

What if we were to use circular economy as a business strategy?

City Architecture Forum at Arup – Event Notes

08/10/2019

The circular economy seeks to decouple economic growth from resource consumption by creating value in new ways. This directly address' issues of resource scarcity, productivity and climate footprint through new business models and customer experiences.

Organisations such as the World Economic Forum, OECD and the EU have recognised the importance of a circular economy to achieving global economic and environmental goals. The principles of a circular economy can help projects tackle even the hardest-to-mitigate aspects of their climate footprint.

Below is a summary of findings from each of the tables at the CAF/ARUP *Knowledge Cafe* that was held in October 2019.

Economics and Policy Table Discussion

- Missing from the overall conversation is what architects and developers want from cities to enable circular development
- Change is expensive – people do not feel they have responsibility to make the changes required
- Length of thought required for an asset is a problem as the timescales in the conversations during development are too short. Again, it requires money to think long term.
- Rentable facades:
 - Incentive for developers to design for re-use or a life of 200 years, or
 - Short lifecycle but hyper-reusable therefore super flexible
- Could Local authorities reward developers for designing in flexibility?
- How would a sell back model effect asset value?
 - Think about the cost and the risk (material costs rising, would this change sell back or lease costs)?
 - Would this make the asset decrease or increase in value in a different way? Who would be liable for issues with the material ie a leak?
- Build to let – circular opportunity as components are the same
 - This doesn't really happen yet
 - A key question is how to build a community so people can share
 - Smaller flats with more communal space – like the new student housing model
 - A sacrifice is required somewhere in the system
- Are we just used to cheaper for worse, is it just that we don't really understand the costs of the things we buy?
 - How would actually adjusting pricing impact different people in society?
- Modular social housing would be sustainable.
- Change only happens when forced by policy or economics.
- How can we ensure everyone is involved in the discussion?

Refurbishment Table Discussion

- 1 Triton Square (Arup refurbishment project)
 - Raised floor tiles and external façade sent to be refurbished
- Lots of circularity already in demolition industry due to material value
 - Historically, contractors can add value from a job by reusing or recycling materials
 - For example, the demolition of a railway shed at Kings Cross went out to tender. Tender submitted for job at zero cost as they had realised the rail sleepers were lined with platinum
 - We need to be better at understanding value in materials
- Existing buildings expose risk and are therefore under-valued (in material terms)
 - By 2050, 87% of existing buildings will still be in use
- Why is refurbishment less popular?
- Should we tax more on new builds?
 - Reuse is often faster and cheaper
- Why would you refurbish vs new build?
 - Changes in planning, for example height regulation, means you could have more floor space
 - Are we building space for the sake of building space or do we actually need it?
- London view framework - if this was raised by 4meters over London, lots of demolition and new building would occur to maximise floor space
 - Could use a timber frame to expand, and therefore not demolish whole building
 - Cost would have to be managed so as not to drop market
- A big issue is housing
- Green deal encouraged homeowners to retrofit
 - Poor financing model as loans had very high interest rates
 - Damaged sustainability agenda
- Should we be linking to stamp duty?
- Do we need everyone to have a carbon dioxide footprint (and value) and therefore everything should be accounted for in that?
 - For example, cars show emissions of car but do not show the emissions during its manufacturing
- Information management of buildings is important
 - Long term and flexible material passport could help future proof costs of refurbishment
 - Digital boom will help
 - Service history informs risk therefore people know how to manage the building and retain the value
 - This could feed into BIM and use of AI in construction management
 - At 1 Triton Square, Arup refit previous facades after reusing and cleaning them
 - Brief specified BREAM excellent which then became to outstanding using marginal gains
 - Cultural shift in own thinking required

Materials Passport Table Discussion

- Idea of gaining as much information about a resource as possible, and tracking it along its life cycle
- Concrete as an example:
 - When was it poured?
 - What was in the mix?
 - Each slab can be tagged and catalogued
 - Makes it easier to track value of resource
- Need to change people's perceptions of what 'new' is and its connotations are
 - Contrast between American and European views – Europe is more accepting of reused assets
 - The idea of leasing steel is a great way to buy into this
- Management of information is also key for clients and contractors
 - Could include consideration of this as an extra design stage (RIBA and GRIP)
 - Digital Object Identifiers are a potential way to meet this need
 - A counterpoint is that further opportunities are also needed to be able to purposefully use the information gathered
 - Clients as well as contractors should be aiming to lead in offering useful opportunities
- From an industry point of view, need to have access to the value aspect of this information
 - Need to make it worthwhile to collect the information
 - Answer from group: Value comes from knowing and ensuring materials are used in the most efficient way possible (cost and sustainability benefit)
 - Also need to ensure information gathered is concise and accessible enough to be useful, as too much information will deter use
- Potential to link in IoT technologies – link passports to monitoring whilst asset is in use
- Passports can be used to plan the cost of a building, not just to construct but also to operate and maintain
- Assets aren't just held by the same owner all throughout the life of the asset – passport is a good way to show locked value
 - This however requires a good information management system
 - Need to also educate clients that value exists intrinsically locked within assets

Planning Table Discussion

- Introduction- discussion on London's Housing problem
 - If we look at number of rooms in London and directly compare to number of residents, seems like London doesn't have a housing problem
 - Shows the need for a change in the planning of our housing and breakdown in the housing market's mechanisms
- Group proposes a tax on the amount of unused space in a home
 - This will likely face opposition from the public
 - Does council tax cover this?
 - Potentially an incentive on those sharing spare space is a more effective solution
 - Is there a need to bring in extra capital gains tax for foreign purchasers and sellers?

- Need to allow use of space to change easily – essentially make multi-use more agile
 - Will require fundamental change in how new infrastructure is designed and planned
 - Rather than making mixed use of an area, facilitate multiple uses of the same exact space (e.g. school buildings being used as educational centres during the day and community centres, polling booths in the evenings/holidays)
 - Need a way to test for willingness of occupiers to share space
 - Build this into stages of construction
 - AirBnB is a good existing commercial example of this
- Local council should facilitate shared use of space
- Brownfield sites are extensive and unused within London
 - Should we address this issue first?
 - Group member introduced concept of site guardians
- Low Guardians
 - Normal room in ‘undesirable’ spaces
 - Can change according to requirements e.g. couples’ room
 - Great value for money
 - No ownership is possible however
- Views in Europe are much more open to renting as opposed to ownership
 - Nordic countries have accepted shared ownership/ long-term renting as the norm – do we need to change our mindset?
 - Does Nordic model have an overreliance on the housing system though?
- Does selling housing for profit reduce the quality/usefulness of new housing?
- IKEA is looking into the concept of flat-pack houses
 - Good idea but is it scalable?
- Need to approach better planning from many angles – ‘multi-pronged’

General floor discussion

- Planning
 - Space – why do we have to build more when so much is vacant?
 - We have a housing problem, but we have enough room. It is a matter of consumption. We leave offices empty, so could we use AI to match floor spaces which are vacant to needs
 - Land banking going on across London
 - 80% vacancy rate in parking spaces in London led to a start up creating an app to rent a private parking space as a public one
 - Flexible and affordable workspace which can move around becomes circular without overtly being CE. Uses spaces as residential if not being used – Guardian programme
- Concept of carbon taxation as an asset
 - 50 years down the line you choose to refurbish the space, not demolish and re-build, and your carbon tax would go down
 - Would tax be a good thing to incentivise refurbishment and not new buildings as often increases value of older buildings
 - Challenges around information around buildings
- Use of digital to influence design and asset use into the future
 - Use data which has been captured over the asset life

- Culture shift – outset of plan should include refurbishment
 - We need to change plan convention to reap benefits down stream
- Parking is a hugely inefficient use of land space
 - Current housing layouts are also hugely inefficient
 - Do we need to pioneer new methods of sharing space?
- ‘Meanwhile’ spaces for businesses with offices under construction
- Concept of Carbon Tax on assets
 - Buildings on day 1 of opening have a carbon value
 - Increase of carbon tax rate when building is sold
 - Lower increase when building is refurbished
 - Slow decrease in rate as length of ownership increases
- Challenge in getting information on asset – links to idea of material passport

Posters

Planning

Bottom Up Strategies:

- Connecting people and empty spaces
 - Guardianship for housing
 - Mediated/led by the local authority
- Feeding data into the system (Big Data)
- Critical mass to make it work
- Servitisation

Top Down Strategies:

- Refurb first (tax incentives)
- Ecosystem of spaces
- Why high parking requirements?
 - Adaptable spaces to mitigate risk
- Lifetime neighbourhoods
- Vacant house tax
- Change the international capital gains tax
- Relocatable buildings

Economics and Policy

- Do people only see risks and not opportunity?
- Do policy makers have the power they really need to drive change?
- Does the language alienate people, and what does it mean?
- Balance between regulation and public engagement

Refurbishment

- Re-conditioned air conditioners
 - Warranties
- Asset values; are old buildings under valued?
- Successful refurb after 20 years – derelict

Construction

- Building rates – is leasing a red herring?

- Longevity of buildings is limited by mechanical systems vs structure which has extensive design life if maintained well
- City planning significantly influences design longevity
- Manufacturers' responsibility

Material Passport

- Distinction between accountability and responsibility
- Like a MOT – can't sell a car without service history
- Reuse of a brand-new fit-out
- Information management
- Certification
- IoT – how can we use/link passports to monitoring in use?
- Realise value at every point of sale