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Critical Theory of Smart City

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Abstract:

The following thesis analyzes rhetoric as a mean of ideology reproduction on the base of digital public rhetoric of Hamburg's government on smart city agenda. With the aim to grasp the precise reproduction mechanisms of ideology and research its effects and functions, an innovative interpretative analysis of used empty signifiers was conducted. Works by Horkheimer & Adorno (1944/2006), Žižek (2006) and interpretations of Lacan (Hillier & Gunder, 2005) served as background for the research, which enriched the already existing set of smart city critique. This analysis showed that hegemonic ideology is reproduced by culture industry and indicates tendencies to implement instrumental reason, to harmonize the existing social and economic contradictions and mainly reproduces economic interests. Since the studied rhetors are as politicians in power to materialize their ideological convictions, the mystification of technology plays a crucial role as disciplining and controlling measure, which aims to stabilize and justify status quo and maintain the existing inequalities. Derived rhetoric elements, which indicate categorization of citizenship and reductionism of environmental issues demonstrate the high societal relevance of the study and emphasize the urgent need for critique on progressing urban digitalization.

Key words: Rhetorical analysis; Critique of ideology; Smart city; Culture industry; Instrumental reason;

1.Introduction

The debate about smart city concept is often limited to dichotomies between hard or soft developments (Neirotti, Marco, Cagliano, Mangano & Scorrano, 2014), inclusive or exclusive innovation (Glasmeier & Christopherson, 2015), risks and prospects (Kitchin, 2016), bottom-up or top-down perspectives (Carvalho, 2014). Consequently, the discourse is dominated by polarized reverse positions and opinions, which try to quantify the usefulness of smart city innovations to suggest possible improvements. Even by Rossi (2015) a Marxist critical observation framework is concluded with economic advantages of the smart city development. The excitement is also communicated by politicians (Scholz, 2016a), despite the possible risks, which are articulated by scientists. Criticism includes profit-orientation and superficiality of the solutions, which are not able to improve structural societal or environmental issues (Hatch, 2012), exclusive use and decision-making (Carvalho, 2014; Kitchin, 2017), imperfection of privacy protection, which can result in profiling (Fekete, 2004) and control of urban living in general (Kitchin, 2017). Moreover, the actual positive effect of the urban digitalization still could not be measured or even explained in concrete terms (Haarstad, 2017).

The following research addresses the occuring research gap – the missing critical theory of smart cities: Although the general justification structures, which support the implementation of smart city policies, mainly contain such arguments as necessity for city competitiveness in the global arena, need for ecological and economic efficiency, enabling of self-governance (Albino, Berardi & Dangelico, 2015) and even a naturalization of digitalization as an essential need of citizens (Hatch, 2012), there is still no research on the interrelationship between this rhetoric and its ideological and material background. Accordingly, the following study aims to critique the hegemonic ideology of the smart city, not addressing advantages or disadvantages of smartness policies.

Ideology is defined as a set of ideas, which justifies structural injustice for the sake of stabilization of material conditions – economic profit and technological progress (Horkheimer & Adorno, 1944/2006) – and is reproduced with the use of rhetorical elements (Foss, 2009). This *ideological jargon* (Strassner, 1987), which is constituted by optimized simplified language, reinforces the ruling power structure through construction of harmonization promises (Žižek, 2006). This structure sustains itself through *culture industry* (Adorno & Horkheimer, 1944/2006), which also includes politics (Steinert, 1999): Through mass production of cultural goods and the ubiquitous incentives to consume such goods the individuals become reified, and hence, conform to market rules (Adorno & Horkheimer, 1944/2006). Culture and production become means of concealment of power relations, reproducing the hegemonic ideology through spreading goods and information. The individuals lose in such circumstances the ability to think critically and increasingly make choices based on instrumental reason, which completely excludes the discussion on ethics and morality. However, in the capitalist context ideology as false consciousness is also necessary,

since it is bound to capitalist production conditions (Kuhne, 1998). Even Enlightenment project, which aimed to clarify determined convictions for the sake of individual emancipation, constructs new myths (Horkheimer & Adorno, 1944/2006). This makes ideology a dynamic structure, which justifies the current order and reproduces it. Consequently, ideology must be explicitly analyzed on the base of rhetoric interpretation.

Moreover, due to unreflected materialization of the ideologically based desires of the politicians, such policy-making acts as further stabilization of ideology and status quo (Žižek, 2006). Ideological components, such as assumptions and beliefs about the needed and possible ways of city development, its aims and issues are transferred through language and, thus, affect political goal setting and realization (Hillier & Gunder, 2005). The analysis of new policies' justification framework depicts a system of rhetor's ideology and its influence on the political discourse and policy-making. Resulting discussions of several characteristics of the dominant ideology insinuates possible consequences connected to smart city implementation, such as social exclusion, underestimation of climate crisis etc. Moreover, such research indicates, which linguistically transported ideological elements are able to sustain the hegemonic ideological construct and material status quo. The analysis, which grasps the mechanism of the self-reproducing ideology through rhetoric enables a reflection on such mechanisms, contributing to the understanding of cancelation processes of capital accumulation. The study also indicates the general shortcomings of daily language, hence enabling a reflection on use of symbols. Thus, the following research contributes to disclosure of taken for granted societal forms, structures and contradictions, clarification of which depicts their intrinsic normative force. Resulting findings foster awareness for structural issues and serve as a base for a debate on possible actions towards emancipation for the purpose of Enlightenment project.

This kind of research is innovative in the field of critical urban studies, since an ideology analysis method in combination with critical theory and psychoanalytic elements have not been applied to the smart city concept yet. The knowledge gained through ideology analysis enriches the critique of the smart city concept, as well as a general understanding of it. Moreover, the use of concepts by Horkheimer & Adorno (1944/2006) show to which extent these critical theory concepts are applicable to ideology analysis in the 21st century.

1.1. Research question

It is important to study, how the implementation of smart projects is justified by the interested and involved parties such as local and central governments, non-governmental political groups, local security institutions and the companies, which provide the cities with the smart technologies. However, in this research paper rhetorical means used by the local government of Hamburg will be analyzed to clarify the ideological pre-

assumptions of the policy-makers. The position of chosen rhetors is important, since politicians develop and spread hegemonic ideology as spokespersons of capitalist interests (Stahl, 2017). Moreover, the beliefs and perceptions of the politicians about the political goals and opportunities of the smart cities directly influence the formulation and implementation of policy-making (Gunder, 2010).

To interpret the linguistic constructs used by the policy-makers and implementers, the concepts of instrumental reason and culture industry (Adorno & Horkheimer, 1944/2006), neoliberalism (Žižek, 2006) and eco-modernism (Krüger, 2013) are used. For this purpose, the rhetorical constructs were first derived from the collected textual data – speeches and press-releases of Hamburg's officials and spokesperson – and then analyzed through the lens of the suggested theoretical concepts. Moreover, this rhetoric analysis of ideology contains the discussion of the coherence of the interpreted underlying ideology and its functions (Foss, 2009). Throughout these interpretative analysis steps, it becomes clear, how rhetorical elements influence the reproduction of ideology.

The aim of the research is presented in form of an research question: *How do rhetorical elements reproduce ideology throughout the justification framework of smart city innovations in Hamburg?* The explanatory question can be divided into several sub-questions: Which rhetorical constructs are used to justify the smart city policies? Which ideological elements can be attached to the rhetorical constructs? These questions study critically the elements of ideological jargon. How do these beliefs affect the policy and the status quo? Here, the impact of ideology on the political practice, on the status quo and on itselves reproduction is analyzed.

The problem statement with the development of the research question and the clarification of the scientific and societal relevance are followed by the theoretical framework. Conceptualization of rhetoric (Foss, 2009), instrumental reason, culture industry (Horkheimer & Adorno, 1944/2006), neoliberal (Žižek, 2006) and eco-modernist elements (Krüger, 2013) and the smart city (Caragliu, Del Bo & Nijkamp, 2011) define further the units of analysis. Then the research methods are presented and applied on the data set. Concluding part also includes limitations, implications of the presented research and suggestions for the further development of critical theory of the smart city.

2. Theoretical framework

To answer the research question "*How do rhetorical elements reproduce ideology throughout the justification framework of smart city innovations in Hamburg?"*, a review of the chosen key concepts of critique of ideology of the last century is necessary. The conception, which combines several theoretical approaches to ideology, gives a sufficient explanation of the chosen units of analysis from multiple perspectives.

Firstly, the rhetoric, which is used to justify policies and simultaneously mediates ideological beliefs of the rhetors, is addressed. The discussion of the concept explains why rhetorical analysis enables critique of ideology. For this point interpretations of Lacan's concepts (Hillier & Gunder, 2005) and Žižek's (1994) works were used since they play a fundamental role for the understanding of the interrelationship between ideology, language and the individual. To this perspective of individual beliefs structure, the societal ideological superstructure is added to enable detailed rhetoric interpretation: Central concepts of critical theory of the society, culture industry and instrumental reason (Horkheimer & Adorno, 1944/2006), adjusted by further discussions my Krüger (2013) and Steinert (1999), served as tools of critique of ideology. The last part of the framework is devoted to the current political issue of the analysis – definition of the smartness agenda (Caragliu et al., 2011) – which was used to select an appropriate case for the following analysis. This theoretical discussion shows, which rhetoric elements have the ability to reproduce the hegemonic ideology and status quo in the case of the justification structure of Hamburg's smartness agenda.

2.1. Rhetoric as ideology transmission

Rhetoric is one of the means of ideology reproduction. Rhetoric can be broadly defined along three dimensions: "(1) humans as the creators of rhetoric; (2) symbols as the medium for rhetoric; and (3) communication as the purpose of rhetoric" (Foss, 2009: 3). The main interest of the following analysis is the interpretation of the used symbols, which can communicate the system of beliefs of the rhetor. The rhetor's perception of the reality influences his/her use of language. However, this perception is controlled individually to a limited extend: Through socialization the individuals learn to use and understand several linguistic constructs. The individuals accept the existing ruling system, reproduce and rigidify it (Strassner, 1987). Therefore, rhetoric can act as a behavioral norm and as a command, setting limits to possible (political) action. Moreover, within a consumption-oriented society, which is not used to systematic differentiation, the language as mean of communication (therefore comparable to rhetoric), becomes an *ideological jargon,* emptied of meaning and filled with ideological beliefs (Strassner, 1987).

To discuss the function of rhetoric and ideology and their effects on the political practice in detail, interpretations of Lacanian psychoanalytic ideas are considered. The described phenomena are explained

in the following way (Hillier & Gunder, 2005): Language is developed on the base of the feeling of unachievable desire – a child, who misses the idyllic relationship with his/her mother, tries to sublime this anxiety, uncertainty and lack of control with cultural activities, such as use of language. Hence, the repressed and unachievable desire of the child becomes a part of his/her language, through which the child tries to interpret the Real. The interpretation of personality and reality is connected to enjoyment, which gives the subject a feeling of possible materialization of the desires. However, this rhetoric is not able to completely comprise reality: Several linguistic constructs or signifiers (Both terms are used as synonyms hereafter) are used as a symbolic formulation, containing ambiguous meanings. The interpretation of these signifiers constitutes individual beliefs, normative behaviors, cultural imperatives and desires. Group identity emerges through the sense of shared identification with the meaning – signified – of the rhetorical constructs within a group (Hillier & Gunder, 2005).

Public rhetoric – as communication of contents through official institutions – contains such ideological concepts (Zappen, 2005) to enhance the identification with the empty signifiers (Hillier & Gunder, 2005). In this context, politicians are Gramscian intellectuals (Demirović, 2007), who strengthen and develop an ideological majority (hegemony) despite societal heterogeneity through consensus-oriented reproduction of ideas, virtues and world views (Gruppi, 1977). This ideology sustains the status quo, which does not consider the interests of subaltern class, but introduces concessions for it, reproducing and strengthening the capital interest. This leadership of dominant interpretations is defended by established institutions, which are supported by material basis. In Lacanian terms, politicians reproduce a dominant interpretation of signifiers, which fosters sense of "group identity and solidarity" (Hillier & Gunder, 2005: 5). Consequently, politicians of Hamburg would use their societal position to reproduce the hegemonic ideology.

Hillier & Gunder (2005) derived from Lacanian psychoanalysis a linguistic structure used by governors, commanders etc. – dominant master discourse. It has specific social effects, such as affecting ideology and knowledge production, perception of the real and the subjectivity. The main characteristics of the master discourse is the lack of explanation: The central concern of the speaker is here the certainty and not the content. Clarification of ideology in form of digital rhetorics analysis is a political and scientific act, furthering the empowerment of the citizen from injustice.

By defining ideology, Žižek (1994)[1] combines the traditional Lacanian, rather cultural understanding of this phenomenon, with the Marxist elements of material conditions. Ideology in Marxist terms is a hegemonic structure of accepted beliefs, which covers the material conditions of the society (Marx & Engels, 1846/1976). The unequal order of capital accumulation through exploitation of workers

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[1] The author of the following thesis underlines the dissociation from anti-semitic positions of Žižek (e.g. Žižek, 2015).

and nature, discrimination of women and strangers is concealed and justified by false consciousness. Gunder (2010) argues that for Lacan ideology constitutes a common interpretation of the Real within one group. For Žižek (1994), ideology is a practice (García & Sánchez, 2016), happening within the dialectics of the subject's desire for materialization and the reverse ideological influence of the materialized desire. Hence, ideology limits the rapprochement to class consciousness because a subject, who follows his/her desire through cultural activities, produces cultural objects. These reproduce in turn the desire and provoke a transmission of it to other subjects. Rhetorical justification of the smart city is simultaneously a mean of materialization of desires of the hegemonic group and the transmission of these to the citizens. This construct emphasizes the functioning of ideology as a closed system, which on one side emerges from the individual needs and on the other constructs these needs. Therefore, ideology is seen as a dynamic dialectic system in the following discussion. Moreover, Žižek (1994) subdivides in the ideology *in itself* (as a set of ideas, concealing the production conditions); ideology *for itself* (individual set of desires and interpretation of the Real); and ideology *in and for itself* (operation of social practices). Since analysis of ideology for itself requires an elaborated analysis of individual ideological sets, this is not included to the scope of the thesis, it is seen as possible suggestion for the further research.

In the neoliberal age of (almost) free market relationships, high individualization, fluid societal and economic roles (Neubauer, 2011) liberal master signifiers become undefined (Žižek, 2006), challenging the subjects to reconstruct their identities and ideology (Gunder, 2010). The re-interpretation procedures are connected to enjoyment command, aiming to construct the feeling of fullness and harmony, which confer the technological solutions the sense of security and salvation (Vanolo, 2013). Technology serves as mean of intensification for neoliberalism what is described by the term technoliberalism (Hess & Davisson, 2017). However, the feeling of uncontested betterments, which does not explicitly aim at progress or structural change, contributes to the maintenance of the political, societal, ecological and economic status quo and becomes a justification within the master discourse. To name only few examples of such enjoyment filled master signifiers (Hess & Davisson, 2017): Innovation – a development, which contains the meaning of newness, but not the betterment, inducing the circular logic; Precision – gives the feeling of control over something, not addressing needed structural changes; Connectedness – fetishization of networking, which enables exclusion of the unconnected.

2.2. Ideology behind rhetorical constructs

Several signifiers are added to this shortlist through the following analysis of official rhetorics of the local government of Hamburg. The interpretation of the detected master signifiers proceeds by means of critique of ideology by Adorno & Horkheimer (1944/2006). As one of the central works of the Frankfurt School, *Dialectics of Enlightenment* (Adorno & Horkheimer, 1944/2006) discusses the ideology of Enlightenment

project and its reproduction mechanisms. The concepts of *instrumental reason* and *culture industry* play the central role in the interpretative analysis, whereby the first acts as an analytical tool of the set of ideological ideas (ideology in itself) and the latter the ideology as practice and materialization of repressed desires (in and for itself). These concepts constitute a fundamental part of the administered world (Wiggershaus, 2006), which offers a critical theory of the society as a whole. Nevertheless, the following thesis focuses on a specific issue of urban digitalization and its interpretation within the Dialectics of Enlightenment (Adorno & Horkheimer, 1944/2006). An integration of this discussion into the critical theory of society is suggested for further research.

The application of culture industry and instrumental reason to the modern technological development gains diverse scientific insights: a) It shows if the ideas summarized in the *Dialectics of Enlightenment* are still relevant for the analysis of the political affairs in the 21st century; b) In this case, the application dismantles the ideology behind the need of digitization; c) On the base of such discussion, possible effects on the society and political practice are derived. Due to possible risks (Io 2.3) connected to smart city, the application of critical theory on this concept appears even urgent, as mentioned in the introduction.

Horkheimer & Adorno (1944/2006) argue that clarification of myths and over-reliance on reason contributes to instrumentalization of thinking and construction of new myths and ideological convictions. In the Enlightenment project, which aimed empowering the people through clarification of myths, reason claims to replace belief (Horkheimer & Adorno, 1944/2006). The beliefs about gods and natural powers are abolished, so the human is able to become a master of the nature. This clarification of old convictions results in production of new knowledge, which becomes captured in a holistic system and is believed to explain every phenomenon. Accordingly, the knowledge, which cannot be explained with a formula, is excluded from the system and dismissed as prejudice. This patriarchal power appears to represent the reason, but one of its main functions is a disciplinary one: The unification of scientific norms are structuring nature as well as human beings, who receive a status of the unenlightened and irrational and consequently become exposed to possible violence. It also enables objectification of the humans, which reduces individuals to their productivity value and the capability to market-conform self-adjustments. Consequently, the Enlightenment project is claiming to empower and release the human, subordinates him/her to the domination of new rational norms in form of political and economic market-conformity and profit-making. These developments are justified with the notion of progress and innovation, whereby the actual results are destruction of the individuals, natural resources, of critique and of strive for empowerment (Horkheimer & Adorno, 1944/2006).

According to Krüger (2013)[2] the mastering of nature manifested itself as impossible since 1970, thereafter the focus shifted to the control of unintentional negative consequences, reflexive implementation of technocratic solutions and discursive resolution of the contradiction between ecology and economy. These factors can be summarized as "eco-modern discourse" (Krüger, 2013: 2, own translation), which is institutionalized through scientific-rational reason to reproduce the existing subordination of nature to societal and economic interests. Hence, the critique of status quo becomes integrated into existing policy-framework, which consequently gains a reflective component and excludes the introduction of alternatives. Along this interpretation of political rhetorics on environmental sustainability an insight about ideological limitations and their functions can be studied within the following analysis.

This scientific and rational *instrumental* reason, which claimed to enlighten the myths becomes a myth itself, by constructing and sustaining a belief that control and exploitation of nature is fully achievable through calculations (Horkheimer & Adorno, 1944/2006). Resulting in mystification of the role of humans, assigns the power of instrumental reasoning to them: Through the unification of science and exclusion of value philosophy from the scientific agenda, the reason as a mean or a technique becomes the main focus of the scientist. This tendency results in formalization and simplification of reason and language, preventing therefore the possibility of discussing the effects of developed instruments or their original goals. That means that the enlightened rational human becomes able to exploit nature and other humans through advanced technological and rational instruments. Due to resentments, which are still embedded into the ideology of enlightenment, unjustness to the perceived outgroup can be justified in terms of rationality and efficiency. Hence, instrumental reason acts as limitation of reflection and overreliance on technology, whereby the progress serves as reproduction and intensification of the repressive power structures. The authors claim that appreciation of instrumental reason enabled and accelerated the extermination camps as technological mean of destruction of millions of humans. Consequently, a detailed discussion of the notion of society *(policies for whom?)* must be conducted. Such procedure will enable a detection of disciplinary normative notion of ordinary society and its behavior.

This ideology is solidified through mass production of cultural and other goods, through normalization of capitalist order in private and public spheres (Horkheimer & Adorno, 1944). The value of a good is determined by its costs of production, the demand and the given societal norms. The latter are limiting the consumption goods to the assessed demand and the mathematical perception of consumer. These limitations of production with the aim of profit maximization result in restrained art and inventions: The producers do not identify themselves with the good, but try to assess the consumer, also creating consumers' needs, and fit the product to the calculated demands. Consequently, culture industry enables

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[2] Krüger uses discourse as the focus of analysis in terms of Mouffe and Laclau (1985/2001), which is comparable to ideology definition in the presented thesis.

only reproduction of the ideological and material status quo. Public rhetoric as well as policy-making can be interpreted as a product of culture industry in which politicians play the role of the producer and the publicity serves as consumer. The populist politician does not try to enforce his own interest and not the interest of the people, but he/she wants to inspire and attract them (Steinert, 1999).

In this context the consumer loses the incentive to be critical: The subjects, who secure the status of their social belonging, are forced to consume new products what eliminates their individuality. This process includes elimination of the own interest and the understanding of own position in the society, which are replaced by reproduction of and self-adjustment to mass ideology. The consumer perceives the world through a lens of exchange value calculation and becomes reified him/herself. Therefore, the exchange of labor and products appears just. The fast development of technology plays the role of a multiplier of the means of control, management and production of (cultural) goods. Such belief reproduction conceals structural, societal and economical injustices and appears as justification for the status quo (Adorno, 1954), letting no space for criticism or empowerment of the human. This ideology is hegemonic and disciplinary, because it reproduces the capitalist logic, such as profit maximization and optimization, to all social strata (Stahl, 2017). Consequently, democratic decision-making becomes impossible through ubiquitous enforced conformity and reification of the political sphere, due to which policies become managerial product of culture industry. The reduction of the voter to a countable entity and the limitation of reflection and critique result jointly in mitigation of political conflicts and resolution of political debates, calculation-based decision-making and impossibility of questioning or challenging fundamental societal, ecological and economic contradictions (Žižek, 2006). According to this demonstration of ideology as hegemonic power, it is assumed for the following discussion that officials' differing attachments to political ideologies would have no impact on their reproduction of ideology in and for itself and hence will not be considered.

Although the presented ideas were conceptualized in the forties of the last century, they still find their high explanatory value in modern critical theory (Seidel, 1999). Moreover, the epoch presented within the work shares several characteristics with the current, such as positivism, behaviorism, notion of rationality and global capitalism. Smart city can be also seen as a continuation of the Enlightenment project, which aims to demystify the functioning of the city and spatial planning and subjugate it to holistic calculation system of decision-making and construction.

2.3. Ideology for and in itself in case of smart city

This theoretical framework will be applied on the case of smart city – a rhetorically justified policy, which acts as a materialization of ideological beliefs of the rhetors (ideology for and in itself). Although the main associations connected to the smart city are the cities built from scratch, the focus of the following research is on the altering cities, implementing smart city projects. To show what is understood by the term in the

following research and to theoretically underpin the case selection smart city is defined as follows (Caragliu et al., 2011: 6):

"We believe a city to be smart when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance."

Although the concept of the smart city is a promising approach to solve several urban issues, it is highly debated within scientific literature (Hatch, 2012). Such points of criticisms are discussed, to name only a few, as superficiality and the short-term nature of the solutions (Kitchin, 2017); their exclusive development and use (Hollands, 2008); centralized implementation (Kitchin, 2017); market-orientation (Haarstad, 2017); risks of leakages caused using the data (Hatch, 2008); limited impact on ecological sustainability through high energy consumption of the ICT innovations (Hollands, 2008). Despite these risks and limited knowledge of the actual effects of the smart cities (Haarstad, 2017), the implementation of the concept is a trend in urban planning, which is hence based on a belief.

2.4. Concluding remarks

Within progress- and profit-driven capitalist society, technology and ideology play a repressive role, reproducing power structures and inequalities. Smart city as digitalization of urban living depicts a high development stage of this disciplinary project (Vanolo, 2013). The following research tries to study the concrete way in which the smart city rhetoric influences the ideology construction and reproduction: The rhetoric transfers the constructed and adopted desires of the rhetors, who as politicians have the power to materialize their desire. However, the desire is influenced by ideological structures of the society, with which they identify themselves, such as prevalence of instrumental reason, neoliberal total economization enhanced by technology, eco-modernist ideas, which were mediated to the rhetor through culture industry. Though, the rhetors themselves have the position to act as culture industry and to reproduce further this convictions within a smart city project. Such policies contribute to progress to a limited extent, since they further conceal social contradictions and are binded on the demand construction of the culture industry and profit-orientation. This theoretical background of the analysis enables interconnection of the current case and empirical observations with concepts of critical theory and psychoanalysis. The multifaceted nature of the theoretical framework enables an in-depth analysis, understanding and explanation of the used rhetoric.

3. Methods

The following section presents the research method, consisting of a rhetorical analysis with focus on ideological criticism (Foss, 2009), which included descriptive rhetoric analysis and explanatory and interpretative ideological critique. Several press statements from the official website of Hamburg, smart city booklets and speeches of the local officials were analyzed. The analysis was limited to one case, since the method requires high detailedness level. Firstly, the texts were inductively scanned, whereby rhetorical constructs were collected as data (rhetorical analysis). This data was interpreted within several analysis steps (ideological criticism). Smart city of Hamburg was chosen for this analysis because the local government of Hamburg presents a transparent set of statements, press-releases and presentations.

These methods implicate several risks: The results of the analysis are generalizable to a limited extent, what was considered within the case selection and interpretation of the results. Moreover, for the case and data selection bias, a transparent procedure was described in the following parts. To limit the subjectivity bias within the data analysis, also minor differences between textual sources were considered. Furthermore, the subjectivity was reflected further in the discussion section.

3.1. Case selection

One case was selected for the research – the justification framework of the smart city projects of Hamburg. Since April 2014 the local government and Cisco sustain a cooperation, which includes a scope of pilot projects. The main feature of the smart city of Hamburg is the interconnection between data, citizens, city processes and objects (Rothwell, 2014), in line with the definition by Cagliu et al. (2011).

Two-thirds of the German major cities are already pre-occupied with the aim of becoming smart (Knödler, 2018), but Hamburg is an outstanding example of German smart cities, since it is ranked as the 14th smartest cities of the world (The Local, 2018). Accordingly, Hamburg is a rather extreme smart city case in comparison to the German cities and in the international comparison. However, Hamburg is a city, which develops itself according to the smart city axes, like other major competing smart cities (Easy Park Group, 2017). Hence, Hamburg is a typical case of major smart cities.

Justification framework of Hamburg's smart city represents a tendency of the distribution of the smart city population in Germany. Hamburg as one of the most progressive and prominent German cities acts as a role model for the other cities, due to continuous intercity competition (Hollands, 2008) and successful implementation of pilot projects (Rothwell, 2014), which are partly implemented experimentally. The case of Hamburg shows the tendencies of the justification frameworks of smart city innovations in Germany, on base of which the justification tendencies of the other German major cities can be assessed.

3.2. Data collection

Although there are no specific rules, which should be followed within data collection (Bengtsson, 2016), the sampling stages were derived from requirements set by the theoretical framework, which result in transparent research criteria. Such procedure limits the sampling bias. Since the main focus of the analysis leans on rhetoric as transmission of ideology, data, containing rhetoric was used. The aim of the research requires qualitative data (Neuman, 1997). The choice of textual rhetoric, which was published online, was made to reduce the reactivity of the rhetors (Dooley, 2009) and to secure the access of data. Then, the theoretical framework suggests the interpretation of public rhetoric, since it has concrete influence on decision-making and enables reproduction of hegemonic ideology. Therefore, the origin of the textual rhetoric must be politicians or their spokesperson, who represent the official positions. Consequently, the official page of the city of (Hamburg Offizielles Stadtportal für die Hansestadt Hamburg, n.d.) was browsed for primary data sources.

The object of ideological criticism is the smart city policy-making and explanatory rhetoric attached to it. This results in the search term "smart city", following which the search function of Hamburg's official website suggested 94 results. A limitation of usage of speeches' transcipts is the exclusion of the pronunciation, accents, gestures and mimic (Lemke, 2012), the interpretation of which was suggested for the further research. Policy papers could be also analyzed in terms of ideological critique, however, the chosen data offers more empty signifiers and metaphors, which can be used for the interpretative analysis. Lemke (2012) suggested the analysis of rhetoric within a context or a setting, which are, however, not considered in the following study. This decision is reasoned by the high complexity of the issue of ideology, context analysis of which requires investigation of global and local economic and political debates and a review of the general developments of ideology in late capitalism, which would also overextend the scope.

Following step of data collection aimed at reducing the number of possible textual sources to make the interpretative analysis manageable within the given scope of the presented thesis. Firstly, only these texts were taken into account, which were attached to the term of office of Olaf Scholz (2011- beginning of 2018), since such structural change as a change of government would result in an highly complex change in public rhetoric (Lemke, 2012). Although, the comparison between the term of office before and after would enrich the analysis, by adding to it a comparative perspective, this step was excluded to fit the pregiven scope. During the data collection, it became clear that the smart city rhetoric was used since 2013, therefore the timeframe of collected data was 2013-2017. Furthermore, the data collection showed that texts which contain less than four paragraphs were used within the official web page as linkages between different sources and text. These indicated an introductory and transferring character, and hence were excluded from the data set. Moreover, to make the sample set sufficient to answer the research question, three pages of findings on the official web page were considered. This step gives the data collection a

characteristic of convenience sampling (Dooley, 2009), since the search function of the official page does not indicate the filtering or order of the presented findings – the data from the first three pages of suggestion would present the main statements and positions of the local government of Hamburg. Such decision meets the main requirement of the data collection (Patton, 2002), which aims at enabling to answer the research question – a detailed analysis of the hegemonic ideology.

The search resulted in 22 textual sources, which included seven speeches, 14 official press-releases and two booklets. The booklets and the speeches were found attached to some press-releases and were then included in the data set. The collected data set was sufficient, since it covers several projects within Hamburg smart agenda within the development (2013) and evaluating (2017) phase and contains personal statements of politicians (e.g. Horch, 2014; Scholz 2014a). Although the data originates from differing sources, it was analyzed in the same manner: There is a possible dissent between the spokespersons and the politicians. However, the press-releases were published by official institutions and are assumed to represent the official positions. The table of selected sources can be found in the Appendix (I).

3.3. Data analysis

The collected data was analyzed applying ideological criticism method of rhetorical analysis (Foss, 2009), which was suitable to indicate rhetorical elements and derive the ideology from them. Foss suggests following analysis steps: "1) identifying the presented elements of the artifact; 2) identifying the suggested elements linked to the presented elements; 3) formulating an ideology; and 4) identifying the functions served by the ideology" (Foss, 2009: 214).

The *presented* elements were found inductively, indicating the "major arguments, types of evidence, images, particular terms, or metaphors" (Foss, 2009: 214), which justify the smart city innovations in Hamburg. It was conducted through careful reading and structuring the elements in line with suggestion by Maynard (2017)[3]. Additionally, to study the hegemonic notion of society and understanding of climate crisis, these two categories were added. Thereafter, the *suggested* elements, which were derived from the theoretical framework, were deductively attached to the inductively identified elements. In practical terms, the found presented elements will be compared with the suggested elements, the list of which can be found within the following operationalization section.

The following step was the setting of the identified suggested constructs in a relation, which yielded in a coherent ideological framework – ideology in itself and in and for itself. To do this, the formulated beliefs were discussed in terms of neoliberal ideology as discussed by Žižek (2006), eco-modernism

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[3] The notion of the proper member of society and his/her expected behavior and the categorization of individuals, key political objectives and issues, perception of given options, normative prohibitions, obligations and values, notion of competitors and the epistemology of the belief (Maynard, 2017).

(Krüger, 2013) and reification as an element of culture industry (Horkheimer & Adorno, 1944/2006). The last step assessed the function of ideology in the society, to answer the last sub-question.

3.4. Operationalization

To perform the deductive step of the research, the complex theoretical constructs were defined as items. Several keywords were suggested as codes and attached to the items. Since the operationalization of the concepts of the critical theory was not found within scientific literature (what can be explained by rejection of positivist research methods by the contributors of the critical theory), the operationalization is suggested based on expertise of the researcher and the given theoretical framework. Hence, it is highly subjective. An overview over the suggested elements in form of item-code combination is summarized in the Table 1.

On the base of the theoretical framework, the concepts of critique of ideology by Horkheimer & Adorno (1944/2006) were presented. According to the concept of culture industry, the individual is limited to a consuming entity. Politics receive managerial character, the main interest of which is efficiency, monitoring and technological governance. Since the consumers must be assessed, they become classified what results in appreciation of creative or business class. Moreover, through the normalization of market-relations between citizens and institutions, the goal setting changes from empowerment to optimization, profit and progress of national entities or individuals.

Concerning instrumental reason, first, the rhetors could overestimate or mystify the power of technology to solve urban issues. The application of technology can possibly be discussed only in economic terms, therefore excluding possible risks, limitations and other effects from the debate. Such handling of means can possibly result in enactment of innovations based on resentments. Accordingly, the used language must be analyzed with focus on discriminative symbols, such as we-they dichotomies.

Table 1

Coding scheme for the concepts of Dialectics of Enlightenment

Concept	Items	Codes
The instrumental reason	Mystification of technology	Innovation, solution, clean, estimate, optimize, control
	Limited discussion of possible risks and actual aims	Profit, efficiency, effectivity, quality
	Embedded resentments	Our interest, society, we, community, citizen
Cultural industry	Managerialism	Governance, efficient, digital, participation, procedure, monitoring, development, innovation, connection
	Classification of the citizens	University, creative, business, industry
	Displacement of political goals	Profit, progress, economy, competitiveness, industry, production, efficiency, offer

3.5. Concluding remarks

In accordance with the presented method, the research followed the scheme suggested by Foss (2009). The collected data, which consists of official textual sources of the case Hamburg, was carefully studied, whereby the presented elements of justification were inductively found and summarized in the fourth section. Furthermore, the elements were interpreted in terms of suggested or operationalized elements, which were derived from the theoretical framework. This step resulted in not-interrelating interpretations of ideology, which serves as background of rhetorical elements. These isolated interpretations were then set into relation by suggesting a draft of coherent ideology of Hamburg's officials. This interpretative step enabled a discussion on the functions of ideology, which was mediated through rhetoric. The resulting detailed study of ideology contained indications for rhetoric-based ideology reproduction mechanisms.

4. Results of rhetorical analysis

The section summarizes found presented elements – rhetorical constructs used by the officials or their spokespersons to justify the introduction of the smart city policies in Hamburg. The overview is attached in the Appendix II and will be used to answer the descriptive first sub question: "*Which rhetorical constructs are used to justify the smart city policies?"*. The authors used various justification schemes, by answering the question *"Why should Hamburg become smart?"*.

In general, the speeches of senator Horch (2014) and mayor Scholz (2014a; 2014b; 2016a; 2016b) contained more empty signifiers and metaphors. Thus, they were used more frequently than the press-releases or booklets, which comprised mainly functional language or speech references. Similarly, the later texts used more functional language to justify implementation of new smartness tools with already existing ones. During the analysis, it became clear that one source mentions smart city incidentally (Stapelfeldt, 2016), therefore this speech was not considered. Own translations of the German texts were used.

Digitalization in form of technology-based pilot projects, implementation of which would indicate the extent of their effects (Rothwell, 2014) is the main motive throughout the textual data at hand. It is introduced as a solution without alternatives: "Smart Cities are the future" (Schmoll, 2017). Technological tools are mainly meant to control, monitor and assess ("collection and assessment of immissions data" in Meinecke, 2014b) several phenomena that enable optimization, prognoses or reduction of urban activities ("control of typical city processes" in Scholz, 2014b: 2). Digitalization of public services is also supposed to simplify the living of urban citizens (Scholz, 2016a). Digital interconnectedness ("connectedness of people, objects and processes" in Horch 2014: 1) of processes would positively affect transparency, information access, easiness of communication and participation (Scholz, 2016b). Moreover, implication of technological tools positively influences the further technological development ("progress through technology" in Scholz, 2016a) and, hence, increases the potential for structural change ("evolutionary developments" in Scholz 2016a; "revolution with comfort" in Rothwell, 2014).

The increasing digitalization of all aspects of life would bring benefits for all citizens (Scholz, 2014a) and increase the quality of their living, whereby this causality is taken for granted. Members of this society would benefit from business digitalization and business-oriented public services (Scholz, 2016a). The pronoun "we" was used as an entity, which designs future, in contexts of representatives of "public administration, research, academia, and development, as well as local and international industry" (Horch, 2014: 1). The citizens are made responsible for the city development and their participation is required ("Progress through technology – this is the perspective which is required from the citizens" in Scholz 2014a: 2; "working together for our future" in Scholz, 2014a: 2). This is explained by two arguments: Digitalization is presented as a continuation of tradition ("Connecting social and technological progress" in Horch, 2014: 1) and as a natural upheaval, such as "tsunami" (Scholz, 2016a), to which "power and dynamics of

development speed" (Scholz, 2016a), restlessness, radicality and "wavy coverage" (Scholz, 2016a) are attached.

Despite of this dramatic rhetoric in some texts, citizens' concerns connected to smart city are neglected ("we must make discussion of chances out of discussion of threats" in Offen, 2015) or marginalized ("I believe that this view and its intrinsic pessimism is utterly wrong" in Scholz, 2016a). Through discussion of chances (Scholz, 2016a) and construction of "modern city" (Meinecke, 2014a), "livable future" (Meinecke, 2014a) and "future prosperity" (Horch, 2014: 2) beneficial technology should be developed ("Using technology in sense of autonomy and freedom", Scholz 2014a: 5). Several inclusive policies were proposed within the City of the future program: Construction of environment-friendly social housing (Scholz, 2016b), translation tools for refugees (Scholz, 2016a) and a lesson-broadcast for school children suffering from cancer (MLOVE ConFestival UG, Hamburg, 2016). However, in comparison to the main narratives, these inclusive ones were mentioned only one time each and did not play central roles in the articles. There are another two metaphors, which should be mentioned in the context of the notion of society: In one speech, Scholz (2016a) underlines that educational programs also include the refugees, who "will stay"; according to him the digitalization requires "social transformation" (Scholz, 2016a).

Another transformation of the city landscape, which was used as a justification argument for the smartness agenda is the growing city population. The issue is often named as the first reason for innovation necessity and is illustrated with statistics such as "cities will account for nearly 90 % of global population growth" (MLOVE ConFestival UG, Hamburg, 2016: 1). The spokespersons see this development simultaneously as a challenge and as an opportunity (MLOVE ConFestival UG, Hamburg, 2016: 7). Planning should ensure equal opportunities and enough "elbow room" for each citizen (MLOVE ConFestival UG, Hamburg, 2016: 6) with perspective to profit from the potential discourse, creativity and entrepreneurialism (Scholz, 2016a). Additionally, rhetors derive the responsibility for reduction of emissions and noise from the growing urbanization ("necessity for CO_2- cutbacks" in Bezirksamt Bergedorf, 2017: 5).

These environmental concerns were presented as an issue ("development of alternative energy sources is of existential importance" in Bezirksamt Bergedorf, 2017: 6), but more often as a political objective to protect climate and adapt the city to the climate changes ("climate protection and adaptation are essential elements of social community" in Behörde für Umwelt und Energie, 2015: 1). In comparison to the issue of growing population, the extent of environmental issues was not underlined with statistics with exemption of the article by Behörde für Umwelt und Energie (2015). In this context the main innovations were or are being made in the field of emissions' control, mobility optimization and reduction of negative impact of local industry and city activities on environment, which is not defined clearly (MLOVE ConFestival UG, Hamburg, 2016). Only one source names other environmental goals, such as

resource management, waste management, adjustments to climate change and efficient buildings (Behörde für Umwelt und Energie, 2015). These innovations were interconnected with the fields of mobility, increase of quality of living (Scholz, 2016a) and, repeatedly, of economy.

The economic perspective was also integrated in the functioning of the city in general: Rhetors suggested implementation of industrial strategies to make the functioning of the city more efficient with terms such as "Modern cities, like companies, are in competition with one another" (Meinecke, 2014a) or appeals to follow the restructuring example of Hamburg's port ("it will be essential to adjust to new circumstances in an intelligent way: Take the port here in Hamburg." in Scholz, 2014b). Also, the appeal to become more flexible with reference to Darwin (Scholz, 2016a) justifies the implementation of monitoring measures to achieve a better quality of city's functioning ("greater efficiency, as well as easier access and better quality" in Scholz, 2014b: 1). Therefore, the rhetors conclude that the flexibilization of bureaucratic burdens and "One should begin and learn from the collapses" - strategy (Scholz, 2016a) are appropriate political means to solve local and global issues ("global justice and stability" Scholz, 2016a). Furthermore, Hamburg's government constructs an "excellent academic landscape" (Scholz, 2016a), which would appreciate the economic environment through digitalization of advanced High Schools (Gymnasium) (Scholz, 2016a), creation of the open online university, support of ScienceLab development, establishment of digital access to cultural goods and introduction of study programs connected to smartness, technology, digitalization and spatial planning (MLOVE ConFestival UG, Hamburg, 2016).

Such measures would enable city's participation in global competition for attractiveness (Horch, 2014). Competitiveness in itself was connected to the motives of extraordinary status of "Hamburg as one of the most livable and economically strongest cities" (MLOVE ConFestival UG, Hamburg, 2016: 1) as well as an imperative to retain Hamburg's traditional position of innovator and standard-setter ("seize its pioneering position as role model for other cities" in Offen, 2015) or as an "incubator of trends" (Horch, 2014: 1). Politicians emphasized the need for local solutions, which would make Hamburg independent from third parties ("we are being the driven, who have to adapt foreign ideas to have any chance at all to survive" in Scholz, 2016a) by setting new standards (Offen, 2015). Such metaphors were presented in rather aggressive language as a political issue. Moreover, the comparisons to USA or European cities were integrated ("national and European forefront" in Scholz, 2014a: 1). The resilience ("politics are actively involved and have the task to construct the context" in Krstanoski, 2013) to the structural market changes was presented as main solution, which would guarantee attractive context for startups, creative citizens and businesses ("creating conditions for development of digital economy", Scholz, 2016a).

This step of empirical analysis gives an overview of rhetorical elements – ideological jargon –, which were used by Hamburg's officials and their spokespersons to justify the smart city agenda. It became clear that the findings can be separated into three main sections: Justification of smart city through

clarification of *political issue*, as a *political mean* to achieve a *political objective,* suggested by Maynard (2017). For the further step of analysis – the assessment of the impact of ideology on policy making and, on the status quo, – two additional categories were suggested: The notion of society and the notion of environment-friendliness.

The main motives of political issues were competitiveness and awareness for structural changes, which were both connected to digitalization and increasing urbanization. The main mentioned political means are implementation of technology and interconnection of inner-city processes, education and implementation of managerial solution-finding. The list of objectives includes sustainability, following the tradition to secure Hamburg's competitive status and to design a livable future. The rhetors perceive society as a unit which would profit from digitization processes, which is responsible for its development and which should leave aside its pessimism about digital change. The climate crisis was addressed in form of adaptive measures, increase of clean energy use and an emphasis on smart mobility. However, the texts interconnected issues, solutions and objectives only to a limited extent. Hence, there is a lack of interrelation between issues, means and objectives. In following analysis steps these rhetorical elements are attached to the interpretation of underlying ideological beliefs.

5. Interpretative analysis of presented elements

The following analysis step describes interpretations of the presented elements. The analysis is based on the interconnection of these elements with those suggested by the theoretical framework (See section 3.4.). This procedure will answer the second sub question, by explaining which ideological elements can be attached to the used rhetorical constructs. Three main ideological clusters were identified on the base of the data set, namely the role of technology, the economization of spatial planning and the notion of society. It is shown that the notion of environmental sustainability can be interpreted in context of economization of urban planning.

5.1. Mystification of technology

Technology constitutes the main narrative throughout the data set. The usage of master discourses prevailed, which did not explain or discuss in detail the arguments for and effects of technology (e.g. "I firmly believe", Scholz, 2014a: 1). As suggested, technological tools were often described as innovations (Scholz, 2016b; MLOVE ConFestival UG, Hamburg, 2016; Scholz, 2016a; Scholz, 2014a) or solutions (Rothwell, 2014; Scholz, 2016a), which aim to estimate (Albrecht, 2017) and control (Meinecke, 2016a) urban activities to optimize (Rothwell, 2014) their functioning. Therefore, a high value is attached to their implementation. However, the lack of statistical reasoning and explanation demonstrates the over-estimation and mystification of technological effects, as described by Adorno & Horkheimer (1944/2006): There is a certain and not evidence-based causality between smart innovations and increase in quality of life (Rothwell, 2014) or between the technology and progress ("Progress through technology", Scholz, 2014a: 2).

However, also the elements suggested by Krüger (2013), who drafted the discursive transfer from mastery of nature to control and forecast of unintended natural effects; can be detected in the data set: There were several metaphors, which compared digitalization to natural disasters like tsunamis (Scholz, 2016a). These examples show that the impossibility of total mastery of nature and humans is clear for the rhetors, who alter their focus to assessment of the risks and statuses (Meinecke, 2014b) of their actions. This can also be seen as an attempt to increase precise control over uncertain and not coherent Lacanian Real (Hillier & Gunder, 2005), which is represented by increasing city population and uncontrollable digitalization. Moreover, the construction of a holistic smart innovation system, which is constituted by multiple projects to assess and control the environment (Rothwell, 2016), and is coordinated centrally to benefit the whole city (Scholz, 2016a), is also a supporting argument for this idea. The universality of the smartness serves as an expulsion basis for not-digital policy alternatives or critique on digitalization. Hence, the government of Hamburg tries to control nature and non-uniform reality (Gunder, 2010) to mystify the power of the human (Horkheimer & Adorno, 1944/2006) by addressing uncertain challenges with over-estimated technological innovations, which construct a holistic system to monitor and forecast. These developments

demonstrate the dialectics between uncertainty and absence of a coherent holistic Real on one side and the desire to control the city with technological innovation on the other.

The growing ubiquity of the smartness trend increases the exclusion of alternative or not-technological methods of problem solving and marginalizes critique of the status quo (Offen, 2015). The focus of the presented discourse is shifted from the discussion on the digitalization itself to its best implementation, which goes in line with theory on instrumental reason (Horkheimer & Adorno, 1944/2006). Marginalization of critique is articulated explicitly (Scholz, 2016a) and strengthened by use of master discourse in form of certain and absolute formulations (Scholz, 2016a), although it already results from instrumental reason. However, moderate critique was integrated into policy-making with the aim of hegemony stabilization or consensus-construction: Several critical issues were discursively solved or eliminated. Data protection serves as an example of this phenomenon, which is discursively balanced through participation, European regulations and coordinating position of the local government. Such rhetoric mediates a feeling of security and underlines the appeal to enjoy the innovation (Gunder, 2010), what contributes to the uncontested betterment image of the smart city. Therefore, the critical citizen becomes marginalized and receives an offer of a policy, which promises harmony and security, which in turn marginalizes the critique and the discussion on alternatives and issues.

Another limitation of critique is constituted by the economization of spatial planning (see the section 5.1.2.). In line with the operationalization, rhetors used such elements as profit (Meinecke, 2016b), efficiency (Krstanoski, 2013), effectivity (Scholz, 2016a) and quality (Meinecke, 2014b) to justify the implementation of technology. Profitability and economic prosperity become the main focus of policy-making, questioning non-profitable policies. The deep integration of these ideas, which are characteristics for neoliberal ideology, limits the critique on profit-oriented policy-making, since it marginalizes not profitable alternatives. Such rhetoric does not only become materialized due to the political position of the rhetor, but also it has a large influence on the belief systems of the citizens, by normalizing the economization of all living spheres.

The term smart becomes an overarching construction of innovative but also monitoring measures, the emphasis of which is put on the construction of the "city of the future" (Rothwell, 2014). This metaphor was not suggested within the operationalization framework and can be interpreted only to a limited extent. Such rhetorical elements also mediate a feeling of security, harmony and sense-making, which are easy to identify with (Gunder, 2010). Moreover, they partly justify the status quo as a stage of progress: Although the analysis indicates the unwillingness of the government for structural changes, the empty signifier still promises a betterment of the status quo (Horch, 2014) and possible future enjoyment. The notion of tradition does not contradict to this construct of a prosper future but rather strengthens it: Scholz (2014a; 2014b; 2016a; 2016b) named only positive events or traditions, which brought progress and development to the

society, such as democratization or electrification (Scholz, 2016a). Therefore, following such traditions underlines the possibility of betterment – if Hamburg will be developed as it was until now, the prosperous future is achievable.

The promises of following tradition and achievement of a future betterment act as a justification for application of instrumental reason. It includes the motive, often mentioned by Scholz (2016a; 2016b; 2014), of learning from failures and unlimited implementation of smart policies without master plan, according to the motto "digitalization first" (Scholz, 2016a). Scholz's position (2016a) that politics and business should acquire such an uncommon in Germany approach appears especially macabre in this context. This appeal to adapt the law (Scholz, 2016a) to the flexibilization trend shifts the focus from the issue or the objective of policy-making to the mean. The case of connectedness through technology is exemplary for the instrumentalism, which disconnects issues, means and objectives, but rather constructs post-justificative objectives instead. Here, the notion of connectedness obtains a high positive value and even a salvation factor, similar as by Vanolo (2013), although it aims mainly the benefit of local economy. As suggested within the operationalization, it is presented as a solution (Rothwell, 2014), despite the absence of the issue. Accordingly, the rhetoric demonstrates the high extent of the implementation of instrumental reason, which is supported by marginalization of critique, over-estimation of technological effects and harmonization of the existing contradictions through promises of future prosperity.

The justification framework for the technological solutions of urban issues is contradictious, since it contains mystification of technology and attempt to limit its unintended effects on one side and on the other – an appeal for flexibilization of the decision-making and law. This contradiction can be interpreted as a mediation of balance between the necessity to adapt to digitalization, the dynamics of which is, however, considered and coordinated by the government. Therefore, the government legitimizes its ambivalent actions with the mediation of security and harmony feelings. Smartness in this context has a dialectical character of increasing chaos of innovations, projects and digital tools and, simultaneously a mean of control over its own and other negative and unintended effects over citizens and nature. Moreover, digitalization contains salvation promises, although it offers only economically profitable symptoms treatment of structural issues.

5.2. Reification of spatial planning

Developing a business-friendly context, which strengthens already existing companies and attracts the new ones is another central concern and justification used by the rhetors. As suggested within the operationalization step, such codes as profit (Meinecke, 2016b), progress (Scholz, 2014a), economy (Scholz, 2016a), competitiveness (Rothwell, 2014), industry (Meinecke, 2016a), production (Bezirksamt Bergedorf, 2017) and offer (Meinecke, 2014b) (in connection to offer for the entrepreneurs and startups)

were detected in the previous descriptive analysis step. Thus, this development contains displacement of political goals towards the profitability and can be traced to the concept of culture industry by Adorno & Horkheimer (1944). It can be discussed based on several arguments:

The city was often compared to a business, which is flexible towards new market trends and adapts itself to them (Scholz, 2016a), which is competitive (Meinecke, 2014b) and implements managerial measures to solve its issues (Scholz, 2016a). Policy decision-making is presented independent from the conflicts of interests or antagonisms and rather relies on the cooperation between government and businesses, enabling a participation for the citizens. Hence, the depoliticization of the discourse defuses the conflicts and reduces the smart city policy to a managerial product (Horkheimer & Adorno, 1944/2006), which is not suggested democratically but by the technological corporations such as Cisco (Meinecke, 2014b). This fact makes it questionable, if the smart city as such is seen as a public policy or as a market transaction. However, the economic value of smartness innovations, should be assessed in further research, since such analysis would exceed the scope of present thesis.

Moreover, decision-making, which limits the discourse to a calculation, does not consider the personal demands of the consumer but rather constructs the demand itself, since any of the texts introduces the appeal of the citizens to implement the smart city policies. Such integration of the market relations and the digitalization of differing living spheres is even normalized by Scholz (2016a), which is uncommon for the social-democratic political attitude, presenting Scholz as a politician in Gramscian terms, who articulates hegemonic ideology alongside the interest of the capital. Consequently, this depoliticization of political affairs can be seen as reduction of the voters to the countable entity for the sake of Hamburg's international competitiveness.

The form, in which the competitiveness was presented to the reader, such as necessity to retain the pioneer or independency status (Offen, 2015), is highly dramatized. This issue reduces urban performance and living quality to efficiency and attractiveness of the place, hence it reifies the city and its citizens. Competitiveness is one of the reasons why smartness is presented as a solution of the structural problems without an alternative, since the global location competition requires implication of smartness agenda. In this context, one of the central concerns of the analyzed rhetors is the sufficient development of the port – "the heart of Hamburg's economy" (Rothwell, 2014). Thus, the prosperity of local and national economy seems to be the central issue of the Hamburg's officials and their spokespersons.

Interestingly, environment-friendly policies become a part of this capitalist survival strategy. The interconnectedness of the economy and ecology, which is described by Krüger (2013) as a discursive resolution of contradictions, is also visible within the data set: The proposed policies do not include structural changes, but treat the symptoms of the climate crisis, to make the production development possible and not constitute losses for the economy. Such tendencies accept the possible risks and further

exploitation of nature in favor of monetary profits (Krüger, 2013). This phenomenon is visible here on the base of the overpopulation metaphor: Despite the increasing urbanization and population rates, which also causes the overload of local environment with negative effect on the climate, the officials try to make the city attractive (Horch, 2014) to be competitive.

The symptoms treatments are embodied in the reactive measures of adaptation to climate change (Behörde für Umwelt und Energie, 2015), in monitoring and risk-assessment, but also in the reduction of the focus from the energy production and consumption to emissions (Dube, 2015), from the waste production to management etc. Although clean energy was mentioned several times, the issue of its production was addressed only in one source (Meinecke, 2013). The term clean was also suggested as a code for mystification of the technology: In the case of environmental issue, the trend of technology mystification becomes visible through the contradiction between appreciation of environment-friendly measures and the extent of actual climate crisis. Such developments, which offer simplified solutions for fundamental contradictions, negatively influenced the critical discourse by exclusion of the critique. Consequently, they contribute to the depoliticization of society and democratic decision-making, resulting in impossibility of structural change. Additionally, the focus of Hamburg's officials on sustainable mobility as an environment-friendly issue has also an economic component, since the urban mobility constitutes one of the major factors of the capital accumulation (Caragliu et al, 2011), indicating the need for neoliberal flexibilized labor.

The introduction of managerial methods of urban governance, the demand construction, profit concerns, elimination of critique and reduction of nature and human to countable entities indicates the similarity of Hamburg's politics and the concept of culture industry (Adorno & Horkheimer, 1944/2006), hence, indicating the smart city policies' product character. In general, the tendency to managerialism is explained in similar terms as suggested[4], therefore it is important to prove, if such urban developments could endanger the society.

5.3. Notion of society

Since indicators for instrumental reason and culture industry were detected on the base of data set, it is urgent to assess the notion of society. The urban citizens are reduced to groups, which are dependent and benefiting from the digital resilience of the city (Meinecke, 2014a) – the creative class, which is moreover prepared to support the entrepreneurship and the IT systems of the city with its qualifications gained through Hamburg's smart classroom, Hamburg Open Online University or new university programs with technical

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[4] Governance (Meinecke, 2014b), efficient (Krstanoski,2013), digital (Rothwell, 2014), participation (Scholz, 2016b), procedure (Meinecke, 2014b), monitoring (Scholz, 2016a), development (Offen, 2015), innovation (Meinecke, 2016a), connection (Scholz, 2014a)

specialization. The positive effect of digitalization on the average member of society was not elaborated and rather argued with the certainty of a master discourse. This disciplinary rhetoric, which indicates the notion of the ordinary citizen, is, as suggested, transported through the use of the pronoun we (Krstanoski, 2013) as a generalization for "representatives of public administration, research, academia, and development, as well as local and international industry" (Meinecke, 2014a). Such characteristics as responsibility (Meinecke, 2014b) or creativity (Schmoll, 2017: "using innovative ideas") are attached to the society, whereby the citizen is connected to entrepreneurialism and the middle class (Meinecke, 2016b). Although the suggested term community was not used within the data set, the identified suggested elements imply the embedded resentments within the public rhetoric of Hamburg, containing differentiation of the citizens.

An ordinary citizen of Hamburg carries the responsibility for the spread of digitalization: He/she should participate, express moderate critique, stay informed about the governmental actions (Scholz, 2016a). The smart policies, which aim to include citizens into the political decision-making are the following: Tools to enable participation, which are developed by the University (Scholz, 2016c); "smarticipate", as an open access tool analyzing the effects of technological innovation (Scholz, 2016a); new quality of democratic participation through access to city data (Scholz, 2017); ELBE+, which interconnects the geo-data and is accessible for the citizens (Kutz, 2016); Finding places project – open access overview, over building sites, which contains information about precise construction regulations (Scholz, 2016a). Thus, the participative elements of the smartness agenda mainly inform citizens or enable expression of opinion for the citizens with construction plans. Consequently, the projects reduce the issue of participation and democracy to transparency, have a superficial and excluding character. For the notion of society, this means that only the opinion of the people, who are able to participate by the physical construction of the city is demanded within decision-making.

Resulting marginalization of radical critique as "pessimism" (Scholz, 2016a) is articulated clearly along the lines of culture industry and instrumental reason: There is no possible institution, which would accept such critique. This construct activates the individual by shifting the responsibility from the representative groups to him- or herself, neglecting the possible influence of interest groups, democratic parties or NGOs. Moreover, the individual malfunction becomes the explanation pattern for inequalities, shifting the focus from structural contradictions to personal responsibility for success. This phenomenon is visible within responsibilization of the citizens (Scholz, 2016a). These tendencies are usual for neoliberal ideology within which the flexibilization of the market results in the individualization of the citizen. Consequently, the isolated citizens are not able to identify with their societal position due to the culture industry and instrumental reason and, consequently, influence the discussion of chances with radical claims. However, the citizens stay responsible for the construction of prosperous future. In addition, the rhetors

required acceptance of technology and exclude the possibility of resistance (Scholz, 2014a). In this context, the participation and transparency can be interpreted as Gramscian concession, like the few symbolic social policies mentioned in the empirical section.

Also, there are more concerning metaphors used by the rhetors: The needed "transformation of the society" (Scholz, 2016a), which was brought in context of educational policies, should be interpreted. This statement indicates a discontentment of the mayor with the current social status quo, especially with the stance of Hamburg's social capital, since he interprets the introduction of university cooperations and technical university programs as a solution for this issue. However, in the same speech he praises the supposed egalitarian German school system[5], justifying the existent inequalities. This shows his neoliberal attitude towards the citizens, meaning his acceptance of existing system and a shift of the responsibility to the individuals. The mayor does not articulate the discontentment with structural inequalities, but rather with the society as such, mostly with the people who are critical, cannot profit from the digitalization, do not participate – with the subalterns. Consequently, policy-making is dedicated to the capital interests and the societal groups, who profit from it.

In line with the operationalization, the data indicates the classification of citizens, who are mainly placed in the context of universities (Albrecht, 2017), creativity (Dube, 2015), business (Scholz, 2016a) and industrial production (Meinecke, 2016b). These drafted tendencies imply implementation of instrumental reason and culture industry (Adorno & Horkheimer, 1944/2006). Although the articulations did not include direct chauvinist elements, some indicators can be interpreted as such. The distinction between different groups of citizens and the presented preference for the creative class does not only justify the status quo and the superficiality of the local policies, but it also allows further development of such structures and violence against the non-ordinary citizens. Therefore, the analysis indicated the urgency of critique on such discourses.

5.4. Concluding remarks

Within this section the presented rhetorical elements were interconnected with deductively suggested elements. This step enabled the interpretation of specific ideological beliefs of Hamburg's officials and their spokespersons. Most of the suggested elements, summarized within the operationalization section were found within the data set. Also, some new codes were found and interpreted based on the theoretical framework, such as city of the future in combination with retaining of tradition, digitalization as natural upheaval and the transformation of the society.

Based on the interpretative analysis it was shown that Hamburg's officials use elements of instrumental reason and mystification of technology and reproduce them through a managerial approach to

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[5]Io Schweizer (2007)

policy making, which reduces the political sphere to calculations and policies – to products. The rhetoric also contains elements of eco-modernist and neoliberal ideology, which are transferred through the reification of spatial planning and classification of the citizen. In the following analysis step this list of differing rhetoric's characteristics are brought in relation as an attempt to reconstruct the hegemonic ideology, which Hamburg's politicians attach to smart city. This step will enable a discussion on functions of such ideology.

6. Critique of ideology

Within the interpretative analysis of presented elements, particular rhetorical elements were discussed and structured within three categories. In the following research step the interpreted distinctive elements are interconnected in form of ideology formulation, which serves as a base for suggestions of functions of such ideology. These two analysis steps are demonstrated within the following section.

6.1. Formulating an ideology

The following section suggests possible interrelation between the interpreted elements from interpretative analysis section. To simplify the structure of the following discussion, it is divided into ideology for itself and ideology in and for itself as suggested by Žižek (1994). This differentiation is important, since it shows the ideological background of policies and, therefore, can indicate the ideology, which is transmitted by this policy.

6.1.1. Ideology for itself

Interpretative analysis indicated several elements of the hegemonic ideology, mediated by the officials of the smart city of Hamburg. Firstly, the elements of instrumental reason, such as mystification and over-estimation of the effects of digitalization and the lack of discussion on the negative consequences, ethical concerns, alternatives, means and goals were articulated. This ideological structure, which limits the possibility of critique and hence, of the structural change is strengthened and multiplied by the culture industry, in form of economized approach to political decision-making: Policies are being reduced to managerial measures, which emerge within cooperation of entrepreneurs and government. In this context the society, whose critical mindset is limited by the spread of functional measures, is responsibilized in a neoliberal way for the city development, despite the limited participation options. A classification of the society plays a disciplinary role, marginalizing critique and excluding the non-creative citizens. Therefore, the integration of economy into every area of life and rhetoric, which justifies such developments, normalizes the verification processes of city, human and nature. The sustainability of this ideology is secured by the promise of harmony and prosperity in the future, which would result from the structural digitalization. The feeling of security is mediated by management of uncontrollable digitalization, privatization, population increase and unintended environmental issues. Furthermore, the inclusion of moderate critique to the political agenda in form of investments in education, implication of few socially inclusive policies and emphasis on environmental sustainability, contributes to the perpetuation of the nonviolent enforced acceptance of hegemonic ideology.

6.1.2. Ideology for and in itself

On the level of policies such ideology results in measures, which are limited by rhetors' perceptions of the society, environment, political issues, objectives and means. These perceptions are based on the rhetors' desires and information consumption patterns. As it was shown, economy comes to the fore of political agenda what constitutes the base of neoliberalism. Consequently, the central concern of policy-making is the capital interest, which limits possible political actions to treatment of the symptoms of global capitalism. Such measures include innovations, which adapt to climate crisis or limit the city's effect on the environment, instead of institutional change. Similar patterns can be seen in other spheres: Digitalization of education instead of increase in educational inclusiveness; Social housing instead of empowerment of economically dependent social groups; Policies, attracting investors and entrepreneurs instead of social sustainability measures; Invitations for citizens to discussions instead of invitations for decision-making events etc. These policies implicate the changes, which stabilize the status quo, not producing any losses for the economy.

The materialization of the officials' ideology as a materialization of their desires is also an indicator for the economization of the ideology for itself, since the used master discourses are influencing the production of knowledge and the subjectivity to a high extent. The consumer of the presented textual data, whose capacity for critical analysis is in any case limited by the surrounding ideology of the global capitalism and the own desires, identifies with the given political promises and their lack of alternatives and integrates such worldviews to his/her own ideological mindset (ideology for itself). This social effect of presented draft of justification frameworks is also an element of ideology for and in itself, which prolongs the reproduction of hegemonic ideology and market interests.

6.1.3. Concluding remarks

Based on interpretative analysis a draft of an ideology was formulated, which contained neoliberal and eco-modernist elements and indicated attributes of instrumental reason and culture industry. These characteristics yield a coherent ideological construct. Technology plays a role of enhancement of these motives of neoliberal ideology, indicating its technoliberal character (Hess & Davisson, 2017). Although the findings indicate strong neoliberal and technoliberal elements, the discussion of placement of the researched ideology is suggested for further research. Moreover, the hegemonic quality of this ideology was shown throughout the analysis.

According to the presented theoretical conceptualization, analyzed ideology is a dynamic system, which is highly dependent on the interrelation with developments of ideology for itself and the contextual framework. Therefore, the presented ideological construct constitutes ideology of urban digitalization in form of smart city policies and does not claim to discuss the ideology of the administered world

(Wiggershaus, 2006) as a whole. Though, the presented draft constitutes an integral part of hegemonic ideology and indicates its elements and partial structures, it does not claim to explain the overarching ideological system. In other terms, the presented study replicates development axes of smart city ideology, along which the justifying beliefs and rhetoric of urban digitalization trend in Germany (see methods section) are developed. Consequently, critical theory of the society can be enriched with critical theory of smart city.

6.2. Identifying the functions served by the ideology

The following section deals with the functions, which can be attached to the described draft of ideology. Since the functions were only indicated within the theoretical section, the discussion will have a suggestive character and hence, structured in a form of theses. Such form was inspired by Krüger (2013). Although the theses were presented isolated, they are seen interdependent and binding.

Ideology as a mean of status quo sustainability

Smartness policies in Hamburg aim to improve the functioning of the city and the living quality of the citizens (Scholz, 2016a). However, it was shown that the researched public rhetoric normalizes integration of economy into every sphere of life, which results in reification enhancement. Therefore, the measures, which were suggested by Hamburg's officials and their spokespersons are meant to make the city more resilient for the structural market changes and had only a symptom treating character when faced with climate crisis, structural inequalities and capital accumulation. Such tendencies were not presented with concerns, but rather with a note of naturalization (Scholz, 2016a). One could argue that the introduced policies would result in betterment of quality of living for the favored group, however this increase has limited importance considering the extent of climate crisis (Krüger, 2013) and the precarity of middle class (Janowitz, 2006). Then it becomes questionable, how such ideology retains its hegemonic position.

This political limitation sustains the status quo in several ways. Firstly, through the marginalization of critique results in the depoliticization of citizens, elimination of critical institutions and inability of the government to conduct structural change. This ideology conceals the inequalities and makes it unclear for the individual, which role he or she plays in the ruling order. In cases of citizens, who are able to deal out criticism, the marginalization and disciplinary function of ideology act as justification for violence (Io G20-Doku: Der Gipfel der Polizeigewalt, 2017). Consequently, for the most part a subject is not able to criticize or to know, which interest to follow to achieve empowerment.

Secondly, the rhetoric, which normalizes the economization, transfers the perception of the lack of alternatives. The materialization of this construct, which is enabled through the societal position of the chosen rhetors (Hillier & Gunder, 2005), has a confirming effect for the society based on demand construction. Consumers normalize this demand and adjust their ideological beliefs according to the values,

mediated by the product. In the case of smart city policies, the transferred ideas are: Fear of urbanization, fear of city's lack of competitiveness. As a result, the status quo is stabilized through shift of societal concerns from inequalities to economic issues.

Ideology as transfer of security and harmony
To promise the remedy for the anxiety, the presented rhetoric contained several elements, which mediated the feeling of security and harmony. In a neoliberal world with unclear and flexibilized subjectivity and institutions, the subjects are metaphorically lost in the procedures of self- and other-definitions (Žižek, 2006). Additionally, to these existing issues, the officials of Hamburg construct and mediate concerns, such as urbanization or digitalization, which differ strongly from the structural societal contradictions. A rhetor, who transfers a feeling of clarity and prosperous future, legitimizes his/her actions through elimination of constructed issues. The harmony is mediated by empty signifiers, which are only negatively defined as lack of something negative, which simplify the identification with rhetor's ideology (Gunder, 2010). In Hamburg's case such empty signifiers as smartness (as lack of uncontrollable), efficiency (as lack of waste), responsibility (as lack of uncertain) and progress (as lack of regress) could be detected. Hence, the culture industry produces policies and acts as sense-making attribute, which both sustains the status quo and mitigates the demand for structural changes.

Ideology as reduction of dissonances
Mentioned signifiers have a tendency to balance contradictions, which results in cancellation of inequalities and contributes to stabilization of status quo (Krüger, 2013; Žižek, 2006). Through the strategy of equivalency (Wullweber, 2010), the rhetor discursively synthesizes the contradictions by mediating the perception of possible reconciliation. In Hamburg's case the rhetors solved such issues as economic development and environment protection through the term sustainability, which transfers the perception of possible and necessary compromises between the contradiction of ecology and economy. Moreover, such introduced issues as the growing urban population were discursively solved with connectedness, the issue of competitiveness – with appeal to cooperate with the government to develop smartness. The critique of the status quo was integrated in the policy-making, by reducing it to market-conform measures. This can also be explained by Gramscian hegemony sustainability (Gruppi, 1977) through partial integration of subaltern's interests into the political agenda. This equivalency has multiple functions: It reduces the citizens' capacity for critique by introducing holistic measures without possible alternatives and eliminates the possibility of empowerment and appropriate environment protection.

Ideology as disciplinary force
The expressed ideological beliefs indicated classification of the citizens in form of a division between the citizens who would profit from the smartness and those who would not. This division has the function of

an imperative to become an ordinary citizen – a creative one. In this context the individuals are forced to adjust their demands, interests and statuses in line with this imperative. This neoliberal individualization has also the function to sustain the status quo, because the citizens perceive their context as one without alternative and explain the negative effects of market failures with their individual malfunction (Neubauer, 2011). This results in the inability of citizens to understand and voice their group demands. Therefore, their subjectivity is limited by the concealment of the unequal status quo. As explained by Gramsci (Gruppi, 1977), this force functions without violence through the institutionalization and materialization of the ideology. Furthermore, the marginalization of the critical citizenship and the distinction between refugees, who are allowed to stay and who are not draws a concrete separation between the groups, which can justify non-egalitarian policy-making and an increase in chauvinist violence.

On the level of city, the analyzed rhetoric also has a disciplinary function, since it underlines the pioneer status of Hamburg (Offen, 2015), and consequently appeals to other cities to become smart. This also excludes the detailed discussion on goals, risks and ethics within other cities, since it imposes a high competitive pressure. It results in enhanced implementation of instrumental reason (Horkheimer & Adorno, 1944/2006)

6.2.1. Concluding remarks

As it was shown, the interrelated listed functions only play a supportive role for the concealment of inequalities and issues of the status quo, which is facilitated by the reification processes. According to the analysis, these inequalities are mainly based on the capital accumulation process. However, the ideology does not only conceal through the rhetoric, it also enables the further reification, transfers its beliefs into the individual ideology for itself and justifies its materialization. Hence, it was shown that the ideology is a dynamic process, which does not have a coherent structure, but rather a set of functions, beliefs and effects which are interdependent and act as a justification and prolongation of existing inequalities based on capital accumulation procedures.

6.3. Conclusion

The presented section discussed the empirical findings in terms of their ideological background, their coherency, their effect on policy-making and their functions. Therefore, the analysis offers answers to the research sub-questions two and three. The research detected the motives of instrumental reason and cultural industry, which were strengthened by categorization of the citizen, mystification of technology, marginalization of critique, depoliticization and economization of urban planning. These ideological elements are combined in the neoliberal discourse harmonization, which is enabled through reification of every living sphere. Such ideology is materialized in form of superficial policies, which claim to provide structural change, but aim mainly an increase of city resilience towards market changes.

Thus, this ideological complex cannot be reduced to the discursive static concept of superstructure, but constitutes rather a dynamic process of desire materialization, belief transfer and creation, identification with beliefs and their normalization. Such dynamic construct exhibits several functions which enhance the stabilization of status quo by discursively harmonizing the existing contradictions, transferring the feeling of security and exercising non-violent disciplinary force on society and other cities. These findings enable a formulation of an answer to the main research question, which will be presented in combination with discussion on reflection, suggestions and scientific relevance within the following conclusion.

7. Conclusion

The presented research addressed the way of ideology reproduction through public rhetoric, which justified the necessity of the implementation of smartness agenda in Hamburg. The ideological background of the justification rhetoric indicated elements of administered world (Wiggershaus, 2006) below which are instrumental reason, neoliberal and eco-modernist ideology, which were reproduced by policy-making as well as by culture industry. This multifaceted ideology, which is being materialized through the smart city policies, aims at concealing structural inequalities and malfunctions of contradictious social order. It also mediated rhetors' desire to gain control and legitimacy, to sustain Hamburg's economic prosperity, to address one preferred group by excluding the others and to reduce the issue of climate crisis management to symptom treatment.

This repressing, limiting set of beliefs and societal norms is reproduced in several ways, but mainly with certain master discourse (Hillier & Gunder, 2005). Firstly, the identification with the rhetors' belief set was enabled through the harmonization. It promised a balance of mutually exclusive goals, such as responsibility for ecological and economic development, for the sake of future prosperity for everyone. Moreover, the rhetors attached an unrestrained and mystified power to the issues of digitalization and increasing population, which was then set under control with technological means, another time harmonizing the uncertain and undefinable Real (Hillier & Gunder, 2005). Harmonization also takes place through the integration of moderate critique into the political agenda-setting by implementing strategy of equivalency (Wullweber, 2010). These ways of ideology reproduction are similar as explained by Žižek (2006) and Krüger (2013) are of rather discursive or rhetorical character.

Furthermore, ideology is also acting as a concrete force, which is enabled through the integration of economic interests into every sphere of living or urban activities. Such development subjugates every activity to profit-orientation, which not only reifies the city and the citizen, but also states a necessity without alternatives. Consequently, a change is also expected from the citizens, who are forced by policy-making, which resembles cultural industry (Horkheimer & Adorno, 1944/2006), to adjust their beliefs and behavior to this discipline and reproduce their ideology through their actions. These actions are connected to enjoyment, freedom and design of the prosperous future in accordance with Žižek (2006). This neoliberal responsibilization of the citizens limits their ability to grasp and voice their interest, hence, it makes a structural change impossible. Moreover, the citizens who are not able to adjust their behavior or their status to the set requirements have to face the risk of social exclusion and discrimination. Here, policy-making and its justification also acts as a standard setting, which materializes the interest of the capital (Gruppi, 1977). Similar to Gramsci (Gruppi, 1977), the disciplinary force of ideology does not require a violent implementation, but ingratiates oneself through promises of prosperity, proposition of concessions and appropriation of critique.

The critique of ideology of the smart city, which aims to clarify false consciousness to encourage emancipation, enabled a discussion on the profound reasons of the urban digitalization. The analysis showed that a detailed investigation of public rhetoric provides indications for the justification of the status quo in itself. Ideology of smart city contributes to harmonization of discursive issues and conceals the societal contradictions. Resulting supposed balance of social antagonisms impedes the subjectification of the citizens and strengthens the estrangement. Therefore, the investigation on the naturalized beliefs contributes to the Enlightenment project by suggesting a critical theory of smart city, which not only addresses the reasons of urban digitalization but also discusses them in terms of their ideological functions.

In this context, smartness as digitalization of urban life has a dialectic character: It acts both as a disciplinary measure and as a cause of deregulation, similar as by Ossewaarde (2012), who argues that neoliberal economy and policy-making combine regulation of the citizenship and deregulation of the market. In the context of this thesis digitalization plays this double role of regulation and deregulation. In terms of critical theory, digitalization as an attempt to control, to demystify the functioning of a city ends in a mystification of technological effects, categorization of citizens and rise of instrumental reason. Horkheimer & Adorno (1944/2006) criticized these tendencies and showed that discipline, which replaced ethics and moral disembogues in fascism, within which the destruction is justified with rationality. Environmentalist analysis (Krüger, 2013) underlines the impossibility of solution of climate crisis through eco-modernist measures, which marginalizes the needed radical critique and limits environment protection to market-conform policies. Based on this, Krüger (2013) discusses the possibility of an environmental collapse. Therefore, the findings indicate a high societal relevance and the demand for further critique of ideology.

The analysis also showed the inability of the (post-)political institutions to represent the interest of the citizenship. However, the deep-rooted effect of ideology on subjectivity and knowledge production, which limits the critical stance of citizenship was also demonstrated: The citizens are bound to their societal roles, such as consumer, mean of capital accumulation and gender, or to institutions, such as education or family, which have a strong impact on the ideological background of the individuals. Moreover, identification with ideology has also an individual component, which binds the citizens to the production conditions. Therefore, the only practical implication, which can be suggested is to develop further radical critique of ideology to enable a debate on a change of status quo. If reification and dependency of ideology on the material conditions stopped, new debates on political goals and issues would address emancipation and replace the profit-orientation and instrumental reason. Nevertheless, since the discussion on smart city indicated its contemporary urgency as a regress for the achievements of modernity, such as rule of law and democracy, several rather small implications are suggested: The political decision-making should bid farewell from instrumental reason and increase the extent and depth of discussions on objectives of policy-

making; Politicians should consider citizenship as something that is differing within interest groups and individuals and not as an object; Politicians should reflect their use of empty signifiers, which act as a base for identification.

Several suggestions for the further critique of ideology can be made on the base of the presented thesis. To balance the shortcomings of this study, such improvements as research of ideology in itself and its effect on the individuum should be analyzed. Moreover, since the smartness agenda manifested its economic focus, the material or financial base of such innovation would give more insights about the phenomena of smart city implementation. From the methodological perspective, several improvements could be suggested for the further research, such as usage of different sources (e.g. interviews, visual rhetoric; other sources of textual data, such as interviews; other texts from the same source) and actors (NGOs, industry, media), inclusion of context into the rhetoric analysis or introduction of comparative analysis between the office term of Olaf Scholz and the new mayor of Hamburg – Peter Tschentscher (Meyer, 2018). Moreover, discussion of smart city critique of ideology within critical theory of the society would classify the findings with respect to overarching theoretical construct. Hence, the presented research indicates an urgent need for follow up analyzes.

The presented thesis has also a distinctive scientific value. First, it was shown that the concepts of critical theory (Horkheimer & Adorno, 1944/2006) can be applied to the current political issue, although with combination with Krüger (2013), who adds discursive shift from nature-control to control of unintended side-effects. And although the presented discussion uses empirical methods, it can be to some extent attached to development of critical theory. The method used, which combines critique of ideology, the complex theoretical framework and rhetoric analysis is innovative and was not used to address the issue of smart city yet. Such approach enabled detailed discussion on ideology, on shortcomings of smart city policy and resulted in suggestions for political practice. Further, the research illustrated the applicability and topicality of Žižekian approach to ideology and Marxist emphasis on the dependency of ideology on economy. It enriched the critique on smart city concept and underlined its functions as enforcement and reproduction of repressive ideology, what was not articulated in the scientific literature yet.

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Appendix I: Sources overview

Table 2

Articles for the ideology analysis

Name	Date	Link
Auf dem Weg zum Smart Port	10.09.2013	http://www.hamburg.de/pressearchiv-fhh/4104082/2013-09-10-bwvi-landstrom/
Politik und Wirtschaft treffen sich zum Smart City Summit Metropolenentwicklung im 21. Jahrhundert	10.12.2013	http://www.hamburg.de/pressearchiv-fhh/4238422/2013-12-10-bwvi-smart-city/
Hamburg and Cisco agree on corporations	30.04.2014	http://www.hamburg.de/smart-city/4311574/cisco-english/
Hamburg wird zur "Smart city"	30.04.2014	http://www.hamburg.de/smart-city/4306386/cisco-smart-city/
Smart Cities und die Mobilität der Zukunft	25.09.2014	http://www.hamburg.de/pressearchiv-fhh/4379852/2014-09-25-smart-city-summit/
Digitalisierung der großen Stadt	13.01.2015	http://www.hamburg.de/pressearchiv-fhh/4435132/2015-01-13-bwf-digitalisierung-der-grossen-stadt/
Climate Smart City – Klimastadt Hamburg	2015	http://www.hamburg.de/klima/4538742/climate-smart-city-hamburg/
Senator stellt Eckpunkte auf Jugendkonferenz vor	10.09.2015	http://www.hamburg.de/pressearchiv-fhh/4599206/2015-09-10-bue-klimaplan/
Auf dem Weg zur vernetzten und klugen Stadt	24.05.2016	http://www.hamburg.de/pressearchiv-fhh/6161048/2016-05-24-bwvi-kluge-stadt/
ELBE+ – Die Leitungstrassen im Hamburger Untergrund im Überblick	04.10.2016	http://www.hamburg.de/pressearchiv-fhh/7075326/2016-10-04-bsw-elbe-plus/

Hamburg erfindet Stadt-Logistik neu – viele Unternehmen sind dabei	25.11.2016	http://www.hamburg.de/pressearchiv-fhh/7495190/2016-11-25-bwvi-smile/
Deutsche Bahn und Hamburg vereinbaren "Smart City" partnerschaft	10.07.2017	http://www.hamburg.de/pressearchiv-fhh/9109778/2017-07-10-pr-memorandum-of-understanding/
Smart Classroom – Digitalisierung des Unterrichts	30.11.2017	http://www.hamburg.de/bsb/pressemitteilungen/9982752/2017-11-30-bsb-digitalisierung/

Table 4

Personal statements for the ideology analysis

Name	Date	Link
Speech, Forum of Mobility, First Mayor Olaf Scholz	25.09.2014	http://www.hamburg.de/contentblob/4379840/11de884 6117ecd6d43b4d691ae6f99a0/data/2014-09-25-forum-mobility.pdf
Memorandum of understanding, First Mayor Olaf Scholz	30.04.2014	http://www.hamburg.de/contentblob/4306512/eec2665f 63e2b922b249769923713987/data/2014-04-30-smart-city.pdf
Welcome note Senator Horch	25.08.2014	http://www.hamburg.de/contentblob/4379864/67a02dd a1e7903f69d40e43910d29bbd/data/2014-09-25-bwvi-welcomenote.pdf
Universitätsgesellschaft: Kluge Stadt, Olaf Scholz	02.05.2016	http://www.hamburg.de/buergermeisterreden-2016/5965618/2016-05-02-universtaetsgesellschaft/
World city summit: Smart Cities: Leading the way, Olaf Scholz	12.07.2016	http://www.hamburg.de/buergermeisterreden-2016/6534094/world-city-summit-2016/
Senatsempfang zur Eröffnung der Intergeo, Dorothee Stapelfeldt	10.10.2016	http://www.hamburg.de/bsw/reden/7191872/2016-10-10-se-intergeo/
Senatsfrühstück HamburgAmbassadors, Olaf Scholz	10.05.2016	http://www.hamburg.de/buergermeisterreden-2016/6045622/2016-05-10-ambassador/

Table 5

Additional data for ideology analysis

Name	Date	Link
Smart city booklet	2016	http://hamburgsmartcity.com/wp-content/uploads/2015/11/Hamburg-SmartCity-Booklet-2016.pdf
Öffentliche Aufttaktveranstaltung: mySMARTLife – Hamburg	12.05.2017	http://www.hamburg.de/contentblob/9017966/2c9030c61db3fb94f2838d808232d0d9/data/d-auftaktveranstaltung-doku.pdf

Appendix II: Data overview

The following tables summarize the presented elements in form of direct citations, which are attached to the name of the article and the reference to the author.

Table 6

Articles for the analysis of ideology

Name	Reference	Presented elements
Auf dem Weg zum Smart Port	Meinecke, 2013	alternative Energieversorgung; profitiert in hohem Maße; geschätzte Wertschöpfung; mehr als 1.400 Arbeitsplätze; damit geht selbstverständlich Verantwortung einer Emissionen zu reduzieren; Belastung vor Ort verringert wird; zeitnah realisieren; Verringerung von Emissionen; saubere Energie; Baustein der Energiewende; Energieeffizienzmaßnahmen; intelligente Infrastrukturen; Abhängigkeit des Hafens von konventionell erzeugtem Strom zu verringern; Ausbau und bedarfsgerechte Bereitstellung erneuerbarer Energien; Auf- und Ausbau von Speicherkapazitäten
Politik und Wirtschaft treffen sich zum Smart City Summit Metropolenentwicklung im 21. Jahrhundert	Krstanoski,2013	Technische Innovationen, die Vernetzung von Wirtschaft und Wissenschaft sowie die Vereinbarkeit von Ökonomie und Ökologie; Hamburg ist eine der wirtschaftlich stärksten und lebenswertesten Metropolen Europas; Die Bevölkerung in Hamburg wächst; besondere gesellschaftliche Verantwortung für diese Metropolen; verbessert die Lebensqualität der Menschen durch intelligente, innovative Infrastrukturen; Mobilität effizienter zu machen, Ressourcen zu schonen und negative Umwelteinflüsse zu reduzieren; nationale und internationale Vertreter aus Wirtschaft, Wissenschaft und Politik in Hamburg beim Smart City Summit diskutiert; im Jahr 2050 6,3 Milliarden Menschen weltweit in den großen Städten leben werden; müssen uns deshalb schon heute fragen, wie wir damit umgehen werden; hat die Aufgabe, die Rahmenbedingungen zu schaffen; Smart steht für intelligenten Informationsaustausch
Hamburg and Cisco agree on cooperation	Meinecke, 2014a	technological innovations; connection between industry and science; joining economy and ecology; future of mobility; give talks, connect and exchange ideas; international partners; 6.3 million people; cope with this; opportunities and challenges; creating

framework of the future; answers to questions of mobility, public infrastructure, service, energy consumption, emissions, and quality of life; Our politicians are actively involved and are entrusted with the task of creating the framework for the future; representatives of public administration, research, academia, and development, as well as local and international industry; focusing on the areas of transport, intelligent streetlight control, citizen services, the port, and the HafenCity urban development project; to do the things that have come to define Hamburg, such as the dovetailing of technological and social progress; with many different partners; to do the things that have come to define Hamburg, such as the dovetailing of technological and social progress; uses technology to protect resources and to get closer to the citizens; preparing ourselves for the future; networking of people, processes, data, and things; drive progress; offer citizens a greater convenience; our responsibility to set these developments off on the right track with the relevant framework; modern cities like companies are in competition; opportunities to create jobs, grow, increase profitability, become more efficient, improve quality of life; promote innovation;make the most of the opportunities;nerve center of the port; intelligent exchange of information; same applies to the management of complex transport process in the city; attractive, appeal to new citizens; inspire others to think of city of the future; management of flows and infrastructure; ; collect and use real time information; identify potential incidents; recording and evaluating emissions data; accurate forecasts; monitored to ensure safe, efficient process; reduce and optimize traffic; smart building solutio; educational platform; contribute toward securing skilled IT staff for the future

| Smart Cities und die Mobilität der Zukunft | Meinecke, 2014b | Technische Innovationen und Vernetzung der Wirtschaft und Wissenschaft; Vereinbarkeit der Ökonomie und Ökologie; Gesellschaftliche Verantwortung für Metropole; Inkubator für Trends; Innovationen und Technologien für eine lebenswerte Zukunft entwickelt; Technische Innovationen spielen eine große Rolle für den Wirtschaftsstandort Hamburg und das tägliche Leben der Bürgerinnen und Bürger; müssen uns der Herausforderung einer wachsenden Bevölkerung in den Metropolen; Hamburg ist eine der wirtschaftlich stärksten und |

lebenswertesten Metropolen Europas; Verbessert Lebensqualität; Vernetzte und Kluge Stadt; innovative Infrastrukturen; effiziente Mobilität; Ressourcen schonen; Einflüsse auf die Umwelt reduzieren; Politik ist aktiv eingebunden und hat die Aufgabe, die Rahmenbedingungen zu schaffen; öffentliche Verwaltung, Forschung, Lehre und Entwicklung sowie lokale und internationale Industrie zusammenkamen; Für mich geht es dabei darum, das weiter zu treiben, was Hamburg schon immer ausgezeichnet hat: die Verbindung von technologischem und sozialen Fortschritt; Hamburg ist eine Innovationsmetropole; bereiten uns auf die Zukunft vor; Die künftigen Möglichkeiten durch die Vernetzung von Menschen, Prozessen, Daten und Objekten; in ihrer Entwicklung nach vorn bringen; Bürgern mehr Komfort und damit Lebensqualität bieten; Städte stehen heutzutage wie Unternehmen in einem Wettbewerb; suchen nach Möglichkeiten, Arbeitsplätze zu schaffen, Wachstum und Profitabilität zu steigern, effizienter zu werden und vor allem die Lebensqualität ihrer Bürger zu verbessern; enger vernetzt das Nervensystem des Hamburger Hafens; HafenCity als neuer, kreativer und innovativer Stadtteil; soll ein Ort sein, der auch andere inspiriert, sich über die Stadt der Zukunft Gedanken zu machen; integrierte Steuerung von Verkehrsströmen und Infrastrukturverwaltung zur Erfassung und Verwendung von Echtzeit-Straßenverkehrsinformationen; Erfassen und Bewerten von Immissionsdaten; bessere Vorhersagen von Lärm, Temperatur, Luftfeuchtigkeit oder -verschmutzung zu liefern; einen sicheren und effizienten Ablauf; Beitrag zur IT-Fachkräftesicherung; Erweiterung des Lernangebots; Hamburger Schülern und Studierenden auf der Lernplattform

Hamburg wird zur "Smart city"	Rothwell, 2014	Hamburg und Cisco geben gemeinsame Pläne; Stadt der Zukunft; Partner-Ecosystem; intelligent vernetzte Stadt; verbesserte Lebensqualität durch Mobilität, Effizienz und Nachhaltigkeit; Vorteile der Technologie für sich zu nutzen; intelligente, innovative Infrastrukturen; die Lebensqualität der Bürger weiter verbessern; öffentliche Verwaltung, Forschung und Entwicklung sowie lokale und internationale Industrie zusammenkamen; intelligenter Verkehr, intelligente Steuerung von Straßenbeleuchtungen, sensorgestützte Infrastrukturen sowie Bürger Dienstleistungen; kann

Hamburg auch verschiedene Ansätze des von Cisco entwickelten Konzepts für sich definieren und umsetzen; digitale Agenda; bereiten wir unsere Stadt auf die Zukunft vor; Künftigen Möglichkeiten durch die Vernetzung von Menschen, Prozessen, Daten und Objekten; revolutionieren, sondern auch Komfort bieten; durch entsprechende Rahmenbedingungen diese Entwicklungen in die richtige Bahn zu lenken; Chancen genutzt und Herausforderungen bewältigt werden; Städte stehen heutzutage wie Unternehmen in einem Wettbewerb; suchen nach Möglichkeiten Arbeitsplätze zu schaffen, Wachstum und Profitabilität zu steigern, effizienter zu werden, Lebensqualität zu verbessern; auf die künftigen Herausforderungen vorzubereiten; Lösungsszenarien testen um konkrete Vorteile zu zeigen; Intelligente Steuerung, Überwachung; Bürgerservice-Lösungen; Herzstück Hamburger Wirtschaft; zum smartPORT weiterentwickeln; durch ein integriertes Verkehrsmanagementsystem; Erfassen und Bewerten von Emissionsdaten auf dem Plan, um etwa bessere Vorhersagen von Lärm, Temperatur, Luftfeuchtigkeit oder -verschmutzung zu liefern; überwacht um sicheren und effizienten Ablauf zu gewährleisten; Gebäude-Lösung; Verkehr reduzieren und optimieren; Lernplattform; Beitrag zur IT-Fachkräftesicherung zu leisten, ist eine mögliche Erweiterung des Lernangebots;

Digitalisierung der großen Stadt	Offen, 2015	Klimaschutz und Klimaanpassung wesentliche Bestandteile des gesellschaftlichen Miteinanders; klare, fortschrittliche Ziele, die zu einem positiven Bild von Hamburg als eine smarte, klimagerechte und an den Klimawandel angepasste Stadt beitragen; Zusammenarbeit mit den städtischen Stakeholdern erarbeitet wird, seine Vorreiterrolle als Vorbild für andere Städte wahrnehmen; gesamtstädtische Strategien; Strategien und Aktivitäten der Öffentlichkeit bekannt machen; verbunden mit technologischem Fortschritt weiter vorangetrieben werden; sollten bis 2050 die Voraussetzungen für eine Energieversorgung geschaffen sein, die weitestgehend mit erneuerbaren Energien sichergestellt werden kann; eine Ressourcenwende notwendig; Konzept des achtsamen Umgangs mit Ressourcen; Entwicklungskonzepte für Quartiere und Stadtteile erforderlich, die hohe Gebäudestandards, eine intelligente Energieversorgung mit erneuerbaren Energien, ein klimagerechtes Mobilitätskonzept, ein modernes Abfallmanagement und eine

klimaangepasste Freiflächengestaltung miteinander vereinen; wird sich in den kommenden Jahrzehnten zunehmend auf die Funktionsfähigkeit dieser auswirken; Personen-, Sach- und Umweltschäden durch Hochwasser und Starkregenereignisse für die kommenden Jahrzehnte möglichst gering zu halten; Bürger rechtzeitig informiert und ... eingebunden werden; Resilienz für Hamburg bedeutet Städte robuster und widerstandsfähiger gegen Klimaereignisse zu machen; Transformation von möglichst vielen städtischen Akteuren mitgestaltet; ihren Rollen als Mieter, Gebäudeeigentümer, mobile Privatpersonen, Verbraucher etc. an dem Gelingen der klimapolitischen Zielsetzungen mitwirken; Informationen via Internet und Kampagnen bereitzustellen;

Climate Smart City – Klimastadt Hamburg	Behörde für Umwelt und Energie, 2015	Klimaschutz und Klimaanpassung wesentliche Bestandteile des gesellschaftlichen Miteinanders; klare, fortschrittliche Ziele, die zu einem positiven Bild von Hamburg als eine smarte, klimagerechte und an den Klimawandel angepasste Stadt beitragen; Zusammenarbeit mit den städtischen Stakeholdern erarbeitet wird, seine Vorreiterrolle als Vorbild für andere Städte wahrnehmen; gesamtstädtische Strategien; Strategien und Aktivitäten der Öffentlichkeit bekannt machen; verbunden mit technologischem Fortschritt weiter vorangetrieben werden; sollten bis 2050 die Voraussetzungen für eine Energieversorgung geschaffen sein, die weitestgehend mit erneuerbaren Energien sichergestellt werden kann; eine Ressourcenwende notwendig; Konzept des achtsamen Umgangs mit Ressourcen; Entwicklungskonzepte für Quartiere und Stadtteile erforderlich, die hohe Gebäudestandards, eine intelligente Energieversorgung mit erneuerbaren Energien, ein klimagerechtes Mobilitätskonzept, ein modernes Abfallmanagement und eine klimaangepasste Freiflächengestaltung miteinander vereinen; wird sich in den kommenden Jahrzehnten zunehmend auf die Funktionsfähigkeit dieser auswirken; Personen-, Sach- und Umweltschäden durch Hochwasser und Starkregenereignisse für die kommenden Jahrzehnte möglichst gering zu halten; Bürger rechtzeitig informiert und ... eingebunden werden; Resilienz für Hamburg bedeutet Städte robuster und widerstandsfähiger gegen Klimaereignisse zu machen; Transformation von möglichst vielen städtischen Akteuren mitgestaltet;

ihren Rollen als Mieter, Gebäudeeigentümer, mobile Privatpersonen, Verbraucher etc. an dem Gelingen der klimapolitischen Zielsetzungen mitwirken; Informationen via Internet und Kampagnen bereitzustellen;

Senator stellt Eckpunkte auf Jugendkonferenz vor	Dube, 2015	klimawandel begrenzen, wie lassen sich seine Folgen beherrschen; Der Planet in Deinen Händen; Ziele und Maßnahmen der Stadt zur Senkung der CO_2-Emissionen und zur Anpassung an den Klimawandel; Akteure und Verbände ihre Stellungnahmen und Beiträge aktiv eingebracht; Klimaschutz ist nur dann erfolgreich, wenn die internationale Zusammenarbeit funktioniert; Klimaschutzanstrengungen deutlich verstärken; Treibhausgase zu senken; zwei Millionen Tonnen CO_2 zusätzlich einsparen; Bildungsarbeit zum Thema Klimaschutz; um Schulen und Hochschulen energieeffizient und klimafreundlich zu sanieren; Anteil des Radverkehrs zu verdoppeln; Jugend wird von den dramatischen Folgen des Klimawandels betroffen sein; ihrer Stimme bei Politikern und Entscheidungsträgern Gehör zu verschaffen; Erderwärmung kennt keine Grenzen; gelebte Völkerverständigung; „Energie und Ressourcen", „Ernährung, Landwirtschaft, Gesundheit und Biodiversität" sowie „Stadtentwicklung, Transport, Wohnraum und Konsum"; Handlungsempfehlungen;
Auf dem Weg zur vernetzten und klugen Stadt	Meinecke, 2016a	Technische Innovationen, die Vernetzung von Wirtschaft und Wissenschaft sowie die Vereinbarkeit von Ökonomie und Ökologie ; Bevölkerung in Hamburg wächst; Smart city verbessert die Lebensqualität der Menschen; intelligente, innovative Infrastrukturen, die helfen, etwa Mobilität effizienter zu machen, Ressourcen zu schonen und negative Umwelteinflüsse zu reduzieren; Inkubator für Trends; anwendungsorientierte Innovationen für den Wirtschaftsstandort Hamburg und das tägliche Leben der Bürgerinnen und Bürger; Digitalisierung verändert das Leben der Bürgerinnen und Bürger in allen Bereichen des Alltags; Vernetzung von Prozessen, Systemen, Daten und Dingen; Herausforderungen der Digitalisierung mit einer angemessenen Portion Zuversicht anzunehmen; liegt in unserer Verantwortung, den digitalen Fortschritt zum Wohle aller zu nutzen; wenige Smart Cities so weit wie Hamburg; Behörden, öffentliche Einrichtungen und Unternehmen aus verschiedensten Branchen erfolgreich zusammen; unterstützt ein

		Dolmetschersystem Migranten und Geflüchtete; virtuelle Klassenraum", der schwer erkrankten Kindern; Erprobung eines Managementsystems; Ressourcennutzung und Verkehrsflüssen zu verbessern und den Zustand von Infrastruktur und Umwelt zu überwachen; Lärm oder Kohlendioxid mittels neuester Sensor-Technologien erfassen, auswerten und beeinflussen können; intelligente Straße ist ein Mosaikstein im Gesamtkonzept des intelligenten Hafens; intelligenter steuern zu können, um die Gesamteffizienz im Hafen zu erhöhen; Verkehrsfluss zu verbessern; Die ständig wachsenden Daten einer Stadt aufzubereiten, um kooperative Prozesse zu erleichtern, ist eine kreative Zukunftsaufgabe; Entscheidungsträger im zeitlichen Vorfeld der Maßnahme übersichtlich mit den relevanten Projektinformationen zu versorgen;
ELBE+ – Die Leitungstrassen im Hamburger Untergrund im Überblick	Kutz, 2016	kartenbasiertes Online-Portal; Bauunternehmen, Planungsbüros und Architekten nach einer Registrierung kostenlos Leitungsanfragen erstellen; einziges System geprüft werden, ob sich dort, wo gebaut werden soll, Leitungen befinden; substanziellen Beitrag zum Aufbau der digitalen Stadt; enge Kooperation der Verwaltung mit Bau- und Leitungsunternehmen schafft hier neue Möglichkeiten; besteht die Gefahr, dass Leitungen beschädigt werden; Infrastruktur in Hamburg sicherer zu machen;
Hamburg erfindet Stadt-Logistik neu – viele Unternehmen sind dabei	Meinecke, 2016b	Innenstadtlogistik der Zukunft ist sauber, leise und effizient; wachsenden E-Commerce steigenden Paketmengen; Entwicklungen ziehen natürlich auch Herausforderungen nach sich; nachhaltige und belastungssenkende Transporte; Unternehmen und die Stadt viele Ideen zu einer intelligenteren Zustellung von Waren...entwickelt; alternative Transportmittel wie Fahrräder oder Roboter sowie elektrische bzw. erdgasgetriebene Antriebe; иerechtigte Anforderung an uns, dass saubere Luft und individuelle Mobilität sich nicht ausschließen lassen dürfen; Saubere Luft und individuelle Mobilität zusammenzubringen – das gelingt nur durch Innovationen; Clusterpolitik ist die Verknüpfung von Wirtschaft und Wissenschaft am Standort; auch mittelständischen Unternehmen sehr zugute kommt; e mehr wir ausprobieren, desto besser!; Stärke der LIHH als Public-Private-Partnership; Wenn wir sie nicht in Hamburg zeigen und testen können, wo dann?; effizient und

		gewinnbringend für Unternehmen sowie Bürgerinnen und Bürger umzusetzen;
Deutsche Bahn und Hamburg vereinbaren "Smart City" partnerschaft	Schmoll, 2017	das Projekte für integrierte Mobilität, attraktive Bahnhöfe, intelligent gesteuerte Citylogistik sowie die digitale Vernetzung; Ziel ist es, neue Technologien und innovative Ideen zu nutzen, um den öffentlichen Verkehr, Bahnhöfe und die Citylogistik für die Bürgerinnen und Bürger komfortabler und umweltfreundlicher zu machen; Aufenthaltsqualität weiter gesteigert werden: z.B. durch digitale Wegeleitsysteme, leistungsfähiges WLAN und die Integration von Co-Working-Räumen.; Die urbane Mobilität von morgen ist digital, vernetzt und nachhaltig. Zur Verbesserung der Lebensqualität, des Komforts und zur Stärkung von Innovationen setzen wir in Hamburg auf die Zusammenarbeit mit starken Partnern; Smart Cities sind die Zukunft; Smart City-Entwicklung zum Vorreiter machen; Digitalisierung und die Vernetzung im Bereich Mobilität unmittelbaren Einfluss auf das Leben der Menschen hat; Einbeziehung von weiteren starken Industriepartnern und Start-ups an
Smart Classroom – Digitalisierung des Unterrichts	Albrecht, 2017	AUSRÜSTUNG FÜR DIGITALE EXPERIMENTE; Digitalisierung wird nahezu alle Lebensbereiche verändern; naturwissenschaftliche Experimente mit digitalen Daten erhalten; pilotprojekt teil: Gymnasium Lerchenfeld (Uhlenhorst), Gymnasium Altona, Gymnasium Ohmoor (Niendorf), Gymnasium Osterbek (Bramfeld), Stadtteilschule Maretstraße (Harburg), Ilse-Löwenstein-Schule (Barmbek-Süd) und Stadtteilschule Oldenfelde; Sensoren für das Erfassen von Temperatur, Bewegung, Licht und Strom sowie Heizungsthermostate; Grundlagen für eine Vernetzung des Lernens zwischen Schulen und den urbanen Daten der Stadt; Bedeutung der digitalen Souveränität; verknüpfung von Daten alles folgern kann, stärkt das einen gesunden kritischen Umgang mit den eigenen Daten; intelligente Umgang mit diesen geübt wird

Table 7

Personal statements for the analysis of ideology

Name	Reference	Presented elements
Speech, Forum of Mobility, First Mayor	Scholz, 2014b	major technological and social upheaval, right strategies, times of change; radical changes; limitless opportunities through technology; technological production and manufacturing; efficiency, easier access, better quality; threatening technologies; speed of changes; we cannot simply let ourselves be carried away by the technical momentum, but we must shape the development; social-acceptable way; no one will want to simply accept a creepig "going private" in public services; robust lawmakers, setters of social standards; anyone in Europe can imagine this: The USA; less hesitant than we; social, cultural and political embedding of markets; ensures that they can function properly; markets with no limitations are doomed to failure; technological means with no limitations also require basic social and political regulations; potentials for individual and social freedom; development of future prosperity; enhance it if the politicians also do their best to keep pace with this technological dynamism; develop smart governance options; new circumstances in an intelligent way: take the port here in Hamburg; we need transformation processes like these in many fields and in many areas of our society.
Memorandum of understanding, First Mayor	Scholz, 2014a	Wir schaffen das moderne Hamburg; gemeinsam mit Cisco systems; Veränderung der Kommunikation; neue digitale Möglichkeiten; Umbau der industriellen Produktion und Fertigkeiten; Städte die sich in den kommenden Jahren durch die Digitalisierung grundlegend verändert werden; Ich bin fest davon überzeugt, dass es gelingen kann; durch den Einsatz von neuen Technologien die Services und die Lebensqualität Hamburgs weiter zu steigern; Fortschritt durch Technik – das ist die Perspektive, die eine große Stadt von Ihren Bürgerinnen und Bürgern verlangt um Chancen des Zusammenlebens auf dichtem Raum zu heben und damit verbundenen Probleme zu bewältigen; wir sind auf dem ordentlichen Weg; bundes- und europaweit Spitze; eine der smartesten Städte Europas; das weitertreiben, was Hamburg schon immer ausgezeichnet hat; Verbindung von technologischen und sozialen Fortschritt; Innovationen bekommen erst dann Ihren Sinn, wenn es gelingt nachzuweisen, dass sie unser Leben verbessern

		können; Vorväter; Elektrifizierung der Stadt; mit neuen technischen Möglichkeiten praktisch Innovation zu fördern; Technologie nutzt um Ressourcen zu schonen und bürgernäher zu sein; wir gemeinsam an der Zukunft arbeiten; Steuerung typischer städtischer Abläufe; im Alltag greifbare Verbesserungen; Fantasie anregen; umweltfreundlicher Einsatz; lösbare Steuerungsmodelle; Neue Technologien helfen bestehende Verkehrssysteme zu vernetzen; präziser sagen; Innovationskraft auch in den klassischen Wirtschaftszweigen unserer Stadt steckt; ähnlich Intelligentes im städtischen Raum implementieren; wachsende Städte müssen gebaut werden – weiter, größer, intelligenter und chancenreicher; im Sinne von Selbstbestimmung und Freiheit nutzen; die im Alltag auf Akzeptanz stößt; Mut zum Fortschritt leben; nach Verwirklichung der modernen Stadt streben; im ganz konkreten Handeln
Welcome note Senator Horch, 2014 Horch		private and public actors; effort for sustainability; discussed on international level; strongest and most livable cities; develop it into the future; attract new residents, hoping to inspire others, improve the quality of life; benefit from making cities smarter; incubator of trends; modernity; technological innovation in economy and in the daily life; intensively follow the development; 6.3 billion people; better mobility, better public infrastructure, better services; better means smarter
Universitätsgesellschaft: Scholz, 2016a Kluge Stadt		Introduction: Kein Wettbewerb für die Zukunftsvisionen; realistisches Projekt; für Bürgerinnen und Bürger in unserer Stadt; alle Bereiche des Lebens, Arbeitens und Lernens durchdringt; konkrete Schritte; Veränderungen sind selbstverständlich; Kraft und Dynamik hinter der Entwicklungsgeschwindigkeit; digitale Tsunami, Revolution, Zeitalter; Bilder von Urgewalten; epochale Umbrüche; Relevanz und Radikalität; mit der Elektrifizierung zu vergleichen; flächendeckender Ausbau; Vernetzung von Prozessen, Systemen, Daten und Dingen; ohne menschliches Zutun; Technologien die Dynamik weiter befeuern;

Bedeutung der Veränderungsdynamik: Beschleunigte, rastlose Moderne; technische Rationalität zum zunehmend alleinigen Maßstab zu werden scheint; Wellenartig erfasst die Digitalisierung... Wirtschaftlichen und gesellschaftlichen Bereiche; durchdringen Bereiche der öffentlichen Infrastruktur, des öffentlichen Raums; Geschwindigkeit und Gründlichkeit der Veränderungen; Art Naturgewalt; unvorbereitet trifft; wir fühlen uns dann |

wie Getriebene, die fremde Ideen adaptieren müssen um überhaupt eine Chance zum Überleben ... zu besitzen; innewohnenden Pessimismus für grundfalsch; Wer den Staat, die Unternehmen und die Bürgerinnen und Bürger lediglich als Objekte eines technisch getriebenen Wandels betrachtet, der vergibt schon analytisch die Möglichkeit der positiven Gestaltung der Veränderungen.; Digitalisierung keine Äußerlichkeit des Fortschritts; von der gesellschaftlichen und wirtschaftlichen Avantgarde verstanden und entwickelt; Rahmenbedingungen gut gestalten; zu erfassen wir kaum in der Lage sind; Disruption; erfolgreiche Unternehmen nicht rechtzeitig bemerken, wenn sich die Marktbedingungen verändern; innere Logik der Digitalisierung – eine Herausforderung; entwickeln im Bestand; zu vernetzen, dass daraus neuer Nutzen entsteht; Zerstörungen zu verhindern; Transformation zur Regel wird; Anpassungsfähigsten überleben; einfach beginnen und auch durch das Scheitern lernen; keine Masterpläne mehr; klare Handlungsmaxime; in die digitale Zukunft bewegen; das tun, was wir heute schon können, ohne dabei nachzulassen, das Künftige zu entwickeln; noch erhöhen sich die Kapazitäten; weniger mit konkreten Vorschriften und Zielvorgaben und mehr mit konkreten Projekten und klaren Leitplanken; Leitstelle für die digitale Stadt eingerichtet, welche den Überblick über die vielfältigen Projekte behält und Koordinierungsaufgaben übernimmt; Digitalisierung als Fortschrittsprojekt; demokratisieren sich Kommunikationszusammenhänge; steigen Reichweiten für Informationen; erwachsen neue Effizienzpotentiale; steigen Nutzbarkeit und Nützlichkeit

Intelligente Mobilität und Smart Port: effizienter, sicherer, umweltfreundlicher; stimmen einzelne Elemente untereinander ab; verknüpfen; emissions- und geräuscharmen; meistfrequentierten Personenbahnhöfen; sensoren; systematische Erfassung von Daten; in Echtzeit; stadtweite Steuerung; adaptive Straßenbeleuchtung; monitor; einheitliches System anstrebt; Verzahnung; auf derselben Fläche; Anpassung; Effizienz; wettbewerbsfähig

Digitalisierung der Wirtschaft: gute Rahmenbedingungen für die Ansiedlung und Gründung von Unternehmen der Digitalen Wirtschaft; überdurchschnittliche Gründungsquote; Startups als Katalysatoren neuer Entwicklungen; Wettbewerbsfähigkeit; Kapital, Förderprogramme, talentierte Mitarbeiter und Partner; evolutionäre Entwicklungsschritte; Vernetzung der Wirtschaftsakteure; KOmpetenz für IT;

Hochschullandschaft; Entwicklung aufzugreifen und zu vermitteln; Transfer wissenschaftlicher Ergebnisse; große Stadt als Laboratorium der Moderne; Cluster; Arbeit an künftigen Technologien der Wertschöpfung; 3D-Druck ergänzt herkömmliche Verfahren und beschleunigt Innovationsprozesse; emissionsarm gewordene Industrie in die stadt zurückzuholen und Trennung von Wohnen, Produzieren und Arbeiten wieder aufzuheben; breitbandige Internetverbindung; Breitband-Infrastruktur im ganzen Stadtgebiet ausbauen;

Digitale Verwaltung, öffentliche Infrastruktur und Bürgerbeteiligung:
für das beste digitale Gesamtangebot; "digital first" lautet die Devise; zusätzlich auf analogem Weg angeboten werden; Vereinfachung und Beschleunigung von Verfahren; Bürgerbeteiligung; intelligenter Einsatz von Geodaten; "smarticipate" Simulationen die Auswirkung von Projekten veranschaulicht und Alternativen aufzeigt; "Finding places" – suchen wir Bauplätze; Wissen und die Vorstellungen der Bürgerinnen und Bürger besser nutzen um gute Lösungen zu finden; Grundstücke finden und prüfen können; schnelle und besser kalkulierbare Genehmigungsverfahren, Bürgerbeteiligung; Bürgerinnen und Bürger frei auf Wissen und Informationen zugreifen können;

Lehre, Forschung, Schule: Hochschulen und Forschungsinstitute heute wichtige Partner auf dem Weg in die digitale Gesellschaft; nicht ersetzen, aber ergänzen; die im Netz keine Rolle spielen, werden an Bedeutung verlieren; für Zielgruppen öffnen, die dort nicht studieren aber gleichwohl am Diskurs und an Projekten teilhaben wollen; Freiheit von Wissenschaft und Lehre bewahrt; openness; auch für die Geflüchteten, die bei uns bleiben; Ausbildung des Nachwuchses; Bildung der Schlüssel zur Transformation der Gesellschaft; Computer literacy als Basisqualifikation; digitale Medien nicht kompetent genutzt; kommunizieren, Daten austauschen oder Unterrichtsmaterial gemeinsam weiterentwickeln können; laufend einem Monitoring unterziehen; Vernetzung über Hamburg hinaus;

Europa, Datenschutz: jenseits des Tellerrandes; auch ein Europäisches Projekt; National fragmentierte Datenschutzregeln, Rechtsunsicherheiten sowie Umgehungsmöglichkeiten werden beseitigt; internationale Anbieter europäisches Recht einhalten müssen; Klarheit und Sicherheit auf städtischer Ebene; Boden unseres Rechtsstaates; demokratischen Diskurses und der daran anknüpfenden, entsprechend legitimierten

		Entscheidungen; Es gibt Grundsätze, die wir bewahren wollen, ganz unabhängig davon, was vielleicht möglich wäre; jeden Fall einzeln bewerten; wem künftig der öffentliche Raum gehört, auch in der digitalen Stadt entscheidend; keine schleichende und unreflektierte Privatisierung des öffentlichen Raumes; europäische Zusammenhang; Standards guter Arbeit erhalten bleiben; Nutzung der Daten mit einem Schutz und einer Souveränität der Daten einhergeht; Technik auch zur Stärkung einer offenen, demokratischen Gesellschaft einsetzen; angemessenen Portion Zuversicht; Digitalisierung für Wachstum, Wohlstand; globale Gerechtigkeit und Stabilität; Es liegt in unserer Verantwortung, den digitalen Fortschritt zum Wohle aller zu nutzen
World city summit: Smart Cities: Leading the way	Scholz, 2016c	Europe's, world trade is anchored in Hamburg; world's third largest centre for aviation; major European transport routes overlap in Hamburg; as many containers as the whole of Brazil; traffic in the city clean, safe and more efficient, we are focussing on electric vehicles and intelligent transport systems (ITS); Smart logistics links road, rail and shipping in the city, routing traffic around congestion, indicating available parking spaces and controlling traffic lights; first-class, environment-friendly public transport system; green, equitable, cosmopolitan city by the water; free, egalitarian education system that develops individual skills is a fundamental part of a smart city's infrastructure; No child should be left behind; institutes are important partners as we progress towards the digital society; module to facilitate public participation in planning issues; We want all our citizens to have job opportunities that allow them to provide for themselves and their families; alling for new apartments that the average wage-earner can rent for just over six euros per square metre; . One third of the new homes are "social housing"; prosperity to spur inclusive growth and innovation; empower residents to continue adding to the vibrancy of the city.
Senatsempfang zur Eröffnung der Intergeo	Stapelfeldt2016	wie faszinierend der Blick aus Tausenden Kilometern Höhe auf die Oberfläche unseres Planeten für sie war; Wissensgesellschaft 4.0; erleichtert oder ermöglicht sogar erst Bürgerbeteiligung; völlig neue Synergien, innovative Anwendungen und umfassendere Sichten auf unsere Welt;
Senatsfrühstück HamburgAmbassadors	Scholz, 2016b	obliegt längst digitaler Koordination; die hier leben, arbeiten und wertschöpfen; vernetzte und kluge Stadt steigert ihre Lebensqualität aber nicht allein durch eine

effizientere Mobilität; für die Bürger ist das von großem Vorteil; demokratischer Teilhabe, indem die Stadt allen Bürgern Zugang zu relevanten Daten ermöglicht; unser Potenzial noch längst nicht ausgeschöpft haben; hellwachen und modernen Metropole

Table 8

Booklets for the analysis of ideology

Name	Reference	Presented elements
Smart city booklet	MLOVE ConFestival UG, 2016	Pp 1-12: cities will account for nearly 90 % of global population growth, 80% of wealth creation and 60% of total energy consumption; embracing diversity also means to use the digital technologies available to make modern cities even more attractive: livable for citizens and appealing for companies; we intend to create a climate throughout the city in which Hamburg can develop into a laboratory of digital modernity; a port that grows without the need for more space; a city that is attracting more and more people, and yet offers everyone plenty of elbow room; one of Europe's most liveable and economically strongest cities; using existing space in a new way alongside ensuring sustainability, quality of life and economic growth; positive impact innovative and sustainable development, social progress; digitally enhancing the habitat in order to benefit its citizens; intelligent steering, active participation of the public in identifying and creating trends and new developments; offering of access to information; share and cross link it; strategy follows holistic approach; objective is always one of using technology to improve the quality of services and to use resources more efficiently; This creates the opportunities to open up innovation areas to companies; being the backbone of Hamburg's economic power, port plays a major role in creating cleverly connected city; improve traffic management, reduce traffic related delays and loss of revenue; new level of traffic monitoring, smart street lighting, smart parking and infrastructure monitoring; Pp. 12- 19: continuing this path and preparing ourselves for the future; opportunities presented through the networking of people, processes, data and things will drive progress and offer citizens a greater convenience and therefore a higher quality of life; finding balance between economy and ecology; globalization and digital transformation, creativity and alternative methods are required to achieve economic growth with little impact on the environment; increasing efficiency of existing facilities; with the future in mind; focused on IT processes and certainly continue to pursue that path; smart as exchange of information to increase the quality and the efficiency; less dependent on conventionally generated electricity; to analyze what can be achieved by deploying information technology;

Pp. 20-27: capital of knowledge; universities; range of talent; evolve their possibilities for teaching and learning in the digital context; communication in urban planning and urban design; digital access to cultural goods; to enable citizens to actively participate in cultural programs via digital offers; low- threshold access to highly diverse audiences; to remain successful in a changing digital world you need to adapt continuously; altering organizational and personal mindsets to open up a city and its administration for new, cross.sectoral solutions and thereby creating room for innovation; making it resilient for the changes; setting the stage for technological solutions that foster the wellbeing of companies and citizens alike

Pp. 28-:now is the time to explore how we want to live; together with technology leaders, startups and smart citizens; new era of smarter opportunities; unused inner-city areas of the port are being regenerated; land is being recycled; interior densification;sustainable development embraces many other primarily ecological as well as economic and social individual aspects; adaptation to climate change; making sharing economy marketable; modern cities like companies are in competition with one another; search for opportunities to create jobs, grow, increase profitability, become more efficient, and, above all, improve the quality of life for their citizens; smart grids combine electrical and information infrastructure and are needed to shape a sustainable future; smarter government services are an opportunity to infuse intelligence into neede services, stimulate economies and save taxpayer time and money

Öffentliche Aufttaktveranstaltung: mySMARTLife – Hamburg	Bezirksamt Bergedorf, 2017	Wachsende Zuwanderungszahlen, Folgen des Klimawandels und die Notwendigkeit zu CO_2-Einsparungen; Lösungen für Zusammenleben, Mobilität, Produktion und Konsum; eine Entwicklung erneuerbarer Energie ist daver von existenzieller Bedeutung; Echtzeit-Daten aus energiesystemen des Projekts Gebietes erfasst werden; digitale urbane Plattform; neue erkenntnisse bereitstellen kann; Eine der größten CO_2-Belastungen in Städten wird durch den Straßenverkehr verursacht, insbesondere durch den stockenden innerstädtischen Verkehr; Emissionen durch einen Ausbau der Elektromobilität zu reduzieren; Möglichkeit zur Interaktion und Teilnahme; im Dialog mit der Öffentlichkeit Die Stadt weiterentwickeln;