City as a Spaceship (CAAS)

3 Minutes Read



The concept of "City as a Spaceship" (CAAS) is an intriguing analogy that investigates the idea of treating a city in terms of sustainability, resource management, and the overall well-being of its residents, much like a spaceship. The metaphor draws comparisons between a spaceship's closed, self-contained systems and the necessity for cities to be efficient, self-sustaining, and resource-conscious. CAAS regards Earth and (Outer) Space as one cosmic continuity. In this universe, living in the harsh environment of outer space serves as a metaphor for life in modern cities, dense living in restricted spaces, closed-loop systems, resource recycling, energy efficiency, and more.



Figure 1_ City Ecologies _© http://cityasaspaceship.org/img/journal3.pdf

Susmita Mohanty, Siddharth Das, Barbara Imhof, and Sue Fairburn founded CAAS in 2007. The notion was first published as "Mumbai as a Spaceship" in Volume in 2010. CAAS suggests that cities be composed of miniature, closed-loop ecosystems similar to spaceships. The majority of the resources that a city requires are produced locally in these ecosystems. The cities would exchange excess resources using technology while remaining self-sufficient.

CAAS is an all-female group that applies closed-loop system theory to urban realities ranging from spaceship design to urban realities. CAAS curates and frames reciprocities between situations and civilizations using design research methodologies.

CAAS is a new way of thinking about humans and their relationships with their environments, to explore and inform the reciprocities between extra-terrestrial and terrestrial architecture and design to better future cities.



Figure 2_Spaceship Ecologies_© http://cityasaspaceship.org/img/journal3.pdf

CAAS inspires technological humane innovation by positing the spaceship as an analogy of modern, densely built urban space, with its complex structures and technologically advanced infrastructure, where the designed intention is to configure all systems to eco-efficiency to optimize the use of available resources.



Figure 3_Vienna As A Future City Conceptual_© http://cityasaspaceship.org/img/journal3.pdf

The moment has come to address basic human requirements through CAAS architecture and design, utilizing space technologies that can instantly affect the humane retrofitting of these cities. The CAAS City can serve as an inspiration, a different perspective on a future city, and a means of projecting and realizing human ambitions and visions of a more egalitarian and environmentally sustainable urban existence. CAAS is a metaphorical urban planning movement, a new way of thinking about human lives, habits, and tendencies, which history has shown are difficult to change. To change the nature of the mind, one must remodel the forms of habitation, or, in Buckminster Fuller's words,' remake their environment; don't try to reshape man' (Fuller et al., 1999). Designing cities as miniature, spaceship-like closed-loop ecosystems, with trash recycled back in, can lead to the creation of future cities that represent what Fuller intended by "Spaceship Earth."

CAAS can function as a curator and broker in the planning, creating, developing, and inhabiting of near-future cities by anchoring space innovations and elevating Earth innovations.



Figure 4_In CAAS, the word "City" is not literal. Rather it is a metaphor for life on the spaceship(s) we inhabit – the "City" _© http://cityasaspaceship.org/img/journal3.pdf

The idea of CAAS is that the metropolis of the future will seamlessly connect Earth and (outer) space. This future vision, depicted in, can be realized through applications and ideas derived from cutting-edge technologies such as the space elevator, space-based solar power plants, closed-loop waste and water recycling, and technologies from other fields such as nuclear fusion, tissue engineering, and medical Nano robots. Architects, designers, technologists, economists, policymakers, and planners can collaborate to create an "urban future" in which every person - regardless of economic or social status - can achieve a high standard of living without depleting the resources of his or her home planet.

"Earth as a Spaceship" is more than a metaphor; it is a tangible, plausible option for humankind's long-term existence. CAAS is a vision and a programmatic step toward new designs for living together - like in cities, living together on a space station requires experience and current global difficulties make this vision urgent. The CAAS City can serve as an inspiration, a different perspective on a future city, and a means to project and fulfill our aspirations and visions of a more egalitarian and environmentally responsible urban existence.



Figure 5_CAAS_© https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.goodfon.com%2Ffantasy%2Fwallpaper-cityskyscraper-spaceship-clouds-sunset-sunset-glow-skycity.html&psig=AOvVaw0pxL4zGig2_Me0nqzPm1Ao&ust=1703351329745000&source=images&cd=vfe&opi=899784 49&ved=0CBIQjRxqFwoTCPDim63Eo4MDFQAAAAAAAAAAAAA

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Technology, Automation, and Infrastructure: A spaceship is a technologically advanced envelope that contains intelligence. The Space Station, for example, was robotically built using the 'Canadarm'; astronauts just monitored and supervised the procedure. All aboard life support systems are automatic; however, they can be overridden manually if necessary. Other supporting technologies, such as a diagnostic tool that permits extensive on-orbit monitoring and tracking of all avionics bus communications; the Space Station's nervous system, have been developed. All of these systems, and more, can be imagined in future smart cities where intelligent systems regulate construction, communication, health, traffic, and infrastructure support and maintenance. Technology, Automation, and Infrastructure: A spaceship is a technologically advanced envelope that contains intelligence for example, the International Space Station.

Reference:

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Author: Siddhi Amar Salokhe

Siddhi is a B.Tech student and a dedicated aerospace enthusiast aspiring to specialize in aerodynamics, propulsion, space science, satellites, and launch vehicles. Having recently completed an internship at the National Aerospace Laboratory, she has co-authored two international conference papers [IAC 2023, Baku]. Siddhi has also served as an ambassador for the International Astronomy and Astrophysics Competition 2023 and the National Students' Space Challenge 2023, in addition to holding the position of joint secretary at the Alatus Space Club in her college.

Currently involved in the student satellite project at the Centre of Space and Technology, Siddhi's daily commitment to design, writing, and knowledge reflects her unwavering dedication to achieving her career goals in the aerospace field.

Editor: Vedika Adukia



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