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Redistributed manufacturing in 30 objects – is a distributed maker infrastructure ready to take us beyond a trickle down approach to the circular economy?

This paper explores possible new distributions of making and manufacturing through a series of 30 significant objects and their associated practices, experiences and implications. Considering both what future distributions of production are possible and which may be desirable; with evidence from our 6 feasibility studies of the challenges, barriers and opportunities of utilising makerspaces and similar alternative infrastructure to facilitate a transition towards a future landscape of production that is fit for the sustainment of people and planet.

Redistributed manufacturing (RDM) is an approach to realizing the circular economy that is focused on place and people alongside the infrastructural promise of digital fabrication and industry 4.0, radically reconfiguring supply chains and the distribution of where things are made, who by, and who benefits.

Within makerspaces and start-up incubators we have seen a range of products, tools and services that exhibit the characteristics of RDM or enable a recalibration of mass manufacturing supply chains or product purchasing experience. However, making and manufacturing is a deeply emotional and political issue, and despite the imperative to move towards a circular economy (CE) contemporary CE efforts (understandably) focus on globally impactful corporations with the tools and agency to manage vast chunks of the earth's resources and shepherd them around circular flows of reuse and remanufacturing.

The unexpected implication of this is at present the investment in circular economy initiatives can be characterised as a 'trickle down' approach to circular economy. Trickle down circular economy initiatives risk remaining predicated upon existing flows and distributions which can be inherently corrosive – designing and championing interventions that rely on existing distributions of power, privilege, consequence and agency.

An inclusive future circular economy must escape the bounds of the corporate and effect the everyday practice and design decision making of actors at a range of scales of production. A decentralised approach to the redistribution of manufacturing necessarily makes legible community and ad hoc resources that are at present ill-equipped to respond to the new expectations placed upon them. In incentivising makers and the spaces they operate in become part of a redistributed ecosystem of production we must engage in responsible futuring, treading the fine line between facilitating precarity through alternative economic practices and providing space for new imaginaries and viable future sustainable production ecosystems to emerge.

We have arrived at a data driven typology of RDM products and practices to help make sense of the roles, distributions and aptitudes we are seeing in spaces, through the feasibility studies and in other products emerging in this field. This typology responds to specific factors that vary in how a product is distributed and produced, variables that relate to; Infrastructure, Prior Knowledge, Materials, Risk, Disruption, Engagement and Value.

Unpicking these factors allows us to extrapolate futures for how these ways of working and distributing may scale, enabling us to evaluate the potential of a distributed maker infrastructure to enable RDM, and to critically reflect on the potential of decentralized craft driven practices to get us past a trickle down circular economy.