

**izvleček**

Arhitekturni koncept plug-in temelji na dvojnosti med infrastrukturnim sistemom ter nanj priključenimi enotami ali elementi. V kontekstu megastruktur so koncept najnazornejše zaznamovala dela skupine Archigram in japonskih metabolistov v šestdesetih in zgodnjih sedemdesetih letih prejšnjega stoletja. Z brisanjem meje med zgradbo in mestom je koncept plug-in prerasel meje arhitekture in vse bolj postajal urbanistični koncept.

V članku je predstavljen za sodobnost zanimiv kulturni kontekst, ki je pri britanski skupini Archigram in japonskih metabolistih vplival na specifičnost razvoja s tehnologijo podprtega koncepta plug-in. Z estetiko spremembe in nedokonč(a)nosti, ki je ob povsem različnih kulturnih izhodiščih imela podobne arhitekturne manifestacije, je koncept plug-in utopično napovedoval družbeno preobrazbo, temelječo na svobodi, individualizaciji in mobilnosti ter razvoju mest obljubljal prilagodljivost nepredvidljivim potrebam in željam prebivalcev, ki bi z aktivnim pristopom postali njegovi soustvarjalci.

Kljub temu da so revolucionarna šestdeseta daleč za nami, pa je koncept plug-in v komodificirani obliki (p)ostal operativen in relevanten vsaj na metaforičnem nivoju in je bolj kot v izvorni arhitekturni obliki v sodobnem prostoru prisoten predvsem v urbanizmu.

**ključne besede**

plug-in, clip-on, Reyner Banham, Archigram, metabolismem

**abstract**

*The architecture concept of plug-in is based on the duality of the infrastructure system and units or elements connected to it. In the context of megastructures, the concept was most vividly characterised by works of Archigram and Japanese Metabolists in the 1960s and early 1970s. Blurring the boundary between the building and the city, the plug-in concept outgrew architectural boundaries and was slowly transformed into an urbanistic concept.*

*The paper presents the cultural context relevant to contemporaneity, which influenced specific development of the technology-driven concept of plug-in in the British Archigram Group and Japanese Metabolists. Based on the aesthetics of change and incompleteness, which was characterised by similar architectural manifestations despite entirely different cultural backgrounds, the plug-in concept foreshadowed social transformation based on freedom, individualisation and mobility in an utopian manner and held a promise of urban development with adaptability to unpredictable needs and desires of residents, who would become its co-creators with an active approach.*

*Although the revolutionary sixties are quite some time behind, the plug-in concept in its commodified form has become and remained operational and relevant at least on the metaphorical level; in the contemporary space it is evident primarily in urbanism and not as much in its original architectural form.*

**key words**

plug-in, clip-on, Reyner Banham, Archigram, Metabolism

The plug-in concept and the employment of the term were introduced into the architectural discourse with experimental practices of the 1960s [Banham, 1965]. In the context of megastructuralism, the concept was most vividly characterised by technology-driven works by the Archigram Group and Japanese Metabolists, which foreshadowed social transformation based on freedom, individualisation and mobility and held a promise of urban development with adaptability to unpredictable needs and desires of residents, who would become co-creators of the city with an active approach.

The plug-in concept is based on the duality of the infrastructure/structure system and usually prefabricated units or elements connected to it. The relationship between the megastructure and the equipped plug-in unit, i.e. the capsule, highlights the pragmatic system of solving housing issues, simultaneously creating a new lifestyle or enabling social transformation both in the Archigram Group and Japanese Metabolists. In various projects, this liberating, almost anarchic concept, the trust in technology and an occasionally ironic undertone of the view into the technological future meet the technologically conditioned aesthetics of change, incompleteness, 'natural growth' and 'cyclicity' as elements of continuing cultural traditions.

In both pioneering practices, although arising from diverse cultural contexts, the plug-in concept was unveiled by the

duality of technological operability and the aesthetics of incompleteness within similar architectural manifestations.

**The promise of technology: enabling the ever-changing city and seeking "architecture autre"**

Reyner Banham, a member of the Independent Group, promoter of New Brutalism and pop and the idealist on a quest for an *architecture autre*, was examining the formal 'machine' characteristics of the modern movement through an emphatic discussion of technology in his articles from the second half of the fifties onward. He did not associate an appropriate expression of contemporary architecture with style or engineering aesthetics but strove for architecture that would develop its own aesthetics based on the technological reality and the contemporaneity of life in the twentieth century. Banham nourished the revisionist criticism of the modern movement through idealised machine sensibility, which he clearly separated from modernist 'machine aesthetic'. Similarly as Buckminster Fuller before him, Banham saw in the machine aesthetic primarily an incongruence between progressive slogans of the pioneers of the modern movement and their buildings, which, with their simple forms and smooth final surfaces, merely simulated the impact of the machine on construction, even though it was the quality of constructed buildings' final surfaces that usually depended on manual work.

The incomprehension of engineering and machine production characteristics was clearly evident in the machine aesthetic [Banham, 1955]. Moreover, his engaged historiography, sincere optimism about the future and influential work entitled *Theory and Design in the First Machine Age* provided theoretical and moral foundations for some experimental practices in the 1950s and particularly the early 1960s. Banham highlighted technological features of buildings, which affected their form, by rehabilitating overlooked movements, such as Expressionism and Italian Futurism, which historiographers had thus far only touched upon or ignored completely in reviews of contemporary architecture due to ideological inconsistencies with the image of a stable modern movement. Banham was particularly impressed by the radical futurist concept of technology that enables continual change. In the *Manifesto of Futurist Architecture*, Sant'Elia underlines changeability as a quality of futurist architecture: "... the fundamental characteristics of Futurist architecture will be its impermanence and transience. Things will endure less than us. Every generation must build its own city" [Sant'Elia, 1914: 21]. Nigel Whiteley notes the historical significance of this view, as obsolescence and transience had never before been highlighted as crucial features [Whiteley, 2002: 48], which were, in relation with the liberating technology, especially attractive for Banham's theoretical position and seeking the other architecture – *architecture autre*.

### The issue of technology 1

Naturally, the faith in the liberating effects of technology in the areas of society, politics, culture and, last but not least, individual lives is not a characteristic of the post-war period, for it was inherited from the period of heroic modernism – now, at least generally, still with an optimistic view on technology, though revealing a critical response to superficial CIAM canon derivations. Banham was a modernist in the true meaning of the term, although his views were more complex than proverbial modernist blind faith but he was also incredibly optimistic about modern technology, which carried no political charge for him. He perceived technology as "morally, socially and politically neutral, though its exploitation may require adjustments of social and political structures, and its consequences may call moral attitudes in question ... Technology is a commonwealth of techniques exploited to serve a disparity of human needs" [Banham, 1962: 61]. As noted by Sadler, the optimistic view regarding technological progress and a bright future, which was typical for the idealistic generation of 'experimentalists' in the early sixties as well as Banham, was so strong that it took him several years to admit his naivety [Sadler, 2005: 177; Banham, 1962: 141].

### Technology, pop and consumerism: Archigram's plug-in

At the turn of the sixties, the ground for unburdened experimentalists in Great Britain was set by the avant-garde position with a non-avant-garde message, that is, Independent Group's pop culture of mass media, consumerism and leisure, the Smithsons' New Brutalism as a return to the roots of modernism with approaches typical for the spirit of the age

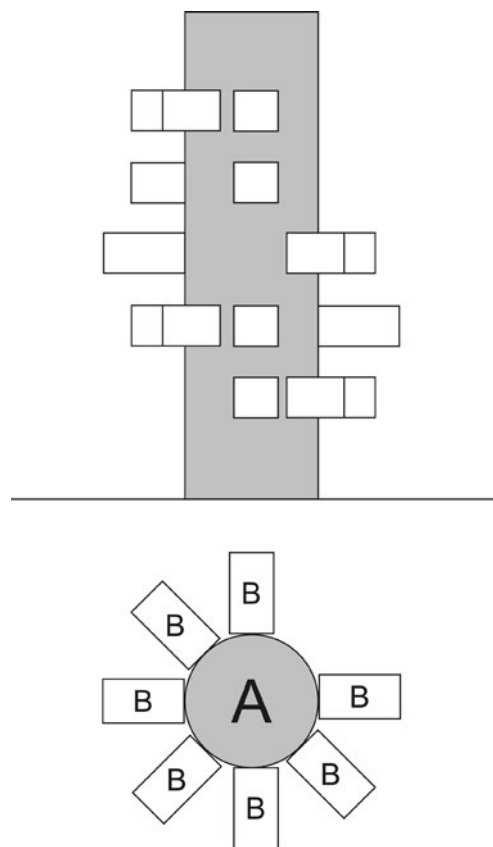


Figure 1: Plug-in concept - vertical setting: infrastructural core (A) with plug-in programme units (B). Plan and elevation. Pioneering examples of such design are Kiyonori Kikutake's Tower Shape Community, 1958, or Warren Chalk's (Archigram) Capsule Homes, 1964.

Slika 1: Koncept plug-in - vertikalna izvedba: infrastrukturno jedro (A) s priključnimi plug-in programskimi enotami (B). Tloris in pogled. Pionirska primera takšne zasnove sta Tower Shape Community Kiyonorija Kikutakeja, 1958, ali Capsule Homes Warrena Chalka (Archigram), 1964.

of the modern society and Reyner Banham's quest for the technological sensibility of an *architecture autre*. The arrival of a new style called "the look", democratisation of the avant-garde and generally accepted consumerism, which contributed to the eruption of the swinging London in the middle of the sixties, proclaimed Britain as the world leader of pop culture [Whiteley, 2002].

While in the fifties Alison and Peter Smithson and their New Brutalism aimed at re-establishing the connection with original principles of the modern movement and contextualise them in the post-war social, cultural and economic reality of new technologies, consumerism, popular culture and mobility, the nascent British neo-avantgarde of the sixties was less academic, at least with regard to establishing a modernist continuity.

### The issue of technology 2

Similarly as Buckminster Fuller in the late twenties as well as the New Brutalists and the influential Reyner Banham afterwards, the London-based Archigram Group first wanted to have done with the machine aesthetic for good. In the first issue of the Archigram magazine in 1961, David Greene introduced the group's approach: "A new generation of architecture must arise

with forms and spaces which seems to reject the precepts of 'modern' yet in fact retains these precepts. WE HAVE CHOSEN TO BY PASS THE DECAYING BAUHAUS IMAGE WHICH IS AN INSULT TO FUNCTIONALISM" [Greene, 1961].

Although Archigram's architectural drawings are seemingly unrealisable due to their fascination with the future, it cannot be said that they are not in touch with reality, as they draw from everyday life and the actual phenomena of the contemporary world – from pop culture, mobility, advertising and fashion to state-of-the-art technology, use of materials and space engineering. Their designs were strongly striving for a true realisation of Le Corbusier's and modernist maxim of the machine for living-in. Since Archigram was not convinced that a building's firmity was a crucial precondition of its *utilitas* and *venustas*, its projects destabilised the historically conditioned assumption of the Western world's architecture that architecture is a static art [Sadler, 2005: 6].

Banham's and Archigram's upfront optimism and enthusiasm about the new, though still within the functionalist ideology, was not undermined by post-war scepticism about the liberating power of technology, which was typical both for the Team 10 circle and some representatives of the older generation. Clearly rooted in the second machine age, Archigram's architecture was emotionally and technologically related to the 1960s space area. Moreover, its independent, mobile and completely furnished and equipped structures weakened Banham's sceptical attitude towards the possibility of pop architecture, which gained a new dimension and new hope for realising the *architecture autre*. [Whiteley, 2002].

### **Plug-in City: manifesto for the plug-in concept**

Through Le Corbusier and the Smithsons, the poetics of mass production was provided with successors, while the Smithsons' introverted, 'plastic' House of the Future (1956) led to first reinterpretations on the domestic ground, this time as part of a wider system of infrastructure/structure and autonomous plugged-in living units. Its central manifestation was Peter Cook's Plug-in City, which represents the best example of early efforts by the Archigram Group and individuals within it.

In terms of development, Archigram's Plug-in City explicitly outlined the plug-in concept on the level of architectural/urban design, putting it forth as a combination of ideas by group members from the 1962–1964 period. It was based on the prototype of a massive megastructure with removable living units and had a crucial impact on the development and popularisation of the 1960s megastructure tradition [Banham, 1976: 76]. In his 'self-interview', Yona Friedman notes that when developing Plug-in City Archigram literally borrowed his idea of fixed support infrastructure and moveable elements that randomly form living units of his projects from the end of the fifties, as did Shulze-Fielitz, Emerich, the Japanese Metabolists and many others. However, he does not perceive these projects as plagiarism, but finds a source of satisfaction in them, resulting from the success of his efforts to influence a generation [Friedman, 2006: 32].

The dynamic megastructure in the scale of an entire city comprised all essential features of technological pop architecture for a pop lifestyle characterised by continual changes and stimuli, excitement, action, fun and expendability. The secret of the possibility for permanent incompleteness and formal indeterminacy or informality was hidden in the plug-in concept, in line with which the living or programme unit called the capsule was plugged to the infrastructure frame of the megastructure when necessary or desired, similarly as into an electrical socket. This idea of mass produced construction therefore differs from the traditional idea of the endless use of mass produced, interattachable modular elements. It is no longer a building's construction elements that are plugged to the infrastructural network, but entire living units of the building/the city, which is as much an architectural as an urbanist principle. Furthermore, the plug-in concept was accompanied by the clip-on concept, which was described in more detail and compared to the plug-in concept by Reyner Banham in his essay "A Clip-on Architecture" [Banham, 1965]. Banham illustrates the clip-on concept with the outboard motor that can equip all vessels. Originally, the clip-on concept was a concept related to connecting the source of power to the living unit, but as argued by Banham, it can also be appropriately used in the reversed case of plugging the living unit to the infrastructure, which was termed as plug-in by Archigram. Banham underlines that these concepts are technically quite often intertwined within a project, adding that the aesthetic is what matters. This is still the clip-on aesthetic, "multiplied by a wild, swinging, pop-art vision" that is completely different from the intellectually rigorous systems of pragmatic picturesque technology [Banham, 1965: 535]. The duality between the more permanent (mega)structure and temporarily clipped-on or plugged-in and expendable living or programme units, i.e. capsules, is entirely in line with the functional model of the consumer society, reflecting the still-present role of architects at least in regulating, if not in designing the architecture and the city.

Nevertheless, the design of Plug-in City was not only a fantastic idea put forth by the group, but was also directly related to the Living City exhibition, which was put on by Archigram at the London Institute of Contemporary Arts (ICA) in 1963. As the first group work, the installation used constructed situations called "Man, Survival, Community, Communications, Movement, Place and Situation" to establish a basic *modus operandi* typical for the group's projects in the following years and founded on informal expression, temporariness, consumerism, fun, democracy, individuality, social, political and economic liberalism and faith in the city as a unique organism [A Guide to Archigram ..., 1994]. The exhibition aimed at showing the spirit of life, which the new generation saw as a fundamental quality. Individual thematic sections of the Living City exhibition provided general insight into the functioning of the living city, which significantly differed from strictly planned and regulated new cities criticised by Archigram.



### **Image, understanding the structure and continual change of the living city**

The individualism and awareness of the need for developing tailor-made relationships in Plug-in City could be understood as a democratic gesture of a city in continual creation formed by as many forces as there are inhabitants. While the ideological foundation of Plug-in City as presented at the Living City exhibition focused on man, many critics objected to Archigram's proposals due to their apparent inhumanity. In "Housing as a Consumer Product", an article published in 1966, Warren Chalk attempts to better explain their intention, pointing out that they do deal with housing for people even though they use typical 'estranged' imagery. Further on, Chalk believes that the technological society will encourage more and more people to co-create their individual environment, in which architects create conditions for liberation from the restrictions presented by chaotic situations in the home, at work and in the entire built environment [Chalk, 1966]. Therefore, we cannot overlook the fact that Plug-in City in fact looks like a plug-in city; ironically, this could also be a reflection on a contemporary megalopolis of concrete capitalist wilderness, this time as perceived by Archigram with an entirely democratic, open design concept on the verge of anarchy, while including the individual in the city's design and expendability would ensure its necessary life vibrancy.

The authors provided no in-depth theoretic discussions on designing and actual functionality of such a city, although many critics of Archigram would have appreciated this [Scott Brown, 1968], as was also confirmed by Reyner Banham when he labelled Archigram as "short on theory, long on draughtsmanship and craftsmanship" [Banham, 1999: 5]. But he was not too concerned with the possibility of a functional megastructure Plug-in City, since he believed that its visualisation was then more important for progress of technological architecture. Banham supported his thesis with an operational turnaround that establishes architecture as a leading discipline: "Archigram can't tell you for certain whether Plug-in City can be made to work, but it can tell you what it might look like", providing the potential for the aesthetics, i.e. primarily the image of architecture, to direct technology development. Banham put Archigram's set of living cells and support structures on a pedestal of technological architecture, praising the liveliness and directness of the plug-in city, which also looks this way and helps observers understand how this continually emerging and changing incomplete organism functions [Banham, 1965: 535]. Complex images of various projects were not an end to themselves and could hardly be labelled as unidimensional illustrations for mass consumption due to their utopian potential and slogans calling for a different future. In fact, the contrary could be argued. According to Sadler: "With Plug-In City, we are at the outer edge of the early sixties avant-garde, primarily motivated not to make architecture better behaved, but to make architecture change life, much like the early avant-gardes" [Sadler, 2005: 14]. Again, technological operationality and the

aesthetics of change serve social goals. Moreover, Banham argues that British graphic opportunism (in ideal megastructural cities) should not be mistaken for an ideological programme since collages of colourful plans populated by young and attractive residents of the leisurely world characterised by the post-industrialism of the New Utopians provide an empirical solution to finding anyone who could inhabit them as well as a theoretical proposal for who should inhabit them [Banham, 1976: 101]. Viewed from today's perspective, the changes of the world that Archigram's megastructures proposed appear to be full of contradictions. However, much like in the case of Banham, their endless technological optimism prevailed against the possibility of critical reflection that followed in the second half of the sixties.

### **Technology, hidden tradition and biological metaphors: the plug-in concept by Japanese Metabolists**

A plug-in architecture also developed in Japan in the 1960s, but it had different social and ideological foundations and goals.

Cherie Wendelken associates Japanese Metabolists' rejection of the existing Japanese city and familiar architectural forms with the rejection of political rigidity and restrictions, as the flexibility and adaptability integrated in designs accounted for an unconditional demand for the individual's power and autonomy; she also argues that the autonomy that Metabolists gave to the individual programme or living unit that is separated from the frame relates to traumatic personal experiences with the totalitarian regime [Wendelken, 2000: 288]. As Kiyonori Kikutake discussed the existing city, which denies its unhealthy character and demands that the individual adapts to this, in the Metabolism 1960 manifesto, he highlighted the issue of the repressive institution of the traditional city and opened up the field for experiments in which each individual would be aware of the community and would have their own living space, while adapting the city to the individual and community life would reject or surpass the intolerable situation [Kikutake, 1960].

The Metabolist group continually worked in parallel with its mentor Kenzo Tange, examining the concepts he began to develop by criticising conservatism, including his own, and in turn inspiring the older master. Their critical revisionism of functionalism attempted to establish the framework for architectural expression that would point out the uniqueness of Japanese culture and preserve it by using Western engineering, modern technology and economy. Metabolism and its Japanese name, which stands for renovation and regeneration, relate to the concepts of transmogrification and reincarnation in Buddhism; group members embraced all these meanings but also saw the term as a way to reject nostalgia [Wendelken, 2000: 287]. Despite diverse Metabolist approaches Kiyonori Kikutake and Kisho Kurakawa placed a great importance on fantastic structures and using state-of-the-art technology in their projects, whereas Fumihiko Maki and Masato Otaka focused more on practical and contextual proposals. What they have in common is the approach to architecture that constructs the city

as a living organism beyond traditional aesthetics. Kurokawa [1977] describes his own aesthetics, highly similar to the brutalist one and generally typical also for his colleagues from the group, as a tendency for a plain, austere, natural, rustic and slightly sad expression encompassed by the terms the aesthetics of metabolism or the aesthetics of time. Important elements of Metabolist projects were continual change, the possibility of infinite expansion and organic growth controlled by technology, organisational flexibility with 'the participation of the public', interchangeability of individual architectural components based on their life span, prefabrication and use of mass-production mechanisms, the importance of the liberating mobility and space of leisure, and, on the product level, designs of plug-ins and multicellular cluster structures.

### Utopianism and surpassing the either-or state

Although Metabolists were aware of the utopian dimension of proposals, they did not perceive their work to be traditionally utopian as understood in the West, since their proposals depended on feasible technical possibilities of the period [Kurokawa, 1977]. The utopianism of Metabolist projects was committed to the urgency of social change. Urbanist projects by Metabolists promoted political ideals and social ambitions, demanding, as was the case for many intellectuals at the time, social features of the modern age, such as democracy, equality, liberation from land and free mobility. Often, paradoxically, they were trapped in classical utopian schemes of hierarchical organisations, central administration and regulations with the ambition of merging classical contradictions of city and country, centralisation and democracy, order and freedom, tradition and modernity [Lin, 2010: 73–74]. However, in Japanese culture conflicting pairs do not signify an unbearable situation but offer potential. Kurokawa saw this co-existence of opposites as a significant Eastern contribution to contemporaneity and a tool for conceptualising his architecture: "Coexistence in architecture does not mean the resolution of conflicts; it means the development of third space which enables conflicts to exist side by side in harmony while remaining at variance" [Kurokawa, 1977: 140].

Similarly fortified permanent concrete infrastructural cores of artificial lands are set against tiny, transient and replaceable plug-in programme or living units. The analogy is clear. As man's physical life is transient, his programme or dwelling equipment, or in the most extreme case the entire plug-in living unit – often named the capsule, is also transient, whereas the platform – (mega)structure – on which life unfolds is permanent. However, since nothing is eternal in physical nature, the infrastructure and other components also have their own, different life spans.

### The issue of technology 3

Due to their focus on technological solutions and megalomaniacal dimensions of megastructures, which would provide fast solutions to social problems, the Metabolist group, and especially Kikutake and Kurokawa, were categorised in the sphere of utopias, visionary architectures and rhetorical avant-gardism

[Frampton, 1992: 306]. Nevertheless, Kurokawa notes that their understanding of technology differs from the Western one, which relates modernisation to a conflict between technology and humanity: the Metabolist group attempted to develop a new relationship between humanity and technology, striving for complete control of man over technology [Kurokawa, 1977: 27]. Despite the technological optimism of some Metabolists, ambivalence about the modern city, the modern society and the architect's role in it is evident in works by Noboru Kawazoe as well as Arata Isozaki, who belonged to a circle influenced by Metabolist ideas but was never a part of the group. From the early sixties onwards, Arata Isozaki infused his megastructure designs with scepticism. While the pragmatically utopian project *City in the Air* (also *Cluster in the Air*) from 1961 emphatically rejected the then urban planning and legal regulations, his famous collage *Incubation Process* expressed ambivalence through ruins connected to technological megastructures. With this collage, Isozaki showed a dystopian view of the future of "the city as ruins" in response to Metabolist utopian concepts, distanced himself from Metabolists' uncritical technological approach that failed to predict unexpected catastrophic changes brought by wars, and rejected the idea about the possibility of social revolution by means of technology use [Lin, 2010; Nitschke, 1964: 520].

### Mobility and individualisation

The connection between the plug-in concept and mobility is undoubtedly an important category that distinguishes the concept from other (permanent) cellular (megastructure) systems. Its focus on individuality and self-sufficiency radically intervenes in the society's structure and space as a sedimentary historical phenomenon, automatically transforming it into a space of ever-changing relations, a network space that was formulated by Foucault in a visionary manner [Foucault, 1967: 23]. Based on the plug-in concept, the possibility of freely movable plug-in units, i.e. capsules, enables a changing society that Kurokawa strives for as he believes in a natural organisation of the environment as a result of people's free will. Moreover, Kurokawa underscores the importance of forming the urban society and its environment, which he believes cannot be created by urbanists and architects by using technology. In "Capsule Declaration", Kurokawa is, of course, aware that a system is necessary in spatial planning, but he argues for a non-repressive system with emphasis on the individual and manifested as a self-regulating system of spatial units for individuals; space should be divided into independent shelters, where every inhabitant "can fully develop his individuality" [Kurokawa, 1977: 79].

Kurokawa's capsule city can also be understood as criticism of the modernist city of 'four elements' and a fantastically diverse conglomerate named the metapolis or an urban settlement integrated into the network city or larger urban system. Employing a geometric approach, classical urbanism strove to establish order, whereas the Metabolist approach aims at creating a dynamic, open structure of cities and

buildings. With the latter Kurokawa also wants to surpass the role of architecture as a controlling mechanism of society. In Kurokawa's own words, henceforth "architecture is no longer a device to control men: it is a means whereby men control technology and machinery" [Kurokawa, 1977: 85]. This view is parallel to Banham's endeavours for the other architecture that would direct technology development through concepts – images [Banham, 1965: 535], but Kurokawa's faith in a complete fusion of architecture (the capsule) with the organism does not reveal whether this union is entirely unconditional and whether it could happen that man would adapt to the capsule more than desired, thus opening the issue of faith in the purity of technology. Regardless of theoretical promises about autonomy, Kisho Kurokawa's designed or developed architecture of plug-ins is (permanently) connected to the infrastructure, plugged to the megastructure or a part of a larger spatial design, where its practical mobility remains only symbolic despite provided technical conditions.



Figure 2: Kenzo Tange, Shizuoka Tower, Tokyo, 1967. [photo: author]  
Slika 2: Kenzo Tange, Stolp Shizuoka, Tokio, 1967. [foto: avtor]

### Designs between wishful thinking and the philosophy of change

Early projects by Archigram and Metabolists at a large scale of urban designs undoubtedly blazed a trail for the plug-in concept in the context of megastructure idealism, while designs, primarily of buildings, at the end of the sixties already showed that the concept was wearing out.

By analogy with the plant stem, in early projects by Metabolists and Archigram many units are connected to the core as branches. Examples with such designs include Kiyonori Kikutake's Tower Shape Community, Kisho Kurokawa's Bamboo Type Community from the end of the fifties or Capsule Homes (1964) by the Archigram member Warren Chalk, as well as Kisho Kurokawa's buildings Nakagin Capsule Tower and Capsule House 'K' (1972). In addition to Archigram's nomadic projects, such as Blow-out Village (1966) or Free Time Node: Trailer Cage (1967), and Metabolist spiral structures waiting for random completion as in Le Corbusier's Plan Obus and Kurokawa's Takara Beautillion, typical examples of frames and plug-in units include the concept of space frames with *ad hoc* cellular dwellings by Yona Friedman and French 'spatial urbanists' among others.



Figure 3: Kisho Kurokawa, Nakagin Capsule Tower, Tokyo, 1972. [photo: author]  
Slika 3: Kisho Kurokawa, Kapsulni stolp Nakagin, Tokio 1972. [foto: avtor]

It was in fact the question of rationality of the plug-in concept related to built projects that received most criticism in the history of Metabolist realisations, although these critics were, at least



at the beginning, apologists of the movement in many ways. After Kenzo Tange's Shizuoka Press and Broadcasting Center was built in 1967 in Ginza in Tokyo and introduced an explicitly Metabolist appeal, the abyss between theoretical proposals and practice emerged. In Tange's project, the Metabolist approach of possible change is frozen in an economically still acceptable stage, while potential growth of undeveloped parts of the structure remains primarily symbolic. Is the Shizuoka Press and Broadcasting Center, about which Günther Nitschke rhetorically wondered whether it was a "prototype" or whether sets of programme units connected to the main core resulted from "wishful thinking", in fact unreasonable as it is flexible on the symbolic level only [Nitschke, 1968]? Despite all criticism first realisations can be seen as foundations that encouraged Metabolists and Tange to develop megastructural and more refined designs of plug-ins at the Expo '70 exhibition in Osaka and otherwise rare applications at the beginning of the 1970s.

The Expo '70 Takara Beautillion project, which Kurokawa designed as a three-dimensional space frame network structure with inserted and plugged-in functional elements – capsules is an illustrative example of the ever-changing and transient Metabolist architecture of the plug-in concept, which, as Kurokawa points out, showed rounded beauty at Expo '70. It took only a few days to build it, while "[d]isassembly was similarly easy to perform ...; [i]t was like the falling petals of a cherry blossom tree...", in which Buddhist aesthetics was reflected: "In Buddhism it is considered noble to fulfill one's life and pass away beautifully, in accord with nature" [Kurokawa, 1977: 101].

At the temporary Expo '70, the co-existence of opposites of the spectacle of fantastic architecture and the direct transience of individual parts inherent in projects was shown as a complete cycle of a Metabolist circle of life. The principle of the interchangeability of elements highlighted by Japanese Metabolism was supposed to be primarily of a practical, technological nature and derives "from philosophy entirely different from the use-and-discard approach sometimes justified by economics in mass consumption societies" [Kurokawa, 1977: 32], thus also significantly differing from pop and consumerist speculations of the Archigram Group. On the one hand, the beauty of transience as a result of technological pragmatism is experienced, and on the other hand, continual change and regeneration is also driven by the economic system that is based on mobility.

### **The decline of megastructures and use of the plug-in concept in contemporaneity**

Justus Dahinden offers a typical view on utopian megastructure designs in the sixties with their faith in progress and new technology in his book *Urban Structures for the Future*, in which he enthusiastically argues for building megastructures as densely populated environments [Dahinden, 1972: 11] also enabled by systems of plug-in units.

Despite continuous criticism compact megastructures presented a risk-worthy opportunity for reintegrating social and urban

structures and merging diverse social groups and activities. Both for Dahinden and the megastructure international they were an instrument of synthetic urbanism that aimed to establish unity between architecture, economy, communications and social contacts and offer an alternative to the urban crisis of a dispersed and functionally fragmented city. In contrast to the expanding automobilised suburbia, the megastructure offered a compact developed whole, which promotes a free micro-organisation of contemporaneity and unpredictable future through the idea of achieving the urban density of the past.

However, a number of mentioned positive features of these proposals also brought hitherto unpredicted and unconceived issues that critics saw as even more convincing. Such enthusiasm about megastructures and the architecture of plug-in units weakened considerably at the end of the sixties and after the May events in 1968, but some architects, for instance Dahinden, persisted with enthusiastic views even at the beginning of the seventies. Relevant questions were put forth, for example by Denise Scott Brown [1968], who was wondering who would populate dwellings in megastructures, or Jürgen Joedicke, who warned that the faith in future was too strong, as this meant that conditioning people to live in such superstructures was self-evident while architecture was interpreted beyond serving man [Lüchinger, 1981: 12]. Furthermore, architects themselves also realised that megastructures were politically problematic. Naturally, investments in high technology were related to the capital and would indirectly support the existing capitalistic system strengthened by multinational corporations. Therefore, the general public saw megastructures as a symbol of liberal capitalism with all negative connotations; as such, they were quickly incriminated and only rarely built [Banham, 1976: 209]. Despite respecting Fuller and his universalistic diapason, Archigram's work in the playful swinging sixties focused more on experiment than on truly solving the pressing issues of the world, which was not the case for Metabolists. It is thus not difficult to understand the admittedly somewhat satirical answer that Reyner Banham offered to Scott Brown's question about the established economic, social, political and other relations in Archigram's Plug-in City ("what is everybody doing up there together with everybody in those megastructures?" [Scott Brown, 1968: 230]), as he suggested that they were "rearranging the equipment for the next game!!" [Banham, 1976: 81].

If the co-existence of opposites, contradictions and indeterminacy is a characteristic of ambiguous contemporaneity, the open plug-in concept is as much utopian as it is prophetic and appropriate for interpretations and use in contemporaneity. The concept is thus relevant in the contemporary space either in its original, physical form of plug-ins in designs and projects of interior and urban furniture [Filipič, Šenk, 2012] or as an urbanist concept on the metaphorical level. Lang defines urban design based on a typology comprising of the procedural type, the product type and the major design paradigm, with the plug-in type being that kind of the procedural type that refers to the design and implementation of an infrastructure project in order to obtain

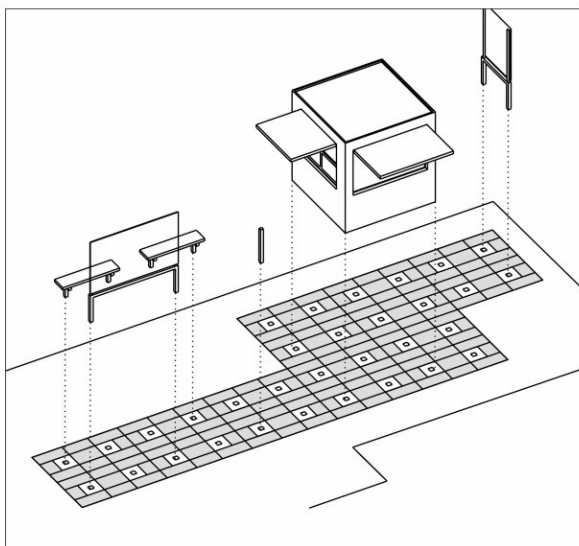


Figure 4: Studio Stratum, Plug-in Urban Furniture, Postojna, 2005–2008. [Studio Stratum archives]

Slika 4: Studio Stratum, plug-in urbana oprema, Postojna, 2005–2008. [arhiv Studio Stratum]

a catalytic effect with interventions in space [Lang, 2005]. Similarly as Banham, though not citing him, Lang classifies plug-in projects into two types [Lang, 2005: 33]. The first type includes infrastructure in a district or suburb, enables plugging buildings to the infrastructure, as is the case in Plug-in City, and can direct development, whereas the second type comprises connecting the infrastructure to existing buildings and enhances the quality of the living environment, similarly as the clip-on concept. This kind of typology therefore appears to fit the conditions of a contemporary city that has lost the illusion of perfection and finality and is perceived as a process, “a dynamic system of diverse structures and connections, which continually move from order to entropy and pass through various states and oscillations in development” [Koželj, 2007: 196]. The plug-in typology fulfils the tendency for defined infrastructure and softly organised plugged-in building tissue.

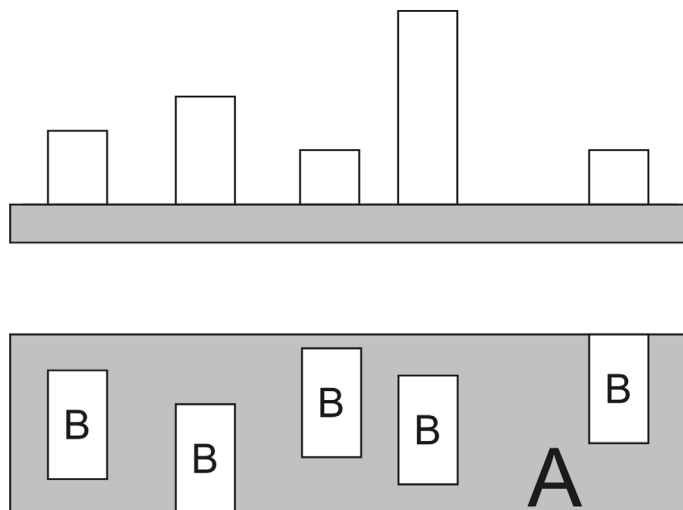


Figure 5: Plug-in concept - horizontal setting: infrastructural field (A) with plug-in programme units (B). The setting is operative in different scales - from urban furniture design to urbanism. Plan and section.

Slika 5: Koncept plug-in - horizontalna izvedba: infrastrukturno polje (A) s priključnimi (vitičnimi) programskimi enotami (B). Izvedba je operativna v različnih merilih - od zasnov urbane opreme do urbanizma. Tloris in prezek.

### Conclusion

Examining contexts of both protagonist groups that deal with the plug-in concept, a system of contradictions that co-exist in projects was identified. Archigram's openness and playfulness was undoubtedly influenced by the ideological openness of the Independent Group, which rejected the "either-or" dualism and promoted the "and" principle of inclusion, while this openness can also be related to blurring the boundaries of contemporary visual culture and merging high culture with pop, the rough world of general everyday culture saturated with consumer goods. On the other hand, the co-existence of opposites in Japanese culture, as well as in Metabolists, represents the potential for developing new entities that maintain diversity and allow these conflicts to co-exist in harmony.

Heterogeneity and multilayeredness is also typical for two



demands that are self-evident for contemporaneity and were already highlighted in the pioneering period – individualism and mobility as also being enabled by the plug-in concept.

The concept's technological operability indicates a possibility for solving housing issues, simultaneously underlining the need for adapting the housing typology to an individualised society of the future in both pioneering examples. Moreover, the redefinition of society is radical in both cases and foreshadows atomisation into individuals, who thus gain the opportunity for individual fulfilment (through a lifestyle or spiritual fulfilment) but are also more perceptible for manipulations of the information or consumer system.

In both examples, structures have interfered with existing power relations of land ownership, which control urban development possibilities, and introduced alternative spatial designs with dwelling mobility. The anticipated alternative system of managing plug-in units, which also promotes a free and flexible choice of location for the dwelling, has proven to be problematic as such management is enabled by technology that could be designed as neutral in a utopian manner. At the same time, free mobility has rendered (mega)structure management into a matter of the structure of power and control. Moreover, surpassing the dualism of utopia and everyday life in projects facilitated the merging of the two into an attractive, though not entirely reflected conglomerate wrapped in the aesthetics of change and incompleteness.

It can be concluded that the system has commodified the utopian aesthetics of change into an operational and inevitable technological reality, which is attractive but systematically conditioned in contemporary space. In contemporaneity, the plug-in concept, with the infrastructure and plug-in system, enables the operational principle of a participatory planning of the material world characterised by the proverbial principle of forming conditions and not conditioning forms. Although the revolutionary sixties are far behind, apart from the examples of use in interior design and urban furniture, the plug-in concept in its commodified form has become and remained operational and relevant at least on the metaphorical level, being evident primarily in urbanism and not as much in its original architectural form.

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