

Negative Space Positive Environment

Mapping Opportunities for Urban Resilience

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Outline

- Background
- Understanding Cities
 - Approaches to Urban Environment
 - Urban Sustainability
 - Cities as Ecosystems
- Mapping Negative Space
- Case Study – Brisbane, Australia
- Conclusion

Background

- Cities are fascinating melting pots of cultures, lifestyles and opportunities
- Each iteration has been more complex – new technology, faster pace of life, social changes and now, environmental awareness of the cost of Western lifestyles
- Complexity is vital to urban centers and a main characteristic of consolidated urban environments
- Mixed uses, social heterogeneity, sensory stimulation, economic transactions and cultural exchanges all provide 'life' in cities

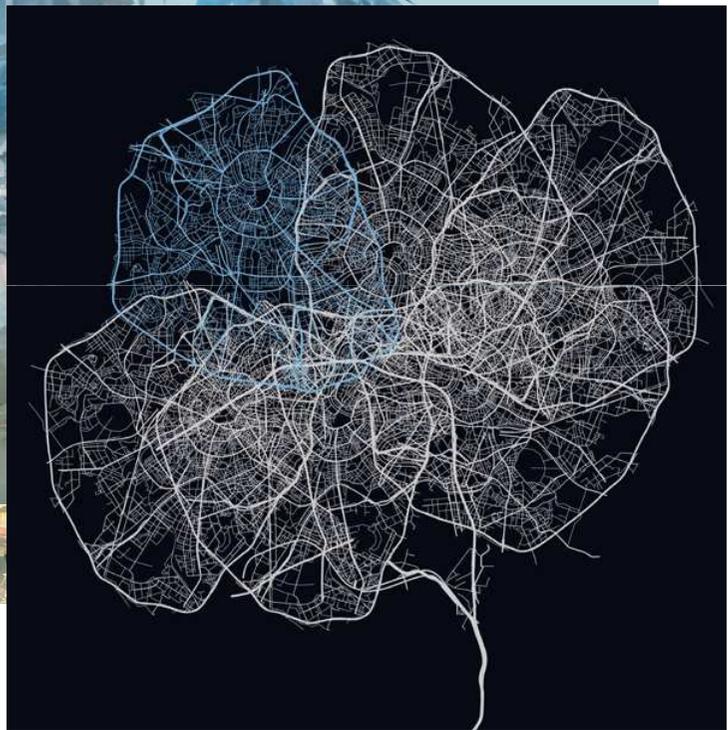
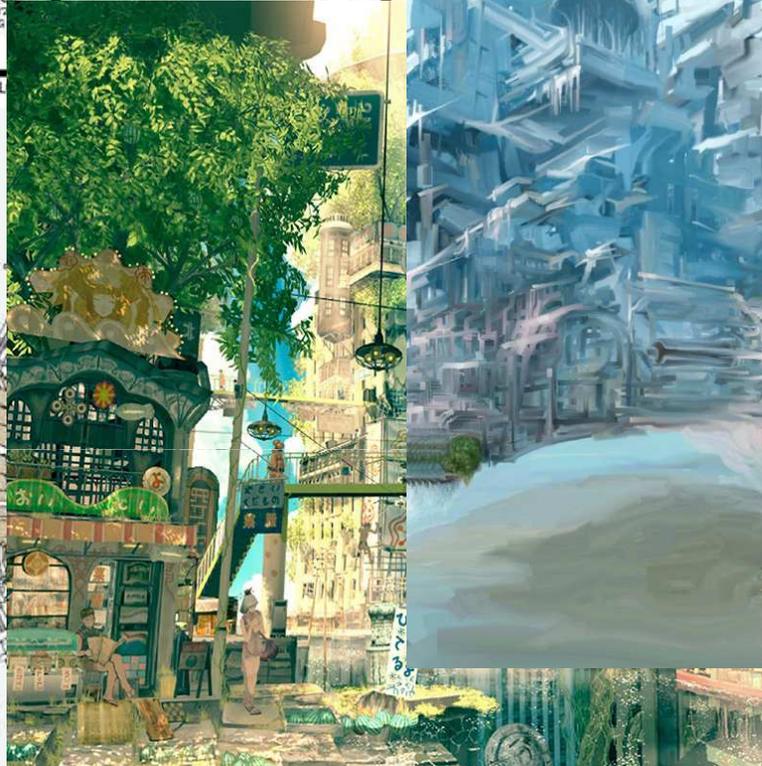
- Cities have changed throughout their history to adapt to changes in lifestyle, economy and production
- Historic elements have given way in order to advance the growth of the city – Vienna is an example with the removal of city walls to create the Ringstrasse
- Iconic elements built then removed
- Activities keeping town centers vibrant and alive have been removed, isolated or segregated to the outskirts

Changing Cities

Three traditional methods of introducing wide-scale urban change:

- ▣ Razing the city to start again
- ▣ Annexing new areas beyond city boundaries
- ▣ Changing cities from within
- ▣ Third option most likely in majority of cases

Approaches to Urban Environment



- Cities as organisms
 - Defined centre of control
 - Green lungs
 - Veins for movement
 - Co-operative effort of all elements
 - Diseases
- Main driver – improving efficiency and streamlining processes
- Now – urban sustainability

Urban Sustainability

- Developing concept growing in importance to both government and industry
- Cities (and built environment) significant factor contributing to environmental concerns
- Inherent complexity of cities – layering meaning, history and cultural memory - does not allow ‘tabula rasa’ blanket approaches to sustainability

Positive Development - J.Birkeland

- Currently sustainability is concerned with containing damage, nor repairing
- Positive Development theory argues that the built environment needs to have an overall net positive impact – it must reverse past environmental damage
- Ecological remediation, restoration and regeneration are insufficient – development must ‘pay its own way’

- New construction/retrofitting must increase carrying capacity as well as natural and social capital – net expansion of ecological base and public estate
- Buildings are proposed as agents to modify context in order to provide multi-layered benefits in line with urban complexity addressing social, cultural, economic and environmental elements
- Approach offers a new and different way to look at cities

Cities as Ecosystems



Urban Utopias – Vincent Callebaut (source: Allianz.com accessed 11/5/12)

Cities as Ecosystems

- Cities are fluid – functions move, areas grow and shrink, shared memories morph
- Current ecosystem views are fragmented and focused on singular elements – eg. green space
- Ecosystems allow dynamic relationships between components in response to element interactions and context
- Using this understanding, new development can be considered as clusters which contribute to the performance of the city as a whole

- Buildings are not isolated elements, rather ‘cells’ providing particular functions to the wider ecosystem – the city
- Negative space is the connective tissue joining different cells
- Allowing elements to ‘spread the load’ and simultaneously ‘share the gain’ of various environmental solutions

- Environmental functions can be retrofitted to existing cities making best use of individual building position as appropriate
- Cities become 'living' systems allowing a non-linear shift to sustainability through interaction of 'cells'

Mapping

- Initial step is to locate and identify opportunities in the urban environment
- Not limited to publicly accessible areas, also considers open spaces within blocks to gain connections
- Merging functional and typological mapping with ecological studies, the city becomes an urban system operating as a ecosystem

- Based on typologies of open space, ecological systems and urban planning, identifies following elements as a framework
 - Public parks
 - Gardens
 - Pedestrian areas
 - Street planting
 - Laneways
 - Accessory spaces
 - Car parks
 - Infrastructure and lost space

Public Parks

- Central to social space and environmental relief
- Accommodate leisure facilities
- Important to city identity – festivals, etc.



Gardens

- Part of urban ecological network
- Not necessarily publicly accessible
- Role of sanctuaries in urban environments



Pedestrian Areas

- Gathering areas, plazas, forecourts
- Walkable networks
- Significant social importance



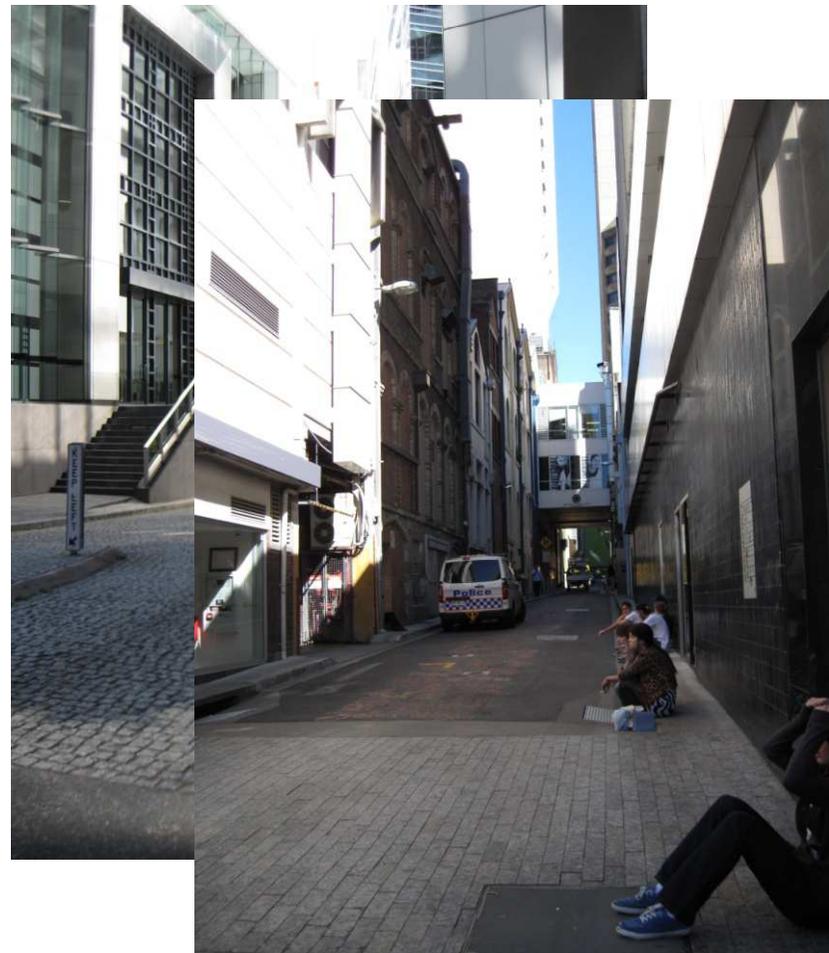
Street Planting

- Important for air quality and climate control
- Support biodiversity and variety of life forms



Laneways

- Opportunities for building pedestrian networks and vibrant social places
- Informal connections between more structured elements (private gardens, main streets)



Accessory Spaces

- Driveways, access ways, internal manoeuvre spaces, commercial courtyards
- Used temporarily during the day or week
- Opportunity for different social uses and different kinds of urban networks



Carparks

- Large areas devoted to the provision of parking spaces – parking lots, on-street parking, parking structures
- Again, temporal type use during weekday daytime, empty and desolate at night and weekends
- Opportunity for locating temporally driven societal functions



Infrastructure and Lost Space

- Railway networks, motorways, road viaducts, remnant space
- Inaccessible or socially dangerous areas
- Could provide ecological corridors or other environmental services for positive development of urban environments



Vacant / Redevelopment Sites

- Areas underdeveloped, under redevelopment or due for refurbishment
- Can set up ecological systems which extend beyond unbuilt lots
- Connect environmental technological elements (during construction / refurbishment) with negative space to implement city ecosystem



Potential

- Environmental functions to be distributed in the urban fabric and interconnected by designed negative space
 - Energy generation
 - Air and water filtration
 - Carbon sequestration
 - Food production
- Cities could evolve into 'corporate entities' – complementary component parts working together

- Over time the entire city could generate surplus environmental services as buildings are retrofitted or replaced
- Actively using negative space to connect discreet environmental cells may result in the city as a self-sustaining unit
- Using negative space in a systemic manner can drive sustainable functioning through urban infill development or redevelopment to meet environmental goals

- Temporal activation of negative space can:
 - Support and enhance social interaction (increasingly 24/7)
 - Meet evolving cultural changes
- Approach allows the city to continue to evolve and change to respond to cultural and social developments
- Able to take advantage of developing technological advancements

Case Study – Brisbane, Australia

- ❑ Australia's 3rd largest city
- ❑ Capital of Queensland
- ❑ Sprawling, car-centric city
- ❑ Light and mid-grain urban fabric
- ❑ Increasing city centre population



Figure Ground

- Dense core thins out towards river
- Connection between city and river broken by motorway on South-West side (purple)
- Different settling rule on North-East side blocks river views
- Articulated system of open spaces



Green Space

- ▣ Parks, gardens and street planting
- ▣ Preliminary ecological network in negative space
- ▣ Pattern is discontinuous
- ▣ Missing green links are identified



Pedestrian Space

- Actual and potential pedestrian areas (purple) suggest system densification
- Opportunities through accessory spaces (orange, yellow)
- Refurbishment of public spaces with positive technologies
- System radiates deep into built fabric



Redevelopment Space

- Areas under redevelopment and refurbishment
 - Vacant sites – apricot
 - Development sites – red
 - Lost space – dark blue
- Opportunities for new connections
- Even distribution of sustainable elements in urban fabric





Map of Brisbane CBD
locating all opportunity spaces



Mapping Refinement

- Recognition of fixed elements in the development of cities – heritage listed buildings
- Time based mapping of uses and functions usage variations of facilities, spaces and infrastructure
- Identifying opportunities for retrofitting specific environmental functions – locating condition dependant technology appropriately

Conclusion

- Cities always have and always will, morph – they must change or they die
- Using redevelopment of dilapidated areas helps to redefine the urban environment offers opportunities for sustainable nodes to be inserted into the urban fabric
- Mapping allows us to see and understand the existing connecting web of negative space
- Offers a structure that positively directs progress of the urban environment

- Oversimplification of cities has made the the built environment a collection of separated functional clusters
- To counter this, the city should be understood as an integrated technological and ecological network
- Planning needs to consider existing opportunities to create a complex ecological system staged in time which follows the pace of urban change
- Actively designing negative space can start to create a sustainable connective web

Thank you Questions?

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