"Remanufacturing Office Furniture through 'Workspace as a Service' Models: A Pathway to Economic, Environmental, and Social Circularity"

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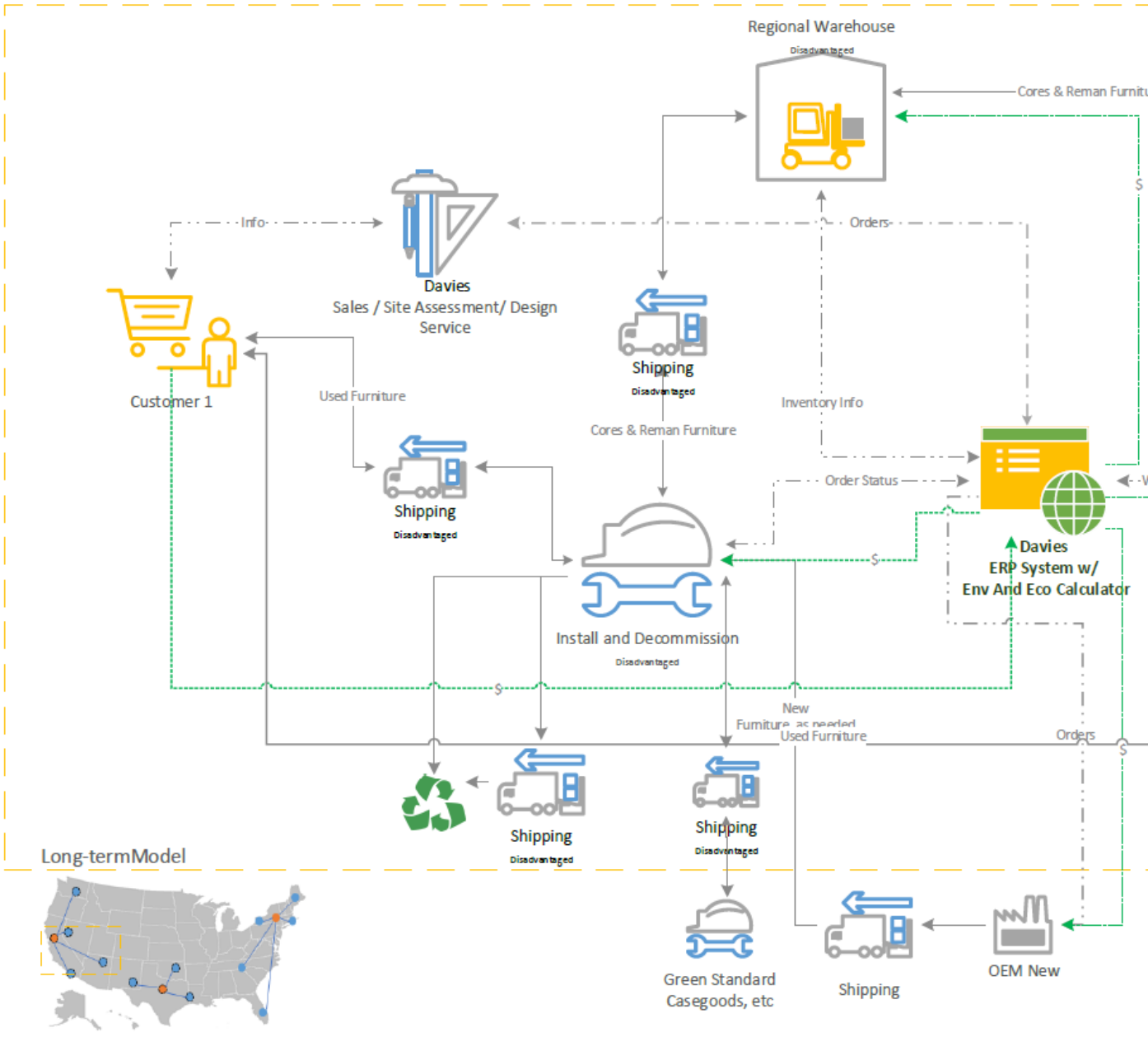
Abstract:

The global demand for sustainability is reshaping the corporate world, pushing companies to rethink traditional models of asset management and consumption. One area of significant concern is the waste generated by office furniture. According to the US EPA, approximately 8.5 million tons of office furniture are discarded annually, despite its high material and economic value. This paper explores the remanufacturing of office furniture as a sustainable solution, particularly through a “Workspace as a Service” (WSaaS) model, which offers both economic and environmental benefits. By adopting this model, businesses can transition away from purchasing office furniture to a flexible service-based arrangement that supports sustainability while retaining valuable capital.

In response to the evolving workforce dynamics—shaped by remote, hybrid, and collaborative work arrangements—companies must evaluate the optimal use of physical office space. This has far-reaching implications for achieving sustainability targets, such as net-zero emissions, meeting Science-Based Targets, and contributing to UN Sustainable Development Goals. The WSaaS model provides businesses with the flexibility to deploy remanufactured office furniture on-demand, which aligns with their sustainability and green building goals, including LEED certification.

The paper introduces a novel concept of "Sustainable Banking," whereby companies can "bank" their furniture assets for future remanufacture. By carefully deinstalling and transporting used furniture with minimal damage, these "cores" can be reconditioned and redeployed to meet new workspace requirements. This process extends the life cycle of furniture and minimizes waste, significantly reducing embodied carbon, energy consumption, and toxic material use. We also explore the creation of economic opportunities in marginalized communities, particularly through partnerships with women-owned and tribal businesses.

Through this paper, we highlight how the WSaaS model can support both economic growth and environmental sustainability. We will also present findings from lifecycle analyses (LCA) that demonstrate the benefits of remanufacturing over multiple life cycles and its impact on reducing material waste and energy consumption. The WSaaS model, through its circularity-driven approach, offers a path toward meeting broader ESG goals while fostering resilience and sustainability in the corporate workspace.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