19 |
| Beverage and Tobacco Product Manufacturing, nfd | 0 | 0 | 0 | 0 |
| Beverage Manufacturing | 259 | 143 | 46 | 70 |
| Wood Product Manufacturing, nfd | 3 | 0 | 0 | 3 |
| Fertiliser and Pesticide Manufacturing | 30 | 12 | 17 | 1 |
| Professional and Scientific Equipment Manufacturing | 340 | 43 | 26 | 270 |
| Furniture and Other Manufacturing, nfd | 3 | 0 | 0 | 3 |

(Source: Australian Bureau of Statistics Journey to Work Data, 2006 and 2011)

Type 2: Local disadvantage but metropolitan growth

There are 7 industries that experience negative local impact on employment despite strong industry performance across Metropolitan Melbourne.

Table 7.2. Slow Growth of Local Industry, 2006-2011

| | Actual Employment Growth (2006-2011) | National Regional Effect | Industry Mix Effect | Regional Competitive Effect |
|--|---|-----------------------------|---------------------|--------------------------------|
| Food Product Manufacturing, nfd | -46 | 25 | 90 | -162 |
| Basic Chemical and Chemical Product Manufacturing, nfd | -19 | 6 | 15 | -40 |
| Polymer Product and Rubber Product Manufacturing, nfd | -9 | 1 | 3 | -13 |
| Primary Metal and Metal Product Manufacturing, nfd | -3 | 1 | 1 | -5 |
| Basic Non-Ferrous Metal Product Manufacturing | -2 | 2 | 1 | -4 |
| Fabricated Metal Product Manufacturing, nfd | -2 | 0 | 1 | -3 |
| Transport Equipment Manufacturing, nfd | 1 | 1 | 1 | -1 |

(Source: Australian Bureau of Statistics Journey to Work Data, 2006 and 2011)

Type 3: Local businesses underperforming in low growth industry

The most common situation across the manufacturing industry this category has 30 industries recording slower than average employment growth both locally and across the region.

Table 7.3. Slow Growth of Local and Regional Industry, 2006-2011

| | Actual Employment Growth (2006-2011) | National Regional Effect | Industry Mix Effect | Regional Competitive Effect |
|---|---|-----------------------------|---------------------|--------------------------------|
| Manufacturing, nfd | -417 | 139 | -32 | -524 |
| Oil and Fat Manufacturing | -26 | 24 | -20 | -30 |
| Grain Mill and Cereal Product Manufacturing | -44 | 23 | -41 | -26 |
| Sugar and Confectionery Manufacturing | -237 | 52 | -226 | -63 |
| Textile, Leather, Clothing and Footwear Manufacturing, nfd | -34 | 11 | -21 | -24 |
| Leather Tanning, Fur Dressing and Leather Product Manufactur | -13 | 3 | -12 | -4 |
| Textile Product Manufacturing | -366 | 60 | -234 | -192 |
| Clothing and Footwear Manufacturing | -327 | 158 | -474 | -11 |
| Log Sawmilling and Timber Dressing | -28 | 8 | -22 | -14 |
| Pulp, Paper and Paperboard Manufacturing | -25 | 6 | -20 | -11 |
| Converted Paper Product Manufacturing | -142 | 43 | -102 | -84 |
| Printing (including the Reproduction of Recorded Media), nfd | -3 | 0 | -1 | -2 |
| Printing and Printing Support Services | -339 | 188 | -511 | -16 |
| Reproduction of Recorded Media | -68 | 14 | -46 | -36 |
| Petroleum and Coal Product Manufacturing | -88 | 16 | -30 | -74 |
| Basic Polymer Manufacturing | -41 | 8 | -19 | -29 |
| Cleaning Compound and Toiletry Preparation Manufacturing | -60 | 16 | -28 | -48 |
| Natural Rubber Product Manufacturing | -25 | 5 | -22 | -8 |
| Non-Metallic Mineral Product Manufacturing, nfd | -12 | 3 | -4 | -11 |
| Structural Metal Product Manufacturing | -3 | 7 | -7 | -3 |
| Metal Container Manufacturing | -21 | 5 | -13 | -13 |
| Sheet Metal Product Manufacturing (except Metal Structural ar | -66 | 7 | -26 | -47 |
| Other Fabricated Metal Product Manufacturing | -226 | 38 | -170 | -94 |
| Motor Vehicle and Motor Vehicle Part Manufacturing | -1,261 | 350 | -1,274 | -337 |
| Other Transport Equipment Manufacturing | 42 | 100 | -54 | -4 |
| Machinery and Equipment Manufacturing, nfd | 6 | 13 | -7 | -0 |
| Electrical Equipment Manufacturing | -31 | 67 | -77 | -22 |
| Domestic Appliance Manufacturing | -3 | 5 | -6 | -2 |
| Pump, Compressor, Heating and Ventilation Equipment Manuf | 1 | 13 | -11 | -1 |
| Specialised Machinery and Equipment Manufacturing | -18 | 9 | -14 | -14 |
| Furniture Manufacturing | -129 | 54 | -149 | -34 |

(Source: Australian Bureau of Statistics Journey to Work Data, 2006 and 2011)

Type 4: Local businesses outperforming in low growth industries

The second most common category with 24 of the manufacturing industries have shown employment strength despite lower than average industry growth recorded across wider Metropolitan Melbourne.

Table 7.4. Strong Growth of Local Industry, 2006-2011

| | Actual Employment Growth (2006-2011) | National Regional Effect | Industry Mix Effect | Regional Competitive Effect |
|--|---|-----------------------------|---------------------|--------------------------------|
| Meat and Meat Product Manufacturing | 60 | 22 | -29 | 67 |
| Seafood Processing | 17 | 1 | -2 | 17 |
| Dairy Product Manufacturing | 77 | 83 | -11 | 5 |
| Other Food Product Manufacturing | 177 | 34 | -59 | 202 |
| Cigarette and Tobacco Product Manufacturing | -1 | 1 | -2 | 0 |
| Textile Manufacturing | -9 | 6 | -21 | 6 |
| Knitted Product Manufacturing | -36 | 6 | -46 | 4 |
| Other Wood Product Manufacturing | -12 | 20 | -35 | 3 |
| Pulp, Paper and Converted Paper Product Manufacturing, nfd | -1 | 4 | -7 | 2 |
| Basic Chemical Manufacturing | 8 | 28 | -105 | 85 |
| Pharmaceutical and Medicinal Product Manufacturing | 569 | 112 | -136 | 593 |
| Other Basic Chemical Product Manufacturing | 31 | 6 | -5 | 31 |
| Polymer Product Manufacturing | -33 | 53 | -179 | 93 |
| Glass and Glass Product Manufacturing | 141 | 7 | -1 | 135 |
| Ceramic Product Manufacturing | 4 | 2 | -10 | 12 |
| Cement, Lime, Plaster and Concrete Product Manufacturing | 62 | 45 | -57 | 74 |
| Other Non-Metallic Mineral Product Manufacturing | 8 | 4 | -3 | 7 |
| Basic Ferrous Metal Manufacturing | 14 | 28 | -36 | 22 |
| Basic Ferrous Metal Product Manufacturing | 15 | 4 | -4 | 15 |
| Basic Non-Ferrous Metal Manufacturing | 52 | 8 | -6 | 50 |
| Iron and Steel Forging | 1 | 0 | -0 | 1 |
| Computer and Electronic Equipment Manufacturing | -56 | 70 | -178 | 51 |
| Other Machinery and Equipment Manufacturing | 16 | 31 | -55 | 40 |
| Other Manufacturing | 38 | 39 | -112 | 111 |

(Source: Australian Bureau of Statistics Journey to Work Data, 2006 and 2011)

As discussed above in Section 7.1, and as this section demonstrates, the JTW data has no capacity to inform us about small manufacturing firms, or about the innovation practices and capacities of firms. However, it does provide some interesting insights into the state of manufacturing overall.

7.4 ABR DATA

As with the Census JTW data, the ABR in its current format does not provide access to firm size or other characteristics of firms that might allow us to identify makers that are small, innovative or both. However, the ABR data do provide some interesting lessons, particularly with reference to the limitations of the dataset for our purposes.

Overall Trends

One thing that the ABR data allows us to do is form an image of the growth of different sectors, as identified by ANZSIC codes. As with the JTW data, the ABR data uses ANZSIC codes. Unlike the JTW data, however, the ABR data is reported at the firm level. This allows us to see how many firms are active in a particular sector, rather than how many people are working in a sector. This gives us access to understanding the net position for the total number of firms within each ANZSIC, and conclusions can be drawn as to growing or declining industries within the manufacturing sector. The ABR data also allows us to see firms that have been established and dissolved, so we can get a sense of Figures 7.5 and 7.6 show those manufacturing sectors that are growing and declining in the Melbourne Metropolitan area, by total firm size, for 2010 to 2014.

Table 7.5 Growing Manufacturing Firms – by Total Firms, 2010-2014

| Industry | ANZSIC | Number (2014) | Established | Dissolved | Net Births Deaths |
|--|--------|------------------|--------------------|--------------------|----------------------|
| | | | No. of total firms | No. of total firms | |
| Bakery Product Manufacturing | 117 | 4,061 | 1,898 | 665 | 1,233 |
| Other Manufacturing | 259 | 3,328 | 1,062 | 561 | 501 |
| Meat and Meat Product Manufacturing | 111 | 1,080 | 618 | 216 | 402 |
| Structural Metal Product Manufacturing | 222 | 2,699 | 761 | 412 | 349 |
| Beverage Manufacturing | 121 | 2,262 | 501 | 189 | 312 |
| Cleaning Compound and Toiletry Preparation Manufac | 185 | 942 | 489 | 185 | 304 |
| Furniture Manufacturing | 251 | 3,108 | 834 | 586 | 248 |
| Printing and Printing Support Services | 161 | 4,813 | 1,224 | 983 | 241 |
| Other Wood Product Manufacturing | 149 | 2,889 | 763 | 523 | 240 |
| Other Food Product Manufacturing | 119 | 1,236 | 382 | 165 | 217 |

(Source: ABR 2014)

Table 7.6 Declining Manufacturing Sectors – by Total Firms, 2010-2014

| Industry | ANZSIC | Number (2014) | Established | Dissolved | Net Births Deaths |
|--|--------|------------------|--------------------|--------------------|----------------------|
| | | | No. of total firms | No. of total firms | |
| Clothing and Footwear Manufacturing | 135 | 5,916 | 1,337 | 1,791 | -454 |
| Glass and Glass Product Manufacturing | 201 | 640 | 76 | 123 | -47 |
| Knitted Product Manufacturing | 134 | 213 | 21 | 62 | -41 |
| Ceramic Product Manufacturing | 202 | 583 | 80 | 115 | -35 |
| Computer and Electronic Equipment Manufacturing | 242 | 1,340 | 191 | 221 | -30 |
| Log Sawmilling and Timber Dressing | 141 | 556 | 86 | 111 | -25 |
| Seafood Processing | 112 | 86 | 8 | 32 | -24 |
| Basic Non-Ferrous Metal Manufacturing | 213 | 176 | 24 | 47 | -23 |
| Leather Tanning, Fur Dressing and Leather Product Ma | 132 | 530 | 68 | 86 | -18 |
| Basic Ferrous Metal Product Manufacturing | 212 | 228 | 27 | 44 | -17 |

(Source: ABR 2014)

Perhaps the most noteworthy take-away from these tables is what a sizeable proportion of the firms are classified as “other” manufacturing. ‘Other Manufacturing’ appears as one of the most rapidly growing industries, with clothing the most declining industry, which appears consistent with a transfer of low skilled clothing labour typically to Asian countries. We return to this issue in the next section.

Unfortunately, current ABR data does not provide employment, turnover, or other relevant indicators of economic output or productivity. An astute observer might query why we do not somehow combine the JTW data and the ABR data to achieve both jobs and firm numbers. Unfortunately, there is no way to do this, as one dataset is collected from firms and the other from Census respondents. They are simply not compatible.

Firms by Land Use

Another area of interest for our study is in the distribution of firms by land-use classifications. The ABR data, because much of the data (around 80 percent) is spatially geocoded, allows us to match the data with land use zones to observe what kinds of activities are occurring on which kinds of land. Figures 7.6 through 7.11 illustrate the number of firms with a manufacturing ANZSIC code, located in each type of land use zone in the five IMAP councils.

All of the figures are drawn with the same Y-axis scale so that the numbers can e compared across graphs.

It is noteworthy how few firms, relatively, are actually located in industrial zones. There are may more firms in the manufacturing codes located in mixed-use, business, and even residential zones. Although this is an interesting conclusion, as above, it does not provide much insight into our target small firms.

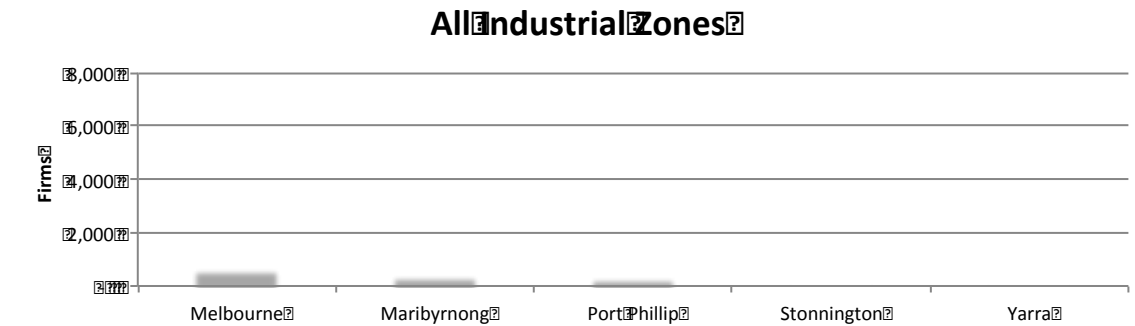


Figure 7.6. Manufacturing Firms by IMAP Suburb, Industrial Zones
(Source: ABR 2014 and Land Use Zones)

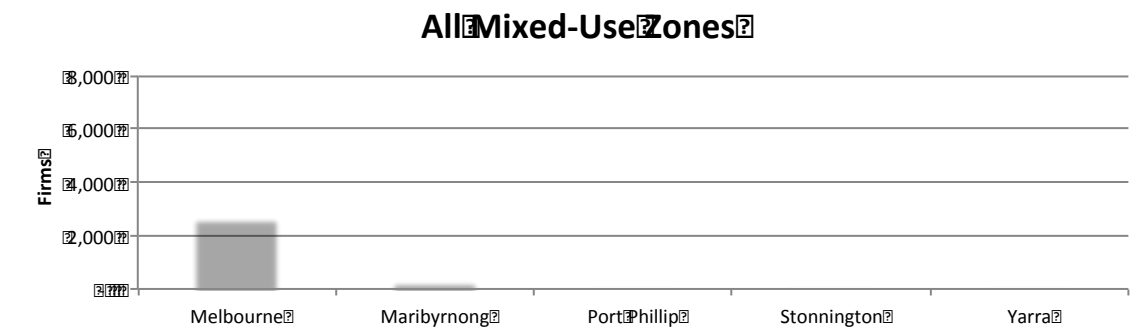


Figure 7.7. Manufacturing Firms by IMAP Suburb, Mixed-Use Zones
(Source: ABR 2014 and Land Use Zones)

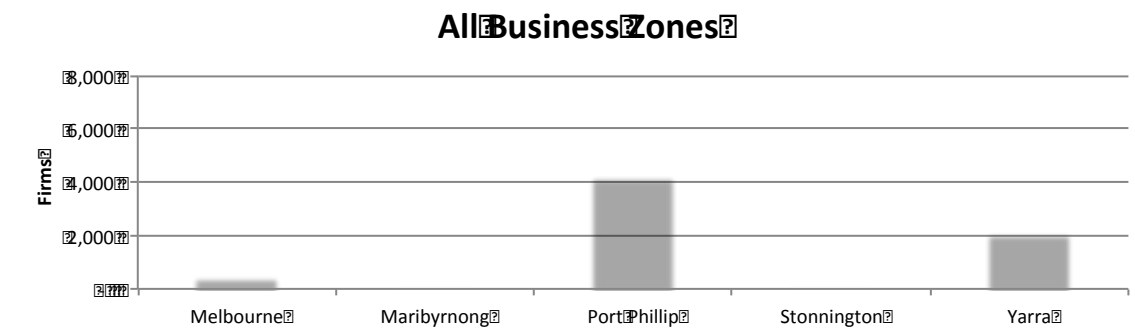


Figure 7.8. Manufacturing Firms by IMAP Suburb, Business Zones
(Source: ABR 2014 and Land Use Zones)

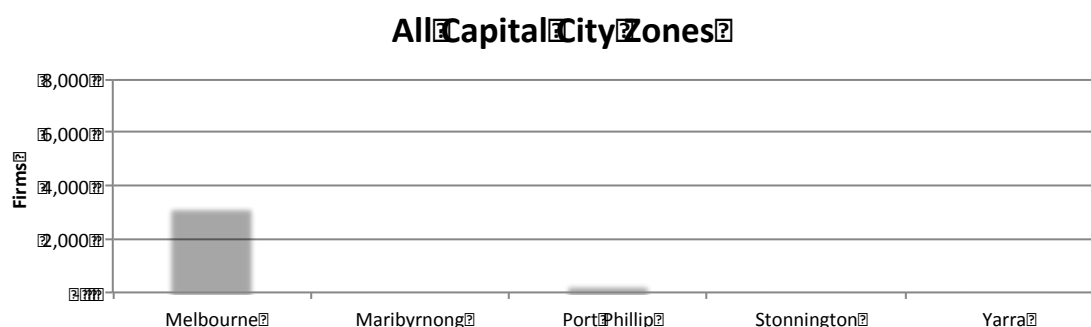


Figure 7.9. Manufacturing Firms by IMAP Suburb, Capital City Zones
(Source: ABR 2014 and Land Use Zones)

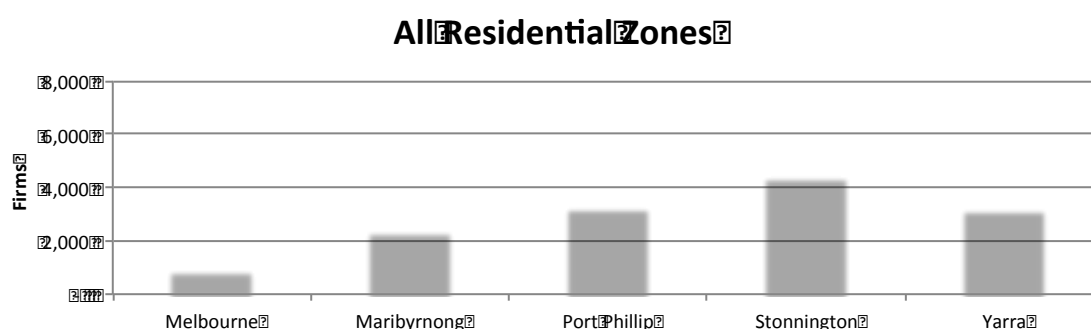


Figure 7.10. Manufacturing Firms by IMAP Suburb, Residential Zones
(Source: ABR 2014 and Land Use Zones)

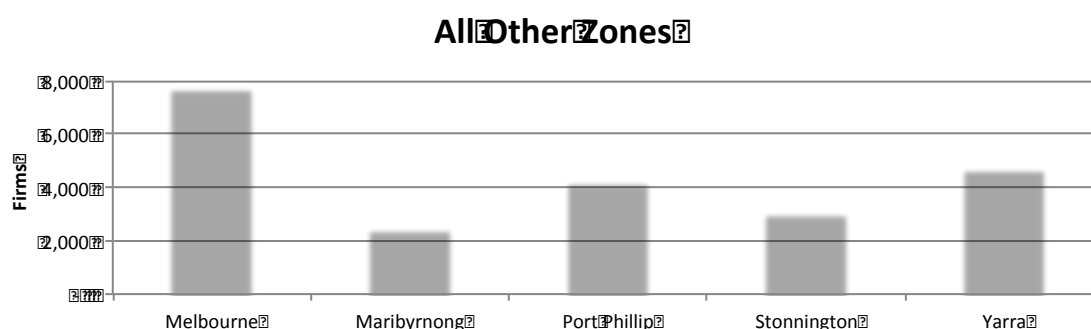


Figure 7.11. Manufacturing Firms by IMAP Suburb, Other Zones
(Source: ABR 2014 and Land Use Zones)

7.5 CLUE

Unlike the ABR and JTW datasets, it is possible with the CLUE data to isolate small and very small firms. Figure 1 shows the distribution of the ten sectors with the largest representation of small makers in the City of Melbourne by ANZSIC (3 digit) code. This figure underscores how little we now about small makers, even when very fine-grained datasets like CLUE are available. At the three-digit level, the vast majority of very small firms in the making categories are classified simply as “Other.” This is clearly problematic in data analysis and policy response, as it is difficult to target policies at sectors when those sectors are not known.

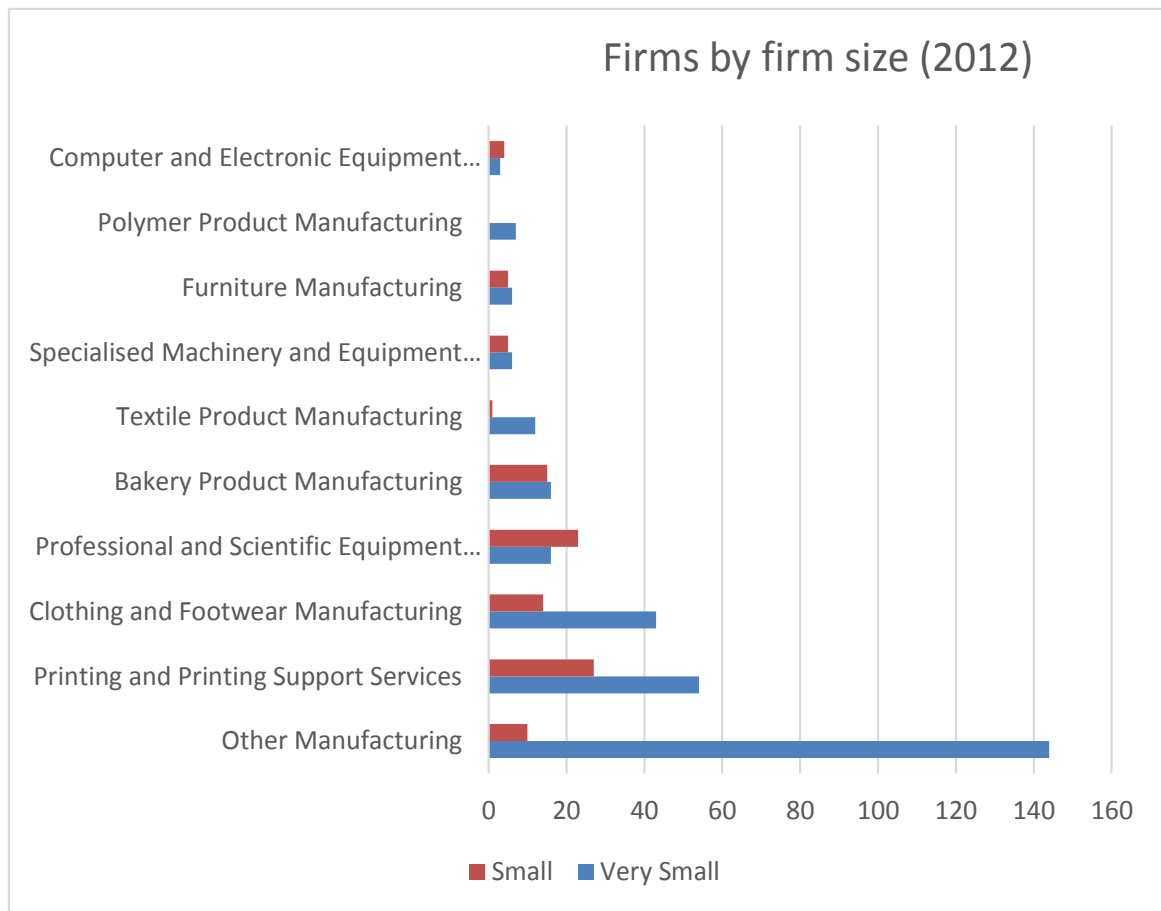


Figure 7.12. Firms by ANZSIC and Size, CLUE Data, 2012

Source: 2012 Census of Land Use and Employment (CLUE)

Table 7.7 presents the same data but compares each of the sectors to medium and large firms incidences. The CLUE data suggests that there are far fewer medium and large firms in the categories where small and very small firms are prevalent (City of Melbourne, 2012). This is indicative of general firm distributions, where there tend to be many more small firms than large ones. However, this could also suggest that the kinds of firms that tend toward small sizes are fundamentally different than those that grow large. Further investigation below addresses some of this ambiguity using sector-based employment rather than firm distributions.

Table 7.7. Number of Small and Very Small Firms in the City of Melbourne, by Sector, 2012

| Number of Firms by Firm Size (2012) | | | | | | | | |
|--|------------------|-------------|-------|--------|-------|-------|---------------------------|-------|
| Industry | ANZSIC3_ CODE | Firms (no.) | | | | Total | Percentage of total firms | |
| | | Very Small | Small | Medium | Large | | Very Small | Small |
| Other Manufacturing | 259 | 144 | 10 | 1 | 0 | 155 | 93% | 6% |
| Printing and Printing Support Services | 161 | 54 | 27 | 2 | 4 | 87 | 62% | 31% |
| Clothing and Footwear Manufacturing | 135 | 43 | 14 | 0 | 0 | 57 | 75% | 25% |
| Professional and Scientific Equipment Manufa | 241 | 16 | 23 | 4 | 3 | 46 | 35% | 50% |
| Bakery Product Manufacturing | 117 | 16 | 15 | 1 | 1 | 33 | 48% | 45% |
| Textile Product Manufacturing | 133 | 12 | 1 | 1 | 0 | 14 | 86% | 7% |
| Specialised Machinery and Equipment Manufa | 246 | 6 | 5 | 0 | 1 | 12 | 50% | 42% |
| Furniture Manufacturing | 251 | 6 | 5 | 1 | 0 | 12 | 50% | 42% |
| Polymer Product Manufacturing | 191 | 7 | 0 | 0 | 0 | 7 | 100% | 0% |
| Computer and Electronic Equipment Manufact | 242 | 3 | 4 | 2 | 3 | 12 | 25% | 33% |

The CLUE data also allows us to identify sector size by number of employees. Table 7.8 presents the ten sectors identified in the previous figure and table according to the number of total full-time equivalent (FTE) employees in the “small” and “very small” categories. This table indicates that that small and very small manufacturers are strongly over-represented in some categories; notably, “other” manufacturing, clothing and footwear, baking, and furniture. The table also indicates that small makers are under-represented in some ANZSIC codes such as computers and electronics, and food production. The table further indicates that distributions of small and very small, versus medium and large, makers are more balanced in some industries such as professional and scientific equipment and printing and printing support.

Table 7.8. Employment in Small and Very Small Firms in the City of Melbourne, by Sector, 2012

| FTE Employment by Firm Size (2012) | | | | | | | |
|---|------------------|---------------------|-------|--------|--------|--------|--------------------------------|
| Industry | ANZSIC3_ CODE | FTE Employees (no.) | | | | Total | Percentage of total employment |
| | | Very Small | Small | Medium | Large | | |
| Printing and Printing Support Services | 161 | 151 | 271 | 65 | 249 | 735 | 57% |
| Other Manufacturing | 259 | 222 | 82 | 22 | 0 | 326 | 93% |
| Professional and Scientific Equipment Manufacturing | 241 | 32 | 250 | 127 | 163 | 571 | 49% |
| Clothing and Footwear Manufacturing | 135 | 79 | 135 | 0 | 0 | 213 | 100% |
| Bakery Product Manufacturing | 117 | 53 | 134 | 22 | 43 | 251 | 74% |
| Specialised Machinery and Equipment Manufacturing | 246 | 19 | 56 | 0 | 128 | 203 | 37% |
| Furniture Manufacturing | 251 | 22 | 48 | 25 | 0 | 95 | 74% |
| Computer and Electronic Equipment Manufacturing | 242 | 9 | 44 | 62 | 3,034 | 3,149 | 2% |
| Other Food Product Manufacturing | 119 | 7 | 44 | 22 | 323 | 396 | 13% |
| Textile Product Manufacturing | 133 | 35 | 8 | 40 | 0 | 83 | 52% |
| Total Employment (all Manufacturing) | | 737 | 1,443 | 845 | 11,782 | 14,807 | 15% |

Source: CLUE 2012

Overall, this data suggests that there is significant inter-firm variation, even within sectors. This supports our argument, given above, that it is too soon to narrow in on specific sectors, since no sector has no representation of small firms.

The CLUE data are also instructive in what it cannot provide: it cannot provide indications of whether smaller firms are more innovative or more dependent in central locations for networking, shared suppliers, access to labour force, or other key economic contributions. The CLUE data does not collect information on firm innovation, so the contributions of innovation to firm productivity and the local, state, and national economies, is also not possible with the CLUE.

7.6 NEXT STEPS

Some new opportunities have arisen through this work to work with government agencies, particularly the ABR, to generate an ABR dataset that can allow us to more data such as firm size and turnover, that could be important to our project. The next section describes how a new relationship with the Australian Business Register arose from the Inception Workshop.

8. PHASE 1, FINDINGS FROM THE WORKSHOP

This section describes the format, processes, rationales, and findings from a half-day workshop, held on Thursday, 28 May from 8:30am to noon at the Melbourne Town Hall.

In summary, the workshop confirmed that the proposed research path is considered by government and makers to be viable and important. Additionally, it created new insights to inform the study, and helped us to establish additional networks and partnerships to assemble data for the project analysis.

8.1 WORKSHOP FORMAT

Attendees were seated at 10 round tables, with each table having at least one participants from academic institutions and state or federal government, and at least two participants from local government and the making community (including peak bodies). Interactions were designed so that makers and policy makers could engage together in productive conversation, with the dual objective of facilitating dialogue and creating networks.

The objectives of the workshop were twofold: first, we wished to communicate the objectives and to-date findings of the study to the stakeholders, to encourage their participation in the study, elicit their cooperation, and generate potential new partners. For makers, participation would mean providing their data in the form of interviews and survey responses. For state and federal government participants, our hope was that participation could mean providing data, joining as a partner for future funding efforts for the project, or endorsing the project. As it turns out, the workshop generated enthusiasm and promises of cooperation from state and federal agencies, which we discuss below.

The second objective of the workshop was to seek the input of participants about our approach: is the approach viable from their perspective? For government, is the approach likely to yield results that are relevant and valuable to their policy-making needs? For makers, does the study have the capacity to address some of their concerns as they interact with government? If the scope and approach currently falls short of achieving these objective, what additions can be made to make it a more viable process for all stakeholders?

We began and ended the workshop with two networking sessions, a breakfast starting at 8:30am and a morning tea to punctuate the workshop. In-between these two social and networking events, we ran a 15-minute session to introduce the project and approaches, and then ran three 20-minute modules to seek structured input. Each module consisted of 10 minutes of table discussion followed by each table providing brief feedback to the large group. Note-takers captured the verbal notes, and participants were encouraged to write their thoughts on large sheets of paper, all of which were collected and collated after the workshop. The categorized findings below represent the lessons generated from the verbal discussions, workshop notes, and participant notes.

The first module asked participants to comment on the importance of urban manufacturing from their perspective. They were asked to provide feedback on two questions:

1. What are your top three benefits of a thriving urban manufacturing sector?
2. What are the key influences on urban manufacturing?

The second module asked participants to comment on the study approach according to the following specific queries:

1. 1-3 positives of the approach
2. 1-3 Improvements or challenges of the study design
3. Important questions that we have missed
4. Important places that we should include.

The third module asked participants to describe how they and their organizations can contribute to the study, and what would compel them to stay involved. Tables responded to two queries:

1. Name 1-3 ways your organisation can contribute to the project
2. What would motivate you to stay involved?

8.2 ATTENDANCE

Attendance at the workshop was varied and well-rounded. Of the 68 people who RSVP'd, 61 attended on the day. Academic participants came from Melbourne University (4 participants), the Australian Urban Research Infrastructure Network (AURIN; housed at Melbourne University; 2 participants, including the director), the Academy of Design (1 participant), and the University of Wollongong (1 participant). One key federal government representative attended: Sandee Harris from the Australian Business Register, whose contributions will be discussed below. From state government, representatives were present from the Department of Treasury and Finance (1 participant), the Department of Economic Development, Jobs, Transport, and Resources (DEDJTR; 1 participant), the office of the Minister of Planning (1 participant), and the Metropolitan Planning Association (MPA; 1 participant). Local government representatives (21 participants) included staff from all IMAP councils and the City of Dandenong.

Makers attended whose businesses are located all IMAP councils, and also from the City of Moreland. Overall, 23 makers attended from firms dealing in baking, IT, design and construction, fashion and apparel, textiles, coffee roasting, digital textile printing, drafting, framing, glass and woodworking, jewellery making, and film and television set production.

In addition to the members of the Steering Committee, and additional 20 people – mostly makers, and also notably, a representative from ABR – stayed behind to participate in the Steering Committee meeting that occurred immediately after the workshop. During the Steering Committee meeting, these makers continued to participate enthusiastically in the discussion during the Steering Group meeting.

8.3 ADDITIONAL FINDINGS FROM WORKSHOP-RELATED INFORMAL INTERVIEWS

Also, as a result of the recruiting for the workshop, Dr. Jennifer Day was contacted by a number of makers who wished to contribute to the workshop and research but could not attend for a number of reasons. These makers included a tofu maker in Richmond, a software engineer in Moreland, and several others. The findings presented below also contain the lessons learned from these makers.

8.4 WORKSHOP FINDINGS

We present the workshop findings here thematically, around the major lessons and take-aways, rather than organized by the questions that were asked. We do this for a number of reasons. First, not all of the workshop findings are the result of the answers that attendees gave to particular questions. Rather, some are observations on the general tone of the morning and the enthusiasm and collaboration which the participants displayed in various ways. Most importantly, the thematic presentation conveys the same findings as would a more-linear reporting format, but in a less compelling, interesting way.

Makers endorse the work because it empowers them.

One clear message from the workshop is that our approach adds value for many stakeholders, at least in part because it draws attention to the issues they face in interacting with their local governments. Makers are – to varying degrees and sometimes acutely – aware of different planning mechanisms and how they can affect their business, for example changes in zoning and urban renewal plans. Despite this knowledge, makers have felt disempowered in dealing with their local governments. Some reported distrust resulting from what they see as pointless fees paid to local government business development groups. These fees are mandatory, some makers reported, but they never see benefits such as marketing materials or maps. Some people from councils conceded that these bodies are outsourced and ineffective.

Most makers had never had the opportunity to sit down with people in government and have their concerns heard. They found the experience of round-table discussions with those working on their behalf in the policy arena, both empowering and reassuring. Many makers left the workshop with a positive feeling about future interactions with government. The enthusiasm for the project was at least partly based on the idea that it is collaborative. Makers felt they were heard. This is evidenced by the 20+ makers that stayed on for the Steering Committee meeting.

Moreland City Council is a notable exception to this pattern of makers feeling isolated from their local government counterparts. Makers from Moreland noted that people from their local government know them by name and felt that their concerns were of central importance to the local government.

Makers are enthusiastic about the project because our scope reflects their experience.

A number of makers commented that we have addressed a lot of relevant, pertinent issues for them in the project scope. One repeated point of common concern was displacement due to rezoning. Some makers are already leaving inner-urban areas because of pressures from surrounding land uses (change in zoning), expensive utilities, and compromised access to their facilities. For instance, our Richmond tofu maker noted that the blocks surrounding his have been rezoned, and that rezoning has removed businesses that once complemented his. Therefore, he is considering closing because there is not enough foot traffic to sustain his business.

Other makers are choosing not to locate in central areas due to space and tenure security concerns, despite that they list accessibility as a key issue in their work. One example of this is Holger Deilenberg, a wood craftsman who recently founded Space Tank Studio in North Coburg. He would have liked to locate Space Tank in Melbourne or an IMAP council, but was

concerned about rezoning and the security of his tenure. Matt and Ilija Minic and Matt Rowbottom, who together do a large part of the organizing of the Footscray Maker Lab cooperative, note that they will very likely move outward out of Maribyrnong Council when their eviction due to upzoning is carried out later this year.

Government partners are interested, in part because of the enthusiasm of makers.

The project team gained support from each local government in the IMAF area, across a number of departments including leadership. Representatives from other councils heard about the workshop and wished to attend.

Makers from Moreland strongly recommended that we engage Moreland Council to join the project. After consultation with the Steering Committee, contact was made with the head of economic development in Moreland Council to secure both partnership and a \$10,000 partner contribution for Phase 2.

As a result of the State Governments attendance at the workshop, the Victorian Minister of Planning's office asked the Project Team to contribute in the Victorian government's plans for the Fisherman's Bend area in the upcoming review of *Plan Melbourne*. . Similarly, a representative from the MPA reported at a subsequent steering committee meeting feeling inspired and having made commitments for continued partnership and future funding, and also recommended that we become involved in the *Plan Melbourne* review.

A Federal government representative attended from the Australian Business Register and reported having some scepticism initially however was now convinced about the viability of the project and offering to facilitate making more ABR data available to the project through a special arrangement Both representatives reported that their response was in part driven by seeing how well makers responded to the project.

Makers want a technological symbol of their participation and our commitment.

One major lesson with which we left the workshop, is that the project team's initial thinking about data collection was in need of updating. Our plans initially included standard, clipboard-based survey data collection methods. The makers responded strongly and negatively to this approach on a number of levels.

First, they argued, they want a tangible symbol of their participation in the project. Some have previously been involved in economic development and engagement schemes run by their councils, and many reported that those plans lost momentum and eventually petered out. Others were enthusiastic but somewhat apprehensive about what this project can do. They had left previous experiences having given their time and resources in the form of responding to surveys and participating in interviews, and had seen very little benefit from participating. They argued strongly that we should provide them with some value-added as part of their participation, in order to assuage their fears about the work resulting in no benefit to them.

Second, they noted that we might struggle to recruit makers with a clipboard army. Third, they argued that they have neither the time nor the patience for a clipboard survey. With all of the available technology, could we not arrange something online?

This input has resulted in exploration of a combined website that both creates a map and a searchable profile of participating makers, and allows them to complete an extensive online

survey. The Steering Committee, in subsequent meetings, has endorsed this idea. Harvest Digital Planning, a local software start-up that has had successful client relationship with the City of Melbourne and the City of Maribyrnong has been engaged to develop the online survey platform after demonstrating similar product.

The Harvest Digital Planning platform would deliver both the visible, technological representation that the makers asked for, and would also deliver the data we need to complete the project. However, having a Harvest Digital Planning site built presented a problem in the project timing: the survey was not scheduled to be rolled out until Phase 2. However, the Steering Committee has since agreed to bring forward the survey timeline to be part of Phase 1. This was seen as an efficiency for the project in that it responds to what the makers have requested and advances the survey to an earlier stage.

Appendix A contains a concept note containing a working draft of the survey and an explanation of some of the underlying logic.

For nearly everyone, how we define key terms is important.

One repeated issue that the workshop participants – both in government and among makers – raised was the issue of definition. Many seemed to be concerned about the study scope and that we did not yet have a working definition of what we mean by “small” makers, or “high value” makers, and “highly innovative” makers, or “urban” makers, or a distinction between making and manufacturing.

As a result of these discussions, we have placed a good deal of emphasis on researching appropriate definitions. However, as we note in Section 4, we do not wish to create false precision by settling on definitions too soon, before the qualitative work can inform these terms in the particular Melbourne context. As a project team, we are still working to unpack these key issues and will continue to refine them over the next two months.

There is indeed further scope that we could consider.

In addition to the insights about process and viability, as we report above, the makers also raised some key additional content areas where we could consider exploring. These additional considerations have subsequently informed all aspects of data collection for Phase 1, including the target of query in the qualitative analyses and some of the survey questions. Some of these ideas have been built into the project since the 28 May workshop.

Some additional areas we are considering are:

Non-Local Issues

- *Intellectual property.* The role of the Federal government in protecting intellectual property and encouraging innovation
- *Offshoring.* How cooperating with offshore producers in China affects human capital and production in Australia.

Builders and Landowners

- *The role of builders*, including how building practices can introduce inappropriate facilities in new buildings, was a big issue for our makers. e.g., lack of concrete floors or no three-phase power
- *Landlords' role and incentives to allow making*. There is a particular interest in the role of land owners, including how they contribute to and constrict making.

Innovation and Economic Development

- *Skills losses from the economy*. Makers reported a lack of skilled makers and technicians. For makers who design, they sometimes find it hard to find someone with the skills to prototype or mass-produce product. For instance, one maker reported on a friend, a high-end bathroom fixture designer, who could not find anyone with the appropriate brass-working skills in Australia to prototype her designs and therefore had to have it done in China.
- *Would-be makers*. Most makers described how hard it is to make a small business profitable, and described how they know many people who were discouraged from entering the making fields because of land restrictions, rents, incomes, and lack of capacity. A representative from ABR also noted that the ABR has recently purged 2 million "hobbyists" from their rolls, and rescinded their Australian Business Numbers (ABNs). These hobbyists could represent makers that never actualize as businesses, therefore never contributing their training, innovation, and economic productivity to the making economy.

8.5 STRATEGIC DECISIONS AND ACTION ITEMS

This section summarizes the key action items and decisions that arose from the workshop. The Steering Committee has also agreed to these changes:

1. Inclusion of Moreland council
2. Survey moved up to Phase 1 and moved to a platform that combines a tangible, technological presence for participating makers with our data collection needs.
3. Engagement of Harvest Digital Planning to develop the maker map and survey site.

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APPENDIX A. SURVEY DRAFT AND HARVEST/CROWDSPOT SURVEY LOGIC

This appendix describes the logic and content that we currently plan to integrate into the online survey currently being developed by cooperatively by the project team, Harvest Digital Planning and Crowdsport.

We stress that this survey is still in draft form, but is nearing completion. The reader may see some evidence of the drafting process, including questions in the text.

What purpose does the platform serve?

The online platform will serve as a vehicle for mapping of select firms, spatial linkages with suppliers, collaborators, workers, distributors, customers and retailers with a view to understanding economics of scale and scope attaching to agglomerations. The immediate purpose is threefold:

1. To develop a spatial understanding of small makers in the study area
2. To provide a visible symbol of makers' participation in the project, as per their request at the 28 May workshop
3. To gather the data required for the quantitative work we outline earlier in this report.

In the future, the platform could serve multiple purposes, which could change over time as the broader project evolves and increases in scope (with subsequent funding rounds). The table overleaf (Table A.1) illustrates the various purposes the platform could serve over various time horizons. At this stage we would only require a platform that can fulfil the purposes stated as 'initial', however it would be good to understand if and how the platform could be developed to allow for a broader range of purposes over time.

Platform Logic

The site is currently being developed to facilitate all of the above objectives. Makers will go onto the site and go through a validation process, wherein they are screened for their eligibility and develop a registration. In this process, they provide information on their firm. This information goes into developing a maker page that is visible on a map. They can provide information on the firm and a website, which is viewable and searchable by any member of the public. Some private, back-end information is also gathered in this process, such as firm size. This gets us a spatial representation of our firms, a qualitative overview of what these firms do, and some basic data about them. The firms get a presence on the site.

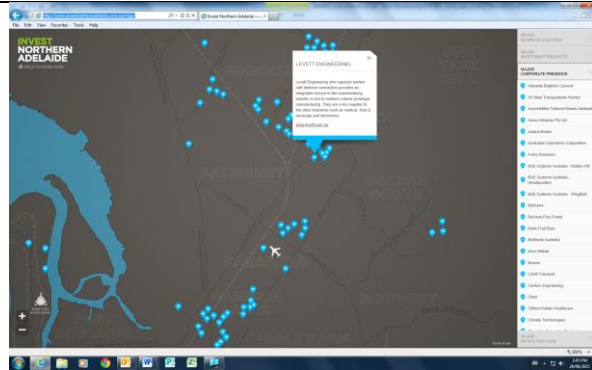
After the respondent has registered and been validated, the next phase is a survey. We have decided to split the survey into two parts, in order to facilitate getting the most important information first and avoiding survey fatigue. A respondent who is willing goes on to Survey – Part 4 after finishing Survey – Part 3. Thus, the first component of the survey contains the most crucial information for our study; the second component contains important but less crucial data. All of this survey information is private and is not shared with the public.

The specific questions that we ask for the validation, registration, and survey phases are described and illustrated after Table A.1. Figures A.1 through A.3 illustrate this process with prototypes developed by Harvest Digital Planning.

Ongoing Issues

There are a number of ongoing issues about the data that we need to work through. Harvest/Crowdspot will host this site for one year. After that, the site needs a new owner to maintain it if it will continue. This is important but not pressing.

| Table A.1. Platform Logic in Various Time Horizons | | | |
|--|--|---|---|
| Purpose | Initially | Possible near-term | Possible longer-term |
| Maker networking and promotional site Maker promotional and research site (I think it would be good to be clear that makers taking part in the site may at various times be required to take part in the research over the 3-5 years) | <p>The display page should announce that these firms are working in collaboration with IMAP and Melbourne University on the Urban Manufacturing project, and give background information on the UM project. (and state government and neighbouring participating Councils??). Also refer to more detailed fact sheet and references etc.</p> <p>Allow participants to publically show a range of information that serves promotional purpose (list on previous page).</p> <p>I imagine these details popping up once you click on the business pin/name on a map</p> <p>(Note: a mapping site in South Australia http://www.investnorthernadelaide.com.au/map/ providing a brief description of the business and their website (note these businesses are large companies to attract investment for supply networks)</p> | <p>Expand to include many more participants.</p> <p>Allow comments to be made about products and businesses (would probably need to be moderated)</p> <p>Allow shopper (i.e. non-makers) to enter their experience of engaging with local makers (including who, where, why)</p> <p>Allow businesses to edit/update/remove information (would require log in).</p> <p>Would need a terms and condition and also the ability to moderate before live in case you get some out of the box obscene entries. (it does happen believe me).</p> <p>There probably needs to be an 'all rights reserved' as the length of the project and</p> | <p>Be integrated into broader website that deals with a host of urban manufacturing issues (may be a different platform, but same data set)</p> |



Would be also good if we could have the businesses able to be shown in list form (organisable by category type - [example](#) here)

Need to think about home businesses, as we wouldn't want people listing their home address publically. Actually some businesses might not want to specifically list their location publically. If Homebased businesses are placing a pointer to their location there could be an opt out selection on displaying the address and only list phone number and business name.

Ability to enter data from smart device. Field surveyors may have tablets.

Must be visually pleasing enough for participants to feel enticed into entering details.

I assume we'd want to maintain the ability to edit and/or remove information.

funding and on-going commitment to the site (just in case)

Maybe a statement that it is a research site with a promotional benefit to the small maker that will potentially have an on-going benefit to small makers in the future

| | | | |
|-----------------------------|---|--|--|
| | | | |
| Data collection tool | <p>In addition to the information collected and made public above, there are a number of other questions we would want to ask participants.</p> <p>Completing the survey should not be a condition of appearing on the site. Makers can register and post their company information on the site, and come back later to fill in the survey. (this could tie in with the phase 2 stage and while they are able to register some basic information they would receive a reminder to complete the more detailed survey otherwise they face the risk of their information being hidden and not remaining a part of the research??</p> | <p>Track linkages between makers and their customers, collaborators, suppliers, financiers, etc.</p> <p>(It'd be great if we could have this in the initial stage, however I think it would require too much time. Could be an optional section to complete)</p> | |

| | | | |
|---|---|--|--|
| | <p>Allow makers to nominate other makers to join the site. Upon nomination, the nominator would provide some information about his/her relationship with the nominee, e.g., supplier, collaborator, friend, and frequency and mode of interaction.</p> <p>Tool automatically creates a distribution database so we can email all registrants.</p> | | |
| Study progress information dissemination site (optional) | <p>Include information about the study, links to partner sites (IMAP and Councils), progress to date (and state government and any relevant resources)</p> | | |

Survey logic – Mapping Melbourne's Makers

Preamble

As a small manufacturer and maker you have an opportunity to contribute and shape the way the inner Melbourne area is focusing on small makers. Through research conducted by the University of Melbourne and the IMAP Councils we are investigating the role played by small manufactures and makers in the inner Melbourne area. While a host of business types locate in industrial zoning, the focus of this study is on local businesses that make a physical product (including prototypes) in Melbourne and have fewer than 100 Employees.

Urban Manufacturing Project

Survey Design

Part 1 – Are you a small maker? (validation)

Introduction and additional eligibility criteria

- What does your business make? Please list up to five things.
- How many employees does your business employ (FT/PT/casual)?
- In what suburb and state is your business located?

Notes:

- Firms with 100 or fewer employees will be allowed to register
- Firms anywhere in metropolitan Melbourne will be allowed to register
- We will also include a *checkbox* for agreement with the terms and conditions, terms of use, etc. This will outline what is visible, not visible, etc.

Part 2 – Register you business

About your business:

1. What is the name of your business?
2. What is your firm address? (Note: this will be shown publicly on the map)
3. Please select the types of goods you produce (choose all that apply):
 - a. Food or beverage
 - b. Furniture, floor coverings, or housewares
 - c. Textiles
 - d. Clothing, footwear and personal accessories
 - e. Wood products (aside from furniture, floor coverings, or housewares)
 - f. Glass and glass products
 - g. Ceramic, clay, or concrete products
 - h. Metal products (excluding jewelry)
 - i. Plastic products
 - j. Jewellery
 - k. Motor vehicle parts

- l. Electrical and electronic goods, including computing products
- m. Hardware, building and garden supplies
- n. Recreational goods
- o. Pharmaceutical products and toiletries
- p. Scientific or biotechnical
- q. Chemicals, fertilizers, and cleaning products
- r. Paper or paper products
- s. Printing, publishing, screenprinting, or typesetting
- t. Reproduction or publishing of recorded media, including software publishing
- u. Sounds recording and music publishing
- v. Installation art or sculpture
- w. Set and prop production
- x. Other (please specify): _____

Notes:

- We can also include sub-categories once user click on the categories (if required – I don't think there is a need - JD)
- 4. Tell us the story of your business, what you make, etc. (Note: this description will appear on your profile on the website)
- 5. Your website (if applicable) (Note: this description will appear on your profile on the website)

Contact details:

- 6. Name
- 7. Email
- 8. Phone
- 9. Password

Notes:

- After registration submission our concept was to prompt people to complete the short survey. The strategy was to initially draw in as many people as possible while reducing the attrition rate. As discussed, as we include more question there is greater risk of people dropping off.
- If we want to include more research questions before making the business visible on the website we can either:
 - o Include additional questions in the registration; and/or
 - o Instruct the business to complete the short survey before they can be visible - 'Great, thanks for registering. Your nearly visible on the site... all you have to do is complete this short 10min survey'.

Part 3 – Take the short survey to help with our research

You appear to be one of Melbourne's small urban makers! We'd like to collect some more information from you to assist in our study of the sector. We'd also like to give you a platform in which to present your product and be 'put on the map' of Melbourne's maker community. Thanks in advance for your time!

The following details will **not be public and are purely for the purposes of our study** into the contribution made by Melbourne's small urban manufacturers and makers.

About the Respondent

1. What is your role in the business (check all that apply)?
 - a. Founder
 - b. Founding Partner
 - c. Sole Owner
 - d. Manager
 - e. Non-founding Partner
 - f. Other

About the Business

2. When did you start producing in your current location?
3. If applicable, where did you previously produce this product?
4. At your production site at xxx (automatically fills from past question), what other business activities do you undertake? *Multiple tick box with following options*

| | | | | | |
|----------------|-----------|------------------------|----------|-----------------------|-------|
| Product design | Marketing | Direct to public sales | Training | Warehousing / storage | Other |
|----------------|-----------|------------------------|----------|-----------------------|-------|

Product service

5. How much production space and office space do you occupy at your current premises (square metres)?
6. Where/how do you sell your product (please select all applicable):
 - a. Onsite (i.e. at the point of production)
 - b. At stores in Melbourne
 - c. At stores outside of Melbourne but in Australia
 - d. At overseas stores
 - e. Online(through third party websites)
 - f. Online (through own website and email requests)
 - g. Other

Firm Location Choice

7. Do you own or rent your premises?
8. Within the next five years do you expect to relocate your firm?:

| | |
|--|------------------------|
| I. No – wouldn't consider relocation. | |
| II. Yes – to expand operations in other location. | |
| III. Yes – potential forced relocation by landlord. | |
| IV. Cease Operations. | |
| Where - suburb option Why – drop down box of options If “Yes” to relocation, where would you consider your new location to be? | |
| | within Inner Melbourne |

| | |
|--|--|
| | within Melbourne (remainder) other Victorian location Interstate Overseas (please specify approx. timelines.....) |
|--|--|

9. Are there any threats in 2015-2016 to the continued operation of your business? (top three or list) (2016 will be here and gone before we know it, do we want to extend out to 2017 considering the study will be 3-5 years)

| | | | | | | |
|--|--------------------|---------------------------------------|--------------------|-----------------|-------------------------------------|---------------------------|
| End of lease or lease termination | Product failure | Inadequate space for production | Poor facilities | Cost of rent | Cost of regulatory compliance | Availability of labour |
|--|--------------------|---------------------------------------|--------------------|-----------------|-------------------------------------|---------------------------|

10. I WOULD LIKE A QUESTION ON HOW OFTEN FIRMS USE LOCATION-BASED SERVICES. I ENVISION ANOTHER QUESTION, SOMETHING LIKE THE FIRST FEW LINES OF THE ATTACHED TABLE, BUT OF COURSE IN THE NECER CROWDSPOT FORMAT. JD

How many times in the past month have you accessed the following resources for business purposes, and how did you access them?

| | Times in past month | % on the phone | % by email | % in person |
|--|------------------------|-------------------|---------------|----------------|
| An airport | | | | |
| A freeway/highway | | | | |
| A sea port | | | | |
| Customers in the Melbourne CBD and inner suburbs | | | | |
| Peer firms in the Melbourne CBD and inner suburbs | | | | |
| Suppliers in the Melbourne CBD and inner suburbs | | | | |
| Services (eg legal, finance) in the Melbourne CBD and inner suburbs | | | | |
| Business support services (eg. Incubators) in the Melbourne CBD and inner suburbs. | | | | |
| Customers elsewhere in Melbourne | | | | |
| Peer firms elsewhere in Melbourne | | | | |
| Suppliers elsewhere in Melbourne | | | | |
| Services (eg legal, finance) elsewhere in Melbourne | | | | |
| Business support services (eg. Incubators) elsewhere in Melbourne | | | | |
| Customers elsewhere in Australia | | | | |
| Peer firms elsewhere in Australia | | | | |
| Suppliers elsewhere in Australia | | | | |
| Services (eg legal, finance) elsewhere in Australia | | | | |
| Business support services (eg. Incubators) elsewhere in Australia | | | | |
| Customers overseas | | | | |
| Peer firms overseas | | | | |
| Suppliers overseas | | | | |
| Business support services (eg. Incubators) overseas | | | | |
| Locate close to peer firms | | | | |

Part 4 – Remaining research survey questions

About the Respondent

1. What is your sex?
2. What year were you born?
3. In what country were you born?
4. Where do you live now? (Country, State, Suburb)
 - a. Education
 - b. Academic
 - c. Small Business
 - d. Large Corporate Business
 - e. Government
 - f. Non-Profit/NGO
 - g. Other
5. What is your educational background?
 - a. High school diploma
 - b. Some university
 - c. Undergraduate degree
 - d. Post-graduate certificate
 - e. Post-graduate degree
6. If applicable, what discipline(s) did you study in university? _____

Firm Location Choice

If “Yes” to relocation, estimate what proportion of your employees do you think would be willing / able to access you new potential location?

11. Do the team members / staffing at your location effect your decision on which location you choose?

| |
|-----|
| Yes |
| No |

12. If you had to speculate on your business plans over the next year, do you :

| Growth Expectations | |
|-----------------------------|--|
| V. Expect to grow | |
| VI. Expect to stay the same | |
| VII. Expect to decline | |

Firm Outputs

7. What was your business turnover in:
 - a. 2014-2015
 - b. 2013-2014
 - c. 2012-2013

- d. 2011-2012
 - e. 2010-2011
8. What was your investment in capital in:
- a. 2014-2015
 - b. 2013-2014
 - c. 2012-2013
 - d. 2011-2012
 - e. 2010-2011
9. What was your investment in land in:
- a. 2014-2015
 - b. 2013-2014
 - c. 2012-2013
 - d. 2011-2012
 - e. 2010-2011
10. How many employees did your firm have in
- a. 2014-2015
 - b. 2013-2014
 - c. 2012-2013
 - d. 2011-2012
 - e. 2010-2011
11. What was your investment in labour in:
- a. 2014-2015
 - b. 2013-2014
 - c. 2012-2013
 - d. 2011-2012
 - e. 2010-2011

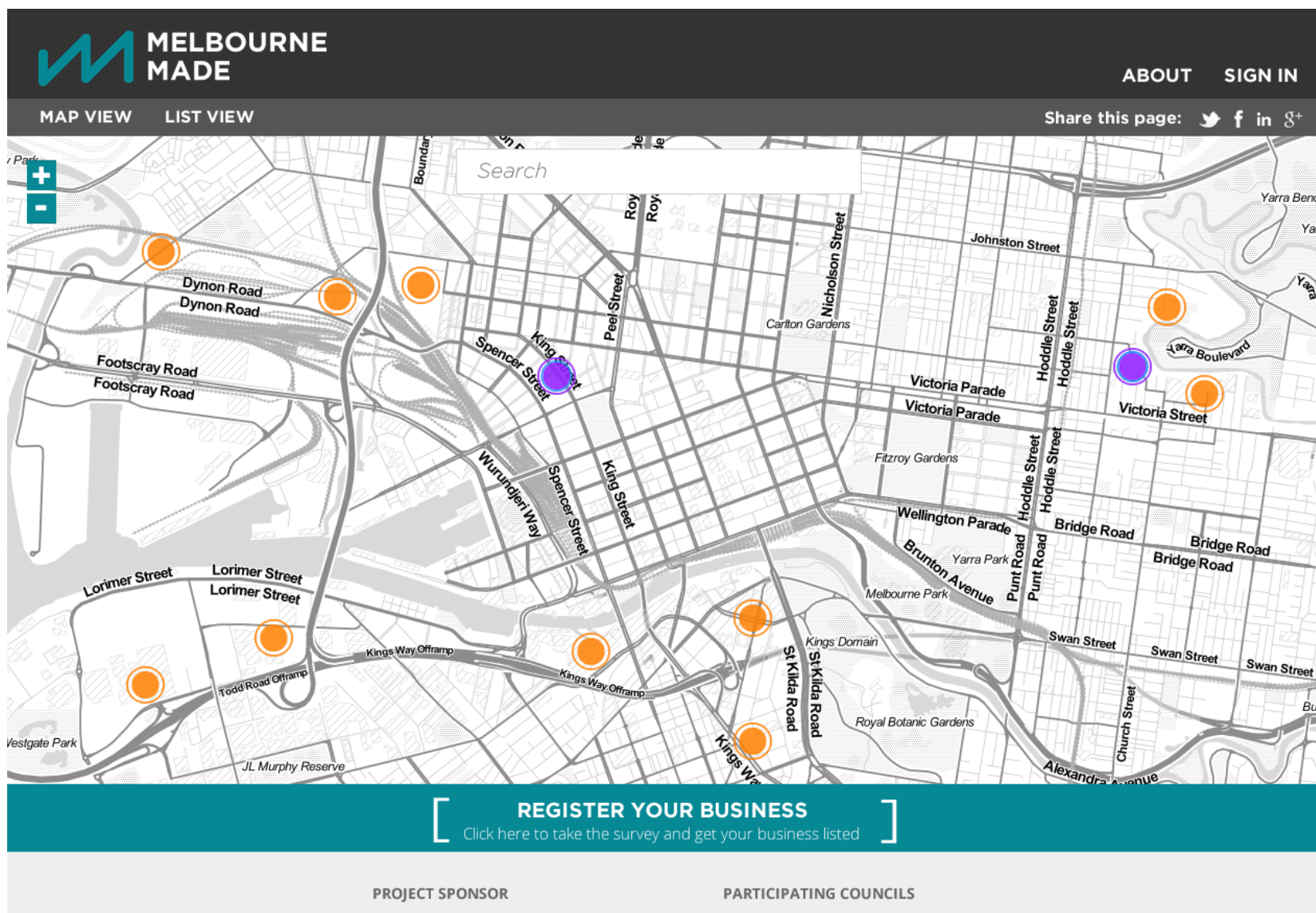


FIGURE A.1. SEARCHABLE MAKERS MAP

WANT TO BE ADDED TO THE MELBOURNE MADE LIST?

Adding your company will help you get exposure and connect with other companies in your area. To get started, let's see if you're eligible.

Enter your address (primary place of production)

How many employees do you have?

Do you make physical items?

CONGRATS!

You are eligible to be listed on our site. Please press next to register your business details.

[NEXT](#)

FIGURE A.2. SAMPLE VALIDATION PROCESS

CONTACT DETAILS

Tell us the best ways to get in touch with you.

Your business website

Contact Name

Contact Number

Contact Email

SUBMIT YOUR LISTING FOR APPROVAL

BACK

THANKS FOR YOUR REGISTRATION

We will review your submission and should approve it shortly. In the meantime, you can help us understand your industry better by filling out a short survey.

TAKE THE SURVEY

No Thanks

FIGURE A.3. SAMPLE REGISTRATION PAGE