



01. Scope

The “Scales to Aspects” Model

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For several years now, we have debated the meaning of Circularity for the Built Environment. Scoping out the activities of TU Delft’s Faculty of Architecture allowed for a parallel reading of how this topic is currently intertwined in the built environment across scales. This understanding led to the Scales to Aspects model, linking the multi-scale and multidisciplinary research to key topics.

The Scales to Aspects Model

The “Scales to Aspects” diagram represents the systemic character of circularity in a single visual, starting from Materials and Components, the base ingredients of buildings, to Buildings as assemblies of materials, and components. One step up, the Neighbourhood scale represents how circularity currently manifests in areas and districts and how it involves residents. The Cities scale explores the most important resource flows and waste streams that enter, circulate, and leave the urban environment every day. Finally, the Regional scale refers to the characteristics of the urban metabolism and the importance of investigating economic activities to identify the flows and stocks of materials and waste.

It is important to understand that circular performance, in most cases, is related to multiple scales at the same time. Here is one example: the

choice of materials and their interconnection are obviously important. But whether a component really is circular depends on the nature of reverse logistics and waste streams, which are regionally structured. The supply chains of most products today are even globally organised.

The Scales to Aspects Model

As shown in the diagram, the scale levels are surrounded by interrelated aspects that are essential to achieving a circular transition: these include – but are not limited to – technological innovations, innovative design approaches, and innovative management models. Aligning solutions with economic incentives is also a key element for implementing the circular approach, and so is mapping and regulating the resource flows per scale. Finally, the societal dimension of a circular built environment is included since the transition affects and is affected by multiple stakeholders and society.

As implied by the lens metaphor, the focus of the interlocking scales aims at the circular built environment, whereas the outer ring provides the depth of field. The resulting model adheres to systems-thinking. On the one hand, the model captures the complexity of circularity; on the other, it offers a comprehensive tool for organising the discourse on circularity.



Circularity for Educators

The model is a snapshot of an ongoing process of becoming; therefore, it is neither finite nor exhaustive. The model thus represents what CBE Hub members have been able to retrieve so far and is open to new research findings and debate.