The Domestic Information Machine: Futurological Experiments in the Soviet Domestic Interior 1968-1976

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Abstract

This article explores how a group of Soviet designers investigating the future of the domestic interior at the 'All-Union Scientific Research Institute for Technical Aesthetics' [VNIITE] sought to assess how technological progress might alter the relationship of the socialist citizen to their home and the objects within it in the years 1968-75. Their various designs for the Domestic Information Machine were part of a broader attempt to imagine an information age socialism. Their research specifically engaged with Western experimental architecture and theorists of the post-industrial, such as Daniel Bell, Marshall McLuhan and Alvin Toffler. By placing emphasis on the role of information exchange and the social agency of objects of communication, the machine's designers imagined a restructuring of the Soviet domestic interior linked to the wider world facilitated by an electronic infrastructure of machines. Aping the immaterial nature of the electronic impulses it would send and

receive, the machine was imagined as a 'deartifactualised' piece of equipment which could transform itself and the domestic interior according to the desires of the owner. Their work constituted an attempt to conceptualise the material environment of a 'post-industrial' socialist future by questioning pre-conceived notions of the collective as well as the nature of consumption in the Soviet Union by replacing objects with information.

Introduction: The Soviet Union as a Post-Industrial State?

In *The Politics of Developed Socialism: The Soviet Union as a Post-Industrial State,* Donald R. Kelley argued that Soviet attempts to 'reinterpret conventional understanding about the nature of industrial society in light of the "second industrial revolution"' (Kelley 1986: 185) led to a set of predictions about the future state of communist society which were surprisingly similar to those popularised by the American 'New Left' during the 1960s. As Richard Barbrook has shown, the writings of Marshall McLuhan and then Daniel Bell, whose phrase, 'post-industrial society' came to be the catch-all term for a capitalist theory of advanced technological society, were ultimately dervied from attempts to create an alternative to the theories of 'cybernetic communism', or as Barbrook puts it, to invent 'Marxism without Marx' (Barbrook: 98).

Central to Bell's theory was the predicted continuation of the shift to a knowledge producing economy and 'the emergence of a new social

stratum and the stridency of a cultural *attitude*' (Bell 1979: 15) of professional classes. This finds its Soviet equivalent in theories relating to the 'intellectualisation of labour' and the emergence of a technical intelligentsia of scientists, engineers, bureaucrats etc. who would be responsible for enacting the Soviet 'scientific technological revolution' (STR); a dominant phrase in ideological discourse under Khrushchev after 1956. This historical mission was confounded in the 1961 text of the Third Programme of the Communist Party which boldly announced that, 'the main economic task of the party and the Soviet people is to create the material and technical basis of communism within two decades' (CPSU 1961: 62). While for Bell, the emergence of a new technical elite was not ideologically problematic, the subject of this emerging stratum of needed to be handed with particular care in a society supposedly on the march towards communism. According to one official Soviet ideological text, interpreting the 'people's intelligentsia' as a separate class would be both 'theoretically unsound' and 'politically dangerous' (Chekharin 1977: 294). Yet, as Kelley noted, 'the proliferation of such groups, whether formally articulated through the existence of admittedly controlled professional and/or bureaucratic associations or more amorphously through the emergence of a vague sense of group identity is the most significant change in the political landscape of a developed socialist society.' (Kelley 1986: 38)

This new group emerged with its own practises of consumption, due in part to its privileged access to housing and higher wages. As Susan Reid

has argued, the home was an important site for articulating membership of this upwardly mobile stratum, as consumption and display of material artefacts in the home 'were a means of everyday social positioning and hegemony in which a certain part of the increasingly massive and diverse intelligentsia assumed the perogative to define legitimate culture' (Reid 2006: 243). As I will argue below, the role played by material possessions in defining an individual's belonging to a social group came to be questioned by a group of designers at VNIITE, the 'All-Union Scientific Research Institute for Technical Aesthetics,' founded in 1962.

Their Domestic Information Machine project placed emphasis on the cultural significance of information as opposed to material possessions in the home, and imagined the place the machine of mass-information at the semantic centre of the domestic interior of this emerging social stratum. As the role of technology in the home expanded and the growth of cybernetics (note 1) placed emphasis on information exchange; designers at VNIITE looked to Western theories of the information age in order to understand how technological progress and its incumbent effects on social structure might influence the future domestic environment. How could computers and cybernetic technology, which in the late 1960s was accessible only to a small number of programmers, reshape the domestic interior of the future and redefine what it would mean to be a Soviet consumer during the period of 'developed socialism'?

VNIITE and Futurology

VNIITE was established by designer Yuri Soloviev in 1962, and promoted technical aesthetics as a multi-disciplinary 'science of design' (Soloviev 2004: 117), which would enable to the elaboration of the 'laws of artistic creativity in the field of technology.' (Soloviev 1964:1) It employed an array of specialists including engineers, scientists, designers, artists, architects, psychologists, sociologists and economists. VNIITE's structure was established with the intention that design practise should be integrated with research into the material needs of the population with reference to social, economic and technological change. At the top of a 'state system of design,' it was hoped that its experience could then be shared with regional 'special design bureaux', educational institutions, industrial enterprises, economic planning organisations, architecture institutes and other organisations involved in design. VNIITE's design departments were intended to provide a base for research into methods of production and manufacture as well as the design of consumer goods. At VNIITE's Moscow headquarters were departments responsible for areas such as ergonomics, consumer goods, vehicle design, machine tools and materials research. VNIITE also had ten branches across the Soviet Union. Some of these specialised in meeting the needs of regional industries: research was undertaken on heavy machinery in Sverdlovsk (Ekaterinburg), the fishing industry in Khabarovsk, and consumer electronics and scientific equipment in Leningrad. The Vilnius branch focussed on precision engineering, electronics and the urban

environment. Other branches in union republics (in Baku, Kiev, Minsk, Tbilisi and Yerevan) addressed specific regional and cultural issues (see Azrikan 1999).

In 1968, the institute became answerable to the State Committee for Science and Technology [GKNT], partly as a result of the 1965 economic reforms pushed forward by Premier Alexei Kosygin. These reforms placed urgency on the task of linking science, technology and production:

> Economic plans must take account of the prospects for scientific and technological progress, provide for rapid introduction and mastery of the latest achievements of science and technology, and must be based on real and objective calculations. (Kosygin 1965: 52)

Just as futurology took off as an important activity in the formation of capitalist theories of 'post-industrial society' in the 1960s, scientific forecasting or prognosis picked up pace in the Soviet Union during the latter half of the decade when scientists, sociologists, economists and other academics began to consider more closely the socio-political effects of rapid technological change. In 1968, GKNT were given new powers and it became a requirement for all scientific research institutes, including VNIITE, to undertake elements of prognostic work. In the same year, the Soviet Association for Scientific Prognosis [SANP] was established in order to 'unify segmented forecasts into common programmes' (Rocca 1981: 216) and to ensure that forecasting was not too narrowly focussed on

economics. Soviet 'scientific prognosis' was inspired by the 'positive, empirical character' of Western futurology and its ability to integrate 'scientific-technical, economic and sociological analyses' (Rocca 1981: 202). The use of the word *prognozirovanie* [prognosis] rather than *futurologiia* [futurology] in the Soviet context emphasised the scientific nature of the work. Dr. Igor Bestuzhev-Lada, one of the founding members of SANP wrote that, 'prognosis is not simply a statement about the future, but systematic research into the perspective development of one or another phenomenon or process with the help of contemporary academic studies' (Bestuzhev-Lada 1976: 14). Crucially, theorists were not simply required to analyse how to technically implement the goals of the STR, but also to 'contribute to an understanding of what the goal itself is – that is, to conceptualise what "developed socialism" ought to be' (Hoffmann 1978: 619).

At VNIITE's department number 8 for 'cultural and household goods' were a group of designers responsible for investigating the domestic environment of the future, headed by architect Alexander Riabushin (note 2). The research carried out by VNIITE into the future of the domestic environment was divided into two areas. The bulk of the department's work related to the perspective development of domestic equipment 5-10 years into the future, based on immediately available technologies. However, a small portion of the department was given over to long term prognosis which was more speculative and amounted to an investigation

of the object environment 10-20 years into the future. A series of publications in the journals *Arkhitektura SSSR* [Architecutre of the USSR], *Tekhnicheskaia estetika* [Technical Aesthetics], and *Dekorativnoe iskusstvo SSSR* [Decorative Art of the USSR] on the future of housing were accompanied by three books written by Riabushin and his colleagues. The first was *The Domestic Environment as an Object of Prognosis* (1972), followed by *Futurology of Housing Abroad* (1973) and *Scientific-Technological Progress, Urbanisation, Housing* (1974). These publications combined analyses of foreign avant-garde architecture with experimental projects of the constructivists, contemporary Soviet architecture, sociology and aesthetic philosophy, the poetry of Mayakovski and the theories of the American 'New Left'.

The Domestic Information Machine

VNIITE's project for the 'Domestic Information Machine' (DIM) was first mentioned in a report by G. Liubimova in 1969. In order to study processes within the home, it had been divided it into functional zones. Functional zones corresponded to areas of the apartment which were defined according to location in order create a structure for the detailed study of functional processes whilst maintaining an element of spatial cohesion. The zones were divided according to the following domestic processes: preparation and consumption of food, personal hygiene, storage, mental labour, relaxation, sleep and communication (the corridor or entrance room). This division into flexible zones was concurrent with a

return to modernist rationalism and was based on the assumption that processes of *byt* should not necessarily occur within separate rooms, as would be the case in a traditionally structured 'petit-bourgeois' interior (see Buchli 1997). The report into the 'zone for mental labour' (i.e. studying and working from home) begins as a rather mechanistic analysis of the functional processes fulfilled by a desk, chair, bookshelves and writing equipment. It goes into such minute detail that the author expresses concerns about the hygiene problems caused by dust caught between the pages of books. (VNIITE 1969: 244) The author also bemoans that fact that there was no special equipment for intellectual labour in the home. Whilst automation and cybernetic technology were beginning to play a significant role in the workplace, there was no help available to rationalise the processes of intellectual labour, such as reading, writing and artistic activity. It was argued that equipment was needed which could save time spent searching for text, audio and video materials and free the mind from holding unnecessary information (VNIITE 1969: 255,268).

The possibilities for a new type of information service in the home were predicted in the results of a survey of journalists by the 'Novosti' newspaper two years before VNIITE had begun to address this question. It was envisaged that by 2017 'every newspaper subscriber will have a special piece of apparatus in their home which will print an edition of the newspaper at the touch of a button' (VNIITE 1969: 269). Liubimova

expanded upon the possibilities of information services in the home. She wrote:

> It is fully possible that such a communications system could exist not only in conjunction with publishers of newspapers and magazines, but with scientific libraries, archives, museums, repositories of musical recordings and films etc. In an ideal situation, man could almost instantly receive all necessary information in the form of text on paper, on a screen or as sound, sitting at his workstation and without leaving home... Some information which will be continually required for a certain type of work could be ordered in the form of a card catalogue and stored at home, and what remains would be received according to necessity. (VNIITE 1969: 270)

At Girikond [the State Research Institute for Resistors and Capacitors], initial work into the Domestic Information Machine was probably already underway in their 'positron' laboratory, as in January 1972, the engineers Seisian and Vydrevich published an article in the magazine *Electronic Industry* entitled 'What is DIM?'. DIM was presented by the authors as a necessary development at a time when the number of newspaper, television and radio channels was increasing (Seisan and Vydrevich 1972). The technology of this experimental machine used automated search technology for the sending and receiving, processing and storage of information. The information itself was to be sent via television signal

overnight while the owner sleeps. The machine would then record the required information onto magnetic tape.

An accompanying diagram (figure 1) indicated how information was to be sent from the central infothèque to regional exchanges and then on into individual homes. VNIITE's concept for the machine was developed in response to an approach by Girikond. Most likely due to the requirements of the State Committee for Science and Technology for research institutes to undertake prognostic work, Girikond contacted Riabushin after having read one of his articles (Paperny 2012). They asked if VNIITE could lead a project which investigated future applications of the technology they researched.

They were inspired by silver knife rests in the form of a horizontal silver bar with a cross extending at each end upon which a knife could be rested so that it does not make contact with the table cloth (figure 2) This shape was turned upright so that rollers at the top and bottom of moveable stands in contact with the floor and ceiling would enable heavy equipment to be manoeuvred to any position in the apartment and be clamped into whichever vertical position was required. Service elements were hidden in large containers at the edge of the room or within the walls, while another unit would contain a remote control, a small 'test' TV screen and shelves for temporarily holding small things. Models of various sizes were constructed and a prototype (which probably did not contain any

electronic components except for lights) was exhibited in the electronics pavilion at the showgrounds of the permanent Exhibition of Achievements of the National Economy [VDNKh] during the 24th Communist Party Congress in 1971 (VNIITE 1972b: 40). According to Vladimir Paperny, the focus on flexibility and the ability for hardware to disappear (the monitor can be stowed within the plastic containers) was because he and his colleagues 'were designers so we thought that everyone would want to have the same ability to constantly redesign your physical space' (Paperny 2012). Yet, DIM appears to have had a greater significance for his colleagues, as several other variants were developed and the results published in *Arkhitektura SSSR* in 1972 and 1974.

Domestic Theatre and 'Deartifactualisation'

DIM exemplifies a key element of Alexander Riabushin's work in the late 1960s/early 1970s, known as 'domestic theatre.' 'Domestic theatre' was developed as a means of practically implementing the process of 'deartifactualization' [*razveshchestvlenie*], which emerged as a new structural concept for the socialism material environment during the late 1960s.

'Domestic theatre' emerged in response to the theoretical work of philosopher Karl Kantor (note 3). His sociological theory of design constituted an attempt to examine how the material environment as a whole could be re-imagined to meet the needs of the future socialist

citizen. This environment, it was argued, would need to be restructured to deal with the proliferation of objects during the STR. Emphasising functional process rather than form was seen by Kantor and Riabushin as the key to achieving a socialist design methodology which would escape the fixed socio-cultural meanings of objects. Instead, the focus should be on systems of objects and environments which support harmonious human relations, an approach cited by Riabushin at a 1968 seminar. He asserted:

> ....in principle, man does not need things. All that is needed are the various useful effects which man receives through things, through their use. Things act only as a supporting means of servicing the fulfilment of defined needs and are needed only in as much as they support this or that useful effect. (VNIITE 1968: 66)

This approach to the problem of material abundance in socialism led to the conclusion that the ideal form of an object would be that it has no fixed form, as Kantor deduced that, 'the fetishism of an object appears as the fetishism of its form.' (Kantor 1967: 223-224) An idealised material environment was imagined which could solve the problems created by the material existence of static objects: the space they take up, their distracting semiotic 'noise' and the dangers of commodity fetishism.

Here Kantor drew on the writings of Boris Kushner in the 1920s. Boris Kushner's concept of 'material setting' [*material'naia ustanovka*] was an

imagined set of material relations after the 'death of objects', consisting of a unified system of equipment which would be able to fulfill human need by changing form in time and space. Whilst a 'culture of the thing' [*veshchevaia kul'tura*] demanded that human needs be fulfilled by individual objects – a bed for sleeping, a chair sitting etc., functional processes could be fulfilled by other means. If a system could transform in order to meet those needs, the stabilised meanings of objects which perform a single function would disappear (see Khan-Magomedov 1987: 150-151).

Kantor saw these trends emerging in the transformable furniture such as collapsible tables and foldable beds which had been designed to meet the spatial requirements of newly constructed small family apartments. 'The multi-functional artefact ceases to be an artefact,' he explained, because it 'loses the continuity of its static composition' (Kantor 1967: 255). Kantor predicted that not only would technology become formless, but that it would also enable other objects to disappear from sight. He wrote:

> In the house of the future...it will not be necessary to place specific objects in the space of the home. Some kind of centralised system will guarantee everybody the possibility to create a certain spatial environment in a room at the press of a button (just as we turn on a light switch)... (Kantor 1967: 261-262)

For this to be achieved, it would be necessary to create a concept for the home whereby objects do not take up space. Riabushin called his solution

'domestic theatre,' whereby packaged equipment would 'unwrap' itself onto the neutral 'stage area' before putting itself away again after use in order that it would not retain a static form. Evgeny Bogdanov's visual representation of 'domestic theatre' demonstrates how the contemporaneous approach to functional zoning within the apartment failed (figures 3, 4, 5, 6). It was explained that functional zones were the victim of an expanding number of objects which have a tendency to 'rupture' and disturb one another, resulting in the range of negative effects (Riabushin, Bogdanov and Paperny 1972: 106). Citing a fourfold output in consumer goods compared to a 14-16% increase in average living space since 1960, Riabushin declared that 'the traditional structure of the domestic environment will be blown apart from the inside by an abundance of things.' (VNIITE 1972a: 16)

Although the verbal argument for domestic theatre could be theoretically explained in terms of Kantor's vision for a socialist neo-productivism, its visual representation was directly inspired by a range of internationally known designers. The work of British avant-garde architects Archigram, the Japanese Metabolists, futuristic furniture designers Masanori Umeda and Joe Colombo, as well as the sensual spaces of the Viennese avant-garde group Haus-Rucker-Co were cited as direct influences for this project (Riabushin, Bogdanov and Paperny 1972: 108). This was due to the focus these designers shared in the creation of adaptable environments.

The 'plug-in' principle was first presented by Archigram's Peter Cook in 1964, and was the most important source of inspiration for Riabushin and his colleagues. Cook's Plug-in City was based on a grid structure into which elements of the urban landscape could be plugged in and later removed or replaced so that the city could 'continually build and re-build itself,' as cranes plug-in 'everything that makes up a city, from living rooms to parking lots' (Chapman: 1964). This proposal, which was partly 'an attempt to keep cities viable in an era of rapid change,' (Sadler 2005: 14) was appealing to a range of experimental architects working in the Soviet Union where the rhetoric of the STR encouraged experimental groups, pioneered by NER [*Novyi element rasseleniia*], to develop models for urban development which could respond to the changing needs of the urban population. NER's metamorphic cities were designed around structures which would grow and shrink organically with the movement of people, as 'an architecture that is permeated with the spirit of organic synthesis,' (Gutnov et. al. 1968: 114) which 'aimed to put forward an alternative image of the future urbanity that embraced technology yet did not give in to it' (Bocharnikova 2012: 7). Likewise, Viatcheslav Loktev's concept of 'dynamic functionalism' was developed as an attempt to endow functionalism with a similar responsive flexibility (see Loktev 1966).

These concepts were also applied to interiors in the work of Archigram in projects such as their 'Plug 'n' Clip Dwelling' (1965). The term 'clip-on,'

was lauded by Riabushin as 'the basic principle which allows for maximally dynamic solutions in the contemporary age' (Riabushin 1973: 13). His commentary expresses an excitement about the possibilities for restructuring the material environment and the idea of going 'beyond architecture' (note 4) towards a comfortable environment regulated by supporting hardware (Riabushin 1973: 132). On Archigram, Riabushin wrote that 'the most valuable aspect of these designs lies...in the plan for a dynamically adapting living environment which is organised by function and regulated in all its parts.' (Riabushin, Bogdanov and Paperny 1972: 50)

Riabushin also placed particular emphasis on the influence of traditional Japanese housing which he claimed is 'almost like a stage, where the acts of daily life are played out and replaced by one another.' (Riabushin, Bogdanov and Paperny 1972*:* 109) His understanding was based on an empty stage where the environment is changed depending on the process which is being carried out. He explained:

> Such a stage must be entirely neutral and open for various types of transformations, and the scenery must be befitting of an ensemble of material elements which must be light and moveable. From here [emerges] the particular 'emptiness' and spatial variability of Japanese housing and the specific elasticity of the material environment. (Riabushin, Bogdanov and Paperny 1972: 109)

Other concepts for 'domestic theatre' are essentially a bricolage of ideas taken from the architectural avant-garde. The work of Archigram and Haus-Rucker was almost copied and pasted into images for the 'regulated living space with changeable panels,' housing which 'pulses in space and time' and 'housing on wheels and in a rucksack.'

Importantly, the foreign source material for 'domestic theatre' was often ideologically ambiguous. Critic Reyner Banham once noted in regards to Archigram that outside Britain, 'the absence of any explicit ideology was found baffling' (1976: 81). This appears not to have been the case in the Soviet Union, where the very malleability of these concepts made them useful tools for considering exactly how material relations in the Soviet Union of the 1990s may have appeared. This perhaps goes someway to explain why there is such a strong focus on individuals and groups who could be loosely termed 'techno-optimists.' The role of futurology as critique in American architecture has been outlined by Felicity D. Scott (2007). She notes that by the early 1970s, 'technology had...fully colonized the subject's milieu and was as such an inescapable force impacting design' (Scott 2007*:* 93). The web of critique and counter-critique which ensued in the US and Europe would simply have not been possible in the Soviet Union; the absence of influence of 'techno-pessimists' such as Superstudio, Archizoom and Ant-Farm (who would have been familiar from the magazines in VNIITE's library) is evident. These 'intellectual anti-consumer utopias' sought to 'redress "distortions" of the technological world by modifying the system of production or the

channels of distribution,' (Scott 2007*:* 48) and placed great emphasis on the links between technologisation and the consolidation of capitalist power. Within the context of the STR, the comparisons could feasibly be made to the Soviet government's creation of the Soviet consumer, who was, 'instantly inscribed in the discourses of rationalisation and scientific modernization, on which basis the imminent transition to communism was to be achieved' (Reid 2005: 289). However, it would have been unwise to incorporate such material without heavy criticism. Paperny's 1975 article in *Dekorativnoe iskusstvo,* 'The End of Anti-Functionalism,' criticises the techno-pessimists for their illogicality and dystopianism, whilst acknowledging the importance of this critique in capitalist countries (Paperny 1976).

Although the verbal argument for 'domestic theatre' was extrapolated from Kantor's socialist theory of design, the associated images were formed by means of visual assimilation, replicating the graphic élan of their Western antecedents. The gulf between image and commentary is also marked by the fact that the majority of images were composed by graphic designer Evgeny Bogdanov, whereas the texts were the work of Riabushin. Their look is essentially foreign and particular care was required in the composition of their verbal justification. In this sense it is more appropriate to speak of a Marx*ized*, rather than Marxist vision of the future as it is impossible to disentangle genuine Marxist sentiment from the measures which were taken to avoid strong criticism or censorship.

For example, clip-ons were at one point praised for their 'functional dynamism' yet criticised for their role in the 'consumer society of *veshchizm* [thingism] and the cult of acquisition which gives birth to commodity fetishism' (Riabushin 1974: 17-18). As Vladimir Paperny explained in a recent interview:

> Riabushin was very careful. He always quoted Marx, Engels, Lenin, whoever...he wanted to be very loyal so he was kind of pushing something completely extraordinary for the ideology that was...He was kind of torn, Riabushin, between his desire. He really loved all of those futuristic projects, especially those that had sexual overtones ...At the same time he didn't want to lose his job so his texts were really bizarre in the sense that he would say, "Oh here is the yellow heart by Haus-Rucker that stimulates sexual activity. Oh, by the way, Marx said that it was okay"...One thing I can say is that Riabushin really loved all this stuff by Archigram, and the Austrians and the French and whoever, but he always presented it in a very critical way. He would describe it lovingly and then say, "Well this is really bad." (Paperny 2012)

In effect, Riabushin's commentary identified key developments in the architectural avant-garde and legitimised them internally, creating a framework for projects such as DIM. Although the technologies developed in the Soviet Union would be similar to those used in the West, it was hoped that their rational deployment would counter their negative effects.

DIM demonstrates how developments led by the architectural avant-garde could enable the creation of experiential 'environments' within the home.

Going beyond a device which could simply be used to receive information, DIM came to be imagined as an item of hardware which can be plugged in to service and create this environment. Extrapolating from DIM's original conception, a 'total system of electronic control and management in the home' was imagined which could control the 'psychological climate,' as well as the 'material-space conditions,' and 'parameters of the micro-climate' (VNIITE 1972a: 31). Riabushin cited the view outlined in Reyner Banham's seminal 1965 essay, 'A Home is Not a House,' where he posed the question:

> When your house contains such a complex of piping, flues, ducts, wires, lights, inlets, outlets, ovens, sinks, refuse disposers, hi-fi reverberators, antennae, conduits, freezers, heaters -when it contains so many services that the hardware could stand up by itself without any assistance from the house, why have a house to hold it up? (Banham 1965, cited in Riabushin 1973: 134)

The second version of DIM (figures 7,8,9) was imagined as hardware which is entirely responsible for determining the audio-visual climate of the home. Accompanying images show the resident floating in decontextualised space, within the 'audio-visual climate' (figures 10, 11) chosen by the resident and created by the machine which closely

resembles Archigram's *Informaison* (1968). In these images, information has become the defining feature of the aesthetic environment.

A 1976 article defending the Domestic Information Machine in the popular philosophy journal 'Knowledge is Power' [*Znanie – sila*] focuses on the machine's potential to transmit information from sources as broad as radio and television as well as theatre, lectures, debates, newspapers, post, local events, cassette tapes and personal conversations (Petrov and Sidrova 1976: 31-32). The accompanying illustration was intended to demonstrate the number of information sources which compete for man's attention and how DIM would enable him to actively and efficiently negotiate these within the controlled environment of his own home (figure 12). Yet, the image depicts the individual user as isolated from the information he is receiving by the walls of his home, questioning the value of engaging with the outside world at such a distance.

In *Scientific-Technical Progress, Urbanization and the Home* (1974), Riabushin addressed issues of isolation and private space at some length. Significantly, he engaged with the work of American futurologists Marshall McLuhan and Alvin Toffler, both of whom contributed significantly to the conception of the 'post-industrial society' in the West. McLuhan's 'global village', was initially treated cautiously. McLuhan's idea was that the 'technological convergence of television, satellites and computers…would…create a single social system for the whole of

humanity and restore the intimacy of living in a tribal community' (Barbrook 2007:75). Riabushin noted that the 'machine of mass information' could be a force which would equally 'broaden the horizon of man, [as much as it could] unify consciousness and nurture conformism.' As a result of conformism, stereotypical relationships to social information (including attitudes towards the consumption of consumer goods), would be strengthened and make their alteration more difficult (Riabushin 1974: 119). Riabushin later provided an analysis of German philosopher Günther Anders' idea of the 'mass-produced hermit' as a passive consumer of the media who is cut-off from the rest of society. (Riabushin 1974*:* 128-129) Unable to reject both of these ideas, Riabushin eventually sided with McLuhan, stating that that electronic communications 'will not result in the destruction of the unity of humanity, but in the bringing together of all people into an organic whole.' (Riabushin 1974: 128)

Riabushin also engaged with the writings of American pop-futurologist Alvin Toffler, whose book Future Shock (1970) outlined the perceived psychological dangers of 'information overload' which the 'shattering stress and disorientation that we induce in individuals by subjecting them to too much change in too short a time' (Toffler 1970: 12). According to Riabushin, this was a particular symptom of life in big-cities and he saw the physical separation of the individual family dwelling as a refuge from the hectic nature of everyday life. This way of thinking about the home was largely inspired the Austrian group Haus-Rucker Co., whose 'personal

environments' provided physical barriers between the outside world and the wearer or inhabitant. Riabushin wrote, 'The home is becoming an…active means for providing the regulation and "filtration" of surplus information and contact' (Riabushin 1974: 125). Therefore, if mass communications could be built into the structure of housing, rather than contribute to 'information overload,' they would 'allow for the regulation of information streams and thereby enable a more flexible use of the protective properties offered by spatial isolation in the home.' (ibid. 127).

Here, Riabushin used technology to provide justification for the retreat of the individual into their own private space. This phenomenon had already been observed in relation to television, which, according to historian Kristine Roth-ey, was regarded in the Soviet Union with some suspicion. Soviet society had traditionally valued collective forms of relaxation; be it the resort holiday, trips to the theatre, concert halls and sports events. Roth-ey explains that, 'Going to the movies was in step with the traditional idea of *otdykh* [relaxation] as something collective, active and educational...to watch TV required no one else and no particular engagement with the physical world (no travel, no planning)' (Roth-ey 2011: 205). Rather than directly favouring electronic media over collective pursuits, Riabushin engaged Western theorists in order to create a parallel argument, i.e. that time spent alone is a psychological necessity rather than a dereliction of one's duties to society.

While television was considered to be an object of passive enjoyment, the computer held an entirely different set of semantic meanings for the thaw-era intelligentsia. Slava Gerovitch has shown how computing and cybernetics was significant for Soviet scientists as a 'vehicle of de-Stalinization' (2002: 8). Under Stalin, the direction of scientific research had been ideologically driven and was subservient to the official philosophy of dialectical materialism, whilst during the thaw era 'the computer came to symbolize a new spirit of rigorous thinking, logical clarity, and quantitative precision.' Rather than relying wholly on ideological arguments, Soviet cyberneticians 'put forward a computer-based cybernetic criterion of objectivity as overtly non-ideological, non-philosophical, non-class-oriented, and non-party minded' (Gerovitch 2002: 8).

Andres Kurg's analysis of 'feedback environments' in Soviet Estonia enables an understanding of how designers took cybernetics beyond its role of objectively facilitating the management of society. Kurg has argued that Estonian artists' engagements with information theory and cybernetics led to a 'redefinition of subjectivity' (Kurg 2011: 28). In his analysis of Sirje Runge's proposal for the design of areas in central Tallinn, Kurg investigates how the individual is interpolated in an environment similarly defined by information, whereby 'cybernetics tied systems to their environment via informational feedback loops' (Kurg 2011: 38). The type of autonomous subjectivity enabled by DIM as an

object which forms the micro-climate of the domestic interior would be electronically linked to the outside world and similarly enable the subjectivity of the interior to be susceptible to forces emanating from outside. Kurg asserts that the ability to think in terms of networks enabled designers and artists to imagine 'different models of liberation and different ways to resist the dominant lifestyle.' (Kurg 2011: 38)

For Kantor, this was to be seen in the liberation of people from things themselves. According to Kantor, since the 1930s, design in the USA had emerged as an organ which took on the function of granting role-defining agency to objects. It had begun to act as a 'social regulatory mechanism,' which 'facilitates unanimity corresponding to the material conditions of the existence of varying social groups and the multi-layered society of consumers and therefore 'supports the material unity of the contemporary capitalist system' (Kantor 1966: 4). For the social groups emerging during the STR, an interior defined by immaterial electronic pulses could theoretically free them from the physical objects that define an individual's social status through practices of consumption and display.

The Networked Collective

One significant aspect of Khrushchev's 1961 decrees was the focus on service in the culture of daily life [*kul'turno-bytovoe obsluzhivanie*]. This would entail the extension of public dining facilities where the food was optimistically promised to be 'tasty and nourishing and cost the family

less than food cooked at home.' (CPSU 1961: 89) Alongside this, measures were being taken to increase the rate of construction of 'nurseries, kindergartens and other institutions servicing the daily needs of the population' (CPSU 1961: 89).

The micro-district [*mikroraion*] became a defining feature of urban planning in the Soviet Union from the late 1950s onwards. As large-scale panel construction was to allow the speedy construction of entire neighbourhoods, the *mikroraion* could be rationally planned from the outset. A key feature of these neighbourhoods would be the rational distribution of goods and services. The removal of activities which might otherwise be undertaken in the home, (such as laundry, childcare, food preparation and leisure activities) would stimulate the construction of buildings in which to house these activities. Unlike housing, the majority of service buildings were to be built according to individual specifications. (see Nesterov 1970: 6) It was estimated that the network of institutions supporting the 'service of the culture of daily life' had doubled between 1966 and 1969 and cultural institutions such as theatres and cinemas had seen a greater than fourfold increase. (Nesterov 1970: 169)

The desire to provide cimmunal services was also evident in experimental projects of the period. Construction on Ostermann's *House of the New Way of Life* commenced in 1964 in the Novye Cheremushki region of Moscow. This experimental project was a revival of the Constructivist

house-complex idea of the *Dom kommuna* (note 5) of the 1920s. The principles of collective dining, childcare and leisure activities were promoted in a project which 'captured much of the radical optimism of the new party programme' (Bittner 2001: 574). However, as Steven Bittner and others have pointed out, architects were wary of a full-scale return to the experimentation of the 1920s, fearing that the movement associated with the *House of the New Way of Life* was either in danger of homognoizing everyday existence (Bittner 2001: 573), being elitist, or unfeasible in contemporary conditions (Buchli 1999: 149). Susan Reid has noted that during the 1960s, housewives showed resistance to communal services such as laundries, often due to a mistrust of the quality of services offered (Reid 2005: 294). Likewise, a 1967 study of house-kitchens which sold pre-prepared food to residents 'had affected the domestic preparation of food but not the form and location of its consumption' (cit. *ibid*).

Attempts to push domestic labour and recreational activities outside of the apartment were seen by Riabushin as a misguided endeavour to create a 'vulgarised opposition between public and private' (Riabushin 1972a: 2). The balance between goods and services was seen by specialists in VNIITE's for consumer goods as the most important issue that should be decided among those responsible for planning urban expansion and those planning industry. Attempts to remove services into the community were seen as unhelpful and Riabushin called for closer

study of which processes should leave the home and which should remain:

> Undoubtedly, many everyday functions must and will in time be taken out of the apartment and into the sphere of services within the community. But it will only be those functions which are connected with inefficient domestic labour and result in the impoverishment of the completeness of life and the plundering of reserves of free time which can be carried into the community sphere with the greatest effect. (Riabushin 1972b: 52)

Whilst Archigram went 'beyond architecture,' the designers of DIM were most concerned about processes which were 'on the borders of architecture', i.e. those which may be carried into the public sphere, but may also occur in the home such as 'the cooking of pre-prepared meals' and the 'continuation of professional activities within the home [which] is typical for those working in the fields of science, art, education, management etc.' (VNIITE 1977: 27) As Steve Harris has noted (2013: 27), the construction of small single-family apartments under Khrushchev often left little space for such activities, thus threatening class privileges.

One indicator of the growth of professional activity taking place in the home was the rise in the number of scientific personnel, which rose from 162,500 in 1950 to 665,000 in 1965 (see Josephson 1997: 23). Of particular interest to urban sociologists was the emergence of scientific-

cities: settlements built from the late 1950s onwards which housed clusters of research institutes. At a 1967 conference on the 'social preconditions for the city of the future,' Yuri Sheishin argued that 'scientific centres...are not simply appendages to large-scale machine production. In several decades time such centres will be the focus of all social production.' He added that in its ideal form, 'such a city must combine the optimal conditions for scientific knowledge-based activities with the conditions for the most comprehensive cultural communications.' (Sheishin 1967: 31)

The scientific town of Akademgorodok was the first of these to be built. It was seen as an important indicator of what might happen as the stratum of the technical intelligentsia was predicted to increase as labour would become increasingly intellectualised as a result of the STR (Kelley 1986: 32-33). One sociological study of how and with whom the town's inhabitants spent their free time concluded that socialisation based on territorial proximity would be unsuitable for a city inhabited by a highly educated workforce (Timiashevskaia 1970). Subjects of the study were separated into four groups according to their level of education and were asked with whom they preferred to spend their free time (see table 1). The results of the survey indicated that the more educated the individual, the less likely they were to socialise with those who lived close by. Timiashevskaia argued that trying to 'influence social behaviour through planned structures could lead to a loss of direction,' if community facilities

were to be planned for all, rather than targeted at specific social groups (Timiashevskaia 1970: 293).

Riabushin cited this study (1974: 55) in order to add weight to his earlier argument that the social effects of the scientific-technological revolution (including increased access to education and professionalization of the workplace) would predicate the need to find new, more suitable urban structures for the facilitation of inhabitants' socialisation. As he had previously observed:

> The only thing taken into account in the organisation of neighbourly contacts is territorial proximity; community interests and professional qualities are not considered. It is difficult to imagine that this system will encourage the appearance of the collective. The micro-district is only convenient for the elderly who have left the sphere of professional contacts, and for children whose relations can be restricted to games within the yard. (Riabushin, Bogdanov and Paperny 1972: 21)

DIM was envisaged a tool for providing such communications within a city increasingly conceptualised in terms of flows of people and information. It links the individual to the collective, whilst encouraging time spent alone at home, engaged in intellectual pursuits. It provides a semantic presence within the home which was intended to replace the material structures of collective life. Physical presence in the collective would no longer be

needed, it was explained, because electronic communications create the 'effect of presence' as a substitute (Riabushin, Bogdanov and Paperny 1972: 51). It expresses a more dynamic concept of space where the 'social' corresponds to a lesser degree less with the 'spatial.'

Hardware such as this would be plugged in to the wider city by means of a communication canal, such as the *Computer City* imagined by Archigram's Dennis Crompton in 1964. Even in DIM's original conception by Girikond, the diagram which illustrates its connection to regional and national control centres implies some link to the wider networks to be established in future urban planning in a city conceptualised as a 'gigantic generator and relay of information' and 'hub of cultural values' (Ianitskii 1969: 162). The diagrams drawn to explain its functioning within a computer network were the types of technical schemata which inspired Archigram's 'plug-in' and 'computer' cities.

Conclusion

Despite being visually and to some extent verbally derived from Western experimental architecture, VNIITE's techno-utopian prognoses highlight issues which are specific to the Soviet situation: namely those connected to socialist consumption and production in the planned economy. Nevertheless, its effect was broadly similar to that of Western utopian visions which were its inspiration: a critique of mainstream modernist practice expressed in the form of hypothetical frameworks upon which to

restructure the material environment. On a broader theoretical level, the futurological programme presents a critical turn in its expression of the possibility that design could go beyond the basic provision of material needs or desires. Objects like DIM could help to define what those needs are and how material relations may appear in the future communist society.

As an object of prognosis, the Domestic Information Machine highlights a series of questions relevant to each semantic level at which the object functions. As an individual object, it provides a potential solution to the dangers of the commodity fetish within an abundant communism due to its 'deartifactualised' status. This links to the notion of the home as a 'total environment,' whereby the concept of 'domestic-theatre' was envisaged as a creative and performative space which would ensure the ability for self-expression, whilst using a kit of standardised parts. The system's adaptability could theoretically enable efficient standardised production whilst allowing a degree of creativity for the individual. Finally, its connection to a network of information flows suggests alternative modes of urban planning in relation to the social structures which were predicted to emerge as a consequence of the scientific-technological revolution.

Table 1

Preferred meetings during free time in Akademgorodok. Source: Riabushin 1974: 56.

Communication	Proportion of answers according to social group (%)			
	1	2	3	4
with comrades from work	59.4	37.3	30.4	24.8
with comrades from joint leisure activities	17.0	16.2	11.5	6.7
with relatives	16.9	22.5	31.2	34.5
with neighbours	6.4	15.0	19.0	28.1
with friends from childhood	2.4	4.6	4.5	4.1
with other people	2.4	4.4	2.9	1.8

List of Figures

Figs. 7, 8 , 9 E. Bogdanov. Variants of Domestic Information Machine II. *Arkhitektura SSSR,* July 1974

Figs. 10, 11. E. Bogdanov. Regulated emotional and psychological characteristics of the environment. *Arkhitektura SSSR,* July 1974

Fig. 12 N. Koshkina. 'Budet li bit, Dimochka?' *Znanie – sila*, March 1976

Notes

Note 1: Cybernetics is the field of study concerned with communication and control mechanisms in both machines and animals. Derived from the study of probability, it has a wide range of applications, most notably in computing, robotics and management systems.

Note 2: Having trained as an architect, Riabushin joined VNIITE soon after the new institute had been founded. He later became head of the Scientific Research Institute for History and Theory of Architecture, and has since published widely on both Russian and foreign architecture.

Note 3: Karl Mosieevich Kantor was was born in Buenos Aries in 1922 and moved with his parents to the Soviet Union at the age of four. He

studied philosophy at Moscow State University and became deputy editor of the journal *Dekorativnoe iskusstvo* [decorative art] from 1958, when it first started to include articles on design. In 1965, he was invited to join VNIITE's department for history and theory. His major work, *Beauty and Utility* (1967) promotes a neo-productivist understanding of aesthetics during the second industrial revolution.

Note 4: This well known-phrase is described by Sadler as the 'concentrated interest in consumer durable kits that were self-contained, transportable, interchangeable, and expendable.' In short, architecture would become 'even more like a car, or even a plastic bag than an immovable monolith' (Sadler 2005: 107).

Note 5: The *Dom kommuna* (most notably Moisei Ginzburg's Narkomfin building in Moscow, 1928-30) was a housing type intended to facilitate socialization of inhabitants by minimizing space for private family interaction, such as the kitchen, and providing extensive communal facilities.

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