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## Advancing the goals of distributed manufacturing beyond circular economy

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This paper demonstrates that additive manufacturing has great potential to alter global economic and manufacturing landscapes consistent with principles of regenerative development, which positions all aspects of human communities in balance with their local ecosystems. Combining a review of literature with practice led research; I illustrate how the convergence of 3D printing with the maker movement can generate circular economy by fostering ecological awareness of material composition and overconsumption which re-establishes relationships between consumers and manufacturers. Additionally, beyond environmental benefits, this paper demonstrates how additive manufacturing creates opportunities for intervention in pressing societal issues, amplified by global urbanization and the associated pressures on resource and waste management, by folding informal economies into the mainstream, reintegrating low-income fringe dwellers and creating diverse cooperatives which strengthen community bonds. Furthermore, I argue that by eschewing expansion of conventional mechanized industrialization by progressing directly to additive manufacturing, developing economies could leapfrog an entire level of industrialization and in so doing, advance developmental equality between global north and south economies. Yet democratizing manufacturing will not guarantee the displacement of global value chains or a disruption of the paradigm of unsustainable consumption, nor does spontaneous uptake of new technology ensure stewardship of natural resources. This paper will identify barriers to dissemination of additive manufacturing as an appropriate technology in the global south and outline strategies to circumvent those obstacles to ensure that global consumerism is indeed disrupted, and that focus can be shifted from underperforming sustainable design principles towards holistic regenerative development.

### Biography

Samantha Sherer is a registered Psychotherapist and a Master of Design candidate at OCADU in Toronto, Canada. Her interdisciplinary career in arts-based Psychotherapy, studio ceramics, and development work with artisans in Asia and the America has led her to investigate the intersection between design and community health. She did research using open source ceramic 3d printing components to ascertain their viability as appropriate technology for the Global North and South.

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