Beyond Innovation Within the City Limits

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Abstract. Although *vitalism*, denoting a dismissed concept in biology (life sciences), is a term rooted in the late 18th century, we still may abstractly think of vitalism even today — in a very different context. The use of this term has changed in the course of centuries, and has been used across different disciplines. Reflecting texts of modern philosophers as well as architects, urban planners and thinkers, this essay is setting the term of vitalism into urban environment and aims to examine the philosophical qualities of space, rationalization, function and beauty in the 21st century. Cities are viewed here as interfaces to interact with. At the same time, Interaction Design (IxD) has tools for making the world a better place from the viewpoint of users: User-Centered Design is widely established and used term. I propose that *urban vitalism* may stand on qualities valued in Human-Computer Interaction (HCI) and I am trying to open paths for new concepts in understanding urban life by actualizing the patterns of interaction with the technological layer in our environments.

Keywords: Cities · Design · Interaction · Philosophy · Semiotics · Usability · Vitalism · Wayfinding

1   Introduction

What would our life be like if we were to spend the rest of our lives on an isolated island in the middle of nowhere? In one of numerous versions on Robinson Crusoe, the French writer/philosopher Michel Tournier turns it into a novel where he also underlines the human need for organization and rationalization of space. He makes Robinson think of the island as "covered by the network of interpolations and extrapolations that differentiate the landscape and make it intelligible." His character found that the way to cope with "the disruptive effect" of absence of other people on the island was "to build, organize and make laws" [22]. Similarly as designers of interactions do.

2   Rationalization and Vitalism

This kind of rationalization is well apparent in modern cities of today, emphasizing the effectiveness of circulation, transportation and communication. We have seen modernist approaches as in Le Corbusier's work *Radiant City* [12] for three million inhabitants,

where the frequent term is the standardization[1]. We also can appreciate the civil and pragmatic approach, let's here say user-centered, as in Alexander's *Pattern Language* [1] applied to a human scale town. And by establishing those laws, he encouraged the physical environments to provide functions for its users resulting in, let's say *vital* lives (*lat.: vita*, life).

We need to remember, though, that progress in the right direction is not the only option. Saarinen [18] once wrote that: "Many achievements have been ignored because they took place in such slowly growing communities as were looked upon with disdain in a time when rapid growth was regarded by the prevailing attitude of materialism as the only acceptable sign of vitality. Let's not confuse vitality for speed and growth, or as transportation means for economic prosperity." Vitality may take forms of small improvements, as I suggest further in the text.

In another part of his grand work on the city, Saarinen remembers Haussmann's life project of rebuilding Paris: He sees as a positive fact that Haussmann was not a scholar of architectural orders, but a clearly thinking realist. Yet, at the same time, Saarinen does not forget to add that the exterior aspect of the city was of greater importance to Haussmann than were the vital needs of the population.

2.1 Users of Cities

Many aspects of city life are not at all spectacular and extraordinary; instead, they are ordinary, implicit and in fact hardly noticeable. And Michel de Certeau [6] sees central quality exactly in the everydayness of our being the inhabitants of cities. As I would like to stress, being the *users* of cities. Like De Certeau, I am interested in pragmatic side of everyday life of such users and am interested in finding out how to make their interaction with their city effective, possibly drafting paths to innovation of communication and interaction in urban environments.

When De Certeau talks of Concept-city functions, he mentions a place of *transformations* and *appropriations*. This way, a city is the object of various kinds of interference but also a subject that is constantly enriched by new attributes: it is simultaneously *the machinery and the hero of modernity*. And the driving force of this city life is—people. Their *intertwine paths* that give shape to spaces. In other words, it is how people use the city what defines it.

2.2 Users Versus Designers

Here comes the difference and at the same time the responsibility of designers, who are also users of cities. How does a user actually *appropriate* the interaction in a city?

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[1] It needs to be said, though, that while the notion of standardization may have mechanist connotations, at the same time in his book, Le Corbusier does considers vital qualities as sound pollution, natural sunlight, population density, even human scale or harmony… and he adds: "What moves me in Paris is its vitality." [12, p. 99] In fact, there are many biological references in his book, including such as "urban biology" [12, p. 255].

If De Certeau compares pedestrian processes to linguistic formations and provokes with the idea that:

> …*the geometrical space of urbanists and architects seems to have the status of the "proper meaning" constructed by grammarians and linguists in order to have a normal and normative level to which they can compare the drifting of "figurative" language…,"* [6]

then interaction designers inevitably play a key role in creating such a "language of the city". They co-create what De Certeau calls the *urban fabric*. And at the same time, they are gaining certain amount of power over the processes in the city[2].

2.3 Does Perfect Design Make Perfect Cities?

Design of communication within our cities may easily imply the idea of actually designing of the society. Vacková [24] reminds us that the perfectly functioning society as the result of perfect design is in fact utopian. Yet, she claims, cities and utopia are firmly bound together: she defines cities as "the space from which grows the civilization and culture; space where the innovations take place, causing social and cultural changes and the richness of social world." But the question remains how the ideal city should actually look like. Can we view a city – and the design of information and interaction within – so that we discover the relationship intersecting these spaces? Like more or less visible "field lines"? How are they indexed? And can we then view the innovation as the enterprise in truly user-centered fashion?

The concept of *Space of Flows* elaborated by Castells [5] offers support for considering in urban relationships. Further, Castells urges to find new concepts of understanding the processes within them: "analysis of networked spatial mobility is another frontier for the new theory of urbanism. (…) How we relate to airports, train and bus stations, (…) are part of the new urban experience of hundreds of millions" [3].

2.4 Vitalism in Biology and Philosophy

To live in a *vital* city may sounds like a goal of every dweller and every local government. We could see above, that the term *vital* was casually used by respected architects. While vitalism is considered long abandoned idea in biology, we still can see it being mentioned to this day in historical studies in that field. "While the term of vitalism does not come into actual use until the late eighteenth century, many of the ideas and concepts embodied in the word are as old as medical and biological thought," summarize Normandin and Wolfe [16]. This allegedly outmoded and transcended philosophy of biology shows a remarkable endurance and vitality so much so that it has proven to be able to perform several resurgences, and to provoke attacks and refutations by mainstream reductionist

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2 As Deleuze reminds us of Foucalt's approach to power, it is more of a strategy than an ownership. The effects of power cannot come out of appropriation but rather from "disponing of, maneuvering, tactics, techniques and functions…". Power is practiced rather than owned, it is not a privilege gained or protected by the governing class, but rather a general consequence of strategic positions of such a class [7].

science as late as the twentieth century [21]. Normandin and Wolfe [16] further note that vitalism again comes to the fore, as it does every time when the question of *boundaries* arises. But most notably, they also bring our attention to this straightforward dichotomy as pronounced by Ritchie in 1940:

> *"The mechanist is the kind of person who feels that everything important is known already, in principle at least, and that only minor details remain to be discovered. The vitalists feel that existing knowledge is only of minor details, and everything of importance is undiscovered"* [17].

The concept of (neo)vitalism in philosophy took approach in several directions; and while Stollberg [20] reminds us that it is not a homogenous concept, number of modern philosophers are often viewed in context of the vitalist tradition: Driesch, Bergson, Deleuze, to name a few. But they may be known more for other provoking developments: Bergson for example, whose vitalism was not accepted by many scientists or philosophers [9], generalized vitalism into a comprehensive metaphysics applicable to all phenomena. [2] And as Marks points out, Deleuze evinces confidence and optimism with regard to the vitality of philosophy *itself*: Philosophy may have its rivals, in the form of advertising and information technology, but it retains a unique role in the world, "because philosophy is about *inventing concepts,*" quotes Marks [15].

My interest in vitalism certainly does not lay in the extra-natural vital force in the organic world, but rather in the concepts demonstrating the life and humanity in the cities. Just as Marcelli [14] finally puts it, in the idea of vitalism attributed to the mobility and human circulation in modern cities. In his view, vitalism is not really aiming to explain life, but it is more of a reflection of processes taking places in modern cities: it demonstrates itself in doubts about enclosing the urban masses, populations and multiplicities into the framework of mechanist production of life.

2.5 Vital Layer of City Interaction

The basic presumption for my thinking exists that the need for effective function of city "organism", to prevent chaos in transportation, circulation and every day activities of its users, is desirable. Criticism may appear toward this presumption that the pursuit of effectivity and function might go to the extreme of futuristic novels[3], which would make people – the basic vital component – in fact disappear. Answering this kind of worries stretches, nevertheless, beyond the length of this essay.

In the second half of the 20th century, the number of inhabitants in large cities rose along with the need for controlling their flow in public spaces. For example, we saw first graphic manuals and wayfinding systems in transit networks[4], resulting in introducing

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[3] As in The Brand New World by Aldous Huxley (first published in 1932), about developed but permanently limited society [11].

[4] To name a few examples, the origins of current information system in Chicago transit system are traceable to the late 1960's for the project of prolonging lines to Kennedy and Dan Ryan stations. The wayfinding system used there, designed by sub-consultants of original designers – Skidmore Owings & Merrill, was aesthetically and conceptually similar to other new systems in public transit, like New York (designed by Unimark) or Boston (designed by Cambridge Seven Associates) [8].

environmental graphic designs. This kind of interaction (or displaying information rather) is affordable, easy to maintain and quite effective. Some of the numerous purposes are designing the function of objects, providing wayfinding information, or control the traffic flow (see Fig. 1).

Fig. 1. Aside from aesthetic function, the mosaic decoration in New York subway stations provides information on different kinds of trains (express/local) serving the station.

With the rise of affordable electronic solutions by the end of the 20th century, another layer of city communication emerged. One that adds more or less interactive approach to the user. It aims to supplement the existing public communication, not to merely replace the older means. Keeping in mind the interaction design focus or my thought, I can state that these devices provide the kind of quality not otherwise achievable by static systems. Their signs are that they:

(A) Are implicitly present in the environment
(B) Use electric current
(C) Provide variable information
(D) Refresh automatically or semi-automatically
(E) Typically employ sensors
(F) Make it possible for user to interact
(G) May issue a restrictive instruction, but they are not invasive (over-ruling of their recommendation is possible by user)
(H) Are not computers per se

Semiotic analysis and design purpose of these devices are in the core of my thinking on this topic. Examples of systems for illustration are shown on Figs. 2, 3, and 4. The purpose of these systems is self-evident: to make the interaction with the environment more effective for the user of urban environments.

2.6 Smart Cities and Information Wayfinding

Interestingly, Harrison and Donnelly also reach to biology[5] when drafting what impact information technologies may have on norms of behavior, in their Theory of Smart Cities. But from the social point of view, they are stressing, that:

> *"An important question, especially for developers charged with creating a new city or a new district within a city, is how to make it attractive to the target tenants.*
> *Various tangible facilities, such as public wireless networks, electric vehicle charging stations, bicycle lanes, and so forth have been fashionable in such new developments based on the premise that other, attractive cities have these facilities…"* [10].

Fig. 2. Garages of the mall at Chodov subway station in Prague. Sensor above every carport reports the number of overall free position in the garage and its approximate position.

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[5] They refer to findings of WEST, who "has spoken of the scaling of both biological and urban systems is being governed by the structures of connecting networks." In biological systems, these networks may be the nervous system or circulatory system and in urban systems, Harrison and Donnelly hypothesize, they may be the social and economic networks.

Fig. 3. Elevator at CDG airport in Paris. Elevator issues green LED light inside of the door while opening and red light while closing. Sensors are present so that passenger is not hurt if coincidentally present in the area of door closing.

Fig. 4. A crosswalk in San Diego, CA. Implicit information on the time remaining for crossing the street by pedestrian is issued and visible for both, the pedestrian and driver of a car. Audible information is employed and counting the time remaining, which is especially beneficial for blind citizens. Feedback after pressing the request button is provided by audibly and visually.

While the trend of self-promoting as *smart city* may be a way for communities to promote their uniqueness and compete for new inhabitants, we need to realize first of all, that we cannot simply leave our old city and build a brand new, start afresh next day, like Calvino [4] describes in his beautiful story of City of Eutropia, a city left by the whole citizenry for the next city,[6]

> "...which is there waiting for them, empty and good as new; there each will take up a new job, a different wife, will see another landscape on opening his window, and will spend his time with different pastimes, friends, gossip."

Most of us live in existing cities and we fit into the physical constrains. There, we can retrofit existing environments. Sensibly introducing a functional technological layer of information and interaction is what Smart Cities idea represents for me.

The complexity of the task makes it difficult, but existing trends in on-line and mobile communication design like *foreword affordances* or *spatial awareness* may be considered here and applied to cases in urban environments while keeping the logical structure of the whole system [23]. I also consider valid approaches, patterns and metaphors known from architecture and urbanism that may be applied to treat the added information in public environment, for example those defined by Lynch [13]. Yet, the way we search for and relate to information and interact in the built environment deserves an actualized approach. Following the ways that users of cities appropriate "their" space and finally drafting these actualized patterns of interaction remains in the very center of my interest.

2.7   Future and Trends in Cities

Significant area of interaction design research inevitable in the near future reflects the implementation of the trend of *Internet of things* (IoT). In a way, this is the new layer of vitality of post-modern and increasingly eclectic cities. Devices and sensors as extensions of city landscape being part of the sensing and reporting network in order to support the more effective functions of city departments: waste management, light management, traffic control, etc.

Le Corbusier was also speaking of the revolutionary fact back in 1930's, about the new arrangement of machine-age society: „In truth, the profound transformation of secular customs, the intervention of new customs and the probability of still more new ones." [12] Less than hundred years later, these expectations are reaching state which could be labeled either *Innovation* or *Surveillance*. "Big Data" is the new currency of commerce, as Sadowski and Pasquale [19] remind us; while the cities are becoming *cocoons of connectivity*. These authors are trying to raise awareness saying that this aim to evoke positive change and innovation via digital Information and Communication Technologies (ICT) is taking place for a wide range of different purposes[7]. "The seductive rhetoric of smart cities," they write, "have the potential to colonize the urban landscape and produce new forms of surveillance." [19] Notably, they also draw a conceptual

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6 In addition, not every user of the city has a smart phone at hand, or has the competences to use it (as debated in the sociological concept of *Digital Divide*).

7 In their Social theory of the smart city [19], Sadowski and Pasquale further develop Deleuzian concept of the Spectrum of Control.

link between the ideology of smart cities and the ideology of the 20th century high-modernist architecture.

3   Concluding Thoughts

The central idea of this contribution is driven by thinking on how the types of interactions with urban environment change in the course of time. That is inevitably linking to more questions. Where lays the border of innovation in our cities? Where is the line between user-centered design, usability and the control of our lives? And most of all: How to make our cities *vital*? In life sciences, *vitalism is always on the borderland of thought* [16], and I wanted to point out that philosophy has been working with the idea of vitalism, on different levels, as well. Most interestingly, as Deleuze formulates it, *the vitality of philosophy is in inventing concepts* [15]. This short essay aimed to survey the conceptual bases for our thinking about cities in the digital age and to mention several approaches across the disciplines as a starting-point for further developments. I wanted to show that it is not unusual to cross boarders of one's discipline to grasp an unusual methodology; which our cities (equally built on the intersection of philosophy, sociology, and technology) may need at the end, to remain – or become – *vital*.

While the 21st century appears to be fast adopting terms as big data, connectivity, surveillance, social networks…, there is the physical aspect of the cities that won't change as fast as the increasingly dominating world on-line. We, nevertheless, can learn from the digital world and try to apply similar principles of interaction to enrich the physical environment. Still, I believe that cities must remain non-discriminatory environments for inhabitants/users of all ages, while maintaining the basic rights to privacy. Coming to understand the field lines of relations within vital urban environments shall be most interesting – and applying the knowledge in intuitive interaction design most gratifying.

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