

LIGHT- AND SOUNDSCAPES OF THE URBAN NIGHT

INTRODUCTION

Imagine a city life without light and sound. Imagine you walk along a street and the cars don't have those glary spotlights. And they don't use honks and the ambulance doesn't wake you in the middle of the night. Not even you can hear the engines of the cars. Neither the subway nor the air-conditions at the buildings. The blinking advertising board of the casino on the other side of the street does not disturb you anymore. Neither the dog of the woman living in the first floor who is barking every morning...

Light and sound are integral parts of city life, so **which role do light and sound play in policies, in urban planning and in urban life?**

The exposure to high levels of sound pressure and artificial lighting have

strong adverse effects on human health, the environment, fauna and flora. The massive decrease of darkness and quietness leads also to the loss of commons that are relevant to a society and its culture (e.g. opportunity to relax in quiet areas or enjoy the stars at night). So far cities are much more aware of the risks of noise pollution than of light pollution.

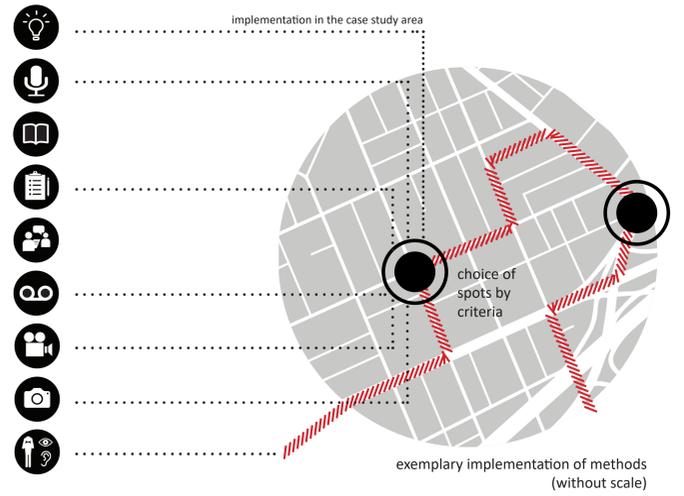
Regarding this increasing pollution, European and local authorities face great challenges, but responsibilities are quite dispersed between many actors. Restrictions are needed that create large support within the society. Since intensities of light and sound are measurable, but the perception is highly subjective and influences a lot the well-being of city's residents, the correlation between those two issues

is worthwhile to analyze. Two pioneer cities regarding light and sound issues are Berlin and Florence because they have advanced strategies on how to deal with both issues. In the case of sound, even an experimental artistic, bottom-up approach exists that provides alternative considerations. In this context the concept of soundscape is relevant: This describes the acoustic environment as it is experienced and understood in its context by people.

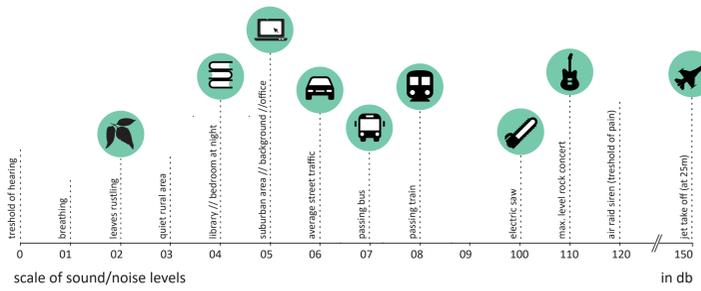
Besides the analysis of basic literature, surveys, personal impressions, measurements, sound and light walks, interviews with experts from both cities, Berlin and Florence, were carried out, in order to collect information from a professional insights.

APPLIED METHODS:

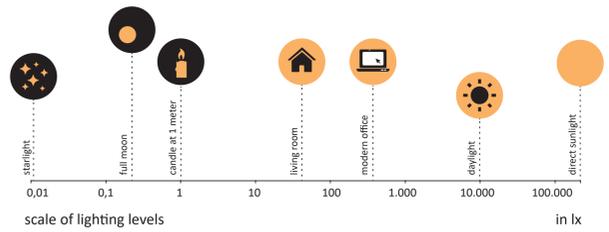
- light measurement (luxmeter)
- sound measurement (db-meter App)
- literature review
- surveys
- expert interviews
- sound recordings
- videos
- pictures
- sound and light walk



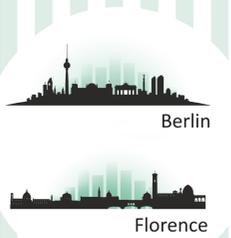
ANALYSIS



MEASUREMENT UNITS



Regulations focus mostly on noise abatement, not on soundscape design. Many actors are involved in policy making. High complexity of regulations.



20 % of European inhabitants suffer from insomnia because of continuous exposure to noise.

Annoyance and feeling of unsafety because of traffic noise, but in e-mobility debates, sound is recognized as an information enhancing traffic safety.

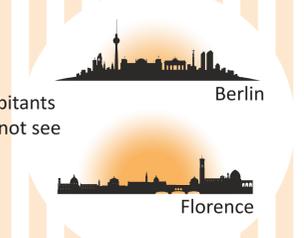


REGULATIONS

Regulations are highly influenced by aspects of traffic.

STATUS OF POLLUTION

Two thirds of the inhabitants of European cities cannot see Milky Way anymore



HEALTH ASPECTS

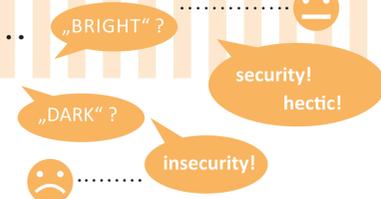
health risks because of continuous exposure to light/noise: insomnia, depression, cancer, cardiovascular diseases

Light has a crucial influence on the biological clock. Sleep disturbance is claimed to be connected to cancer, adiposity, diabetes and depression. Humans, but also many animals, are especially sensitive to blue light (e.g. monitor screens).

SAFETY

Due to lack of illumination, although studies identified that there is no direct relation between decreasing lighting and increasing criminality.

PERCEPTION



CONCLUSIONS

SOUND

Regarding sound and noise in cities there are two courses of action working in parallel. Synergy effects between traditional noise abatement policies and the soundscape approach could be of great value for cities, although this potential is not yet translated in a comprehensive way into concrete actions. Concepts like "quiet areas" provide the opportunity to connect quantitative and qualitative perspectives and should be developed further according to the different local situations. In terms of the perception of sounds/noise, people tend to associate quiet places with positive feelings whereas loud places create rather negative feelings. That is due to the fact that the general association of „loud“ is traffic which dominates the soundscape of cities.



INTEGRATION

Although it exists certain methodological challenges to connect the aspects of light (pollution), soundscapes and noise analytically, this approach could enhance significantly the quality of life in our cities. This could contribute to the further development of the discipline of urban and regional planning. A common platform that promotes communication and networking between both different European cities and different policy/research fields represents an important step towards this. The integration of light and soundscape aspects plays also an important role at the local level where innovative designs can be developed through participatory processes that include experimental methods like combined light and sound walks. Imagine a city life where you can hear

the sounds of the birds, the kids in the neighbours garden, the bicycles rattling. Imagine a city where you can see the milky way. The sound and lightscapes of this city will be diverse and inspiring, ranging from relaxing to intense giving you the possibility to experience manifold different impressions. Of course there will be still some aspects one could experience as noise or light pollution because such an estimation is in many cases highly subjective. But we got much more conscious about the ways we produce lights and sounds. The issues have become a matter of broad discussions, as well in urban planning as in the general public.

LIGHT

Regarding light, a more holistic understanding of the both positive and negative impacts of artificial light in the public space is needed. Besides the benefits of public illumination, negative impacts on the well-being of the people, the natural environment and cultural aspects (night sky) should be considered. Therefore the project recommends to renew the EU directive on public street lighting, to provide regulations for light emissions including private sources and maximum thresholds. To achieve a better understanding, awareness building through cooperation and networking of the relevant actors and also citizen participation is needed. In terms of perception of illumination of urban space, people associate more negative feelings with dark places whereas bright lit places

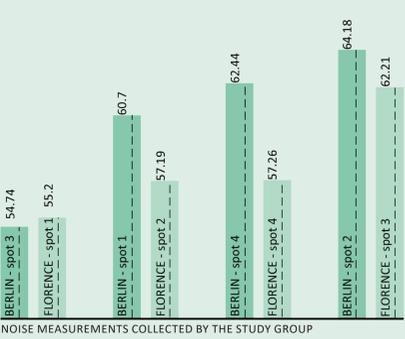


create rather positive feelings, depending on the light source. Light gives information about surrounding uses of buildings.

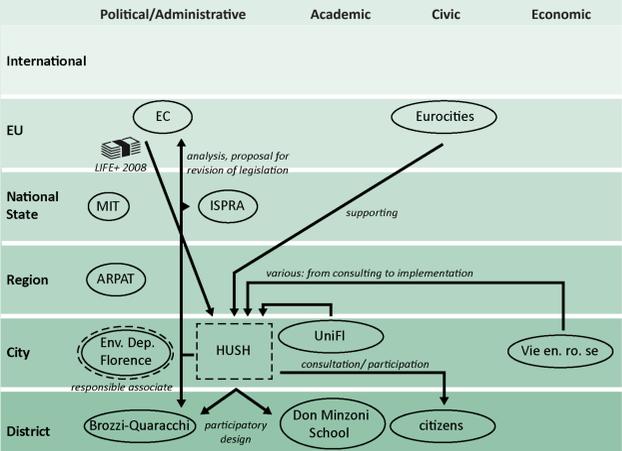


Berlin
Florence
Listen to the daily symphony of...

FLORENCE



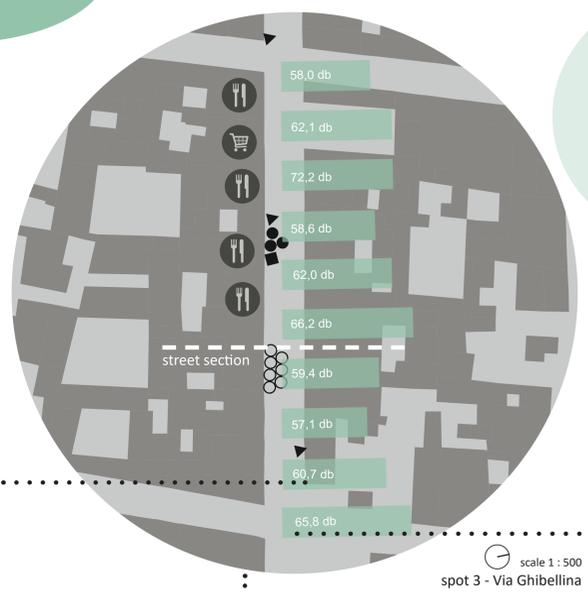
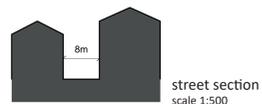
The practice of sound/noise policies is highly fragmented in terms of responsibilities and actors. A complex set of administrative departments fosters the development of narrow perspectives, that lose the necessary connections to other policy fields. The politics – reaching from sound/noise policy discourses to the implementation of policies – shows that even the sub-issues of sound/noise policy themselves are rarely relating much to each other in a structured way.



ARPAT - Environmental Protection Agency of Tuscany Region // EC - European Commission // Env. Dep. Florence - Municipality of Florence, Department for the Environment // HUSH - Harmonization of Urban Noise Reduction Strategies for Homogeneous Action Plans // ISPRA - Italian National Institute for Environmental Protection and Research // MIT - Italian Ministry of Infrastructure and Transport // UniFI - University of Florence

“Everything influences us. Every sound, every smell, everything influence the behavior.”

talking people
 bell
 most favourite sounds in this spot



“Nothing is only a natural sound of the city. For us it is normal, usual. We listen this sound everyday.”

traffic cars motorcycle
 languages arguing people
 most disliked sounds in this spot



OF FINDINGS

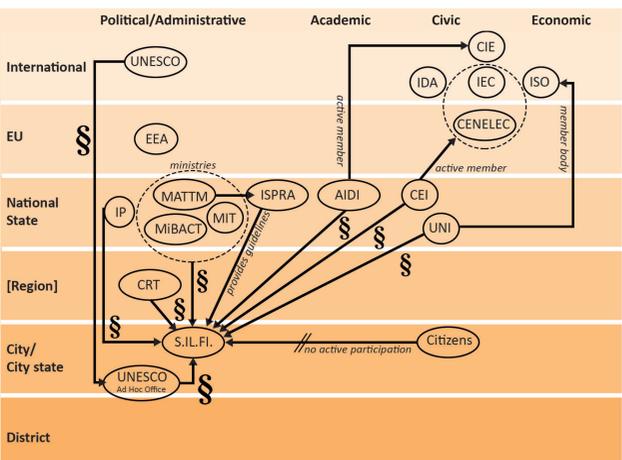


DIFFERENCES

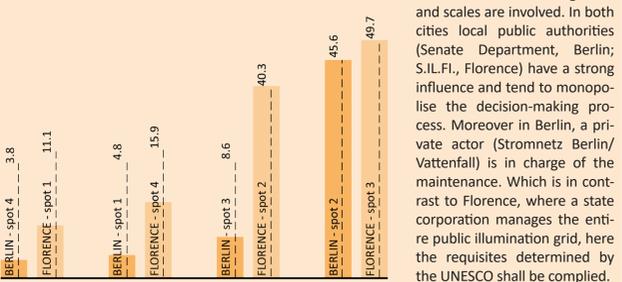
In Berlin Illumination levels are significantly below DIN recommendations.
 Even though Berlin is much darker in total...
 Italy is the most light polluted country in the world (besides South Korea)
 ...and Florence is much brighter lit ...

SIMILARITIES

Dark places associate more negative feelings
 Bright lit places create rather positive feelings, but it depends on the light source.
 Light gives information about surrounding uses of buildings



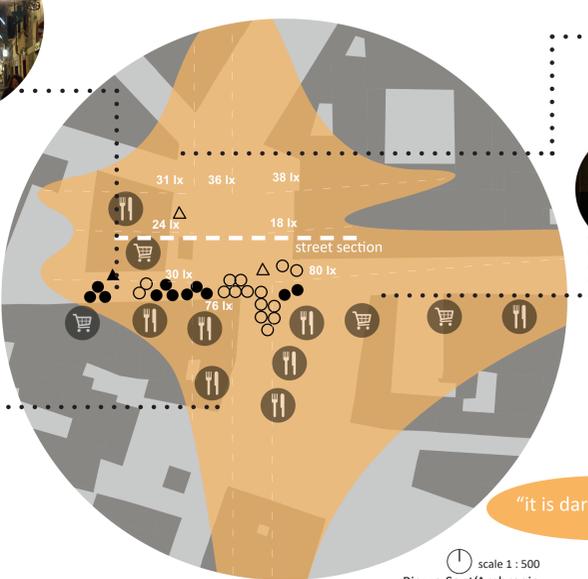
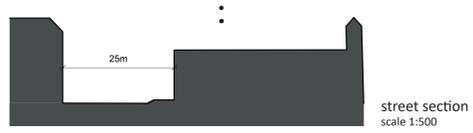
AIDI - Italian Illumination Association // CEI - Italian Electrotechnical Committee // CENELEC - European Committee for Electro-Technical Standardization // CIE - International Commission of Illumination // IEC - International Electro-Technical Commission // IP - Italian Parliament // ISO - International Organization for Standardization // ISPRA - Italian National Institute for Environmental Protection and Research // S.I.L.F.I. - Florence Lighting Company // UNI - Italian Organization for Standardization



Actors of different background and scales are involved. In both cities local public authorities (Senate Department, Berlin; S.I.L.F.I., Florence) have a strong influence and tend to monopolise the decision-making process. Moreover in Berlin, a private actor (Stromnetz Berlin/Vattenfall) is in charge of the maintenance. Which is in contrast to Florence, where a state corporation manages the entire public illumination grid, here the requisites determined by the UNESCO shall be complied.

“More light makes dark places even darker.”

christmas-lights traditional streetlights
 flashing-lights stars
 most favourite lights in this spot



“Yes, I think it influences my behavior in how fast I walk.”

christmas-lights neon-lights
 floodlight
 most disliked lights in this spot

“it is dark and scary”



Listen to Florence's daily symphony

