



Faculty of Design

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## Network mapping of housing systems: The case of medium-density dwelling design in Australia

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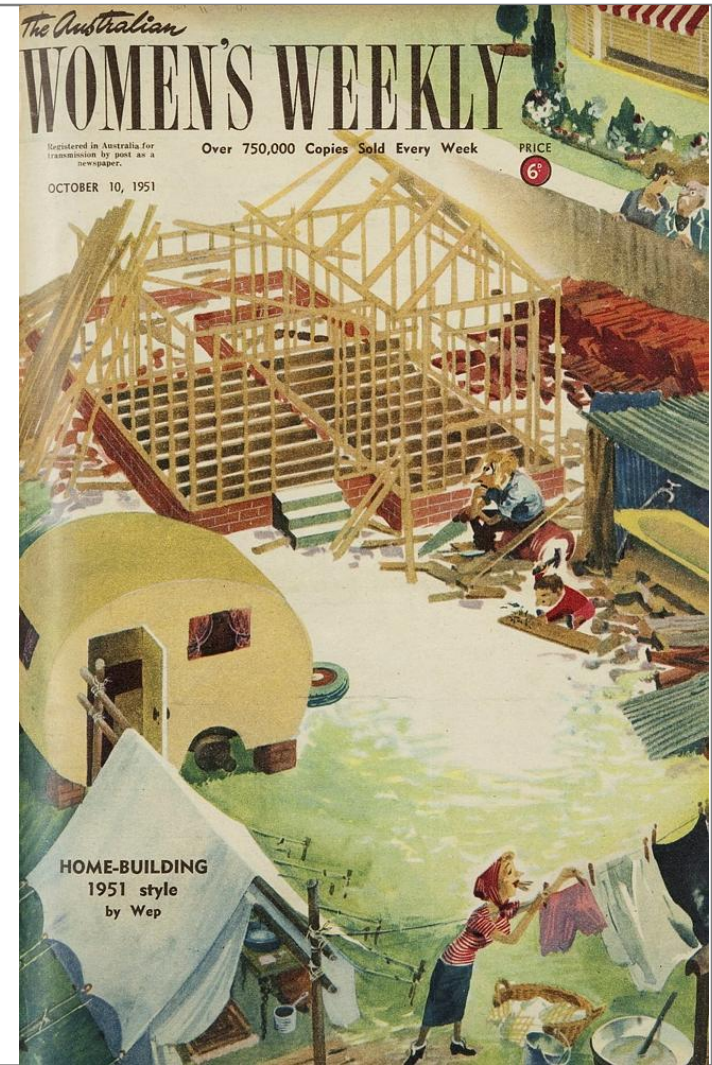
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An aerial photograph of Adelaide, Australia, taken from Mount Lofty. The city's skyline is visible in the middle ground, surrounded by dense residential areas. In the foreground, there are green hills. A large, multi-colored land use map is overlaid on the left side of the image, with a circular inset showing a magnified view of a specific urban area. The title text is overlaid on the right side of the image.

# Network mapping of housing systems: the case of medium-density dwelling DESIGN in Australia

View of Adelaide City from Mount Lofty. Image by BetaX 2005 via Wikimedia Commons.  
Adelaide metropolitan land use map, South Australian Valuer General 2009.

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RSD3 Oslo, Norway. 17 October 2014



## Context: A brief history of the Great Australian Dream

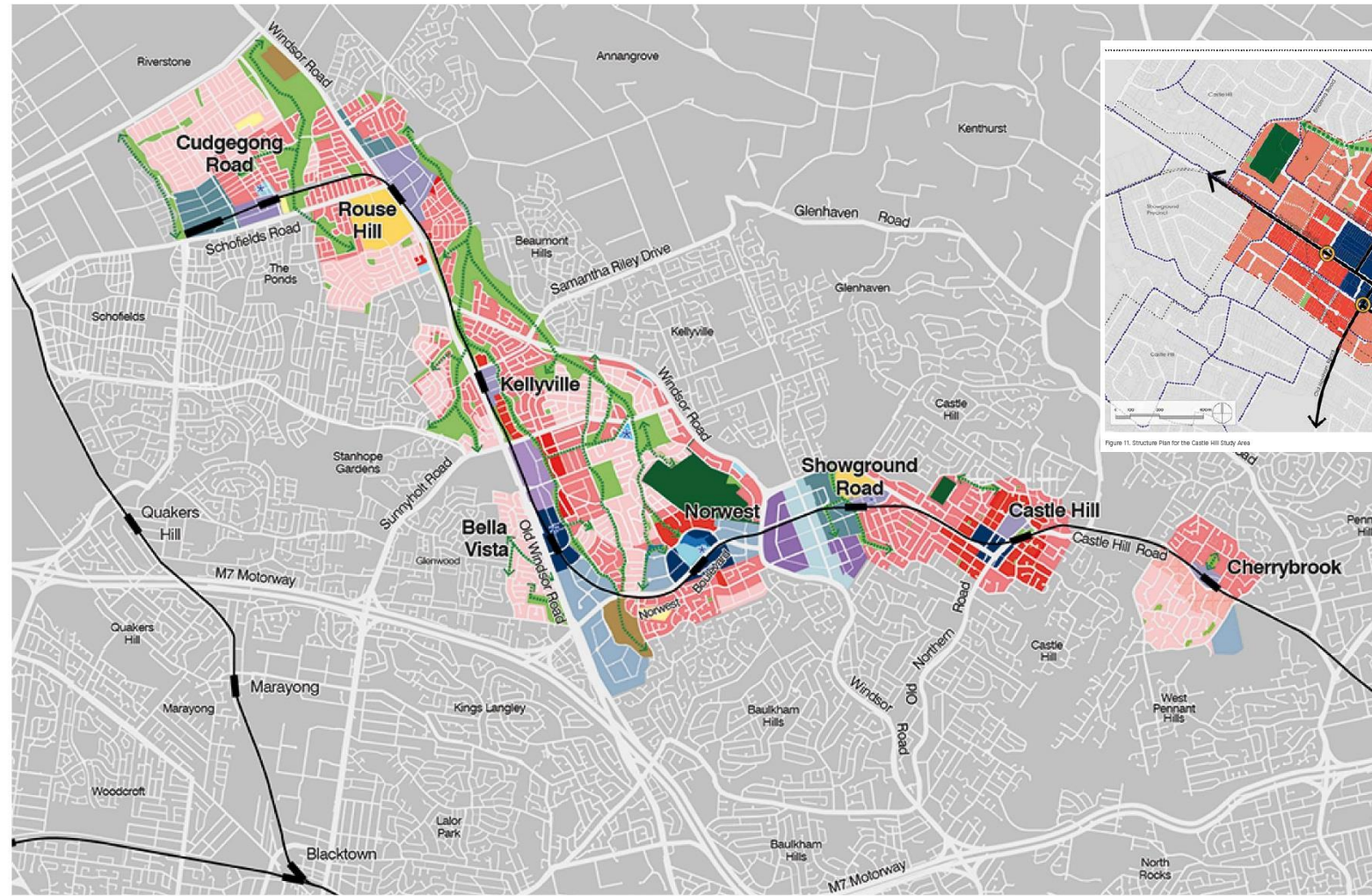
Images clockwise from left: Collage by Stephanie Albares 2012, <http://westerlymedia.com.au/portfolio/dg-great-australian-dream/>; photograph by Michelle Mossop accessed 19.9.2014 <http://www.theage.com.au/articles/2004/08/20/1092972736358.html> ; Cover Illustration The *Australian Women's Weekly Magazine* , 10 October 1951 by William Edwin Pidgeon (WEP); photograph by Paul Rovere, accessed 19.9.2014 <http://www.theage.com.au/victoria/warning-on-risky-we-buy-houses-scheme-20121102-28ofe.html>

“containment, consolidation and centres”  
(forster, 2006)



Context: The current agenda

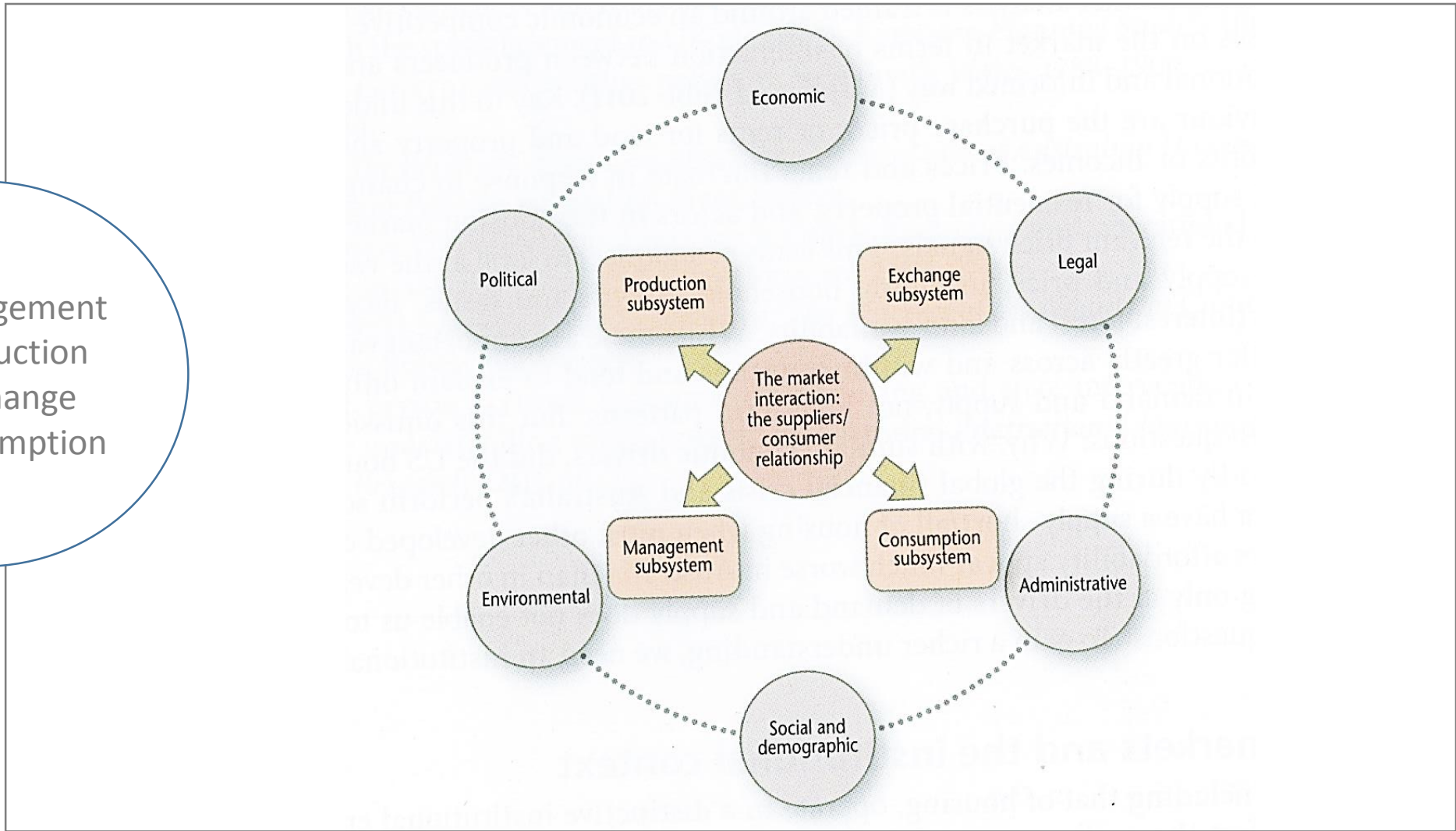
“containment, consolidation and centres” (forster, 2006)



Legend							
- - - Study Area Boundary	Station Platform	Low Density Residential 1-2 Storeys	Commercial Core	Light Industrial	Mixed Use	Future Local Centre	Heritage
Primary Road	Potential Medium Density Residential (subject to further studies)	Low/Medium Density Residential 2-6 Storeys	Business Park	Employment	Special Use	Open Space	New Link
Secondary Road		High Density Residential 7-20 Storeys	Bulky Goods	Local Centre	Public Infrastructure	Private Recreation	Green Link

## Context: The current agenda

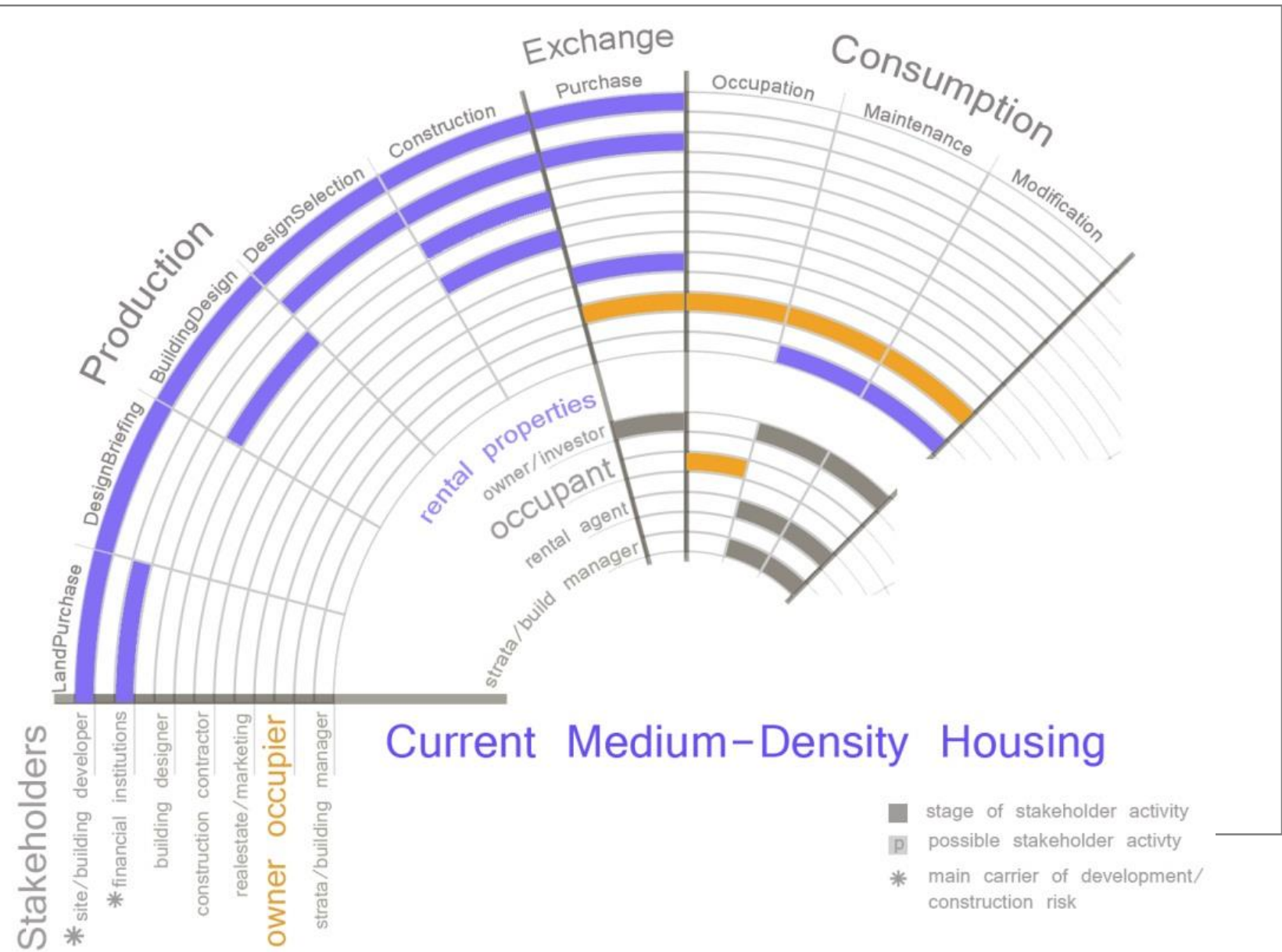
- Management
- Production
- Exchange
- Consumption



## Housing Sub-systems (Burke and Hulse)

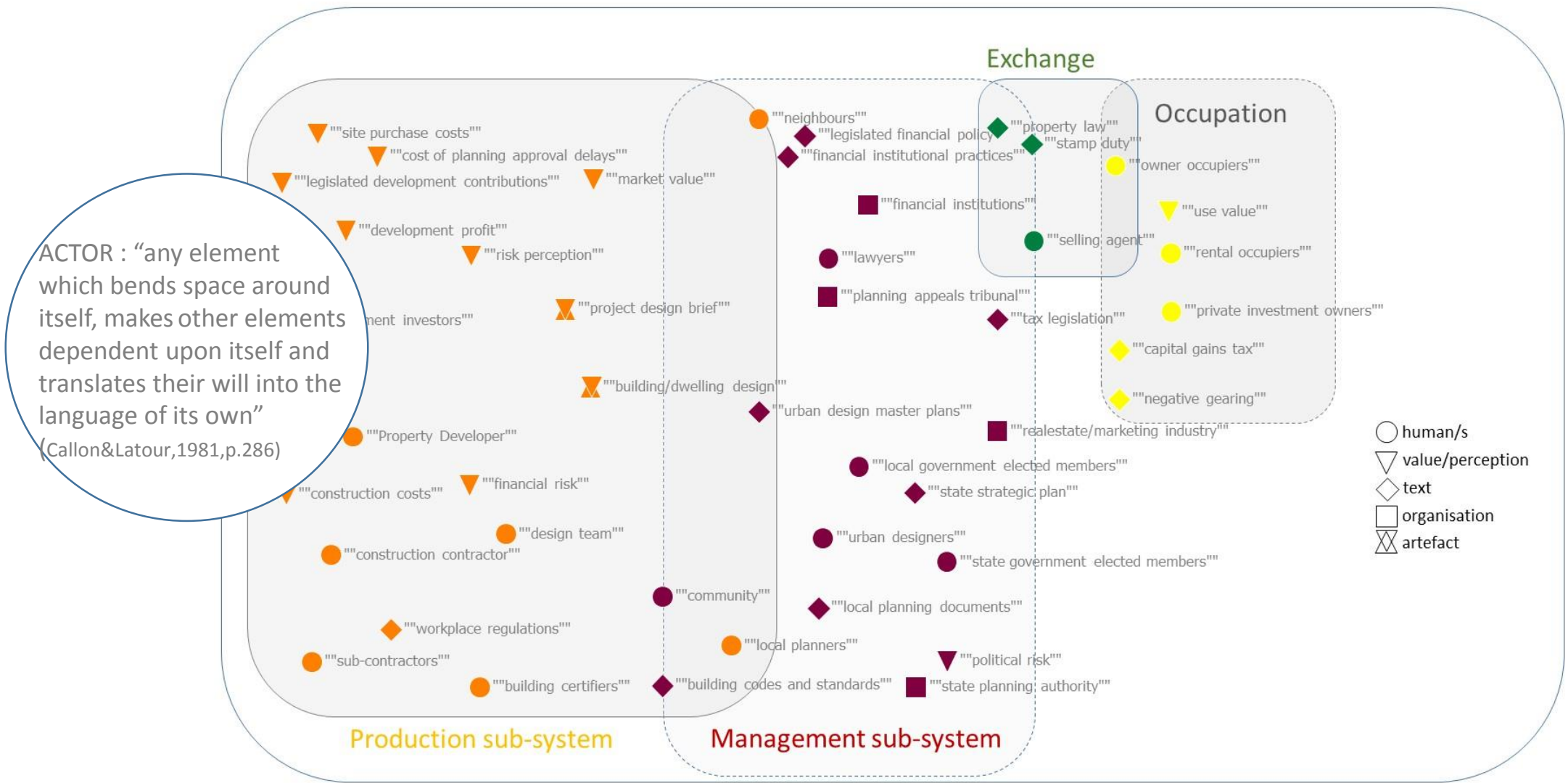


## Stakeholder Engagement in Housing Sub-systems



# Stakeholder Engagement in Housing Sub-systems





# Literature Review Identifying Medium Density Housing Actors (human and non-human)

# Relationships -who/what -when -type

**LIMITS TO INNOVATION**  
 'The Market', but in reality an interpretation of 'the market'.

Design Team's opportunity to innovate limited by fees (time) and developers expectations.

Developer limits innovation by risk avoidance – does not want to be the first to try something

Community values and expectations can limit innovation but can also drive (Eg sustainability)

State Planning Controls

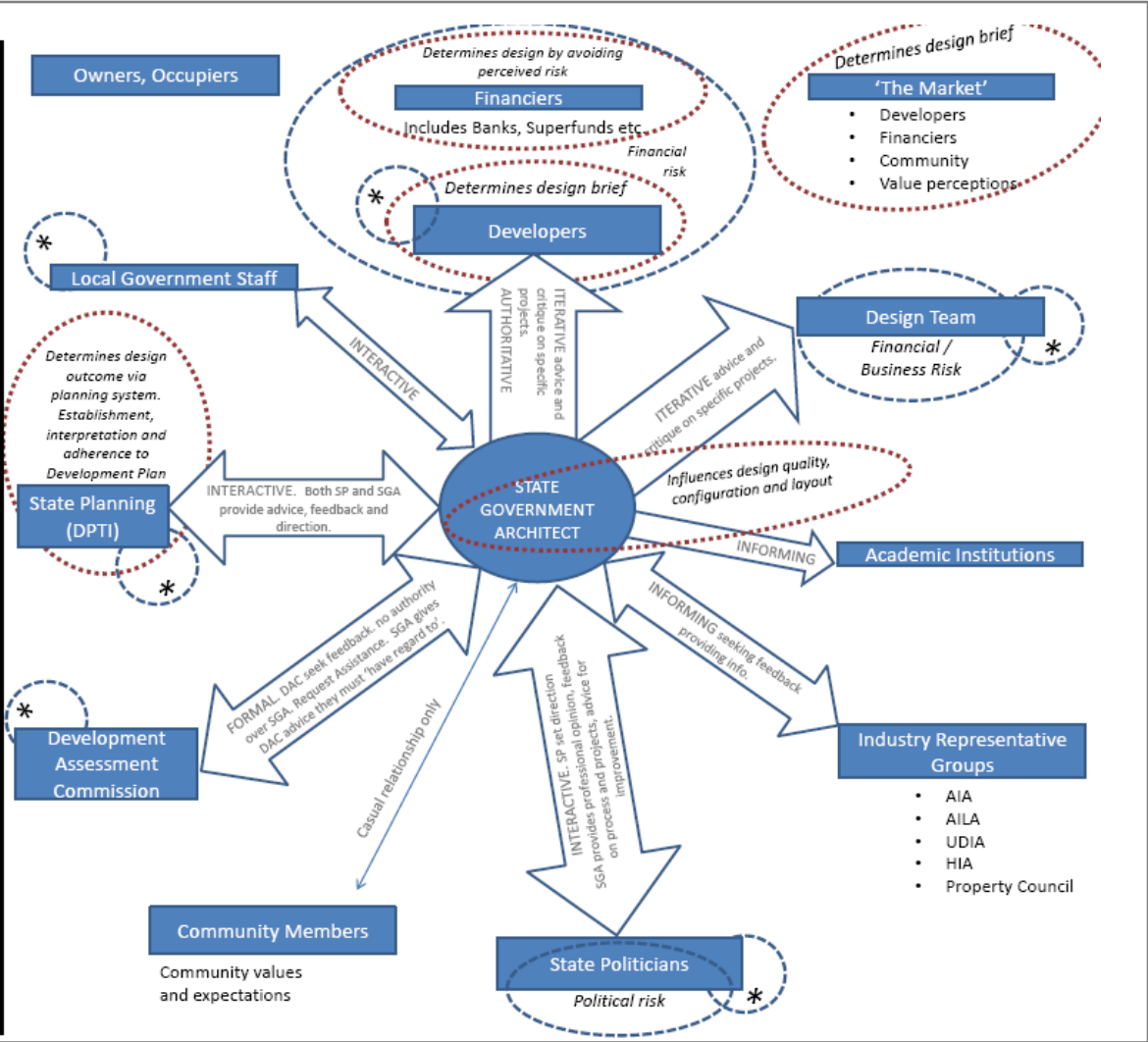
Policies Regulating access to finance

**Other main stakeholders**

Description of relationship

- Most significant decision making influences
- Determine type of houses being built
- Q9 Influential Policies
- Location of greatest risk

\* = risk to credibility/reputation



## Key Actor Interviews

Relationships  
-who/what  
-when  
-type

Question 9:

Policies as incentives  
Stamp Duty Exemptions to city and inner metro Adelaide creates demand, being leveraged by developers. Probably positive but challenge to assess  
Character preservation of Barossa and McLaren Vale reinforces growth boundaries driving infill. Positive.

Tax Legislation and Regulation (eg negative gearing) and other government policy promoting home ownership treating housing as commodity, not homes. Negative effect on quality.

Policies Regulating access to finance limit choices. Negative.

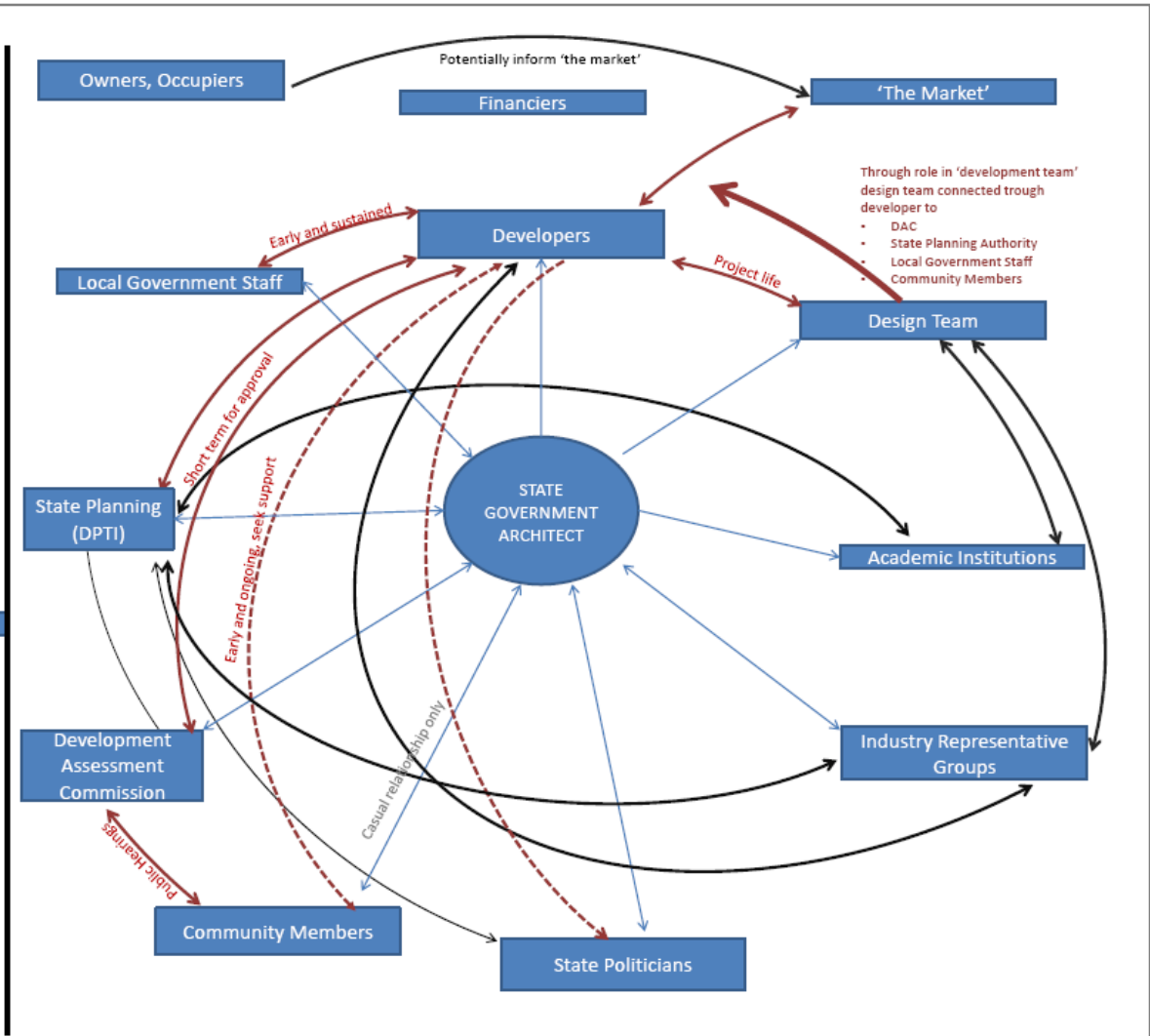
Lack of State Design Codes. Negative.

Other main stakeholders

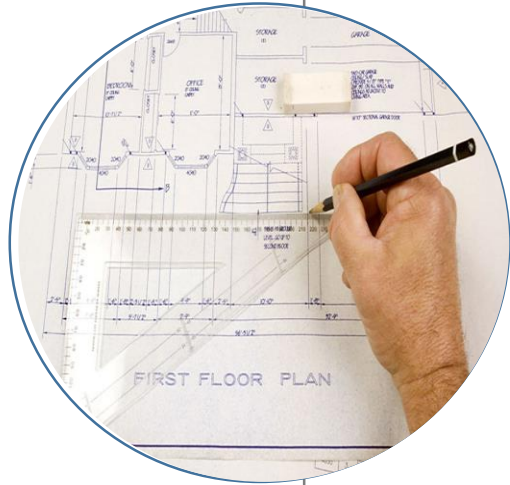
Project specific relationship

Ongoing professional relationships  
Not project specific

In some cases



Key Actor Interviews



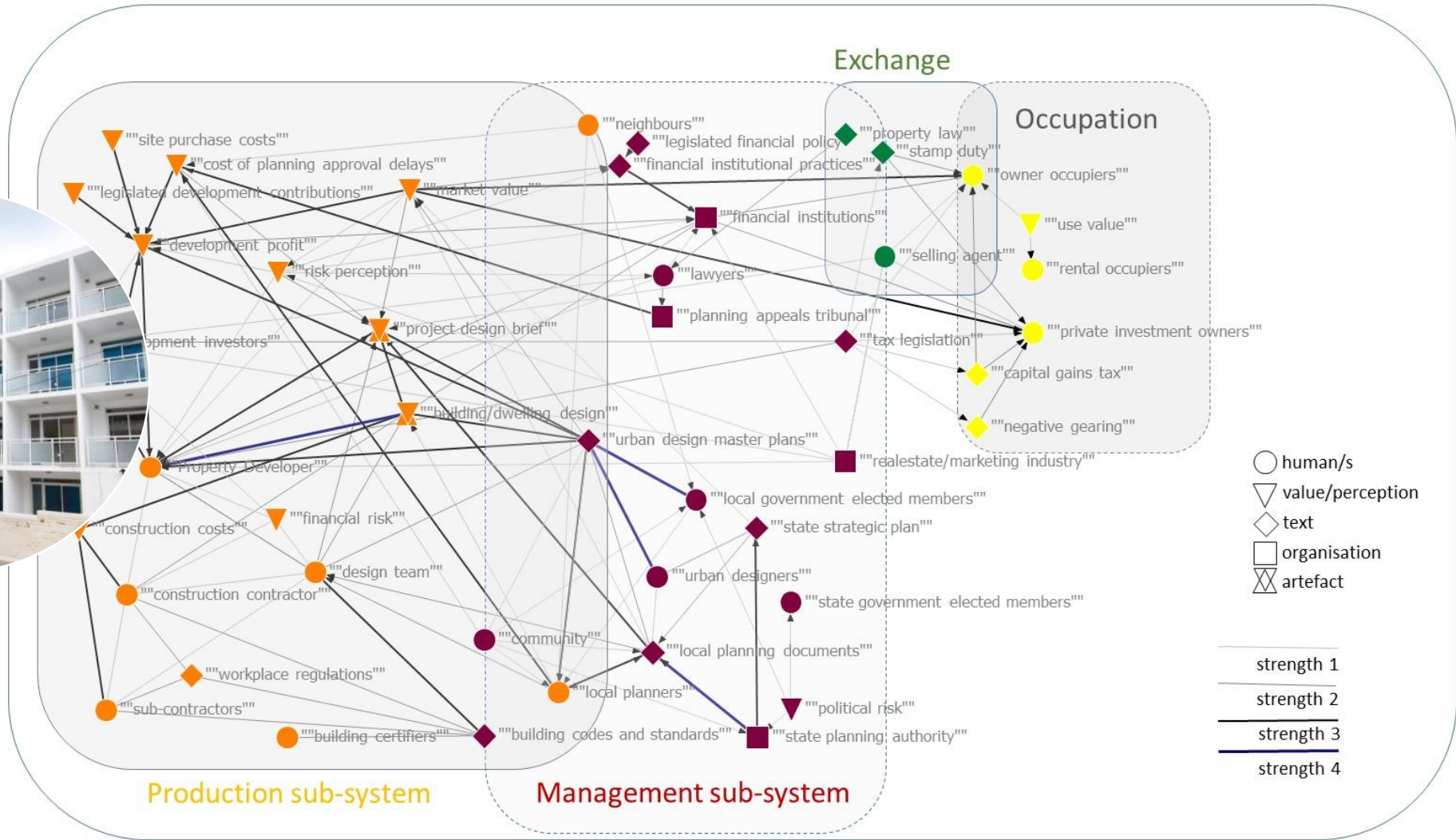
- 
- provides input / opinion for design decision making (strength 1)
- 

- sets boundaries to design decisions
  - provides propositions for consideration by others (strength 2)
- 

- limits future design decisions by others
  - determines / PRESCRIBES set design decisions (strength 3)
- 

- takes actions / makes design decisions (strength 4)

**Design relationships: un-locking the design 'black box'**



# Design relationships: un-locking the 'blackbox'

## actor

"Any element which bends space around itself, makes other elements dependent upon itself and translates their will into the language of its own" (Callon and Latour 1981 p. 286).

## focal actor

one who acts to align the interests of a diverse set of actors with their own interests (enacts translation) (Callon 1986)

## mediator

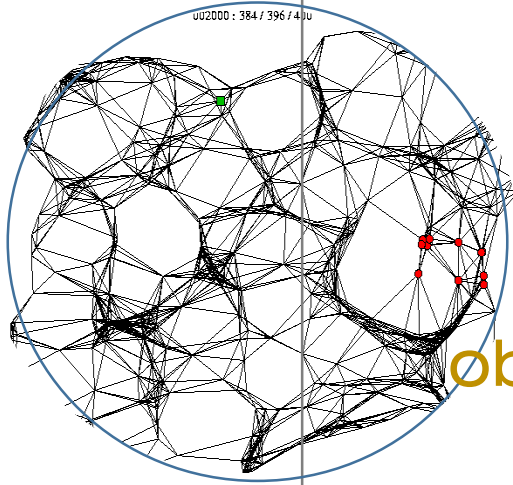
Mediator: actors who 'transform, translate, distort and modify' (Latour 2005 p.39)

## obligatory passage point

A situation that has to occur for all of the actors to be able to achieve their interests, as defined by the focal actor (Callon 1986).

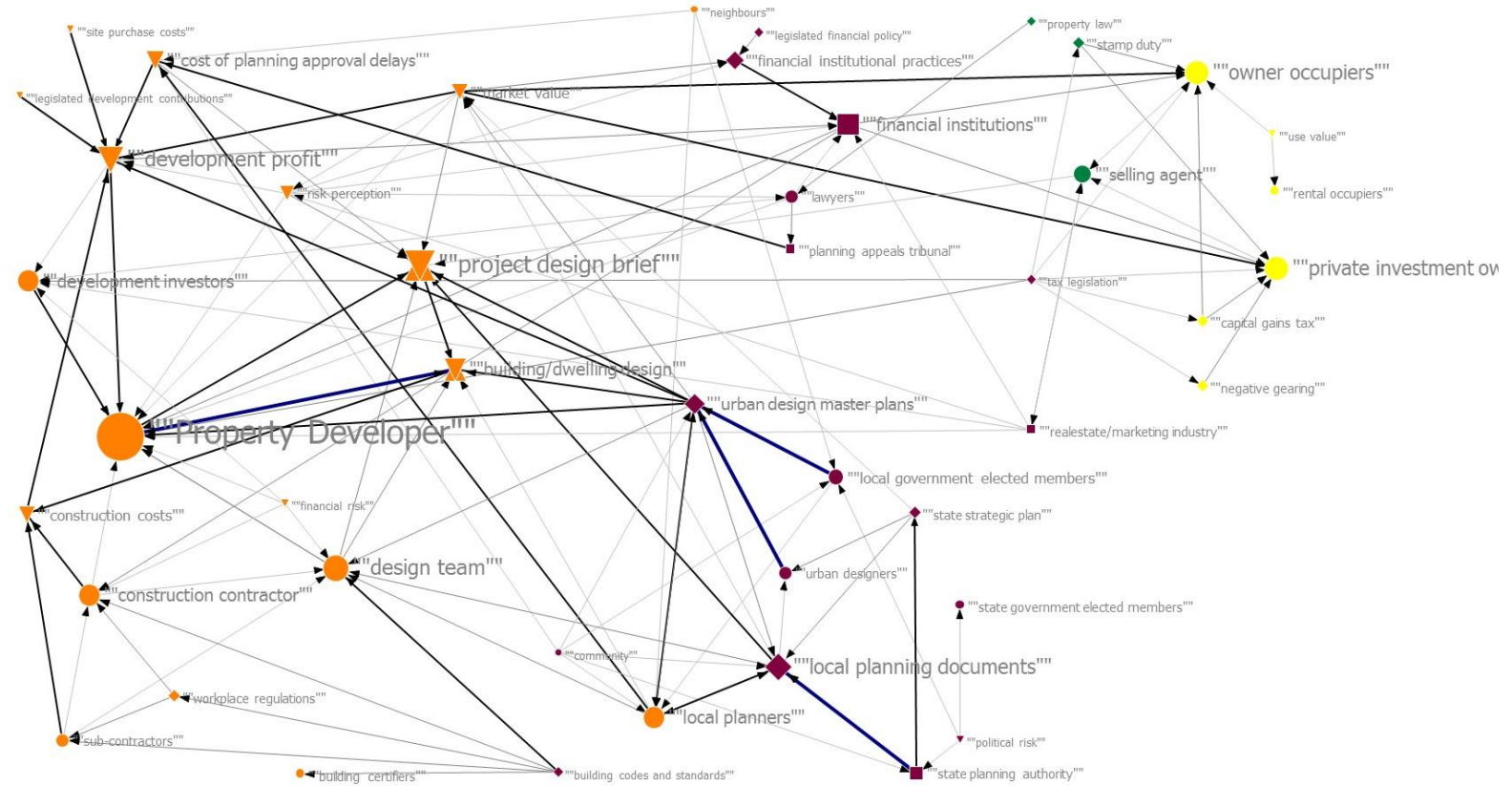
## intermediary

the language of the network. Anything that "passes between actors in the course of relatively stable transactions" eg text. Product, service or money. (Bijker and Law 1992, p.25)

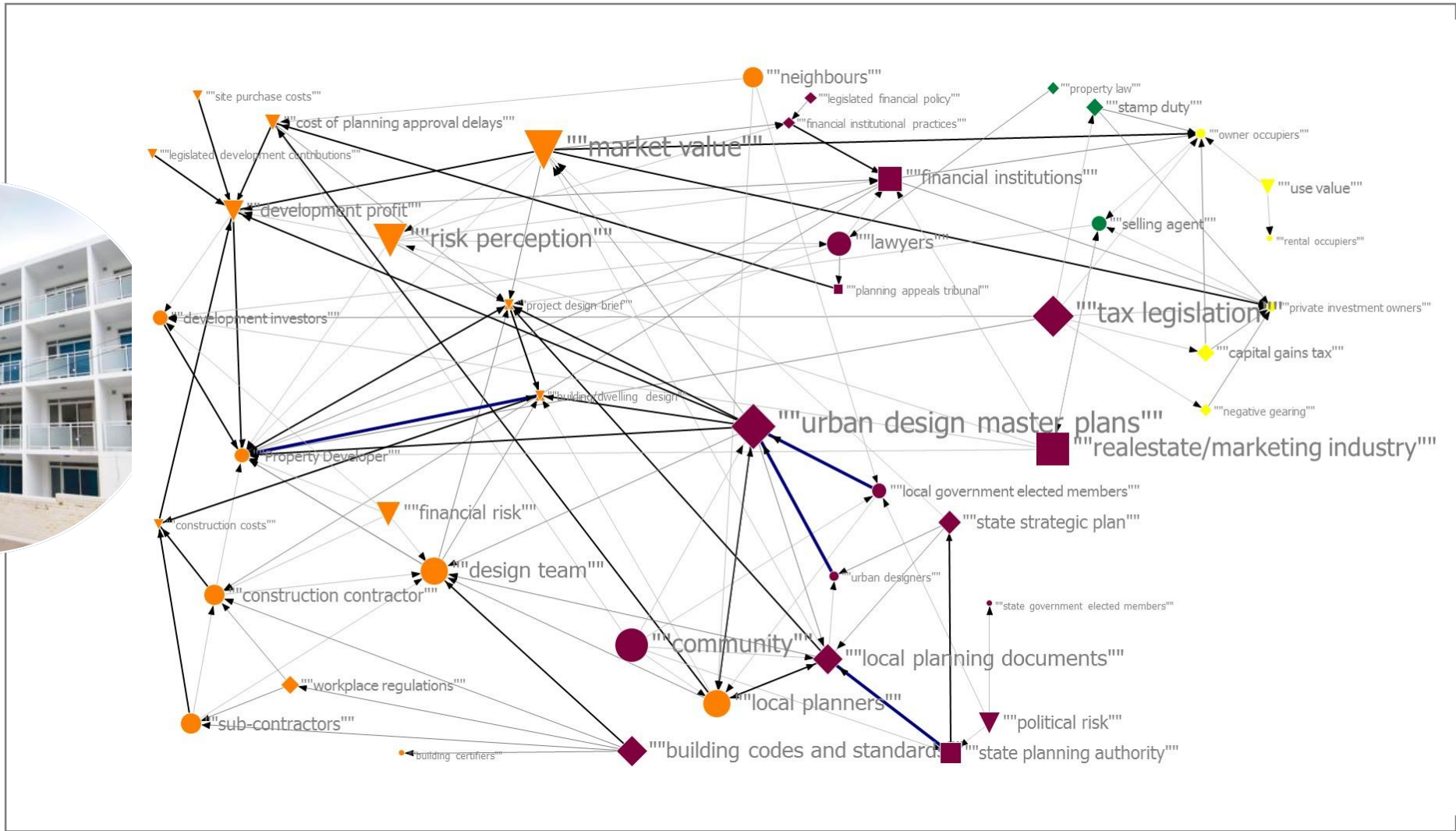


Sarker et al 2006, Dudhwala 2014, Stalder 1997

# Actor-Network Theory Definitions

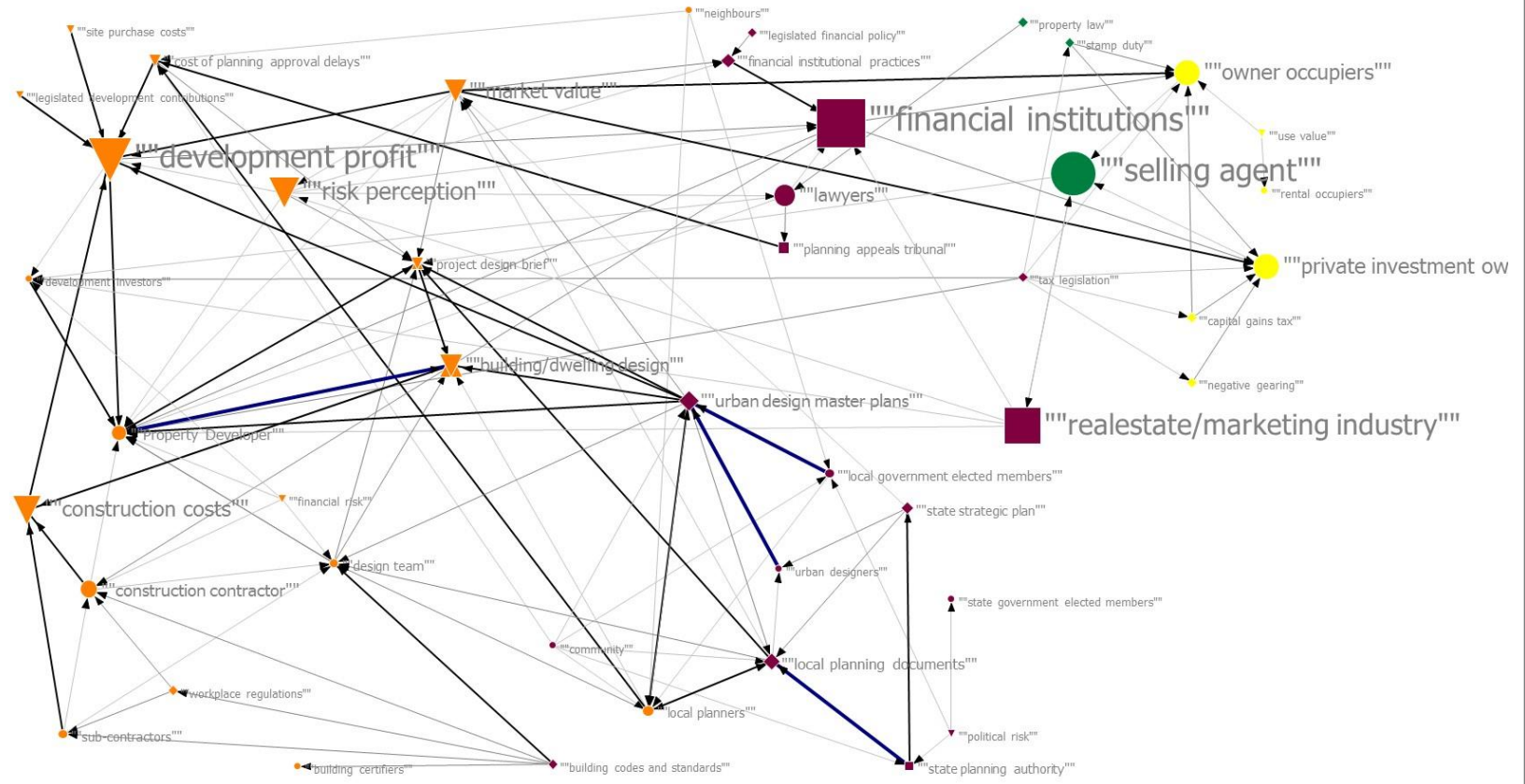


In-degree



Out-degree





## Ego-between



## focal actor

- high(est) in-degree and/or out-degree in network
- highest 'between ness' in network

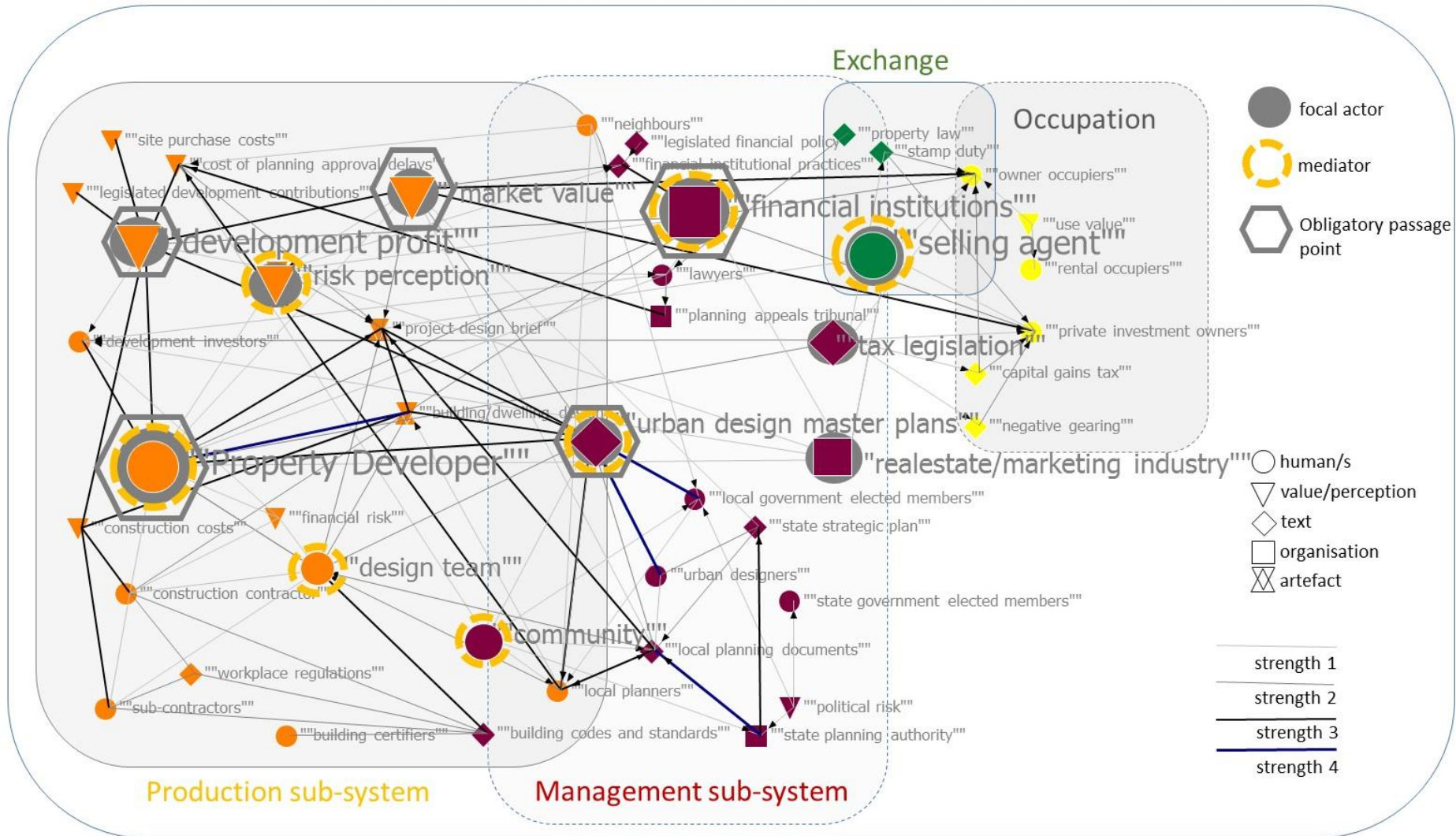
## mediator

- high in-degree and/or out-degree actor with capacity for adaption (not fixed/prescriptive)

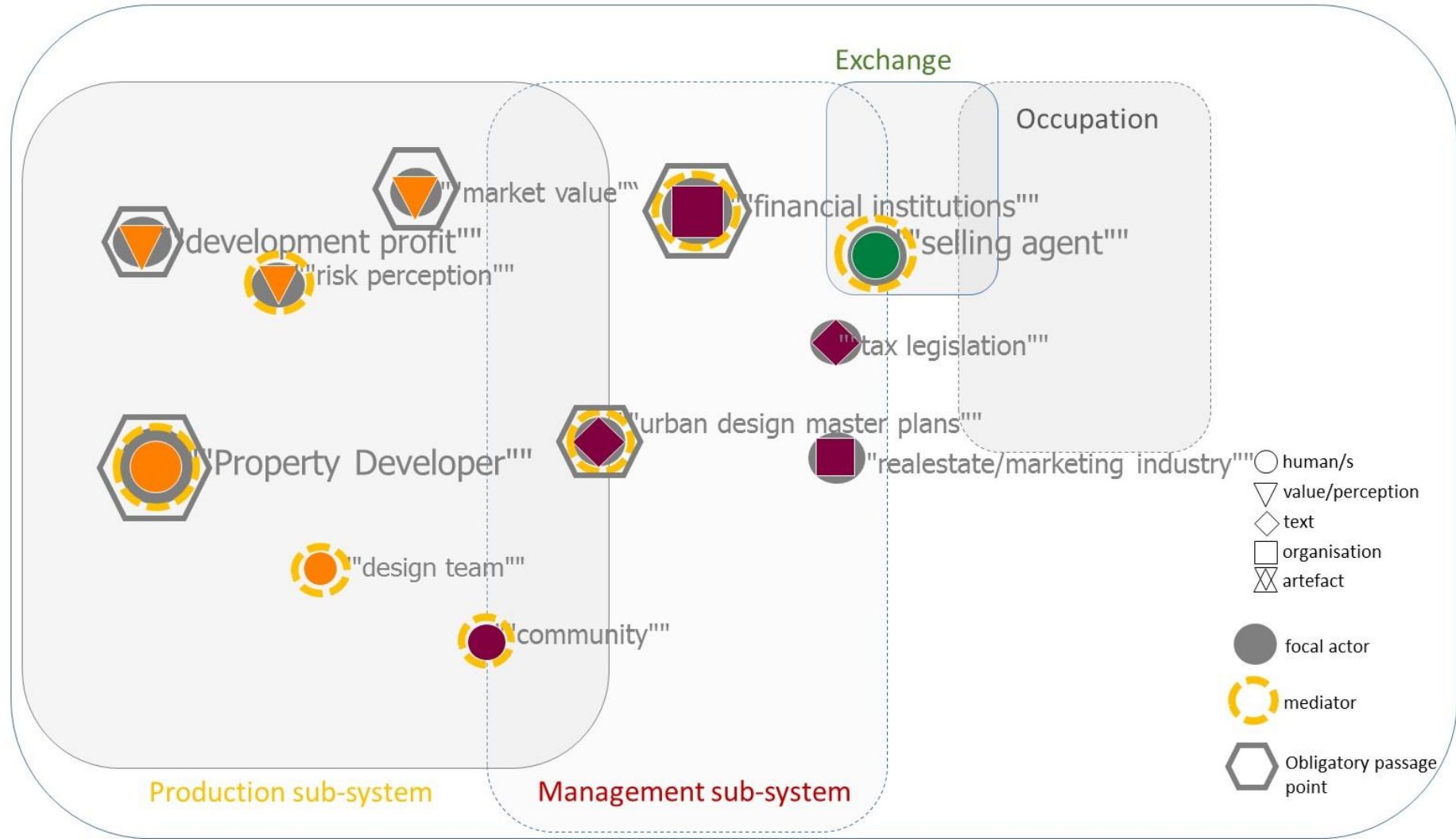
## obligatory passage point

- high in-degree and/or out-degree actor who sits in a network position which gives them the power to allow design decisions to become reified.
- focal actor providing prescriptive design information (eg regulations)

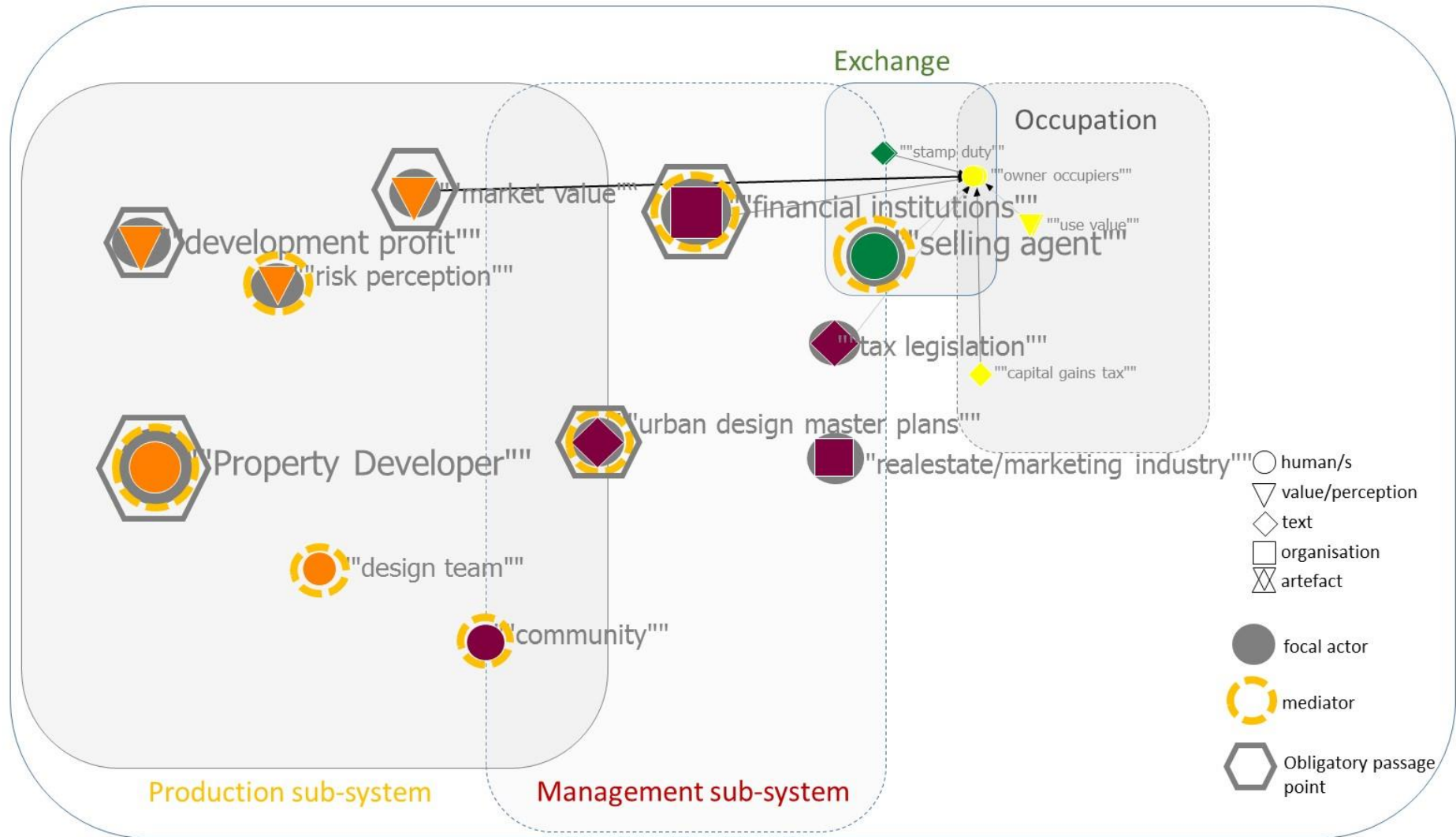
Determining Actor Characteristics: Social Network Analysis



Re-mapping the existing (actual)



Re-mapping the existing (actual)



Re-mapping the existing (actual)

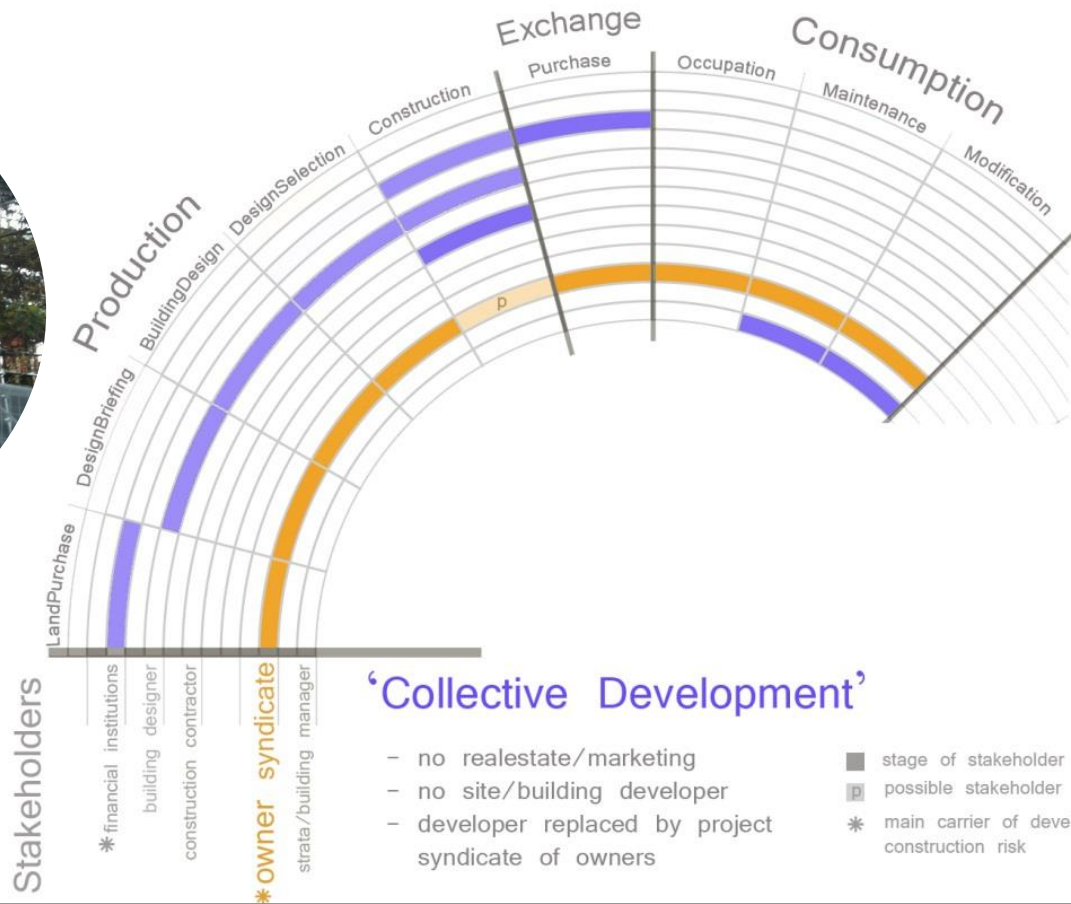
current projects  
seeking user  
input in design,  
Melbourne



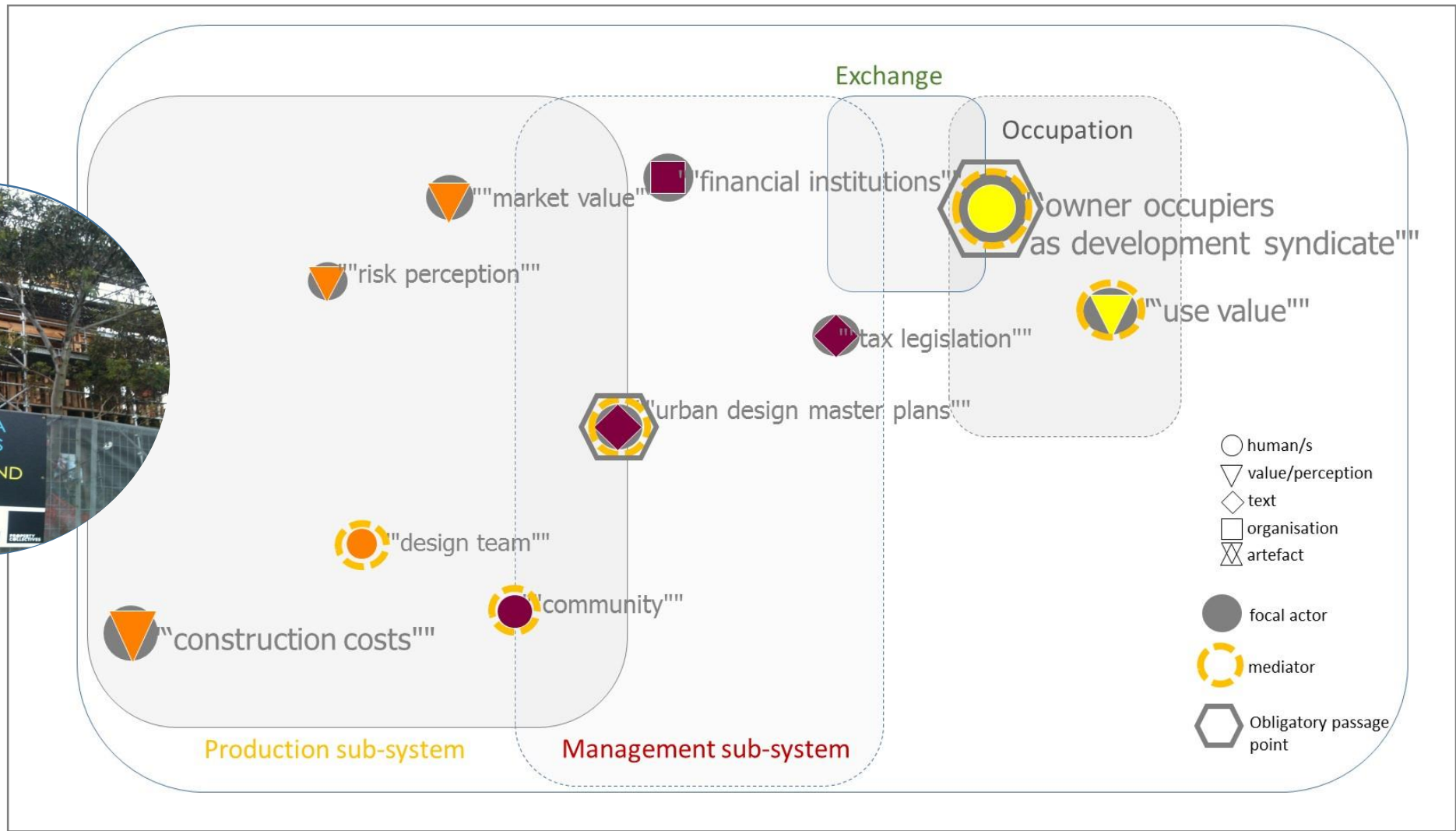
SHAPE YOUR LIFE



## Outside the box



## Outside the box



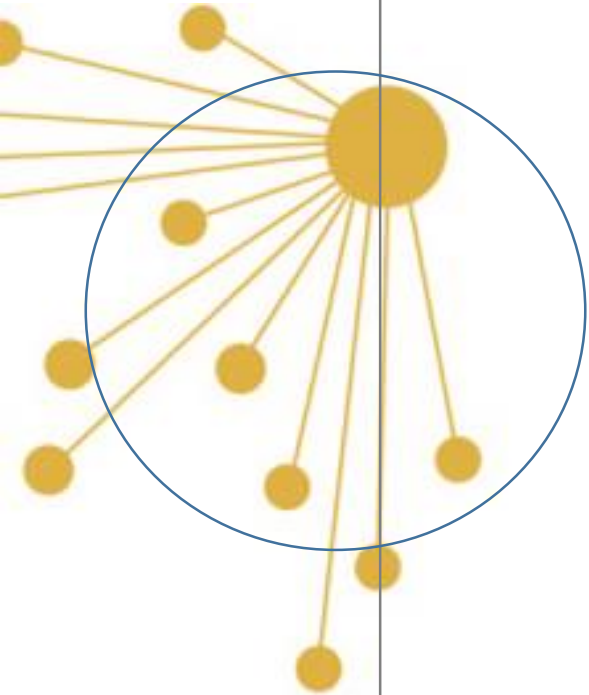
(draft) Mapping 'outside the box'





Baugemeinschaft (joint building venture) and Baugruppen (Building Group), Germany  
Collective Custom Build UK

## ‘out side the box’: international examples



## Complex housing provision **system**

### **network mapping**

of existing (SUPPLY DRIVEN)  
housing provision employing **ANT**

### **analysis of network**

using **SNA** tools to define network  
attributes and aid in simplification  
of network representation

### **comparison**

of existing provision system with  
Australian and International  
(DEMAND DRIVEN) alternatives  
to....

### **identify**

.....

## Summary



## identify

.....  
**BARRIERS** to change entrenched in the existing system, and

**OPPORTUNITIES** for change to:

- increase occupant participation in the MDH provision system
- shift focus from MARKET VALUE to USE VALUE
- provide increased choice to purchasers, bringing it in line with the familiar low-density system

and **REDUCE THE MISS-MATCH** between urban policy intentions and reality to assist in the realisation of suitable housing outcomes for individual households.

## Summary

actor-network theory

complex  
socio-technical  
system

social network analysis

.....on the combination of 3 three system/network frames  
originating from 3 distinct fields of enquiry

.....on the simplification of visual network mapping to  
focal actors  
mediators and  
obligatory passage points  
for comparison purposes

other opportunities enabled by a Systems/ANT/SNA combination

Inviting your thoughts and comments