Overview

Adaptis is a software solution for improving and optimizing existing condition assessments and adaptation planning, enabling existing building owners, designers and engineers to reduce the carbon footprint of existing buildings. Our platform analyzes existing building conditions, generates automated material salvage value and deconstruction planning, adaptation feasibility design options and optimizes for environmental and economic performance. Adaptis has completed methodology validation with Entuitive Consulting Engineers, multiple feasibility analyses projects, and is seeking pilot projects with municipalities, building owners, architects and engineers.

Problem

Limited building life cycles and difficulty in building adaptation lead to about 60% of all building demolition in North America. Construction and operation of buildings lead to about 40% of global carbon emitted emissions. Canada has one of the highest levels of solid waste per capita globally, with the construction, renovation and demolition waste contributing an estimated 25% of all solid waste and 50% of natural resources consumed. More than 85% of the generated waste ends up in landfills, while having high potential for recovery.

In order to facilitate any decarbonization project efficiently, a comprehensive existing building assessment and preliminary feasibility study is required. This will inform the building owner, architect and engineering team of building condition, necessary improvements and potential strategies for optimal environmental and financial performance. This process can take months, is labour intensive and expensive.

Solution

Using our comprehensive analysis tools we can deliver 50X higher quality and well-analyzed decarbonization options in 8% of the time required by traditional methods to existing building operators, developers and designers for improved decision-making. Our innovative design solution enhances environmental performance, embodied carbon management and the financial feasibility of construction projects.

Through correct recovery plan identification, 70% of the building materials in single detached and attached residential homes and 35% in high-rise apartments can be recovered. This will lead to an average saving of $5.6K of carbon emissions and around $20K of financial savings through the resale of salvage materials for an average residential house, and $117k of carbon emission savings and $420k of financial savings through material reuse for a high-rise apartment.

Competition and Competitive Advantage

Other players in the market include consulting firms and software solutions providing fragmented services. FOS by cannon design is a software solution for building condition assessment management. Madaster is a tool for embodied carbon analysis, material salvage and deconstruction planning. CAALA and CBA are both research-based tools under development focusing on embodied carbon analysis, deconstruction planning and adaptation.

Adaptis's unique algorithm combines multiple building evaluation factors considering material salvage value and reuse, deconstruction planning, design, environmental and economic factors. We are accumulating curated data sets of existing building
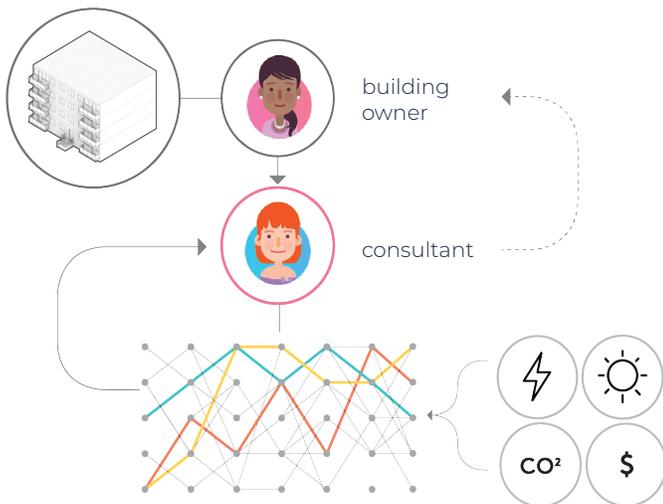
Adaptis - Improved Condition Assessment and Feasibility Process: A building owner, developer or design approaches Adaptis, and with the use of computational tools, we can deliver more, optimized design options in a fraction of the time.

adaptation projects, including design parameters, construction methods, simulation and performance data that enable our automation and optimization engines. Founders are experts in the field with years of professional experience.

Market Size

The global building inspection services market is estimated at $11.5B in 2022, and expected to grow to $14.3B by 2025. This growth is partly due to a growth in demand for improved decision-making, increasing mandates on decarbonization, and improved environmental performance in the construction sector. The TAM for the adaptis solution is $7.9B, with a SAM of $231M and a SOM of $2.3M.

Features

1 Full existing condition assessment of all life cycle stages

2 Embodied carbon hotspot analysis

3 Automated existing material salvage value calculation

4 Deconstruction and material reuse planning

5 Optimized decarbonization, adaptation planning and feasibility analysis

6 Carbon offset credit evaluation and reporting for GRI, TCFD, ESG and SASB

Team

Sheida Shahi, OAA, PhD

Sheida is an Architect and holds a PhD in Circular Engineering from the Department of Civil and Environmental Engineering from the University of Waterloo. She is an Adjunct Assistant Professor at the University of Waterloo, a passive-house certified designer and has over seven years of professional experience in architecture, development and construction firms, including KPMB and Diamond Schmitt Architects. She has received the Royal Architecture Institute of Canada Sustainable Design and Research Award and the Energy Council of Canada Fellowship for Sustainable Energy Innovation for her work.

Aida Mollaei, MES, PhD Candidate

Aida holds a Bachelor of Science in Civil Engineering and a Master of Environmental Studies in Sustainability Management. She is currently a PhD Candidate in the Department of Civil and Environmental Engineering at the University of Waterloo. She is skilled in sustainability analysis, data analytics and circular engineering. Her work and research focus on developing automated frameworks to estimate the value of in-situ materials and contribute to building material recovery.