

Thesen zur Dissertation

**Transformation of the Environment:
Influence of “Urban Reagents.”
German and Russian Case Studies**

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Problems Addressed and Aims of the Dissertation

“Even one building can make a difference to a city,” Jørn Utzon once said (1959, cited in Carter 2003, 66). This dissertation explores a multilayer transformation of the environment to unpack possibilities, influences, and features of single urban objects, especially unique ones, as powerful elements for urban regeneration.

A city is a mixture of different components and a superposition of historical, socio-cultural, economic, architectural, and other environments where urban objects can operate potentially as change agents. An urban regeneration manifests itself through these active urban objects that can be conceptualized as an “Urban Reagent” (UR) transforming cities.

What influence does a UR generate? Clients order and confirm, and architects design agreeable or risky and unexamined radical urban objects (e.g., modern iconic buildings), assuming the liability of a possible failure, high-cost implication, public misunderstanding, disregard of local interests, and other possible negative aspects. Simultaneously, there are advantages of erecting URs when they mean a valuable contribution to identity, investment in the location, a catalyst, and turning point for urban, economical, and socio-cultural development, a powerful instrument for changes, evolution, or revolution.

Why is a UR’s impact on environments uneven, contrasting, and, often, radical? Hypothetically, the entailed diverse effects on the surroundings demonstrate experimental origin - an experiment as a preplanned but unpredictable method aimed to produce certain results and change the current state of things into something new. Newness is terra incognita, whose discovery is impossible without trial and error - experimentation, in which active urban objects play a distinctive role. An experiment of design, realization, and implantation of a UR generates intended and random, positive, negative, and null effects - influencing multiple environments.

Could a UR’s influence on the transformation of environments be predicted? An understanding of influences and features of urban objects requires scrutiny due to a high potential of the elements to force alterations and reactions. The main research aim is to study transformations of different environments (urban, socio-cultural, economic, and architectural) caused by a UR’s influence, emphasizing a responsible building and acceptance of this active and, in many cases, radical element.

Research objectives:

- to identify parameters of an active urban object “Urban Reagent” (Chapter 1)
- to elaborate a hypothesis on an Urban Reagent as an experiment by nature and use, aimed at certain effects (Chapter 1)
- to explore historical, urban, socio-cultural, economic, and conceptual influence caused by active and significant Urban Reagents (urban flagship, landmark, iconic buildings) (Chapter 2, 3)
- to corroborate the hypothesis by an application to German and Russian Urban Reagents (Chapter 4)

Relevant Current Research in the Scientific Field

A primary knowledge on urban regeneration and active urban objects (flagships, catalysts, landmarks, singular and iconic buildings) is built by many interdisciplinary researchers focused on urban, societal, economic, and cultural aspects of the phenomenon and urban change:

- The ‘Bilbao-effect’ and Abandoibarra researchers - Gerardo del Cerro Santamaría (‘Urban Megaproject’ – UMP), Joseba Zulaika, Anna María Guasch, and John Azua

- urban planners Kevin Lynch, Lewis Mumford, and Vladimir Glazychev, urban specialist Donald McNeill, and urbanist Peter G. Hall, et. al
- sociologist and economist Leslie Sklair, urban sociologist Steven Miles, and Paul Jones
- geographers and anthropologists Neil Smith, David Harvey, and Marc Augé
- architects Eduard Sancho Pou, Pier Vittorio Aureli, and Aldo Rossi
- construction and project management scholar Hedley Smyth

The following researchers helped to analyze unique urban reagents' architecture:

- architecture historians Charles Jencks, Hans Ibelings, Vladimir Paperny, Irina Dobritsyna, Witold Rybczynski, Aaron Betsky, Stanford Anderson, architects Jean Nouvel, Patrik Schumacher, et. al
- philosophers Imre Lakatos, Jean Baudrillard, Theodor Adorno, et. al

Methods Used

The following research methods are applied: an analytic-synthetic research method, and observations of German and Russian urban objects.

Chapter 1 "Introduction" presents a research statement (research object, aim, methods, etc.), and explores UR's main parameters by an analysis of three iconic buildings that have transformed different environments. An analytic method, used in Chapter 1, means an inductive approach, required to obtain firsthand knowledge on the subject: an analysis of the Guggenheim Bilbao Museum, Sydney Opera House, and Centre Pompidou; a generalization, and parameters. A generalization summarizes the revealed features into external and internal and supposes a connection between a UR and experiment: a UR as an internal (architectural) experiment and a tool for external experiments of various agents. A factual analysis of many cases identifies a UR.

A synthetic method, applied in Chapters 2 and 3, defining influences of URs and relation to the experiment, implies a hypothetico-deductive approach and elaborates an outlined hypothesis in Chapter 1. It is emphasized that influence is an outcome of experiments in different environments. Historical, socio-cultural, urban, economic, and conceptual effects are studied to infer an experimental component as a cause for these effects. German and Russian URs illustrate theoretical deductions.

Chapter 4 "Synthetic Experiments" illustrates a hypothesis by an application to eight modern URs in Germany and Russia: "Samara Central Railway station"; "Berlin Hauptbahnhof – Berlin Central Station"; "Elbphilharmonie Hamburg (Elphi)"; "Olympiastadion (Munich)" and "BMW Welt"; "St. Petersburg Krestovsky Stadium (Zenith Arena)" and "Gazprom Tower"; and "The New Stage of Alexandrinsky Theatre." A graphic section (CD) shows the field studies and analysis of the collected data.

Main Results/Outcomes Reached

An "Urban Reagent" (UR) can be of any shape, size, and program; it can work as an element of in-fill urban development, and act as a node and landmark, to use Lynch's (2005) terms, or as a flagship in a large-scale "urban megaproject," as Cerro Santamaría (2013) calls the phenomenon. A feature of a UR is a capability to make shifts: it develops cities, redefines localities and socio-cultural values, stimulates economic recovery, serves as an emblem of megaevents, and renders the evolution of architecture. A radical UR as a "trigger" (Tschumi 1996, 6) influences many environments (urban, socio-cultural, economic, aesthetic), and is, as a rule, famous in that it is also an embodiment of influence. A power of UR's catalytic, generative, symbolic, destructive, etc. effects is equivalent to a degree of experimentation coded in a UR's design and use.

Chapter 1 identifies parameters of an active urban object – *Urban Reagent* – and elaborates a hypothesis on an Urban Reagent as an experiment by nature and use, aimed at certain effects.

Chapter 1's analysis of three famous URs - the Sydney Opera House (opened in 1973), Centre Pompidou (1977), and Guggenheim Bilbao Museoa (1997) – has demonstrated the effects of these buildings on manifold environments – from historical and socio-cultural to architectural. All three URs are ordered, designed, and constructed in crisis, or special, experimental, time – a transition from industrial to the post-industrial era. The changes, which the three URs – avant-garde architectural objects – have induced in their cities, is a result of experimentation conducted by change agents targeted at unprecedented effects – new city image and self-esteem, national symbol, and economic and cultural regeneration. The three aforementioned URs are not entirely successful, criticized for gentrification, cultural imperialism, high expenses, violated local identity, aggressive appearance, long-delayed construction, etc.

Thus, a UR is an active urban object featured by an ability to change the milieu (involved in the reaction). The planned transformation demonstrates a heuristic, creative, experimental strategy with certain programmed purposes and also with unpredictable results. Experimentation is defined here as a planned activity, a test of new ideas and methods to achieve the intentional effects, and change the current state of things, that is the trial and error approach. Experimentation works as the activation energy fostering reactions with a UR, or as a coefficient added to the formula of an urban transformation.

A UR can be activated, i.e., starts to influence radically certain environments:

- experimental historical conditions, crisis, ruins
- experimentation of external agents acting as catalysts (e.g., society, culture, city, the economy) using a UR as a tool
- an experimental artwork of a UR

A unique, radical UR is an experiment by nature (an internal experiment), use (a tool for external historical, socio-cultural, urban, and economic experiments, among others), or by nature and use ('synthetic experiment').

Chapter 2 explores historical, urban, socio-cultural, and economic effects caused by active URs. URs are activated and influence when the historical conditions change, engage the built environment in this turbulence, and when external parties as catalysts order special objects to function as a driver in different agents' experiments. Both mass-produced and 'out-of-the-ordinary' URs act as a "manipulator of the physical environment" (Lynch 2005, 7) and can function in parallel in different experiments. Historical, socio-cultural, urban, and economic effects are outcomes (also unintended) of experiments in these environments where a UR works as a tool to achieve certain purposes:

- The "Time-Place Experiment": a UR is engaged in the permanent history experimentation, serves as a mirror of time, a revolutionary or evolutionary turning point representing significant historical events – breaks and gradualities, the power change, and message to the future (*Zeitgeist, Shift-, and Epoch-making- effects*)
- "Socio-cultural Experiment": a UR as a national project, definition, and re-definition of identities, symbol, or a monument (*Reflection of society, Communication/Symbol/Wow-, Evocation/Identity-, and Provocation/Discourse/Pro et contra- effects*)
- "Urban Experiment": a UR as an urban catalyst, flagship, city landmark, and urban virus (*Landmark-Center-Attractor-, Urban catalyst/Flagship regeneration-, Kind and Evil Geniuses loci-, and Virus/Diffusion effects*)
- "Economic Experiment": a UR as stimulation of capital circulation, a valuable object for sale or exchange, a tourism booster (*Commodity-Spectacle-, City emblem/Brand-, and Pilgrimage- effects*)

Chapter 3 studies a UR as an experimental creature influencing architecture as a profession and discipline. A unique, radical UR is activated and influences architectural, aesthetic, and conceptual environments when it is as an experimental artifact by an open-minded author-pioneer aimed at a certain result:

- “Authorship Experiment”: a UR as a “gesture of experimentation” (Adorno 2002, 24) of audacious designers who by “trial and error, by switching from one hypothesis to another” (Gombrich 2000, 327) develop a manifesto, express “negative heuristic” (Landau 1981, 113; Lakatos 1999, 48), distinguishing a valuable art from irrelevant, and promote themselves (*Experimentalist-, Pioneer-, Genius-, Nihilist-Oppositionist-, and Halo-/Celebrity- effects*)
- “Architectonic Experiment”: an artifact of a UR as an embodiment of a certain paradigm, style, or a “design research program” (Schumacher 2008) influencing architecture development by revolutionary inventions and evolutionary innovations, and a role in a city (*Monumentality-, Monster-Beauty-, Singularity-, Attractor/Visual-, Symbol-Icon-, and Invention-Innovation- effects*)

Chapter 4 corroborates the hypothesis through an application to eight modern German and Russian URs as synthetic experiments: Infrastructural (Berlin Hauptbahnhof, Samara Central Railway Station), Cultural (Elbphilharmonie Hamburg, New Stage of Alexandrinsky Theatre, Krestovsky Stadium, Munich Olympiastadion), and Commercial (BMW Welt, Gazprom Tower). These case studies demonstrate URs’ strong impact and a change in various environments.

In conclusion, a UR is a product and engine of experimentation of an artist, ideology, or private and public agents. A UR’s possibility to influence is fueled by the power of an experiment, an intentional activity with unpredictable outputs. Both external (a use of a UR as a tool) and internal (an experimental nature of a UR) experiments activate a UR to react with the milieu, generate effects, and trigger the transformation. If internal and external experiments overlap, making a synthetic one, a UR alters different environments – from a transformation of the history and society to architecture – the results of URs’ incentivizing ability. Thus, three models of the transformation of environments by a UR are distinguished:

- External Experiment: the history and change-makers using a UR as a tool for experiments
- Internal Experiment: a UR as an architectural experimentation
- Synthetic Experiment: a superposition of internal and external experiments

The transformation of the environment (urban, architectural, socio-cultural, economic, historical) is a result of a reaction between the environment and an urban object activated by experiments and aimed at effects:

[URBAN TRANSFORMATION = ENVIRONMENT + URBAN REAGENT x EXPERIMENT → EFFECT]

Once built and integrated into the city, a UR represents, redefines, catalyzes, destroys, enriches, diffuses, inspires, provokes, evokes, and makes famous – transforming multiple environments. When designing or accepting a UR, it is important to be aware of possible influences and to mitigate the negative effects.

Areas of Potential Further Research

- Further elaboration of the distinguished three models of the transformation of environments: External Experiment, Internal Experiment, and Synthetic Experiment. Empirical data gathering
- Study of culture change and its social and spatial cause: corroboration of the concept of a building as an “urban virus” (UV): a search of copies, twins in objects’ localities, the definition of the origin
- Study of potential and influence of urban transformation by ordinary, mass, typical URs
- Comparative analysis of urban regeneration by implanting new objects and by applying an adaptive-reuse model
- Exploration of the interaction between different influential urban active objects