A REALLY PERSONAL ICT?

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Abstract. The problem of ICT profit. Soul symptoms and technological transformations. The rise of new personal infrastructure. Denaturation of everyday life through different infrastructure types: a life dependent on the technology. Myths of family, narcissism and love. Raised or educated computers: reanimation in the world of technology. Personal and holistic ICT.

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1. ICT FRAMEWORK

The huge world economy is constantly running after money. In order to survive managers think about being more competitive than their particular rivals. So they spend among other on computers and telecommunications. They have been told to do so by equipment providers. Every year companies all around the world spend more than \$2 trillion on computer and communications equipment and services (ICT). Sooner or later they repeatedly conclude that their competitiveness is not ICT critical (Carr, 2004). It is only their fiction.

ICT business is not so profitable anymore. It is gradually becoming a standardized infrastructure delivering ultimately huge economic and social benefits. ICT executives use various tactics in order to sell more and more. The competitive advantage comes not as technology advantage but how the technology is used. What are the main technology characteristics of our ICT equipment? Built around fast serial computation devices and backed-up by relatively slow serial type of memory devices its main calculation benefit can be obtained from fast in-depth goal searching strategy. Its efficiency must be turning toward client wishes or it will be soon abandoned as a helping tool.

Thus project complexity is gradually increasing because its fitness has to serve anyone for each imaginable and unimaginable situation. A general solution approach. As a result the number of unsuccessful projects is not decreasing, leading repeatedly to the famous money-term-quality impossibility triangle. The solutions that accept more and more standardizations make the usage of very sophisticated machines more and more rigid. Patches are then introduced for unfinished software features and promises are becoming industry per-se. Thus we can recognize a standard feature of all commodity industry: hardware (bricks) can be bought everywhere, software (of the shelf projects) can be used from many sources and its availability makes the whole business more like system engineering than producing sophisticated elements. Standards are dominating. When standards dominate prices per unit work are falling down (Carr, 2004). Thus the tendency toward ICT as future mankind infrastructure has been traced. But reaching toward efficiency, predictability, reliability, and security pushes ICT industry into a more conservative stance. And less spending on the side of their customers. Because they expect exclusivity.

European Union on the other side has declared the so-called Lisbon strategy that includes using of ICT as every citizen facility: eGovernment, eHealth, eLearning and eCommerce among others are expected as levers of cohesive and socially sustainable environment (Commission, 2005). Goal of the EU has become: "the most competitive and dynamic knowledge–based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion". A knowledge-based society? EU issue thus leads ICT future development toward more personalized infrastructure. ICT being everyone included into and gaining from ICT. The i2010 strategy recognizes this in three ways: making public services better, more cost effective and more accessible, and as a consequence of this improving the quality of life. These phrases are far from the everyday experience leading in some EU countries to overall serviceability of the bureaucracy, like in Estonia and Austria, and making islands of ICT provision in other countries. Nevertheless eInclusion needs Europe-wide benchmarking framework (Commission, 2005). What is really the goal of EU initiatives: eInclusion context definition? Monitoring of bureaucracy? A coherent EU – level experience in knowledge-based systems?

Each EU member state has declared its ICT strategy. Outside EU in Australia the Smart Queensland project makes provisions for speeding-up industrial innovation through collaborative ventures, networks and alliances and by building the foundations for a sustainable innovative society by investing in knowledge, skills, diversity, creativity, and connectivity. Similar projects are running all around the world: in India, China, Canada. This approach has been recognized as an imperative for global competition. All these projects demand revealing the concept of personal design of the ICT.

2. A DEMAND FOR PERSONAL ICT

What is the very persona of the user and its real requirements? According to Carl Gustav Jung there are two main "mechanisms" of psyche. He named them spirit and soul (Jung, 1972), Fig.1. While spirit is governing psyche excursions into outer realms, real or imaginative, soul mechanism is responsible for inner states and processes. Upgrading and downgrading of both psyche mechanisms are complex and not so well known. Society in its main operations supports spirit and neglects soul. Thus one should inevitably consider both aspects of society influence: promoted and neglected. The field of consideration will be education, health, administration and commerce.
But first about the relation between society and soul.

The human soul is not meant to be understood; merely we could say it is meant to understand us. The great malady of our time is "loss of soul" (Moore, 1994). It affects us individually and socially. A neglected soul appears symptomatically in obsessions, addictions, violence and loss of meaning. Our society has lost interest in soul mechanisms pushing us as individuals into moods and emotional pain or as nation hosting threatening and confronting society with evils. It is impossible to define precisely what the soul is: soul prefers imagination not intellectualism. Soul has to do with genuineness and depth. It is tied to life particularities: good food, satisfying conversation, genuine friends, with experiences that stay in the memory and touch the heart.

Still we don't believe in the soul and exempt it from our value scale. Thus we are left with part of mind neglected (soul) and a part of mind that runs off on its own (spirit) and without relevance of the physical world. We live in a world of separated physical and spiritual parts. But soul is alchemically positioned between both worlds. In his studies on alchemy Jung says that the work (opus) begins and ends with Mercury – god of fictions and fabrications and aside from sincerity. A dose of Mercury is necessary to keep our work honest. No one can tell us how to live our life, or how to speak about our heart affair authoritatively.
The great renaissance thinkers made continuous efforts to reconcile medicine and magic, religion and philosophy, practical life and meditation, ancient wisdom and recent technologies. For us technology has become both burden and enormous achievement, especially ICT. In the time of ICT abundant quantity we are forced to make something for the lack of its quality.

A soulful personality is complicated, multifaceted, shaped of pain and pleasure, success and failure. It is not without moments of darkness and periods of foolishness.

On the other side spirit is full of salvation fantasies, highly positioned plans, exalted combinations. Spirit is merciless toward us. It demands. Thus Plato used "heautou epimeleisthai" or care of oneself, describing honoring the gods and the dead. Roman writer Apulenius said: "Everyone should know that you can't live in any other way than by cultivating the soul". Epicurus wrote, "It is never too early or

too late to care for the well being of the soul". Thus our duty as information technicians and designers is to try to find soul elements in basic aspects of society striving.

Let us take a look at Table 1 depicting main ICT impacts as laid down by EU call and filtered mercurially through material-soul-spirit aspects.

Table 1. Planned ICT components: impact on material-soul-spirit complex

Personality complexity	e-Education	e-Health	e-Administration	e-Commerce
Matter	Pupil data Factography Automatic tests, Proves	Patient data Automatic tests Remote counseling Fast response Remote expertness	Citizen data Citizen facts Bureaucratic details Administrative control	Commercial data and documents Remote planning Outsourcing
Spirit	Collected knowledge Self-promotion Lack of authority	Knowledge bases Semantic nets Artificial medicine	End of improvisation Fast and total control Crime control	Virtual increase of competitiveness Fast control of situation Visionary
Soul	Soulless education Creativity Curiosity Machine dependence	Soulless health Heartless exam Merciless medication Machine dependence	Negligence of small necessities Remoteness Hidden terror Machine dependence	Commercial creativity Playing with commerce Machine dependence

3. TOWARD A HOLISTIC ICT

A step forward in holistic design of ICT can be made while analyzing basic soul mechanisms according to Thomas Moore (Moore, 1994). Renaissance philosophers such as Marsilio Ficino often said that the soul is what makes us human. We can move a little bit closer toward the soul by keeping insight into both positive and negative moods and emotions, bad and good life choices, healthy and unhealthy habits without salvation wish (alas protruding from medicine!), respecting mistakes, failures and successes. Caring for the soul should be oriented mainly toward simple everyday life and not toward the highly positioned goals or transcendental issues.

Basic scheme of myths and themes that are the field of soul's interest are given in Table 2 (Moore, 1994) (together with mythic personalities) and combined with positively projected or expected attributes of the ICT technology. These attributes are far apart from the McCall software attributes.

From Table 1 and Table 2 one can combine soul elements with each sector of the EU demand on ICT and obtain results as in Table 3. Following soul mechanism all themes from Table 2 should be taken into consideration. Hereby foreground mechanisms include quality attributes of the equipment that are designed, background attributes have to be suppressed and neutral attributes are design irrelevant.

Thus the numeric design code of foreground quality attributes for eEducation could be written as

$$N1 = (9, 11, 12, 13, 5, 6, 7, 8, 10, 27, 29, 30) \qquad (1)$$

Usual eleven attributes of software are thus highly extended to 30. Any change in the code can be detected and its rank correlation toward a goal function such as (1) easily calculated.

Table 2. Step toward expectable ICT features

Soul theme	Mythic personality involved	Theme features	Positively projected ICT features
Love	Tristan and Isolde	Healing (fullness) Pain (emptiness)	Supportiveness (1) Friendliness (2) Connectivity (3) Confidentiality (4)
Fatherhood	Odyssey	Morality Law Community	Truthfulness (5) Resilience (6) Provability (7) Testability (8)
Motherhood	Demetra	Affectionate carrying Emotional pain	Availability (9) Improvability (10)
Childhood	Each Child persona	Curiosity Vulnerability Exposability Abandonability	Availability (9) Confidentiality (11) Regressibility (12) Playfulness (13)
Jelousy	Hippolytus Hera Arthemis	Purism Moralism	Internal contactibility (14) Internal strength (15)
Narcissism	Narsissus Echo	Self-love Sadism	Communicability (16) Sensitivity (17) Analyticity (18)
Depression	Saturn	Painful emptiness Dissolution of meanings	Criticism (19) Withdrawal (20) Maturity rescaling (21) Abandonment (22)
Envy	Each Persona	Masochism	Transcendence (23) Comparativeness (24)
Power	Hercules	Soul power Violence Destruction	Resolvability (25) Resourcefulness (26) Reliability (27)
Work	Hephaistos Daedalus	Opus	Reliability (27) Usability (28) Functionality (29) Efficiency (30)

Table 3. EU demands and soul themes reconnected

EU demands	Foreground soul theme	Background soul theme	Neutral soul theme
e-Education	Childhood Fatherhood Motherhood Work	Narcissism Envy	Love Jealousy Depression Power
e-Health	Motherhood Childhood Work	Fatherhood Power Depression	Love Jealousy Narcissism Envy
e-Administration	Fatherhood Power Envy	Motherhood Childhood Love Work	Narcissism Depression Jealousy
e-Commerce	Fatherhood Power Work Depression	Narcissism Envy Jealousy Love	Motherhood Childhood

4. THE QUALITY GAP IN ICT

Our ICT products are designed according to quantitative criteria. Can they be designed different? Is it hidden in our culture and education? What are rank differences of attribute coding in N1? Some authorities ask an unusual but apparently sincere question: "Why does our culture seem so angry at things (software)?" Things (software) could potentially make our world into a satisfying and comforting home. Ego or spirit lives for today but soul has no time margins – thus ICT observed from the soul side can never be separated from the soul of the world or "anima mundi" as quoted by renaissance philosophers. Observed from this side all our artifacts have a certain "amount of the world soul" – meaning that the lack of care for any thing (software) in the world makes our ICT products also "suffer". Tending to think that the world is our enemy we tend to treat our ICT products as our enemies. We can be angry at things because they can survive us or because they do not serve us properly – but we designed them!? Spirit as ego does not know anything about yesterday, a passed and forgotten sequence for this mind mechanism. But soul lives in the other time scale. It observes littering, electronic garbage, indecent treatment of things and of earlier services. Things and programs should not be reduced to their shear functions! They should be treated at least as mortals.
So where is beauty or better to say quality placed in such a world?

For the soul purpose beauty is arresting. The beauty and intricacy of some web game and advertising can lead our soul into peculiar existence. It includes absorption and contemplation and loss of tens and tens of hours being caught by Internet. We should think about ICT products as reanimated things as vivid as a beautiful landscape (Alexander, 2004).

There is no necessary enmity between technology and beauty. Science has as much capacity for soulfulness as do art and religion. But in functional aspect of technology we have lived since 1897. when Adolf Loos has proclaimed that soul were not a factor in any functional design. Including functional design of ICT as well. But what type of ICT there was in 1897?

How can we attain the required quality of life with soulless ICT artifacts? By no means.

How could we design our ICT artifact for quality of life?

Do we have a unique art method that can support our attempts to give a soul to our product?

According to designer and architect Christopher Alexander we do (Alexander, 2004). By using his practical canons of design everyone can approach the steps toward a soulful artifact. By evoking so called life centers in our products. As a starting step. To properly animate our product we can use the modern technology of so called personal information agents in the interface design (Schiaffino and Amandi, 2004 and 2006; Tractinsky, 2004).

What else can be used?

Simple circular information algebra (Jović, 2006) that can be positioned as:

- a method for transforming the world of quantity into the world of quality
- a tool for defining individual goal function by means of ranking user priorities
- a tool for selecting appropriate model for a given goal function from the mix of design variables
- an analytical machine for investigation of hidden data.

An example of quantitative – qualitative conversion as a triangular full expanded tringular matrix of data is given in Figure 2. as a simple example of numerically coded data series N1. Each matrix element represents the difference between any pair of software attribute code value (Slavek *et al.*, 2006).

The backward conversion from quality to quantity is neither simple nor single-valued. It needs calibration (Rajković and Jović, 2007).

5. TRENDS AND PROSPECTIVES

Future starts with our immediate involvement. Before involvement we need some rest and contemplation. About time and people passed. Too many occasions have been lost. Before 40 years I was in a team that designed a special purpose transistorized computer with a 0.1 MHz cycle time for nuclear data collection. It was a really nice piece of machine. Simple and effective. It was not a general purpose machine. ICT industry needs some rest. At least in our contemplation. In order to rescale its products and services. Following firms banners should we expect competitiveness increase only by investing in ICT sector. Is it realistic?

Can a today ICT solution be regarded as a mental prosthesis, that is: does it feed on life, digests it and produces our wisdom and character out of fodder of ICT experience? It does not! It is not designed for such special purpose!

Sooner or later the industry forefront will turn to personalized ICT. We should be those that are responsible for such a change. I could not see any other trend and prospective but in another approach toward ICT design – a more personal one. At least a reanimated personal interface with intelligent information agents and permanent circular transformation of the quantitative and qualitative part of the information. Inevitably the programming paradigm should be changed: from domesticcated software to tamed holistic interface. Like for instance our pets are tamed.

How else should we expect more women in engineering?

Two examples from past are presented as markers: first is an instrument for alcohol content measurement and control from brothers Siemens, Figure 3. (von Possaner, 1893), designed in late 19 century for industrial application – containing artistic and life-centered qualities. Second is Dymaxion 4-D house preliminary designed by R. Buckminster Fuller in 1927/28, Fig. 4. (Fuller, 1981), intended for energy spare environment that contains practical beauty and vividness with balanced content of living centers.

Can we present an equivalent mercurial solution from today ICT design?

REFERENCES

1. Alexander Ch. (2004): *The Luminous Ground*, Center for Environment Structure, Berkeley Ca.
2. Carr N.G. (2004): *Does IT Matter?* Harvard Business School Press, Boston Massachusetts
3. Commission of the European Communities (2005): *Information Society Benchmarking Report*
4. Fuller, B.R. (1981): *Critical Path*. St. Martin's Press, New York, p 139
5. Jović F. (2006, 23.March): Determination of porosity content of hydrocarbon deposit. *Patent Cooperation Treaty* (PCT) WO 2006/030248
6. Jung C.G. (1972): *Psychologie und Alchemie*, Walter Verlag AG Olten, Schweiz
7. Moore Th. (1994): *Care of the Soul*, Harper Perennial, New York
8. Rajković V, Jović F. (2007, October): Determination of unregistered parameters of the Žu247 well by a simulation method. *4th International Oil and Gas Conference*, Zadar Croatia 2-5 (in publication).
9. Schiaffino S, Amandi A. (2004): User – interface agent interaction: personalized issues. *Int. J. Human-Computer Studies* 60, 129 – 148.
10. Schiaffino S, Amandi A. (2006): Personalized user-agent interaction. *Knowledge-Based Systems* 19, 43-49.
11. Slavek, N.; Jović, F.; Blažević, D. (2004): Quality factors for the real-time and safety-critical software systems;// *The 5th EUROSIM Congress on Modeling and Simulation* / Attiya, Gamal ; Hamam, Yskandar (red.). Marne la Vallee : ESIEE groupe, p. 33-34
12. Tractinsky N. (2004): Tools over solutions? Comments on *Interacting with Computers* special issue on affective computing. *Interacting with Computers* 16, 751-757.
13. von Possaner B.F.(1893): *Chemische Technologie – jener Industrien, welche der Verzehrungssteuer – Controlle unterworfen sind*. Wien, p 621.
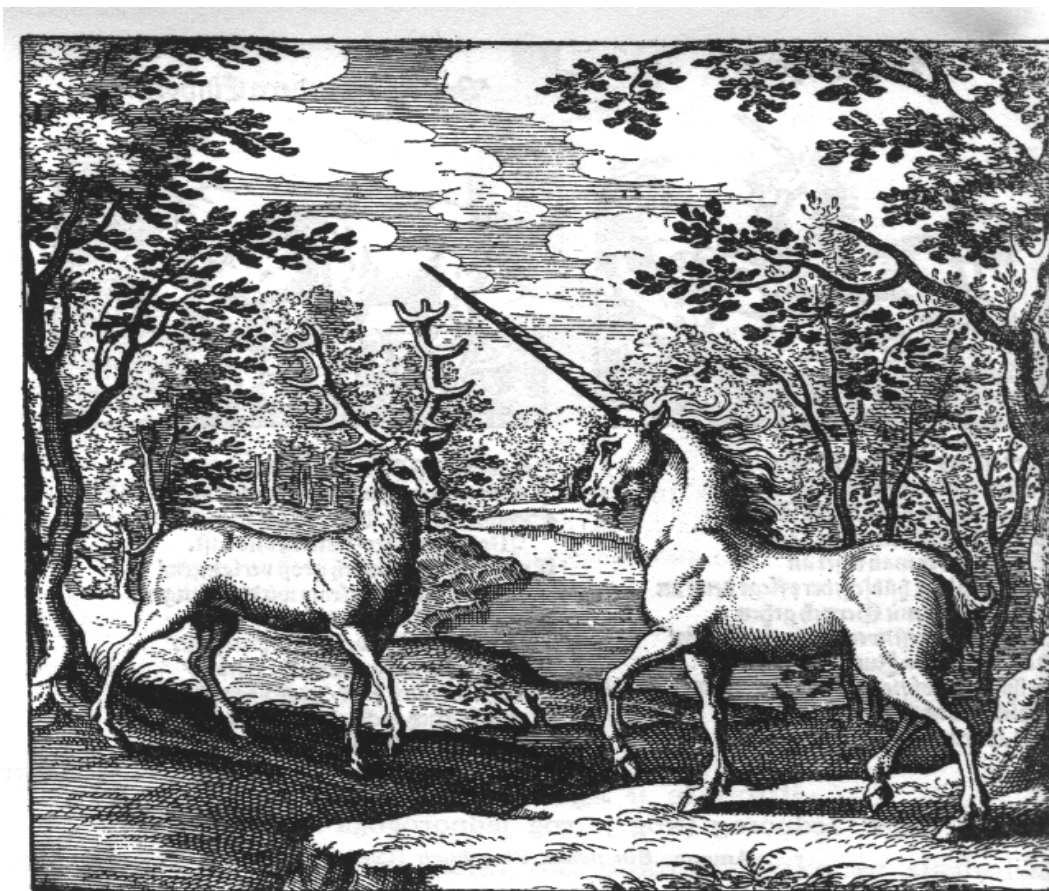
Fig.1. Stag and unicorn as symbols of soul and spirit
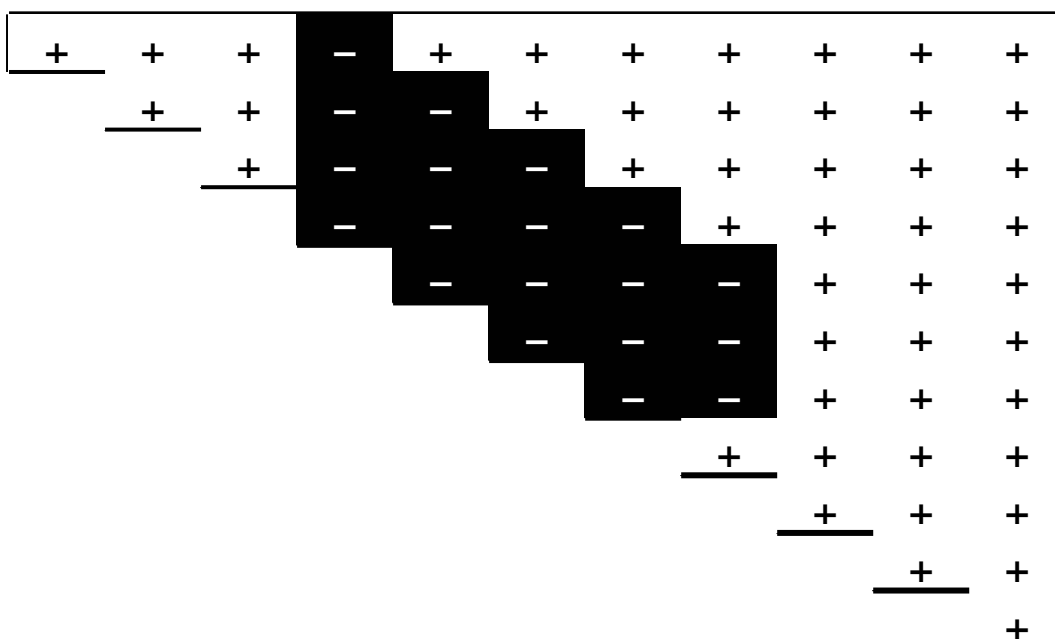*(from Lambsprinck, Figurae et emblemata (Jung, 1972, p.450))*

Fig. 2. Qualitative representation of the N1 attribute data series from equation (1)
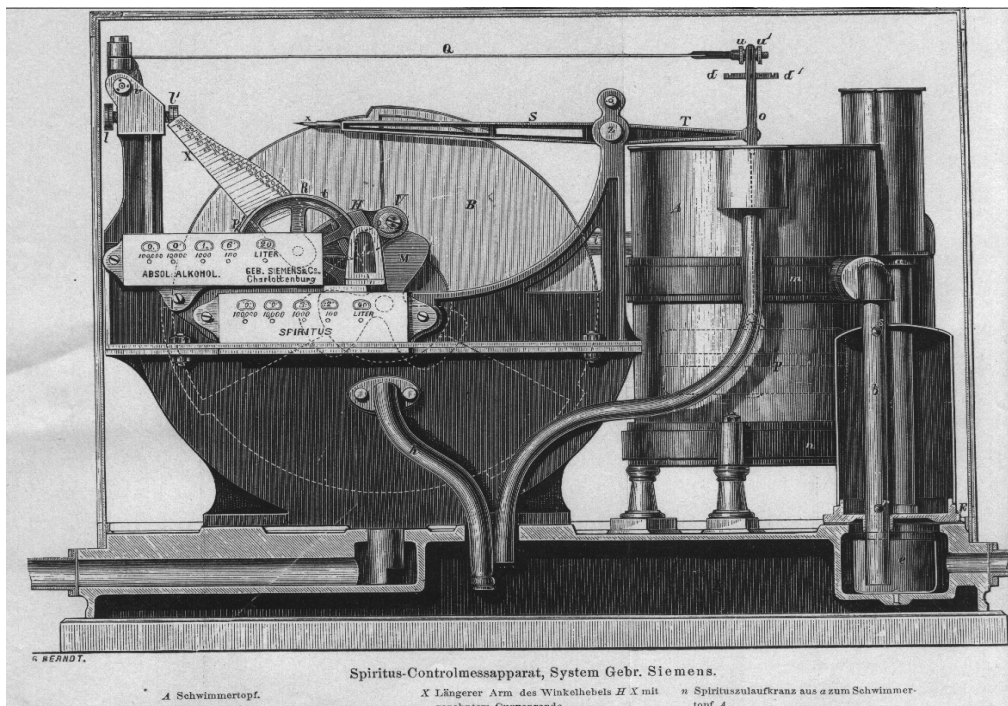
*Fig. 3. Alcohol content measurement and control device
(Gebr. Siemens, from (Rajković and Jović, 2007))*
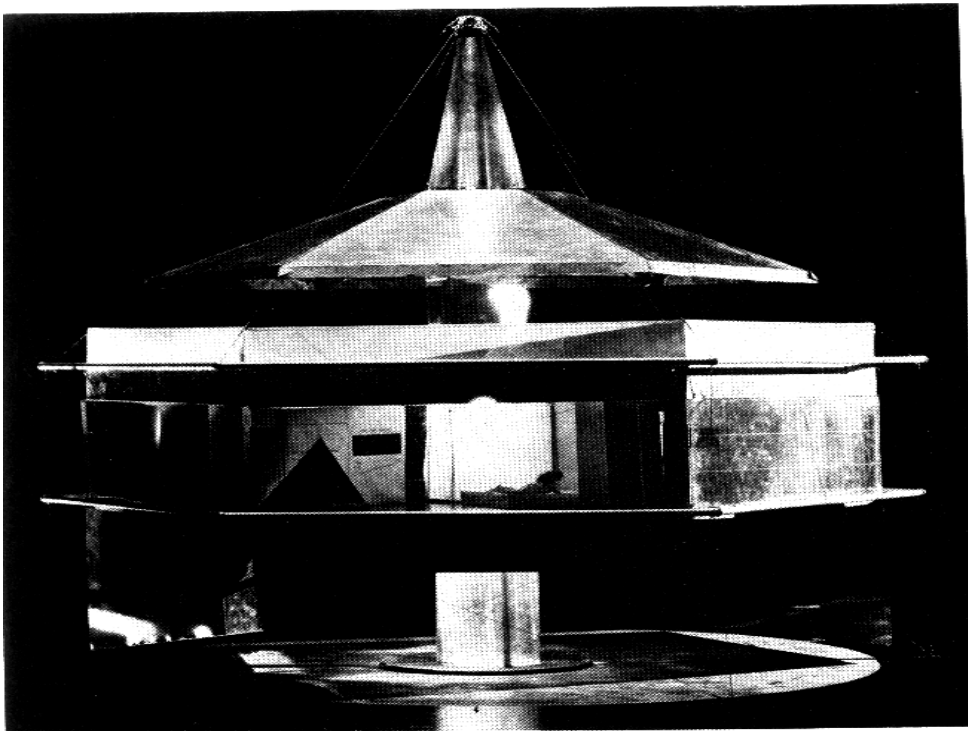

FIGURE 20.   Model of the Dymaxion 4-D House

Fig. 4. Model of the Dymaxion 4-D House (Fuller, 1981).